

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

Chapter 4 analyzes the potential direct effects (or “impacts”) that would result from construction and operation of the proposed Loop 375 Border Highway West Extension Project. Direct effects are defined as those impacts that are caused by the proposed project and occur at the same time and place. An example of a direct effect would be the acquisition of right-of-way (ROW), removal of structures, or clearing of vegetation or wildlife habitat. The four build alternatives discussed in **Chapter 4** are the Reasonable Alternatives 1, 2, 3, and 4. The reasonable alternatives resulted from the alternatives analysis discussed in **Chapter 2**.

The refined study area presented in **Chapter 4** was created during Phase III of the Alternatives Analysis process when the funding for the proposed project changed from federal to state. The study area encompasses Racetrack Drive to United States Highway (US) 54. Refer to **Chapter 2** for a discussion of the process and **Exhibits 2-1** and **2-2** for the study areas evaluated in the Draft Environmental Impact Statement (EIS).

During Phase IV of the Alternatives Analysis process, proposed drainage pond locations were also identified for each reasonable alternative. Potential direct effects for the four reasonable alternatives are the roadway ROW and the proposed drainage ponds ROW acquisition. Where applicable, these impacts are separated into differentiate impacts for roadways and drainage ponds. Reasonable Alternatives 1 and 4 would require 19 drainage ponds. Reasonable Alternatives 2 and 3 would require 15 drainage ponds.

Direct effects from the No-Build Alternative are also discussed under each section of **Chapter 4**. The No-Build Alternative would not meet the proposed project’s purpose and need of improving system linkage and system capacity for the El Paso region. Under the No-Build Alternative, it is assumed that other planned projects in the study area would be implemented, including projects on the El Paso *Mission 2035* Metropolitan Transportation Plan (MTP), and other regional projects planned by the Camino Real Regional Mobility Authority (CRRMA), the Texas Department of Transportation (TxDOT), and other local entities. Although these projects could result in land use impacts, the extent of these impacts cannot be determined at this time.

4.1 LAND USE IMPACTS

A detailed land use analysis was conducted for the reasonable alternatives and the No-Build Alternative. The analysis included reviews of recent aerial photography, site reconnaissance in the vicinity of the reasonable alternatives, and gathering land use data from local planning documents. In addition, meetings were held with city and county officials throughout the study area to obtain information on planning activities.

4.1.1 Compatibility with Local Plans and Policies

4.1.1.1 No-Build Alternative

The No-Build Alternative would be incompatible with the El Paso *Mission 2035* MTP and the Comprehensive Mobility Plan (CMP) for the El Paso region. The CMP is a joint effort between the City of El Paso, the El Paso Metropolitan Planning Organization (MPO), the CRRMA, and TxDOT. These regional plans include specific reference to the project proposed by TxDOT.

If the proposed project is not constructed, local plans would have to be modified to provide other means of mobility.

4.1.1.2 Reasonable Alternatives

The purpose of the proposed project is to improve mobility by providing additional infrastructure to accommodate projected growth and provide reliability for east-west regional and interstate travel. The proposed project would provide a “connecting link” for the continuation of Loop 375, improving connectivity along the border to downtown, University of Texas at El Paso (UTEP), Texas Tech Health Sciences Center, and area neighborhoods. Local planning documents prepared for the El Paso area emphasize the need for increased mobility and connectivity within the region. The proposed reasonable alternatives are compatible with the principles expressed in the local planning documents.

4.1.2 Direct Land Use Impacts

4.1.2.1 No-Build Alternative

The No-Build Alternative would not convert land to transportation ROW. Therefore, under the No-Build Alternative, there would be no land use impacts.

4.1.2.2 Reasonable Alternatives

The primary direct impact on land use from the reasonable alternatives is the conversion of land to transportation ROW. The City of El Paso definitions for “land use designations” were used in the land use impacts analysis. The land use designations for the study area are present in **Table 3-1** of **Chapter 3**. Site visits were conducted during 2011 and 2012 to confirm the land uses within the study area. **Table 4-1** shows the major land uses anticipated to be impacted by the proposed reasonable alternatives. Refer to **Exhibit 4-1** for the land uses within each reasonable alternative and proposed drainage ponds.

The land use category “Transportation” is defined as including roadways and ROW owned by TxDOT, the City of El Paso, and El Paso County. Therefore, in order to discuss land use conversion from existing land use to transportation ROW, the land use category Transportation has been subtracted from the overall total of land use impacts.

As shown in **Table 4-1**, industrial land use would undergo the greatest impacts from conversion to transportation ROW. Impacts range from 91.3 acres (Reasonable Alternative 3 roadway and drainage ponds ROW combined) to 80.6 acres (Reasonable Alternative 1 roadway and ponds ROW combined). Reasonable Alternative 3 (roadway and drainage ponds ROW combined) would have the greatest total impact to land use conversion (129.1 acres) and Reasonable Alternative 2 (roadway and drainage ponds ROW combined) would have the least land use conversion impacts (122.7 acres).

Table 4-1: Land Use Impacts Per Reasonable Alternative and Associated Drainage Ponds

Land Use Category	Reasonable Alternatives (acres)												
	No-Build	Alt. 1	Alt. 1 Ponds	Total Alt. 1	Alt. 2	Alt. 2 Ponds	Total Alt. 2	Alt. 3	Alt. 3 Ponds	Total Alt. 3	Alt. 4	Alt. 4 Ponds	Total Alt. 4
Commercial	0	2.7	6.9	9.6	2.7	7.0	9.7	8.7	2.7	15.7	8.7	6.9	15.6
Residential	0	0.1	0.09	0.2	0.1	0.09	0.2	0.1	0.1	0.2	0.1	0.09	0.2
Industrial	0	52.9	27.7	80.6	58.3	31.1	84.4	60.2	58.3	91.3	54.5	27.7	82.2
Mixed Use	0	0.8	0	0.8	0.8	0	0.8	1.8	0.8	1.8	1.8	0.0	1.8
Undeveloped Lands	0	18.5	11.3	29.8	22.6	3.17	25.8	16.8	22.6	20.0	12.7	11.3	24
Government	0	0.1	0.004	0.1	0.1	0.004	0.1	0.1	0.1	0.1	0.1	0.004	0.1
Schools	0	0	0	0	0	0	0	0	0	0	0	0	0
Park	0	0.19	0	0.2	0.19	0	0.2	0	0.19	0	0	0	0
Transportation	0	94.9	3.4	98.3	73.9	3.4	77.3	73.0	73.9	76.4	94.1	3.4	97.5
Vacant	0	0	0	0	0	0	0	0	0	0	0	0	0
Canal	0	3.5	0	3.5	1.5	0	1.5	0	1.5	0	2.0	0	2
TOTAL	0	173.7	49.4	223.1	160.2	44.8	200.0	160.7	160.2	205.5	174.0	49.4	223.4
TOTAL LAND USE CONVERSION	0	78.8	46.0	124.8	86.3	41.4	122.7	87.7	86.3	129.1	79.9	46.0	125.9

Source: HNTB 2012

Note: All quantities shown are in acres and represent the amount of each land use category within the existing and proposed ROW. These numbers will be greater than acreages provided for proposed ROW as these numbers include existing and proposed ROW.

4.1.3 Utilities

4.1.3.1 No-Build Alternative

Under the No-Build Alternative, there would be no utility impacts related to the proposed project.

4.1.3.2 Reasonable Alternatives

Utilities within the study area include pipelines, cable, conduit, fiber-optic, water lines, sanitary sewer lines, drainage and irrigation facilities, cell towers, and overhead transmission lines. The project team has coordinated with utility companies to obtain information and mapping on known utility systems within the study area. All of the proposed reasonable alternatives would have similar impacts to utilities within the study area. Known utilities have been mapped using geographic information systems and would be avoided to the extent practicable during the development of the Preferred Alternative. Specific impacts to utilities would be determined during the final design phase of project development. Should impacts to utilities result in the need for relocation of certain facilities, TxDOT would coordinate with utility owners regarding roles and responsibilities for any required relocation. Every attempt would be made to accommodate proposed utility adjustments to remain within the proposed project ROW.

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

4.1.4.1 No-Build Alternative

Under the No-Build Alternative there would be no special ROW acquisitions under the jurisdiction of Chapter 26 of the TAC.

4.1.4.2 Reasonable Alternatives

All known historic sites must also be considered under Title 13, Part 2, Chapter 26 of the TAC. It is anticipated that no historic resources, National Register of Historic Places (NRHP), or State Archeological Landmarks (SAL) would be impacted by the proposed project. Further discussion of impacts to cultural resources within the study area is included in **Section 4.9**.

Impacts are anticipated at one public park (Chihuahuita Park) from Reasonable Alternatives 1 and 2. Approximately 0.2 acre of the park would be impacted. Impacts to the park were unavoidable in this area, due to the need for the facility to go under the Port-of-Entry (POE) bridge, and immediately cross over a rail line and the U.S.-Mexico border fence. A Notice of Availability (NOA) for the Draft EIS will be published in the *Texas Register*, and a public hearing notice will be published four times in both the *El Paso Times* and *El Diario de El Paso* newspapers in accordance with Chapter 26. Chapter 26 does not prohibit the use of parkland if findings are made that justify the approval of a program or project. It should be noted that the determination can only be made after notice and a public hearing have been held.

4.1.5 Construction Phase Impacts to Land Use

During construction, short-term impacts to land uses adjacent to the reasonable alternative would occur due to the movement of workers and materials through the area, the location of temporary work spaces, and construction activities. The specific locations of the temporary work spaces are not yet known. Any land affected during construction would be restored upon completion of construction to pre-construction conditions.

4.2 COMMUNITY, SOCIAL, AND ECONOMIC IMPACTS

The following section describes the anticipated community, social, and economic impacts that would be expected to result from the No-Build Alternative and the reasonable alternatives. For the discussion of impacts, the proposed roadway alternatives ROW and drainage pond ROW are discussed together. These impacts include community cohesion, displacements, and proximity impacts, such as traffic noise impacts or visual and aesthetic quality. Additional environmental justice (EJ) impacts are also described. Impacts identified here are generalized and may not be uniform for all residences within a neighborhood or residential area. Impacts may be more pronounced or less pronounced depending on the proximity of each residence to a proposed reasonable alternative.

Each of the reasonable alternatives would have some degree of impact on existing neighborhoods and residential areas. In some cases, impacts would include the displacement and required relocation of one or more residences, businesses, or facilities in a neighborhood. In other cases, proximity of the reasonable alternative may be the only impact. However, in most cases, the proximity of the reasonable alternative would result in multiple impacts, including increased noise and visual intrusion.

4.2.1 ROW Acquisition and Potential Displacements

The following discussion describes the proposed ROW acquisition and potential displacement impacts for each of the reasonable alternatives. Displacements were determined from project mapping and aerial photography with alignment overlays. Impacts were confirmed through field inspections in the study area.

TxDOT would provide relocation advisory assistance to any person, business, or nonprofit organization displaced as a result of the acquisition of real property for public use. Acquisition of property would be carried out in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act (The Uniform Act) of 1970, as amended. In the cases where sufficient comparable replacement housing may not be available, TxDOT is committed to implementing last resort housing practices. Consistent with the United States Department of Transportation (USDOT) policy, as mandated by The Uniform Act, TxDOT would provide relocation resources (including any applicable special provisions or programs) to all displaced persons without discrimination. The available structures must also be open to persons regardless of race, color, religion, or nationality, and be within the financial means of those individuals affected. All property owners from whom property is needed are entitled to receive just compensation for their land and property. Just compensation is based upon the fair market value of the property.

4.2.1.1 No-Build Alternative

Under the No-Build Alternative, no displacements would be anticipated.

4.2.1.2 Reasonable Alternatives

Table 4-2 summarizes the potential ROW acquisition and displacements associated with each reasonable alternative. Impacts are characterized as potentially displaced single-family residential buildings or commercial buildings. **Exhibit 4-2** shows the location of potential displacements for each reasonable alternative.

Table 4-2: ROW Acquisition and Potential Displacements

Displacements	No-Build	Reasonable Alternatives											
		Alt. 1	Alt.1 Ponds	Total Alt. 1	Alt. 2	Alt. 2 Ponds	Total Alt. 2	Alt. 3	Alt. 3 Ponds	Total Alt. 3	Alt. 4	Alt. 4 Ponds	Total Alt. 4
Proposed ROW (acres)	0	71.3	47.8	119.1	86.4	48	134.4	85.4	47.8	133.2	70	48	118
Residential Buildings	0	2	0	2	2	0	2	1	0	1	1	0	1
Commercial Buildings	0	29	12	41	30	12	42	37	12	49	36	12	48
Total Displacements	0	31	12	43	32	12	44	38	12	50	37	12	49

Source: HNTB 2012

Reasonable Alternative 2 would require the most ROW (134.4 acres; roadway and drainage ponds ROW combined), and Reasonable Alternative 4 would require the least ROW (118 acres; roadway and drainage ponds ROW combined). Reasonable Alternatives 1 and 2 would each result in two single-family residential displacements, and Reasonable Alternatives 3 and 4 each would have one single-family residential displacement. All of these displacements are located within the Chihuahuita community. In addition to the potential displacements, 0.2 acre of the Chihuahuita Park would be impacted. Reasonable Alternative 3 (including roadway and drainage ponds) would have the most commercial displacements with 49 buildings.

No multi-family residential units, schools, public facilities, places of worship, or cemeteries would be displaced by any of the reasonable alternatives. None of the major employers within the study area discussed in **Chapter 3** would be impacted by these displacements. Comparable residential and commercial relocation options are provided in **Section 4.2.2**.

4.2.2 Available Housing and Commercial Property in the Area

4.2.2.1 Residential Housing

A survey of online real estate services for a large portion of the study area revealed an adequate supply of affordable housing available in the study area. **Table 4-3** lists the number of units available (for sale and rental) in the three zip codes located within the study area in a variety of price ranges as of May 2012. The average home price for zip code 79901 is \$269,900, \$233,107 for zip code 79902, and \$75,925 for zip code 79905. According to the Texas A&M Real Estate Center, the El Paso MSA average home price was \$137,900 in 2010. It should also be noted that the reported average rent for the central area of the El Paso MSA (where the proposed project is located) was \$641 per month as of 2010 (MPO 2011). The data suggest that sufficient vacancies exist to accommodate the residential relocations that may be required by the proposed project.

Table 4-3: Available Housing in the Study Area*

Price Range (\$)	79901	79902	79905
Single-Family and Condominium Homes (for sale)			
0 to 20,000	0	0	0
20,000 to 40,000	0	2	1
40,000 to 60,000	0	9	6
60,000 to 75,000	0	5	7
75,000 to 100,000	0	11	3
100,000 to 150,000	0	9	5
150,000 to 200,000+	1	38	0
Average Home Price within Zip Code	\$269,900	\$233,107	\$75,925
Housing for Rent			
0 to 500	0	0	0
500 to 700	0	0	0
700 to 1000	0	3	0
1,000 to 1,400	0	2	0
1,400 to 2,000	0	3	0
2,000 to 5,000	0	2	0
5,000 to 10,000+	0	0	0
Average Monthly Rental Rate within Zip	n/a	\$2,544	n/a

Source: Realtor.com 2012

*Available housing as of 5/2/2012. It should also be noted that the data does not reflect homes for sale by owner or rental properties leased directly from owner.

4.2.2.2 Commercial Properties

As discussed previously, displacements to commercial properties vary from 41 (Reasonable Alternative 1) to 49 properties (Reasonable Alternative 3). These displacements include rail facility buildings, office buildings, retail locations, industrial use properties, commercial storage, and warehouse facilities. The discussion below provides data on rates and availability of similar property types in the area.

Office

Available data show that office vacancy rates are very high in El Paso's downtown office market. Class A office space, which tends to be more updated and secure than Class B space, has a 2010 downtown vacancy rate of 25% and average rental rate of \$19.00 per square foot (sq/ft). Class B office space in downtown El Paso rented for \$16.00 per sq/ft and has a vacancy rate of 40%. In the suburban office market, there was some new construction of office space, which was renting for \$23.00 sq/ft and has a vacancy rate of only 10%. Likewise, Class A suburban office space also had a low vacancy rate at 12%, with a rental rate averaging \$17.00 sq/ft. Class B office space rented for \$15.00 per sq/ft during 2010 and its vacancy rate was 27% (MPO 2011). The data suggest that sufficient vacancies exist to accommodate office relocation required by the proposed project.

Retail

Available data show that the vacancy rates for retail space within the El Paso MSA are relatively healthy. "Community power centers," which are defined by the International Council of Shopping Centers as a shopping center with dominant anchors and relatively few small tenants, had the lowest retail vacancy rate in the region at 6% during 2009. Neighborhood service centers, which are usually anchored by a supermarket and a variety of small retailers, had a vacancy rate of 12%, and downtown retail had a 10% vacancy rate (2009). Monthly rental rates are the highest in the downtown area ranging from \$10.00 to \$20.00 sq/ft. Neighborhood service centers are slightly lower with rental rates ranging from \$10.00 to \$18.00 sq/ft and community power centers with rates ranging from \$4.50 to \$17.00 sq/ft (MPO 2011). The data

suggest that sufficient vacancies exist to accommodate the retail relocations that would be required by the proposed project.

Industrial

An overview of the industrial real estate market in the El Paso region shows that the overall vacancy rate for industrial real estate in the area was approximately 14.6%, or approximately 8.2 million sq/ft. The data also show that no new industrial space was under construction (MPO 2011). The data suggest that sufficient vacancies exist to accommodate the industrial relocation required by the proposed project.

Summary

Overall, the data for the El Paso MSA demonstrates the opportunity for displaced businesses (office space, retail, or industrial) to be relocated to new locations in the general area. Over the long term, the study area would benefit from the proposed project because of improved access and mobility.

4.2.3 Toll Road Considerations

4.2.3.1 No-Build Alternative

Under the No-Build Alternative, there would be no anticipated impacts associated with tolling.

4.2.3.2 Reasonable Alternatives

Non-Toll Facilities

Access to the tolled facility would be limited to those who are willing to pay the toll. As an alternate, the existing route, Santa Fe Street through downtown to US 85, would remain a non-tolled facility and would continue to provide access between the end of the existing Loop 375 and US 85 (Paisano Drive).

Toll Policy Development

According to the CMP, the CRRMA will be the governing authority for the proposed toll project. The implementation phase may be carried forward by either TxDOT or the CRRMA, pending further discussions and agreements. The CRRMA adopted a formal tolling policy on May 23, 2012. These policies will be applied to the Loop 375 Border Highway West Extension Project regardless of which agency (CRRMA or TxDOT) will implement the proposed project. This policy states that public transit vehicles would have free usage of any toll facilities in operation by the CRRMA. The policy is included in Appendix L. The CRRMA's first toll road is currently under construction and is anticipated to open in 2013. Governing policies for the CRRMA, as established and adopted to date, are available online at the CRRMA website. The CRRMA is committed to ensuring accessibility to all potential users; thus, official policies would include prepayment provisions to accommodate those individuals that do not have access to bank accounts, credit card accounts, or credit.

Toll roads are a new experience for El Paso County residents, yet the concept of tolled transportation facilities is not new to the region. Since the late 1960s, individuals have been paying tolls to access Ciudad Juárez via the Paso Del Norte POE and Stanton Street POE. Despite long standing toll operations in the area, it is expected that some time would be required for customers to adjust to the toll road operations, rules, and regulations.

The CRRMA would provide customer service to governing authority customers and would support all operations related to customer toll tag account set-up, account maintenance and

customer service. The cost to purchase an electronic toll tag has not yet been determined but would be comparable to the cost of toll tags in other parts of the state.

Policies under development by the CRRMA would also establish toll rates applicable to mass transit vehicles, high occupancy vehicles, and motorcycles. At this time, toll rates have not yet been set for these types of travelers.

Toll Rate and Economic Impact of Tolls

Investment grade traffic and revenue studies for the project have not been completed; thus, toll rates for the facility have not yet been established. Based on expected toll rates, it is anticipated that the toll rate would be between \$0.15 and \$0.20 per mile (mi). In the absence of a stated preference and cost-sensitivity survey for the proposed project, potential impacts from the proposed project can be illustrated using the following scenario.

For a worst case analysis, it is assumed that the toll rate would be set at \$0.20 per mi and that the average user would make 250 round-trips per year (based on 50 five-day work weeks per year with two weeks of time off). The length of the reasonable alternatives varies from approximately 7.1 mi (Reasonable Alternative 1) to 7.2 mi (Reasonable Alternative 3). Under the worst case scenario, the annual cost to use the tolled facility would range from \$355.5 to \$360 per year. A user with an annual household income equal to the 2010 median household income of El Paso County (\$36,333) would spend approximately 1.0% of their annual household income on tolls. A user with an annual household income equal to the 2012 DHHS poverty guidelines (\$23,050) would spend approximately 1.5% to 1.6% of their annual household income if they choose to utilize the proposed toll facility.

Toll road users might decide to reduce their personal economic impact of tolls by carpooling, where tolls would be divided among many travelers. The facility would not offer “on site” or automated cash payment options through toll booths, toll plazas, toll stations, or toll gates. Instead, other methods of toll collection would be implemented as described below.

Methods of Toll Charge Collection

The CRRMA intends to utilize TxDOT TxTAG as its primary electronic toll tag; although, it would also recognize and allow the use of toll tags issued by other Texas toll entities. In addition, video tolling would be available. Toll charges could be automatically deducted from a prepaid credit account or would be mailed as a monthly statement to the driver if the video billing method is utilized. If the driver has a TxTAG or other toll transponder account, the tolls would automatically be deducted from the account when the facility is used. The account would be a prepay account which means the driver must maintain sufficient funds in his/her account to cover incurred toll charges.

It is anticipated that toll policies would be adopted and they would include prepayment provisions to accommodate those individuals that do not have access to bank accounts or credit cards. Various methods of pre-payment for tolls could be available, including a pay-by-cash option for persons who do not have bank accounts to purchase new or to reload a depleted toll tag.

Tolling revenue collected from the proposed project would go toward the cost of the roadway (repayment of bonds/debt), and would also be used for future maintenance and improvements for the roadway. Excess revenue would be used to fund other CRRMA projects.

Efforts are underway statewide to establish interoperable toll accounts. Once fully implemented, a single electronic toll collection account established by motorists with their local toll authorities in Austin, Dallas, San Antonio, Houston, El Paso, or elsewhere would provide access to toll roads through the use of a toll tag or sticker in any area of the state. To achieve interoperability, toll tags or stickers issued by the toll authority in one area of the state would be read by the toll systems in other areas of the state. The toll would then be deducted from the user's "home" account. CRRMA is committed to working with TxDOT to ensure the toll collection technology employed on the proposed project would be compatible with the statewide effort.

Tolling Technology

As proposed, tolls would be collected electronically and cash toll booths would not be available on-site. Toll lane users would be required to obtain a toll tag and maintain a toll account or utilize pay-by-mail (video billing) options. The cost to purchase the toll tag has not yet been determined. A toll tag is an electronic sticker that goes on the inside of a driver's windshield, usually placed behind the rearview mirror. Electronic toll collection facilities read an electronic signal from a microchip inside the sticker and automatically deduct the correct amount from the toll tag account. Toll accounts would be pre-paid and could be maintained by bank account draft, credit card, or cash deposit. Toll tag accounts could be set up by going online, or by calling or visiting a customer service center. Customer service center locations would be determined at a later date. Means to insure access to Limited English Proficiency (LEP) populations and disabled populations would be considered. To off-set the additional cost of administering a video billing system, the video billing rate would be higher than the prepaid toll tag rate. TxDOT or CRRMA may charge a toll rate premium up to 45% (a maximum toll rate of \$0.20 cents per mi) for incidental administrative fees. The fees include such things as costs to prepare and mail the monthly statements and processing license plate information. The video billing system utilizes cameras mounted above the toll lanes to record the license plate of any vehicle without a toll tag and a bill is then mailed to the owner of the vehicle. In most cases, not maintaining a pre-paid TxTAG account would result in higher cost for those who utilize the video billing option.

The maximum processing fee is allowed to increase proportionally with the toll rate. There is no interest charged on unpaid tolls; however, there are delinquent penalty fees associated with an unpaid or delinquent bill.

If the registered owner does not have a toll transponder, he/she would receive a bill every month for the balance. There is no minimum threshold for video billing to occur. As with the prepaid account, video billing would be allowed for cash or credit payments.

Travel Time Comparison

Motorists currently suffer a time delay because there is only one free-flow east-west route through El Paso. To access I-10 from Loop 375 south of downtown, motorists must travel through an area with high pedestrian activity and traffic signals. Currently, travel time for this trip is approximately 18 minutes at peak travel times (in this instance peak travel times are defined as the hours of 3:30 p.m. to 6:30 p.m.). Travel times on the proposed facility are estimated to be approximately 14 minutes to access I-10 from the Loop 375 south of downtown. Because the proposed facility would be controlled access, it would allow for faster travel times.

4.2.4 Impacts to Traffic and Public Safety

4.2.4.1 No-Build Alternative

Under the No-Build Alternative, traffic congestion within the study area would continue to increase.

4.2.4.2 Reasonable Alternatives

The proposed project would have an overall beneficial impact on the level of public safety in the study area. The improvement in public safety would be attributable to reduced congestion on local streets and an incident management opportunity for the I-10 facility. Similarly, any reduction in peak, weekday, and weekend traffic on existing area roads would have beneficial public safety implications for the local area. Management of capacity on local roads could facilitate a reduction in response time for police, fire protection, and medical services.

4.2.5 Impacts to Travel Patterns and Accessibility

4.2.5.1 No-Build Alternative

Under the No-Build Alternative, it is assumed that other planned projects in the study area would be implemented, including projects on the El Paso *Mission 2035* MTP and projects planned by the CRRMA, TxDOT, and other local entities. Although the planned projects could result in changes to travel patterns and accessibility, the extent of these impacts cannot be determined at this time.

4.2.5.2 Reasonable Alternatives

The reasonable alternatives would create a facility which parallels I-10. The facility would provide a needed alternate route to I-10 for incident management, a continuous free-flow east-west route, and linkage to the POE adjacent to the study area.

Community access impacts by reasonable alternative are addressed below. Refer to **Exhibit 4-1** for a map of local street network discussed below.

Reasonable Alternative 1

Downtown El Paso

Many of the existing access points between Loop 375 and downtown El Paso would be closed with the construction of Reasonable Alternative 1. Santa Fe Street, Kansas Street, and Park Street would end at cul-de-sacs or turnarounds in order to maintain access to the properties in the city block closest to the proposed facility. Oregon Street would be terminated at 9th Avenue, which would allow travelers to continue on 9th Avenue to Mesa Street, or to enter the southern portion of the border checkpoint serving the Paso Del Norte POE. Access into the downtown area would be provided from the westbound lanes of the proposed facility to Campbell Street with a right-in movement, while travelers would be able to leave the downtown area using a right-out maneuver onto the westbound lanes of the proposed facility at Mesa Street.

Access is reduced along the proposed facility in the downtown area so that it can be converted to a high-speed, limited access facility. Several median openings, including those at Oregon, Mesa, Kansas, and Campbell Streets, would be removed to eliminate left turning movement conflicts, which would increase safety. The existing signal at Kansas Street would be removed, reducing delay along the proposed facility. These changes would allow the proposed facility to

operate as an uninterrupted facility. To compensate for the reduced access provided at the south side of the downtown area, an interchange at Coles Street and US 85 (Paisano Drive) is proposed to provide access into the downtown area.

Existing Coles Street is a minor, low volume roadway on the east side of the downtown El Paso area, which does not have access to existing Loop 375. The proposed facility would include an interchange which would provide an eastbound exit ramp and westbound entrance ramp between Loop 375 and Coles Street. Additionally, an eastbound entrance ramp and westbound exit ramp would connect Loop 375 to US 85 (Paisano Drive). The access point is referred to as the Coles Street Interchange. Travelers to and from the west side of El Paso would have access to US 85 (Paisano Drive) through and east of the downtown area by way of Coles Street. The east side of El Paso would gain more convenient access to most of the downtown area by way of US 85 (Paisano Drive).

To facilitate construction of the eastern pair of ramps, westbound US 85 (Paisano Drive) would be shifted to the north, allowing the proposed ramps to drop into the median of US 85 (Paisano Drive). The proposed design would cause Hill, Tays, Park, and Niño Aguilera streets to be converted to right-in/right-out only access to eastbound US 85 (Paisano Drive). A turnaround would be installed at the intersection of US 85 (Paisano Drive) and Coles Street, crossing under the proposed ramps, to facilitate westbound movements from those streets. Turn lanes would be added at the intersections of Delta Drive and Cotton Street and at US 85 (Paisano Drive) and Saint Vrain Street. Operational improvements would be made at the intersection of Delta Drive and Coles Street to compensate for the additional traffic anticipated as a result of the interchange. The portion of the Cotton Street bridge over US 85 (Paisano Drive) would have to be reconstructed to accommodate the proposed ramps as well.

Chihuahuita

Reasonable Alternative 1 passes to the south of the Chihuahuita neighborhood, between the international transfer rail line and the Rio Grande. Two residences at the southern end of the neighborhood would be displaced in order to allow the proposed facility to come to grade west of the Paso Del Norte POE. None of the streets in Chihuahuita would be affected by the proposed facility, but the connection between Santa Fe Street and the existing Loop 375 would be severed, so that the proposed facility can connect to existing Loop 375. Many Chihuahuita residents have commented that they use existing Loop 375 as their main connection to downtown. Chihuahuita residents would be able to access westbound Loop 375, and from there the westbound lanes of the proposed facility, by taking Santa Fe Street to Father Rahm Avenue (5th Avenue), and then to Mesa Street. However, their closest access to the existing Loop 375 for eastbound travel would be at the proposed Coles Street interchange at the opposite side of the downtown area. The proposed access change would add approximately 700 ft to the trip to the east side of El Paso. However, the trip would most likely take substantially longer, as travelers would have to go through the heart of the downtown grid along US 85 (Paisano Drive), passing through nine additional traffic signals.

Buena Vista and La Calavera Canyon

For Reasonable Alternative 1, the Buena Vista community would have one access point via Racetrack Drive, which would be the same as existing conditions. Connectivity between the Buena Vista community and the rest of El Paso would be similar as it is today, although the proposed routing would be different. As in the present condition, the Buena Vista community can be reached from the west by I-10 and US 85 (Paisano Drive) through the interchange between US 85 (Paisano Drive) and Racetrack Drive, or by Doniphan Drive.

Due to insufficient merging and weaving distance between the existing ramps on the east side of Racetrack Drive and the proposed diverge between proposed facility and US 85 (Paisano Drive), the eastbound entrance ramp and westbound exit ramp at the US 85 (Paisano Drive) and Racetrack Drive interchange would be removed. However, Doniphan Drive would be extended east, providing access to the eastbound lanes of the proposed facility and US 85 (Paisano Drive). The distance along Racetrack Drive from the ramps which are proposed to be removed to Doniphan Drive is only approximately 500 ft. Thus, while access to the Buena Vista community is slightly less direct than in the existing condition, all existing access is provided in the proposed condition.

In order to maintain access between the La Calavera Canyon community, US 85 (Paisano Drive), and I-10, an access road would replace existing Executive Center Boulevard. The access road would provide access to westbound US 85 (Paisano Drive) at the location of existing Executive Center Boulevard, and provide access to I-10 through an intersection with the relocated Executive Center Boulevard. Access to the Northwest Wastewater Treatment facility and the CEMEX facility would be provided through an extension of the access road to the north of the intersection with proposed Executive Center Boulevard. The configuration would result in access to westbound US 85 (Paisano Drive) that is the same as the existing condition. Trips to eastbound US 85 (Paisano Drive) would be approximately 1.1 mi longer than the existing condition due to the need to travel west to make a U-turn at proposed Executive Center Boulevard in order to travel east. Access to the eastbound lanes of the proposed facility would occur at this location. Trips to I-10 would be approximately 850 ft longer than in the existing condition.

Old Fort Bliss/Hart's Mill

Although US 85 (Paisano Drive) would be elevated east of Ruhlen Court in order to meet the proposed Spur 1966 (the proposed project is currently being evaluated under a separate document), access from US 85 (Paisano Drive) to the area would remain unchanged. Due to the removal of the Yandell bridge and ramps, access between the Ruhlen Court area and Sunset Heights and the UTEP would be accomplished through the proposed Spur 1966 Project.

Other Access Changes within the Study Area

CEMEX Plant and Executive Center Boulevard

Due to the constraints imposed by the Union Pacific Rail Road (UPRR) truss bridges, it is not possible to maintain full access between US 85 (Paisano Drive) and Executive Center Boulevard in the current location of Reasonable Alternative 1. As a result of the situation, it is proposed to relocate Executive Center Boulevard to the location of the entrance to the CEMEX quarry, between Racetrack Drive and Executive Center Boulevard. The proposed design would result in widening of the existing driveway and at-grade rail crossing. Additionally, it is proposed that the Doniphan Drive extension would end at a T-intersection with the relocated Executive Center Boulevard approximately 500 ft north of US 85 (Paisano Drive).

To minimize potential impacts to the UPRR truss bridges, avoid requiring new structures over the bridges, and avoid potential interruptions to rail operations on those main lines, the proposed facility would pass under the bridges. Due to the location of the Rio Grande and the support columns for the bridges, it would be necessary to relocate eastbound US 85 (Paisano Drive) to be closer to the Rio Grande, to the south of the supports which are adjacent to existing eastbound US 85 (Paisano Drive). The proposed design would allow the proposed facility to be placed at-grade in the location of existing eastbound US 85 (Paisano Drive). The proposed design would separate east and westbound US 85 (Paisano Drive) at existing Executive Center

Boulevard. As a result, in Reasonable Alternative 1, it is proposed to relocate Executive Center Boulevard to the west, allowing it to intersect with US 85 (Paisano Drive) at the location of the existing entrance drive to CEMEX. The CEMEX driveway is an existing at-grade rail crossing, and the intersection with US 85 (Paisano Drive) is already signalized. The proposed intersection location is approximately half a mile west of the existing intersection. Executive Center Boulevard would return to its original alignment at I-10, so that access at the existing diamond interchange could be preserved.

The proposed diverge between US 85 (Paisano Drive) and the proposed facility at the western end of the proposed project would also serve as the exit point for traffic bound for Executive Center Boulevard. On the east side of the intersection, ramps would be provided, permitting access between Executive Center Boulevard and locations to the east along the proposed facility. The relocated Executive Center Boulevard also serves as the end point for the proposed Doniphan Drive extension, with relocated Executive Center Boulevard completing the access between origins and destinations on the west side of the proposed project and US 85 (Paisano Drive).

Existing Executive Center Boulevard would not be closed altogether. Instead, right-in/right-out access would be provided at the location of the existing intersection with US 85 (Paisano Drive). North of San Marcos Drive, the existing Executive Center Boulevard would be replaced with an access road which would intersect with the proposed Executive Center Boulevard, before continuing to the entrance of the Northwest Wastewater Treatment facility.

American Smelting and Refining Company (ASARCO)

US 85 (Paisano Drive) would be reconstructed and relocated slightly in the vicinity of the driveways into the former ASARCO site in order to make room for the single central column supports for the proposed facility. The driveways would be extended in order to connect to the new location of US 85 (Paisano Drive). Median openings would be provided to allow continued access between eastbound US 85 (Paisano Drive) and the ASARCO driveways. Although turn lanes are provided in the existing condition, they would not be provided in Reasonable Alternative 1 due to the proximity of the proposed roadway to the border fence. Travelers on the proposed facility could reach the former ASARCO site by using the proposed Spur 1966 interchange to reach US 85 (Paisano Drive).

Reasonable Alternative 2

Downtown El Paso

Access changes for Reasonable Alternative 2 would be the same as those for Reasonable Alternative 1.

Chihuahuita

Access changes for Reasonable Alternative 2 would be the same as those for Reasonable Alternative 1.

Buena Vista and La Calavera Canyon

Access changes for Reasonable Alternative 2 would be the same as those for Reasonable Alternative 1 for the Buena Vista community. Access to the La Calavera Canyon community would remain unchanged in the alternative. In addition to being able to access Executive Center Boulevard, I-10 and US 85 (Paisano Drive) as before, La Calavera Canyon residents would have access to the proposed facility through a diamond interchange at Executive Center Boulevard.

Old Fort Bliss/Hart's Mill

Access changes for Reasonable Alternative 2 would be the same as those for Reasonable Alternative 1.

Other Access Changes within the Study Area

CEMEX Plant

The Doniphan Drive extension would maintain connectivity from the Buena Vista community and Doniphan Drive to US 85 (Paisano Drive). The proposed connection point between the Doniphan Drive extension and US 85 (Paisano Drive) is at the existing CEMEX quarry driveway. The existing driveway has signal controlled access to US 85 (Paisano Drive), but a signal and gate arms would be added to improve the safety of the at-grade rail crossing in the proposed condition.

Executive Center Boulevard

For this reasonable alternative, existing Executive Center Boulevard would remain as it is. A diamond interchange would be provided between the proposed facility and Executive Center Boulevard, approximately 400 ft south of the diamond interchange between I-10 and Executive Center Boulevard.

ASARCO

The former ASARCO site would be accessed in the same way it currently is, at US 85 (Paisano Drive), and the driveways serving the former smelter would be unaltered in Reasonable Alternative 2. Travelers from the west could use either Executive Center Boulevard or the proposed Spur 1966 to connect to US 85 (Paisano Drive), while travelers from the east could reach US 85 (Paisano Drive) by way of the proposed Spur 1966.

Reasonable Alternative 3

Downtown El Paso

Access changes for Reasonable Alternative 3 would be the same as those for Reasonable Alternative 1.

Chihuahuita

Reasonable Alternative 3 passes through the mostly vacant lots along the east side of Chihuahua Street before curving east again to match the existing Loop 375. One residence would be displaced by the alignment, and Calleros Court would be closed to vehicular traffic between Chihuahua Street and Santa Fe Street, although pedestrian access could be maintained. Montestruc Court would be reconstructed to bridge over the proposed facility if the depressed profile is selected, and the proposed facility would pass over Montestruc Court if the elevated option is chosen. The design would maintain Montestruc Court as the only access to the Chihuahuita neighborhood from the downtown area.

Additionally, the connection between Santa Fe Street and the existing Loop 375 would be removed, so that the proposed facility could connect to existing Loop 375.

Buena Vista and La Calavera Canyon

Access changes for Reasonable Alternative 3 would be the same as those for Reasonable Alternative 2.

Old Fort Bliss/Hart's Mill

Access changes for Reasonable Alternative 3 would be the same as those for Reasonable Alternative 1.

Other Access Changes within the Study Area

Access changes for Reasonable Alternative 3 would be the same as those for Reasonable Alternative 2.

Reasonable Alternative 4

Downtown El Paso

Access changes for Reasonable Alternative 4 would be the same as those for Reasonable Alternative 1.

Chihuahuita

Access changes for Reasonable Alternative 4 would be the same as those for Reasonable Alternative 3.

Buena Vista and La Calavera Canyon

Access changes for Reasonable Alternative 4 would be the same as those for Reasonable Alternative 1.

Old Fort Bliss/Hart's Mill

Access changes for Reasonable Alternative 4 would be the same as those for Reasonable Alternative 1.

Other Access Changes within the Study Area

Access changes for Reasonable Alternative 4 would be the same as those for Reasonable Alternative 1.

Bicycle and Pedestrian Accommodations

None of the reasonable alternatives would remove any existing bicycle or pedestrian network. No new bicycle or pedestrian facilities are proposed for the controlled access facility. The restriction of bicycle and pedestrian use of a controlled access facility is permitted under Texas Transportation Code 545.0651. The proposed project would consider sidewalks on the non-tolled portion. Where sidewalks are considered, they will be compliant with the Texas Accessibility Standards, the Americans with Disabilities Act Accessibility Guidelines and TxDOT's bicycle and pedestrian standards. Consolidating access to the downtown El Paso district would be complimentary to the pedestrian, transit and bicycle friendly plans proposed by the City of El Paso. This would be accomplished by rerouting through traffic from local neighborhood streets, as projected by traffic models for the proposed project.

Mass Transit Access

All of the reasonable alternatives would have positive impacts to mass transit routing and access through downtown El Paso. TxDOT and the project team held monthly workshops with the City of El Paso and SunMetro to coordinate the project with SunMetro's existing bus system and planned Rapid Transit System improvements. It was agreed that the proposed Coles Street-Paisano Drive interchange would provide better access to the existing Loop 375 than the current facility conditions along Santa Fe Street. The closure of Santa Fe Street at Loop 375 would also allow for safer bus and associated pedestrian flow in and out of the SunMetro

Downtown Transfer Facility. As a result of the proposed improvements, the high volume of traffic currently entering downtown from Loop 375 using Santa Fe Street would instead enter from either the proposed Coles Street-Paisano Drive interchange or Campbell Street.

Summary of Impacts from Access Changes

All of the reasonable alternatives would require changes in access. Overall, the access changes associated with the proposed facility can be expected to have minor negative impacts on the local communities. The downtown area would experience the most direct effect due to proposed access changes. The change of Santa Fe Street, Kansas Street, and Park Street to cul-de-sacs or turnarounds as well as the closure of Oregon Street at 9th Avenue may also have some impacts to businesses in that area; however, to compensate for these reduced access points, the Coles Street interchange is proposed. It is not anticipated that these downtown businesses would be negatively impacted by these changes in access as the proposed Coles Street Interchange would provide more convenient access to most of the downtown area via US 85 (Paisano Drive). Over the long term, the study area would benefit from these access changes because of improved access and mobility within the region.

4.2.5.3 Construction Phase Impacts to Travel Patterns, Accessibility, and Safety

The contract and contract specifications, where possible, would address construction activities that may pose increased risks to pedestrians in areas located in proximity to residential and commercial areas. The introduction of a construction site to residential and commercial areas may pose safety risks associated with construction vehicles, heavy equipment, excavation hazards, flammable liquids, and unfamiliar traffic patterns resulting from road closures, detours, or temporary stopped traffic. Traffic control would follow the Texas Manual for Uniform Traffic Control Devices in order to safely control both pedestrian and vehicular traffic. To address pedestrian safety, ample width for construction activities would be provided, proper equipment would be employed, and temporary and permanent safety fencing would be erected and maintained to preclude inadvertent access. Adequate flag persons would be used to direct traffic as needed. Safety guidelines for equipment operations would be identified and enforced, where applicable. Construction site access would be controlled to the extent practical for pedestrian safety. Movement of vehicles and heavy machinery in the construction area would be controlled by flag persons, signs, and barricades, where applicable.

Construction would occur with a defined sequence of work. Traffic control plans would be used to identify traffic detours, re-routing, and road-intersection closures. Road user costs would be considered in the traffic control planning to ensure that construction activities that create high road user costs are carefully planned and completed rapidly. The construction contract specifications would address advanced notification to the public for implementation of traffic control for specific project sequences. Construction contract financial incentives could be used, if appropriate, to specifically identify timely completion milestones in order to limit and minimize the effects of the proposed project construction phases on the public user and the environment. Construction impacts would not differ appreciably between the reasonable alternatives.

4.2.6 Public Involvement

Extensive public involvement has been an integral part of the proposed project. The purpose of public involvement associated with the proposed project has been to establish and maintain communication with the public and various affected or interested parties. These public activities included agency and public scoping meetings, meetings with key project stakeholders, context sensitive solutions (CSS) meetings with a Technical Advisory Committee and an Aesthetic

Advisory Committee, and one-on-one meetings with elected officials. For more information about these meetings refer to **Chapter 7**.

4.2.7 Limited English Proficiency Considerations

4.2.7.1 No-Build Alternative

Under the No-Build Alternative, there would be no anticipated impacts to individuals with LEP.

4.2.7.2 Reasonable Alternatives

For the purposes of investigating impacts to LEP populations, *2010 Census* block groups (BGs) adjacent to the four reasonable alternatives are used in the analysis. The BG is the lowest level at which LEP data is available. The adjacent BGs comprise and will be referred to as the “study area.” The percentages of residents within the study area BGs who speak English “not well” or “not at all” range from 8.2% (Census Tract (CT) 16.00, BG 5) to 58.8% (CT 19.00, BG 3). LEP persons were identified within the BGs in the study area. Reasonable Alternative 1 and 2 would potentially impact five BGs (CT 14.00, BG 1; CT 18.00, BG 2; CT 19.00, BG 3; CT 20.00, BG 1; CT 28.00, BG 1) with LEP populations. Reasonable Alternative 3 and 4 would potentially impact seven BGs (CT 14.00, BG 1; CT 16.00, BG 4; CT 16.00, BG 5; CT 18.00, BG 2; CT 19.00, BG 3; CT 20.00, BG 1; CT 28.00, BG 1) with LEP populations. According to *2010 Census* data, of the residents who speak English “not well” or “not at all” located in the study area, the predominant language spoken is Spanish.

TxDOT and the CRRMA have ongoing public involvement and outreach efforts in place for current projects, which includes the proposed project. TxDOT has the primary responsibility for implementation of the proposed project. Efforts have been made to include all affected communities and populations, including potential minority and low-income populations, in the public involvement and decision making process (**Chapter 7**). Future public outreach activities would include continued technical work group meetings and meetings with both agencies and elected officials. A proactive public involvement program would continue for the proposed project and all populations affected would have a continuing opportunity to participate in the development of the proposed project. Interpreters were present at the public scoping meetings and all project materials were available in Spanish. Spanish translation and interpretation would be available at the public hearing and would continue to be utilized in future meetings with LEP communities.

4.2.8 Impacts to Social Groups: EJ Considerations

4.2.8.1 No-Build Alternative

Under the No-Build Alternative, there would be no anticipated impacts on EJ populations.

4.2.8.2 Reasonable Alternatives

The reasonable alternatives of the proposed project were evaluated for compliance with Executive Order (EO) 12898. The BGs, associated with the *2010 Census*, located within or adjacent to the proposed ROW were used as the EJ analysis geographic unit to establish the area of potential effect for each reasonable alternative and are referred to as the EJ study area. The results of the analysis of minority data for each reasonable alternative at the census block (CB) level are shown in **Tables 4-4** through **4-7**. Minority populations for BGs containing the affected CBs are also provided in **Tables 4-4** through **4-7** for comparison purposes. The information identifies where these populations are located in proximity to each individual reasonable alternative. The bolded areas of each table indicate those areas where the CB and

comparison census BG percentages for racial and ethnic minorities exceed 50%. **Exhibit 4-3** illustrates minority CBs and low income BGs within the ROW for the reasonable alternatives.

Table 4-4: CBs Affected by Reasonable Alternative 1 – Minority Characteristics

Census Tract (CT) and Block Group	Census Block	Total Population*	% Black or African American	% American Indian	% Asian American	% Pacific Islander	% Some Other Race	% Two or More Races	% Hispanic or Latino	% Total Minority Percentage
Comparison Area Census BGs										
CT 14.00 BG 1	-	640	2.7	1.6	0.2	0	1.1	0.3	85.2	90.9
CT 18.00 BG 2	-	716	0.7	0.1	0	0	0	0.1	96.8	97.8
CT 19.00 BG 3	-	1,188	0.1	0.1	0	0	0.3	0.1	97.7	98.3
CT 20.00 BG 1	-	656	0.2	0	0.2	0	0.2	0	97.3	97.7
CT 28.00 BG 1	-	1,734	0.3	0.1	0	0	0	0.1	98.4	99.0
Reasonable Alternative 1 – Study Area CBs										
CT 14.00 BG 1	CB 1001	215	0	0	0	0	3.3	0	96.3	99.5
CT 14.00 BG 1	CB 1008	30	0	0	0	0	0	0	100	100
CT 14.00 BG 1	CB 1018	3	0	0	33.3	0	0	0	0	33.3
CT 14.00 BG 1	CB 1022	93	0	0	0	0	0	0	100	100
CT 14.00 BG 1	CB 1027	38	0	0	0	0	0	0	94.7	94.7
CT 14.00 BG 1	CB 1042	126	11.9	4	0	0	0	0	54	69.8
CT 14.00 BG 1	CB 1055	13	0	0	0	0	0	0	61.5	61.5
CT 14.00 BG 1	CB 1059	1	0	0	0	0	0	0	0	0
CT 18.00 BG 2	CB 2007	15	0	0	0	0	0	0	93.3	93.3
CT 18.00 BG 2	CB 2008	68	0	0	0	0	0	0	100	100

Table 4-4: CBs Affected by Reasonable Alternative 1 – Minority Characteristics

Census Tract (CT) and Block Group	Census Block	Total Population*	% Black or African American	% American Indian	% Asian American	% Pacific Islander	% Some Other Race	% Two or More Races	% Hispanic or Latino	% Total Minority Percentage
CT 18.00 BG 2	CB 2036	122	0.8	0	0	0	0	0	99.2	100
CT 18.00 BG 2	CB 2037	7	0	0	0	0	0	0	100	100
CT 19.00 BG 3	CB 3009	500	0.2	0	0	0	0	0	98	98.2
CT 19.00 BG 3	CB 3015	3	0	0	0	0	0	0	100	100
CT 20.00 BG 1	CB 1006	18	0	0	0	0	0	0	100	100
CT 20.00 BG 1	CB 1009	24	0	0	0	0	0	0	62.5	62.5
CT 20.00 BG 1	CB 1022	37	0	0	0	0	0	0	100	100
CT 20.00 BG 1	CB 1028	7	0	0	0	0	0	0	100	100
CT 20.00 BG 1	CB 1029	4	0	0	0	0	0	0	100	100
CT 20.00 BG 1	CB 1046	38	0	0	0	0	0	0	100	100
CT 20.00 BG 1	CB 1047	21	0	0	0	0	0	0	100	100
CT 20.00 BG 1	CB 1055	71	0	0	0	0	0	0	98.6	98.6
CT 20.00 BG 1	CB 1056	31	3.2	0	0	0	0	0	96.8	100
CT 28.00 BG 1	CB 1019	31	0	0	0	0	0	0	100	100

The following census blocks adjacent to Reasonable Alternative 1 contain no population:

CT 1400: 1003, 1005, 1006, 1007, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1020, 1021, 1024, 1025, 1026, 1028, 1029, 1031, 1032, 1034, 1040, 1041, 1043, 1044, 1048, 1049, 1050, 1051, 1052, 1053, 1054, 1056, 1058, 1060, 1067

CT 18.00: 2020, 2021, 2024, 2031, 2032, 2033, 2034, 2040, 2041, 2042, 2043, 2044, 2045,

CT 19.00: 3011, 3012, 3017, 3018, 3019, 3020

CT 20.00: 1000, 1001, 1004, 1005, 1007, 1010, 1012, 1014, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1025, 1026, 1027, 1030, 1042, 1044, 1045, 1048, 1049, 1051

CT 28.00: 1012, 1014

Source: USCB; 2010 Census

*Population for whom race and ethnicity data are compiled

Table 4-5: CBs Affected by Reasonable Alternative 2 – Minority Characteristics

Census Tract and Block Group	Census Block	Total Population*	% Black or African American	% American Indian	% Asian American	% Pacific Islander	% Some Other Race	% Two or More Races	% Hispanic or Latino	% Total Minority Percentage
Comparison Area Census BGs										
CT 14.00 BG 1	-	640	2.7	1.6	0.2	0	1.1	0.3	85.2	90.9
CT 18.00 BG 2	-	716	0.7	0.1	0	0	0	0.1	96.8	97.8
CT 19.00 BG 3	-	1,188	0.1	0.1	0	0	0.3	0.1	97.7	98.3
CT 20.00 BG 1	-	656	0.2	0	0.2	0	0.2	0	97.3	97.7
CT 28.00 BG 1	-	1,734	0.3	0.1	0	0	0	0.1	98.4	99.0
Reasonable Alternative 2 – Study Area CBs										
CT 14.00 BG 1	CB 1001	215	0	0	0	0	3.3	0	96.3	99.5
CT 14.00 BG 1	CB 1008	30	0	0	0	0	0	0	100	100
CT 14.00 BG 1	CB 1018	3	0	0	33.3	0	0	0	0	33.3
CT 14.00 BG 1	CB 1022	93	0	0	0	0	0	0	100	100
CT 14.00 BG 1	CB 1027	38	0	0	0	0	0	0	94.7	94.7
CT 14.00 BG 1	CB 1055	13	0	0	0	0	0	0	61.5	61.5
CT 14.00 BG 1	CB 1059	1	0	0	0	0	0	0	0	0
CT 18.00 BG 2	CB 2007	15	0	0	0	0	0	0	93.3	93.3
CT 18.00 BG 2	CB 2008	68	0	0	0	0	0	0	100	100
CT 18.00 BG 2	CB 2036	122	0.8	0	0	0	0	0	99.2	100
CT 18.00 BG 2	CB 2037	7	0	0	0	0	0	0	100	100
CT 19.00 BG 3	CB 3009	500	0.2	0	0	0	0	0	98	98.2
CT 19.00 BG 3	CB 3015	3	0	0	0	0	0	0	100	100
CT 20.00 BG 1	CB 1006	18	0	0	0	0	0	0	100	100
CT 20.00 BG 1	CB 1009	24	0	0	0	0	0	0	62.5	62.5
CT 20.00 BG 1	CB 1022	37	0	0	0	0	0	0	100	100
CT 20.00 BG 1	CB 1028	7	0	0	0	0	0	0	100	100
CT 20.00 BG 1	CB 1029	4	0	0	0	0	0	0	100	100
CT 20.00 BG 1	CB 1046	38	0	0	0	0	0	0	100	100
CT 20.00 BG 1	CB 1047	21	0	0	0	0	0	0	100	100

Table 4-5: CBs Affected by Reasonable Alternative 2 – Minority Characteristics

Census Tract and Block Group	Census Block	Total Population*	% Black or African American	% American Indian	% Asian American	% Pacific Islander	% Some Other Race	% Two or More Races	% Hispanic or Latino	% Total Minority Percentage
CT 20.00 BG 1	CB 1055	71	0	0	0	0	0	0	98.6	98.6
CT 20.00 BG 1	CB 1056	31	3.2	0	0	0	0	0	96.8	100
CT 28.00 BG 1	CB 1019	31	0	0	0	0	0	0	100	100

The following census blocks adjacent to Reasonable Alternative 2 contain no population:
 CT 1400: 1003, 1005, 1006, 1012, 1013, 1014, 1015, 1016, 1017, 1020, 1021, 1024, 1025, 1031, 1039, 1040, 1041, 1058, 1060
 CT 18.00: 2000, 2001, 2002, 2003, 2004, 2005, 2020, 2021, 2024, 2032, 2033, 2034, 2040, 2041, 2042, 2043, 2044, 2045,
 CT 19.00: 3011, 3012, 3017, 3018, 3019, 3020
 CT 20.00: 1000, 1001, 1004, 1005, 1007, 1010, 1012, 1014, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1025, 1026, 1027, 1030, 1042, 1043, 1044, 1045, 1048, 1049, 1051
 CT 28.00: 1012, 1014

Source: USCB; 2010 Census

*Population for whom race and ethnicity data are compiled

Table 4-6: CBs Affected by Reasonable Alternative 3 – Minority Characteristics

Census Tract and Block Group	Census Block	Total Population*	% Black or African American	% American Indian	% Asian American	% Pacific Islander	% Some Other Race	% Two or More Races	% Hispanic or Latino	% Total Minority Percentage
Comparison Area Census BGs										
CT 14.00 BG 1	-	640	2.7	1.6	0.2	0	1.1	0.3	85.2	90.9
CT 16.00 BG 4	-	1,505	1.7	0.3	2.3	0	0	0.4	84.8	89.4
CT 16.00 BG 5	-	567	0.7	0	1.1	0	0.2	0	85	86.9
CT 18.00 BG 2	-	716	0.7	0.1	0	0	0	0.1	96.8	97.8
CT 19.00 BG 3	-	1,188	0.1	0.1	0	0	0.3	0.1	97.7	98.3
CT 20.00 BG 1	-	656	0.2	0	0.2	0	0.2	0	97.3	97.7
CT 28.00 BG 1	-	1,734	0.3	0.1	0	0	0	0.1	98.4	99.0
Reasonable Alternative 3 – Study Area CBs										
CT 14.00 BG 1	CB 1001	215	0	0	0	0	3.3	0	96.3	99.5
CT 14.00 BG 1	CB 1008	30	0	0	0	0	0	0	100	100
CT 14.00 BG 1	CB 1018	3	0	0	33.3	0	0	0	0	33.3
CT 14.00 BG 1	CB 1022	93	0	0	0	0	0	0	100	100
CT 14.00 BG 1	CB 1027	38	0	0	0	0	0	0	94.7	94.7
CT 14.00 BG 1	CB 1055	13	0	0	0	0	0	0	61.5	61.5
CT 14.00 BG 1	CB 1059	1	0	0	0	0	0	0	0	0
CT 18.00 BG 2	CB 2035	11	0	0	0	0	0	0	10	90.9
CT 18.00 BG 2	CB 2036	122	0.8	0	0	0	0	0	99.2	100
CT 18.00 BG 2	CB 2037	7	0	0	0	0	0	0	100	100
CT 19.00 BG 3	CB 3009	500	0.2	0	0	0	0	0	98	98.2
CT 19.00 BG 3	CB 3015	3	0	0	0	0	0	0	100	100
CT 20.00 BG 1	CB 1006	18	0	0	0	0	0	0	100	100
CT 20.00 BG 1	CB 1009	24	0	0	0	0	0	0	62.5	62.5
CT 20.00 BG 1	CB 1022	37	0	0	0	0	0	0	100	100
CT 20.00 BG 1	CB 1028	7	0	0	0	0	0	0	100	100
CT 20.00 BG 1	CB 1029	4	0	0	0	0	0	0	100	100
CT 20.00 BG 1	CB 1046	38	0	0	0	0	0	0	100	100

Table 4-6: CBs Affected by Reasonable Alternative 3 – Minority Characteristics

Census Tract and Block Group	Census Block	Total Population*	% Black or African American	% American Indian	% Asian American	% Pacific Islander	% Some Other Race	% Two or More Races	% Hispanic or Latino	% Total Minority Percentage
CT 20.00 BG 1	CB 1047	21	0	0	0	0	0	0	100	100
CT 20.00 BG 1	CB 1055	71	0	0	0	0	0	0	98.6	98.6
CT 20.00 BG 1	CB 1056	31	3.2	0	0	0	0	0	96.8	100
CT 28.00 BG 1	CB 1019	31	0	0	0	0	0	0	100	100
<p>The following census blocks adjacent to Reasonable Alternative 3 contain no population: CT 1400: 1003, 1005, 1006, 1007, 1012, 1013, 1014, 1015, 1016, 1017, 1020, 1021, 1024, 1025, 1031, 1039, 1040, 1058, 1060 CT:16.00: 4030, 5017 CT 18.00: 2000, 2001, 2002, 2003, 2004, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2012, 2024, 2032, 2033, 2034, 2040, 2041, 2042, 2043, 2044, 2045, CT 19.00: 3011, 3012, 3017, 3018, 3019, 3020 CT 20.00: 1000, 1001, 1004, 1005, 1007, 1010, 1012, 1014, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1025, 1026, 1027, 1030, 1042, 1044, 1045, 1048, 1049, 1051 CT 28.00: 1012, 1014</p>										

Source: USCB; 2010 Census

*Population for whom race and ethnicity data are compiled

Table 4-7: CBs Affected by Reasonable Alternative 4 – Minority Characteristics

Census Tract and Block Group	Census Block	Total Population*	% Black or African American	% American Indian	% Asian American	% Pacific Islander	% Some Other Race	% Two or More Races	% Hispanic or Latino	% Total Minority Percentage
Comparison Area Census BGs										
CT 14.00 BG 1	-	640	2.7	1.6	0.2	0	1.1	0.3	85.2	90.9
CT 16.00 BG 4	-	1,505	1.7	0.3	2.3	0	0	0.4	84.8	89.4
CT 16.00 BG 5	-	567	0.7	0	1.1	0	0.2	0	85	86.9
CT 18.00 BG 2	-	716	0.7	0.1	0	0	0	0.1	96.8	97.8
CT 19.00 BG 3	-	1,188	0.1	0.1	0	0	0.3	0.1	97.7	98.3
CT 20.00 BG 1	-	656	0.2	0	0.2	0	0.2	0	97.3	97.7
CT 28.00 BG 1	-	1,734	0.3	0.1	0	0	0	0.1	98.4	99.0
Reasonable Alternative 4 – Study Area CBs										
CT 14.00 BG 1	CB 1001	215	0	0	0	0	3.3	0	96.3	99.5
CT 14.00 BG 1	CB 1008	30	0	0	0	0	0	0	100	100
CT 14.00 BG 1	CB 1018	3	0	0	33.3	0	0	0	0	33.3
CT 14.00 BG 1	CB 1022	93	0	0	0	0	0	0	100	100
CT 14.00 BG 1	CB 1027	38	0	0	0	0	0	0	94.7	94.7
CT 14.00 BG 1	CB 1042	126	11.9	4	0	0	0	0	54	69.8
CT 14.00 BG 1	CB 1055	13	0	0	0	0	0	0	61.5	61.5
CT 14.00 BG 1	CB 1059	1	0	0	0	0	0	0	0	0
CT 18.00 BG 2	CB 2035	11	0	0	0	0	0	0	10	90.9
CT 19.00 BG 3	CB 3009	500	0.2	0	0	0	0	0	98	98.2
CT 19.00 BG 3	CB 3015	3	0	0	0	0	0	0	100	100
CT 20.00 BG 1	CB 1006	18	0	0	0	0	0	0	100	100
CT 20.00 BG 1	CB 1009	24	0	0	0	0	0	0	62.5	62.5
CT 20.00 BG 1	CB 1022	37	0	0	0	0	0	0	100	100
CT 20.00 BG 1	CB 1028	7	0	0	0	0	0	0	100	100
CT 20.00 BG 1	CB 1029	4	0	0	0	0	0	0	100	100
CT 20.00 BG 1	CB 1046	38	0	0	0	0	0	0	100	100
CT 20.00 BG 1	CB 1047	21	0	0	0	0	0	0	100	100

Table 4-7: CBs Affected by Reasonable Alternative 4 – Minority Characteristics

Census Tract and Block Group	Census Block	Total Population*	% Black or African American	% American Indian	% Asian American	% Pacific Islander	% Some Other Race	% Two or More Races	% Hispanic or Latino	% Total Minority Percentage
CT 20.00 BG 1	CB 1055	71	0	0	0	0	0	0	98.6	98.6
CT 20.00 BG 1	CB 1056	31	3.2	0	0	0	0	0	96.8	100
CT 28.00 BG 1	CB 1019	31	0	0	0	0	0	0	100	100

The following census blocks adjacent to Reasonable Alternative 4 contain no population:

CT 1400: 1003, 1005, 1006, 1007, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1020, 1021, 1024, 1025, 1028, 1029, 1031, 1032, 1034, 1039, 1040, 1041, 1056, 1058, 1060, 1067
 CT:16.00: 4030, 5017
 CT 18.00: 2000, 2001, 2002, 2003, 2004, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2012, 2024, 2032, 2033, 2034, 2040, 2041, 2042, 2043, 2044, 2045,
 CT 19.00: 3011, 3012, 3017, 3018, 3019, 3020
 CT 20.00: 1000, 1001, 1004, 1005, 1007, 1010, 1012, 1014, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1025, 1026, 1027, 1030, 1042, 1043, 1044, 1045, 1048, 1049, 1051
 CT 28.00: 1012, 1014

Source: USCB; 2010 Census

*Population for whom race and ethnicity data are compiled

Tables 4-4 through 4-7 show minority data for each of the four reasonable alternatives at the CB and comparison BG levels. Census Tract (CT) 16.00 BG 5 contains the lowest percentage of minority populations (approximately 86.9%), and CT 28.00 BG 1 (approximately 99.0 %) contains the highest minority populations among affected CBs. Individual CB minority populations affected by the four reasonable alternatives range from 33.3% to 100.0% of total populations within those respective CBs. The only CBs within the study area that do not report a minority population above that of 50% are CT 14.00, BG 1: CB 1018 (approximately 33.3%) and CT 14.00, BG 1: CB 1059 (0%). Therefore, the majority of the population in the study area is minority. Although these populations would be affected by the proposed project, over the long term, the study area, including the minority population would benefit from the proposed project because of improved access and mobility within the region.

The results of the analysis of low-income data in the study area for each reasonable alternative at the BG level (the lowest level for which data is currently available) for median household income and at the CT level (the lowest level for which data is currently available) for population with income below the poverty level are shown in **Tables 4-8**. Bolded areas in **Table 4-8** indicate the BGs where the median household income is below the 2012 Department of Health and Human Services (DHHS) poverty guideline (\$23,050).

Table 4-8: BGs Adjacent to Reasonable Alternatives 1-4 – Low-Income Characteristics

CT/BG	Reasonable Alternatives	Population	Median Household Income*
CT 14.00 BG 1	1, 2, 3 and 4	158	19,537
CT 16.00 BG 4	3 and 4	780	19,511
CT 16.00 BG 5	3 and 4	264	45,000
CT 18.00 BG 2	1, 2, 3 and 4	270	15,531
CT 19.00 BG 3	1, 2, 3 and 4	334	10,451
CT 20.00 BG 1	1, 2, 3 and 4	199	11,707
CT 28.00 BG 1	1, 2, 3 and 4	519	10,096

Source: USCB; 2006-2010 ACS

*Income data is provided in 2010 inflation adjusted dollars.

4.2.9 Impacts to Community or Public Resources

4.2.9.1 No-Build Alternative

Under the No-Build Alternative, there would be no anticipated impacts on community and public resources.

4.2.9.2 Reasonable Alternatives

Impacts to community and public resources may occur as a result of the proposed project. These impacts may include proximity impacts, such as traffic noise impacts, visual intrusion, or increased traffic on local arterials. Impacts may be more pronounced or less pronounced depending on the proximity of each resource to a proposed reasonable alternative. Noise levels are expected to increase near all resources that are adjacent, or in close proximity to, one of the reasonable alternatives (See **Section 4.3** for more information on noise impacts).

No schools, places of worship, or community facilities would be relocated, or directly impacted, as a result of the proposed project. The overall benefits provided for the entire community, outweigh the specific concerns about community and public resources that are discussed in the

document. Benefits that would be realized by the entire community, including minority and low-income populations, include an overall improvement in mobility and congestion relief. It is likely that improvements in these areas would decrease response times for emergency response teams within the communities.

4.2.10 Economic Impacts

The following section describes the economic impact of the proposed project on the immediate region. Economic activities that may be affected include employment, income, housing, and taxes. Primary impacts to the regional economy are related to the direct expenditures from the construction of the proposed project.

4.2.10.1 No-Build Alternative

Under the No-Build Alternative, there would be no anticipated impacts on economics or the local economy.

4.2.10.2 Reasonable Alternatives

Construction of the proposed project would create positive short-term and long-term impacts on the regional and local economies. The four reasonable alternatives are similar enough in design, location, and construction costs to assume that there would be no difference between their impacts to the regional economy. The following subsections summarize the estimated economic impacts associated with each of the reasonable alternatives.

Employment and Income

The construction and operation of the reasonable alternatives would affect both employment and income within the region. These direct expenditures are filtered back into the regional economy, as they are spent at local businesses, producing a larger effect than the direct expenses themselves.

The proposed project would serve as an alternate route to I-10 and includes limited access to businesses. Therefore, minimal impacts to existing businesses are expected. Although commercial displacements are anticipated, none of these displacements are from the major employers in the study area. During construction, every effort would be made to limit any potential impacts to access for businesses located near the construction. See **Section 4.2.1.2** for a discussion of potential commercial displacements resulting from the proposed project.

Housing

The proposed project is located through mainly industrial, commercial, and current transportation land uses. Due to the low number of displacements (one or two depending on the alternative chosen), the proposed project would have minimal impact to housing in the local area.

Property Taxes

Direct impacts occur when land acquired for ROW is removed from the tax rolls. However, the proposed project would also cause a permanent loss of taxable values from the local tax rolls for land acquired for transportation ROW, versus continued use for commercial or residential purposes. Much of the potential ROW is already in transportation use, and is currently off the tax rolls.

Extent of Adverse Impacts to Environmental Justice (EJ) Populations

The impacts with the greatest relevance to the identified EJ census BGs and CBs are tolling, relocation/displacements, traffic noise impact, and visual intrusion. These items are discussed in more detail in the following sections.

Effects of Tolling on EJ Populations

The *Joint Guidance for Project Level Environmental Justice Toll Analysis* methodology for toll roads dated April 23, 2009 was used to evaluate the EJ impacts for tolling the proposed project.

As indicated in **Tables 4-4** through **4-7**, the total minority percentage for the reasonable alternatives ranges from approximately 33.3% to 100.0% at the CB level. All but two of the 115 CBs within the study area report a minority population greater than 50% and, six of the BGs in the study area have a household income below the 2012 DHHS poverty threshold (\$23,050); thus, these census BGs are considered EJ areas based on median household income.

Origin-Destination Analysis

Overview

Origin-Destination data generated from the El Paso MPO traffic networks was used for further analysis of “user impacts” related to the reasonable alternatives. Studying Origin-Destination data can determine travel patterns of traffic along a transportation facility during a typical day. The Origin-Destination form of analysis is useful in assessing “user impacts” if the number of trips associated with specific population characteristics can be studied to provide general travel assumptions of those specific populations. Trips are defined as a one-way movement from where a person starts (origin) to where the person is going (destination).

Assessing “user impacts” in the form of an Origin-Destination analysis is an integral component of the EJ analysis for the proposed project. As funding mechanisms evolve, the trend towards utilization of facilities in the El Paso region would, through time, create “user impacts” as access to highway systems would become an issue to the economically disadvantaged. The Origin-Destination analysis compared the four reasonable alternatives’ anticipated users and forecasted travel patterns in 2035. The Origin-Destination analysis also identified EJ populations in order to assess the intensity of use by those protected populations through comparison of the tolled reasonable alternatives.

Traffic Analysis Zones, Study Area and Data Sources

The information associated with the Origin-Destination analysis is organized by traffic analysis zones (TAZs) which are small geographic units of area that are developed as a basis for estimating travel. TAZs vary in size, are determined by the roadway network and homogeneity of development, and directly reflect demographic data generated by the US Census Bureau. Delineated by state and/or transportation officials for tabulating traffic-related data, TAZs usually consist of one or more CB, BG, or CT.

The study area of the Origin-Destination analysis consists of the El Paso MPO MPA. Given regional operating characteristics of Loop 375, it is reasonable to assume the El Paso MPA contains the proposed project’s daily users. The El Paso MPA consists of three counties and approximately 41,086 square mi. A total of 729 TAZs comprise the Origin-Destination study area; 628 of the total 729 TAZs are populated. Of the total number of TAZs located within the Origin-Destination study area, populations within 615 to 617 TAZs (depending on the reasonable alternative) are anticipated to regularly utilize the proposed facility in 2035 (originating at least one trip per day). The data represents approximately 84% to 85% of the

total study area TAZs. All but 112 to 114 of the total 729 TAZs would likely utilize the proposed facility if it were to be extended. The data indicates the vast majority of identified “user” TAZs would utilize the proposed facility in 2035, regardless of which reasonable alternative is selected.

TransCAD®, a geographical information system (GIS)-based transportation planning software, was utilized by TxDOT to generate the trip data analyzed during the Origin-Destination analysis. TxDOT conducted a “select-link analysis” based on 2035 daily traffic in order to generate Origin-Destination data associated with the proposed project. Traffic data exported directly from TransCAD® select-link matrices was then correlated with median household income and population data prepared by the El Paso MPO in order to provide a demographic profile of users anticipated to utilize the proposed project facility in 2035.

Identification of EJ TAZs

Analysis of the Origin-Destination trip data was concentrated on those TAZs with high proportions of low-income populations within the study area that are anticipated to utilize the proposed facility in 2035.

According to the *2010 Census*, Hispanics constitute the majority of the population in the El Paso region. Because the Hispanic population (a minority population defined by EO 12898) is considered a majority in the El Paso region, a unique approach was utilized for the Origin-Destination analysis in order to identify potential user impacts associated with the tolling of the proposed project. Within the City of El Paso, approximately 80.7% of the population is Hispanic. El Paso County and the El Paso MPO report that 82.2% and 78% of their population is Hispanic. Because well over 50% of the population in the El Paso region is Hispanic, the typical methodology utilized for the analysis (incorporating a data threshold to identify concentrations of minority populations) would not effectively identify the communities of concern in the region. Therefore, an Origin-Destination analysis focused on low-income populations is more appropriate for the proposed project.

For purposes of the analysis, an EJ TAZ was defined as a TAZ exhibiting a median household income equal to or less than the 2012 DHHS poverty threshold of \$23,050. The approach for identifying “communities of concern” is provided in the 2006 TxDOT *Guidebook for Identifying, Measuring, and Mitigating Environmental Justice Impacts of Toll Roads*, September 2006, TxDOT Project 0-5208, p. 17. A total of 260 TAZs for Reasonable Alternatives 1 and 4, and 260 TAZs for Alternative 2 and 3, qualify as EJ TAZs in the Origin-Destination study area. **Exhibit 4-4a** provides a geographical representation of the Non-EJ TAZs and EJ TAZs within the El Paso MPA. **Appendix K** contains a summary table which includes the median household income data per TAZ, listing all EJ TAZs and their associated median household incomes.

Exhibit 4-4b (Sheets 1 through 4) illustrates the locations of all TAZs that are anticipated to have at least one trip utilizing the reasonable alternatives. The exhibit also indicates which of these TAZ’s are considered EJ. **Table 4-9** indicates the total EJ TAZs anticipated to utilize the proposed reasonable alternatives.

Table 4-9: Total EJ TAZs Anticipated to Utilize Reasonable Alternatives

Reasonable Alternative	Number of TAZs
1	260
2	261
3	261
4	260

Source: TxDOT TransCAD® data for 2035 reasonable alternatives

Low-income data provided by the El Paso MPO at the TAZ level coupled with equal to or less than \$23,050 DHHS threshold was utilized to identify TAZs which contain high proportions of low-income populations within the study area. **Exhibit 4-4c** (Sheets 1 through 4) illustrates the number of trips associated with all TAZs anticipated to utilize the each of the proposed reasonable alternatives.

Analysis Assumptions and Limitations

To clarify the intent of the Origin-Destination analysis, the analysis does not attempt to identify specific users (minority or low-income populations) but instead compares the origins and intensity origins of trips based on collective economic characteristics at the TAZ level for the four reasonable alternatives. In other words, the Origin-Destination analysis predicts the potential users of the proposed project corridor in 2035 by correlating the low-income characteristics of the future users based on El Paso MPO data to the intensity of use quantified by the number of trips per TAZ generated by TransCAD®. TxDOT conducted a “select-link analysis” based on 2035 daily traffic for the four reasonable alternatives to generate number of trips per TAZ.

“Toll links” identified by the model are assigned a cost per mile. The model then assigns vehicle trips based on user cost, trip distance, time of day, and other factors to achieve system equilibrium in the network. The correlation of median household income and TransCAD® data is the best available method to identify which TAZs would originate trips anticipated to utilize the proposed facility and the income information of the population associated with those TAZs. However, the vehicle trip assignment process does not consider relative income differences or the differences in relative costs to potential users in the population when making trip assignments. Because no definitive data exists on the future users of proposed facility or similar type facilities, the Origin-Destination analysis cannot predict the economic status associated with the predicted trips on toll or non-toll facilities. However, the Origin-Destination analysis can identify a potential difference in trip intensity by comparing each of the reasonable alternatives TAZ trip percentages.

Analysis Results

The EJ TAZ trip percentages suggest that similar numbers of EJ TAZs would utilize the four reasonable alternatives associated with the proposed project. A range of approximately 38.4 to 40.4% of the trips anticipated to utilize the proposed facility under the four reasonable alternatives would originate from areas identified with high concentrations of low-income populations within the study area. The projected EJ TAZ trip percentages indicate EJ populations may utilize the proposed facility in similar proportions under each of the four reasonable alternatives. **Table 4-10** compares the Origin-Destination results for all TAZs within the El Paso MPA to the total EJ TAZs within the study area for each of the reasonable alternatives. **Exhibit 4-4d** (Sheets 1 through 4) illustrates the EJ TAZs within the study area which are anticipated to use the proposed facility by reasonable alternative.

Table 4-10: Comparison of Loop 375 Border Highway West Extension Project Origin-Destination Data

Reasonable Alternative (2035)	Total TAZs Anticipated to Utilize Proposed Facility	Total TAZ Trips	Total EJ TAZs Anticipated to Utilize Proposed Facility	Total EJ TAZ Trips	% EJ TAZ Trips of Total Trips
1	615	29,293	260	11,244	38.4
2	617	44,373	261	17,285	39.0
3	617	44,295	261	17,669	39.9
4	615	29,601	260	11,958	40.4

Source: TxDOT TransCAD® data for 2035 reasonable alternatives. The study area (El Paso MPA) is comprised of 729 total TAZs and 266 EJ TAZs.

Non-Toll Facilities

Tolling of an isolated roadway would be expected to have the potential for adverse effects to EJ communities; however, as an alternative, I-10 and US 85 (Paisano Drive) would remain non-tolled facilities, and would continue to provide access to and from downtown. Due to the existence of a non-toll alternative route, it is anticipated that there would be no disproportionate and adverse impacts to minority and low-income populations as a result of tolling the proposed project.

Toll Rate and Economic Impact of Tolls

Low-income households would spend a higher proportion of household income to use the proposed toll lanes when compared to the median household income of El Paso County. However, when considering the totality of the effects of the proposed project, the overall benefits provided for the entire community outweigh the specific concerns about EJ that are discussed in the document. Benefits that would be realized by the entire community, including minority and low-income populations, include improvements in system capacity and system linkage. Further, it should be noted that all existing non-tolled facilities would remain non-tolled and in operation, continue to provide non-tolled access within the study area.

After considering the totality of the proposed project effects, the benefits addressed above and the economic impacts (households with incomes at the 2012 DHHS poverty level are estimated to absorb toll expenditures of approximately 1.5% to 1.6% of their annual household income), it is anticipated that there would be no project-level disproportionate and adverse impacts to minority and low-income populations as a result of tolling of the proposed project.

Effects of property acquisition and business relocations to EJ Populations

No schools, community or recreation centers, or places of worship of any kind, including those which may be considered especially important community and public resources to minority or low-income populations, would be displaced by any of the reasonable alternatives (**Section 4.2.3**). Nor would access to any of these facilities be impeded by the proposed project. Additionally, it is anticipated that consolidating access to the downtown El Paso district would increase walkability in the area making it easier for residents to access these resources. SunMetro anticipates that the proposed changes in access will allow them to provide more efficient service to the downtown area and its users.

Reasonable Alternatives 1 and 2 would each result in two single-family residential displacements, and Reasonable Alternatives 3 and 4 each would have one single-family residential displacement. All of these displacements are located within the Chihuahuita

community. Reasonable Alternative 3 (roadway and drainage pond proposed ROW combined) would have the most commercial displacements at 49 buildings. In addition to the potential displacements, 0.2 acre of the Chihuahuita Park would be impacted. The park would continue to function for the community of Chihuahuita regardless of the reasonable alternative chosen.

As illustrated in **Exhibit 4-3** these displacements would take place within an area defined as minority and low income. Total avoidance of project impacts to the identified minority and low-income populations in the study area would not be possible, as El Paso County is predominantly characterized by minority and low-income populations.

Effects of increase in traffic on local arterials and collector streets at new access road locations to EJ Populations

The proposed project would have an overall beneficial impact by improving mobility and access in the study area. The reasonable alternatives are expected to enhance mobility, facilitate congestion management during peak travel periods, and reduce traffic on local arterials and collector streets. Consolidating access to the downtown El Paso district would be pedestrian and bicycle friendly as it would reduce the amount of traffic on these types of facilities. There are no project-related impacts from an increase in traffic on local arterials and collector streets to EJ populations as increased in traffic on these types of facilities are not expected. Total avoidance of project impacts to the identified minority and low-income populations in the study area would not be possible within El Paso County, as the county is comprised predominantly of minority and low-income populations.

Proximity impacts, such as noise and visual intrusion, to EJ Populations

Noise levels are expected to increase along the reasonable alternatives including those adjacent to EJ populations. All of the reasonable alternatives would have noise impacts (as defined in TxDOT's Noise Guidelines). For additional information on traffic noise impacts, refer to **Section 4.3**. All of the reasonable alternatives would cause visual changes within either minority blocks or low-income groups. Total avoidance of project impacts to the identified minority and low-income populations in the study area would not be possible within El Paso County, as the county is comprised predominantly of minority and low-income populations.

Construction impacts such as noise and additional traffic to EJ Populations

Impacts during construction, such as noise and visual changes, would be temporary and would not be expected to result in a disruption of normal activities or impacts for minority or low-income populations. Total avoidance of project impacts to the identified minority and low-income populations in the study area would not be possible within El Paso County, as the county is comprised predominantly of minority and low-income populations.

Title VI of the Civil Rights Act of 1964, as amended

Due to the demographic composition and spatial distribution of minority populations within the study area, the proposed project would have unavoidable impacts to minority populations regardless of which reasonable alternative may be identified as the Recommend Preferred Alternative. Therefore, the Title VI analysis suggests that it must be demonstrated that a legitimate, non-discriminatory purpose in implementing the proposed project would be achieved. The Title VI criteria would similarly require that the question of whether there is a reasonable, non-discriminatory alternative to the proposed project be addressed. The transportation planning, economic, and land use considerations that determined the location for the proposed project are manifest and have been discussed in **Chapter 1**. Alternatives that were considered during the process have been discussed in **Chapter 2**. There are well supported environmental

and transportation planning considerations that demonstrate the reasonableness of the proposed project.

Mitigation and Compensation Options

Federal Highway Administration (FHWA) Order 6640.23 states that the agency shall avoid disproportionately high and adverse impacts on minority and/or low-income populations by "...proposing measures to avoid, minimize, and/or mitigate disproportionately high and adverse environmental health effects and interrelated social and economic effects, and providing offsetting benefits and opportunities to enhance communities, neighborhoods, and individuals affected by FHWA programs, policies, and activities..." Due to the minority and low-income populations in the study area, consideration of mitigation options is warranted. As previously described, the principal impacts of the proposed project on these populations are expected to be relocation/displacements of businesses, tolling in areas of low-income populations, access changes, and proximity impacts (such as noise and visual intrusion).

Total avoidance of project impacts to the identified minority and low-income populations in the study area would not be possible within El Paso County, as the county is comprised predominantly of minority and low-income populations. There are no undeveloped corridors that exist in the study area in which a facility meeting the proposed project purpose and need could be constructed. In addition, a location too far removed from the study area would not satisfy the purpose and need of the proposed project. Because there are no disproportionate and adverse impacts to minority and low-income populations as a result of the proposed project, no mitigation would be required.

Summary of EJ Considerations

The proposed Loop 375 Border Highway West Extension Project would not result in disproportionate impacts on minority and low-income populations within the study area due to the existence of a non-toll alternative route. The proposed project is similarly consistent with Title VI in that there is no evidence of discriminatory intent or effect. The proposed project offers the possibility of long-term benefits to these areas and their residents. Populations within these communities could also benefit from the indirect effects of improved east-west mobility, improved local and regional access, improved safety, reduction of incident delay along I-10, inclusion of CSS related to aesthetics, and a design that coexists with border security. As described and analyzed in the document, the proposed project would not result in disproportionately high or adverse impacts to EJ populations; therefore, the proposed project would be consistent with the policy established in EO 12898.

4.2.11 Impacts to Community Cohesion

4.2.11.1 No-Build Alternative

Under the No-Build Alternative, there would be no anticipated impacts to community cohesion.

4.2.11.2 Reasonable Alternatives

Communities within the study area are characterized by varying degrees of cohesion based on socioeconomic factors. Strong community cohesion is characterized by extensive interaction among neighbors and friends, participation in community activities and organizations, and involvement in local government and politics. Transportation and land use planning decisions can affect community cohesion by influencing the location of activities and the quality of the "public realm" (i.e., places where people naturally interact, such as sidewalks, local parks, and public transportation), and therefore, the ease with which neighbors meet and build positive

relationships (Litman 2007). Typically, cohesive communities have several generations of families, extended families, and strong informal (non-governmental) social support networks which can provide for child care, emergency assistance, and spiritual guidance, among many other possibilities.

Overall, the proposed project can be expected to have minor impacts on local communities resulting from changes in access to the downtown areas of El Paso. Although these changes may affect access to some businesses within these communities, it is not anticipated to affect community cohesion. The reduction in vehicles using local streets to cut through downtown to access Loop 375 would increase walkability in the area, which would promote community interaction within the community. Coordination with SunMetro representatives indicated that consolidating access to downtown will benefit transit routing and access to their facility. Community services, activities, and facilities associated with schools, the El Paso County Health Department office, the El Paso libraries, and other facilities mentioned in **Chapter 3** would also become more accessible for residents throughout the region.

Reasonable Alternatives 1 and 2 would have a direct impact to approximately 0.2 acre of the Chihuahuita Park. To date, the Chihuahuita community members have not expressed controversy regarding the potential impacts to the park. The park would remain open to the public after construction of the proposed project is complete.

Additionally, the proposed reasonable alternatives would not create a new physical barrier nor expand into any existing communities. The reasonable alternatives would not divide existing communities within the study area. Further, residents of the study area communities would continue to utilize existing roadways, transit services, and pedestrian and bicycle facilities. Although none of the reasonable alternatives would include sidewalks on the limited-access toll portions of the facility, the proposed project will consider sidewalks on the non-tolled portion. Sidewalks will be considered in more detail during the FEIS process. Consolidating access to the downtown El Paso district would be complimentary to the pedestrian, transit, and bicycle friendly plans proposed by the City of El Paso. The proposed reasonable alternatives would not: introduce a new physical barrier within; divide communities; or expand into any existing communities with the study area.

4.3 TRAFFIC NOISE IMPACTS

4.3.1 No-Build Alternative

Under the No-Build Alternative traffic would continue to increase over time causing an increase in traffic noise.

4.3.2 Reasonable Alternatives

4.3.2.1 Summary of Traffic Noise Modeling Analysis

A traffic noise analysis was accomplished in accordance with TxDOT's *2011 Guidelines for Analysis and Abatement of Roadway Traffic Noise*. The purpose of the analysis was to determine potential traffic noise impacts adjacent to the reasonable alternatives under consideration.

Predicted traffic noise levels for the design year (2035) were modeled at receiver locations that represent the land use activity areas adjacent to the proposed project that might be impacted by traffic noise and would potentially benefit from feasible and reasonable noise abatement. Traffic

data for the design year is projected to be 35,300 vehicles per day (vpd). Results of the analysis indicate that all of the reasonable alternatives for the proposed project would result in a traffic noise impact. Reasonable Alternative 4 would impact the least amount of receivers.

4.3.2.2 Description of Noise Receivers

The receivers located along the reasonable alternatives represent residences (noise abatement criteria (NAC) B); schools, places of worship, public parks/recreation, institutional structures (i.e., UTEP) (NAC C); offices and restaurants (NAC E); and POEs (NAC F). The NAC F activity category also includes developed lands that are not sensitive to highway traffic noise such as industrial, maintenance facilities, manufacturing, rail yards, retail facilities, and utilities. Some undeveloped/vacant lands (NAC G) can also be found within the study area. There are outdoor human activity areas facing the reasonable alternatives; therefore, they were analyzed as noise abatement criteria category B (exterior), with TxDOT noise abatement criteria of 67 dBA (the weighted decibel value). See **Chapter 3** for NAC definitions.

The following noise receivers were modeled along the roadway under NAC categories B (exterior with NAC level of 67 dBA), C, D, E, and F. The NAC B category was assigned for single-family residential receivers R1, R3, R5, R8, R8a, R10, and R15; NAC C for the El Paso Rescue Mission, parks, schools, playgrounds, and places of worship receivers R4, R6, R9, R11, R12, R13, and R15; NAC D for the UTEP Hertzog Building receiver R7; and NAC E for office building receiver R2. Please refer to **Exhibit 4-5** for the noise receiver locations.

4.3.2.3 Impacts to Noise Receivers

FHWA traffic noise modeling software was used to calculate predicted traffic noise levels. The model primarily considers the number, type, and speed of vehicles; highway alignment and grade; cuts, fills, and natural berms; surrounding terrain features; and the locations of activity areas likely to be impacted by the associated traffic noise.

Predicted traffic noise levels were modeled at receiver locations shown in **Table 4-11** and **Exhibit 4-5**. The existing noise conditions were measured in the field with a sound meter. Major highways such as I-10 and US 85 (Paisano Drive) were included in the analysis due to their close proximity to the proposed project.

Table 4-11: Traffic Noise Levels [dB(A) Leq]

Receiver	NAC Category	NAC dB(A) Leq	Existing (2012)	Reasonable Alternative 1			Reasonable Alternative 2			Reasonable Alternative 3			Reasonable Alternative 4		
				Predicted (2035)	Change (+/-)	Noise Impact	Predicted (2035)	Change (+/-)	Noise Impact	Predicted (2035)	Change (+/-)	Noise Impact	Predicted (2035)	Change (+/-)	Noise Impact
R1-Single Family	B	67	56	67	+11	Yes									
R2-Office Building	E	72	63	71	+8	Yes	72	+9	Yes	71	+8	Yes	70	+7	No
R3-Single Family	B	67	54	64	+10	No	61	+7	No	58	+4	No	64	+10	No
R4-El Paso Rescue Mission	C	67	56	70	+14	Yes	70	+14	Yes	68	+12	Yes	70	+14	Yes
R5-Condominiums	B	67	61	73	+12	Yes									
R6-Doniphan Park Playground	C	67	60	67	+7	Yes	67	+7	Yes	66	+6	Yes	67	+7	Yes
R7-UTEP Hertzog Building	D	52	40	47	+7	No									
R8-Single Family	B	67	63	75	+12	Yes									
R8a-Single Family	B	67	63	76	+13	Yes									
R9-Place of Worship	C	67	63	74	+11	Yes									
R10-Single Family	B	67	54	65	+11	Yes	66	+12	Yes	60	+6	No	60	+6	No
R11-Chihuahuita Park (basketball court)	C	67	52	66	+14	Yes	67	+15	Yes	62	+10	No	62	+10	No
R12-Aoy Elementary School	C	67	63	73	+10	Yes	74	+11	Yes	73	+10	Yes	73	+10	Yes
R13-Multi Family residential playground	C	67	57	69	+12	Yes	71	+14	Yes	69	+12	Yes	69	+12	Yes
R14-Single Family	B	67	64	69	+5	Yes	70	+6	Yes	69	+5	Yes	69	+5	Yes
R15-Hart Elementary School Basketball Court	C	67	65	70	+5	Yes	72	+7	Yes	70	+5	Yes	70	+5	Yes
Number of Impacted Receivers per Reasonable Alternative						14			14			12			11

Source: HNTB, July 2012, updated Aug. 2012.

Note: The predicted noise levels were estimated based on the César Chávez Border Highway Transportation Planning and Programming Division (TP&P) Traffic Analysis for Highway Design Sheets. The June 2012 traffic analysis is currently under review by TP&P was used in the traffic noise analysis of the Draft EIS.

As indicated in **Table 4-11**, all of the reasonable alternatives for the Loop 375 Border Highway Extension Project would result in a traffic noise impact. Reasonable Alternatives 1 and 2 would impact 14 receivers; Reasonable Alternative 3 would impact 12 receivers; and Reasonable Alternative 4 would impact 11 receivers representing land use categories in the study area.

After the Preferred Alternative is determined and during the Final EIS preparation, the following noise abatement measures would be considered: traffic management, alteration of horizontal or vertical alignments, and acquisition of undeveloped property to act as a buffer zone, and the construction of traffic noise barriers.

Before any abatement measure can be proposed for incorporation into the proposed project, it must be both feasible and reasonable. In order to be “feasible,” the abatement measure must be able to reduce the noise level at greater than 50% of the impacted, first row receivers by at least 5 dB(A); and to be “reasonable,” it must not exceed the cost-effectiveness criterion of \$25,000 for each receiver that would benefit by a reduction of at least 5 dB(A). Also, the abatement measure must be able to reduce the noise level of at least one impacted, first row receiver by at least 7 dB(A).

Traffic management: control devices could be used to reduce the speed of the traffic; however, the minor benefit of 1 dB(A) per 5 mph reduction in speed does not outweigh the associated increase in congestion and air pollution. Other measures such as time or use restrictions for certain vehicles are prohibited on state highways.

Alteration of horizontal and/or vertical alignments: any alteration of the existing alignment would displace existing businesses and residences, require additional ROW, and not be cost effective/reasonable.

Buffer zone: the acquisition of undeveloped property to act as a buffer zone is designed to avoid rather than abate traffic noise impacts and, therefore, is not feasible.

Traffic Noise barriers: barriers are the most commonly used noise abatement measure. Traffic noise barriers would be evaluated for each impacted receiver location for the Preferred Alternative during its evaluation in the Final EIS.

Construction would occur as two primary activities: site preparation and roadway construction. Noise levels at any one receiver at a particular time are essentially non-predictable. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns. However, construction normally occurs during daylight hours when occasional loud noises are more tolerable. None of the receivers is expected to be exposed to construction noise for a long duration; therefore, any extended disruption of normal activities is not expected. Provisions would be included in the plans and specifications that require the contractor to make every reasonable effort to minimize construction noise through abatement measures such as work-hour controls and proper maintenance of muffler systems.

A copy of the traffic noise analysis would be made available to local officials. On the date of approval of the document (Date of Public Knowledge), TxDOT is no longer responsible for providing noise abatement for new development adjacent to the proposed project.

4.4 CLIMATE AND AIR QUALITY IMPACTS

4.4.1 No-Build Alternative

Under the No-Build Alternative, there would be no anticipated impacts on climate. However, as congestion increases in the region, air quality may be adversely impacted under the No-Build Alternative.

4.4.2 Reasonable Alternatives

Areas determined by the Environmental Protection Agency (EPA) to exceed a National Ambient Air Quality Standards (NAAQS) are designated as non-attainment areas. The NAAQS include: ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, lead, and particulate matter (PM_{2.5} and PM₁₀). A State Implementation Plan (SIP) is a collection of requirements that delineates how a state would reduce emissions to attain the NAAQS. The SIP must be approved by EPA. For non-attainment areas, the 1990 Clean Air Act Amendments (CAAA) require that the MPOs and the state transportation departments demonstrate that transportation plans, programs, and projects conform to SIPs.

4.4.2.1 Criteria Pollutants

The proposed project is located in the part of El Paso County which is in moderate non-attainment for PM₁₀ and in maintenance for carbon monoxide; therefore, the transportation conformity rule applies. A portion of the proposed project is included in the current *Mission 2035* MTP (MTP Project ID F014X-15A) and the entire project limits are included in the next MTP *Draft Horizon 2040* MTP (MTP Project ID F047X-CAP), the transportation plan under development by the El Paso MPO, and approved as a toll project under the local CMP. The proposed project is currently not in the 2011-2014 Statewide Transportation Improvement Program (STIP); however, it will be added to the next revision.

The *Draft Horizon 2040* MTP states that the proposed project limits are from Racetrack Drive to Park Street, with a reported construction cost of approximately \$365 million. However, the proposed project limits would be revised to begin at Racetrack Drive and end at US 54, and the proposed project cost would be approximately \$500 million, pending toll feasibility studies. Coordination with the MPO is in progress to include the entire limits of the proposed project in the next conformity analysis scheduled for April/May 2013 and in the corresponding STIP. The final MTP and SIP documents would include the full limits and accurate project cost for the proposed project. TxDOT will not take final action (issue a Record of Decision (ROD)) until the proposed project limits and cost are consistent with both an MTP and a TIP which were approved to be in conformity SIP.

4.4.2.2 Carbon Monoxide Traffic Air Quality Analysis

Traffic data for the design year (2035) is projected to be 35,300 vpd. A prior TxDOT modeling study demonstrated that it is unlikely that a carbon monoxide standard would ever be exceeded as a result of any project with an average daily traffic below 140,000 vpd. The average daily traffic projections for the proposed project do not exceed 140,000 vpd; therefore, a Traffic Air Quality Analysis is not required.

4.4.2.3 Congestion Management Process

Although the proposed project is adding single occupancy vehicle capacity; a congestion management process analysis is not required because the proposed project has no FHWA/Federal Transit Administration (FTA) involvement. The proposed project is approved as a toll project under the local CMP.

4.4.2.4 Particulate Matter Hot-Spot Analysis

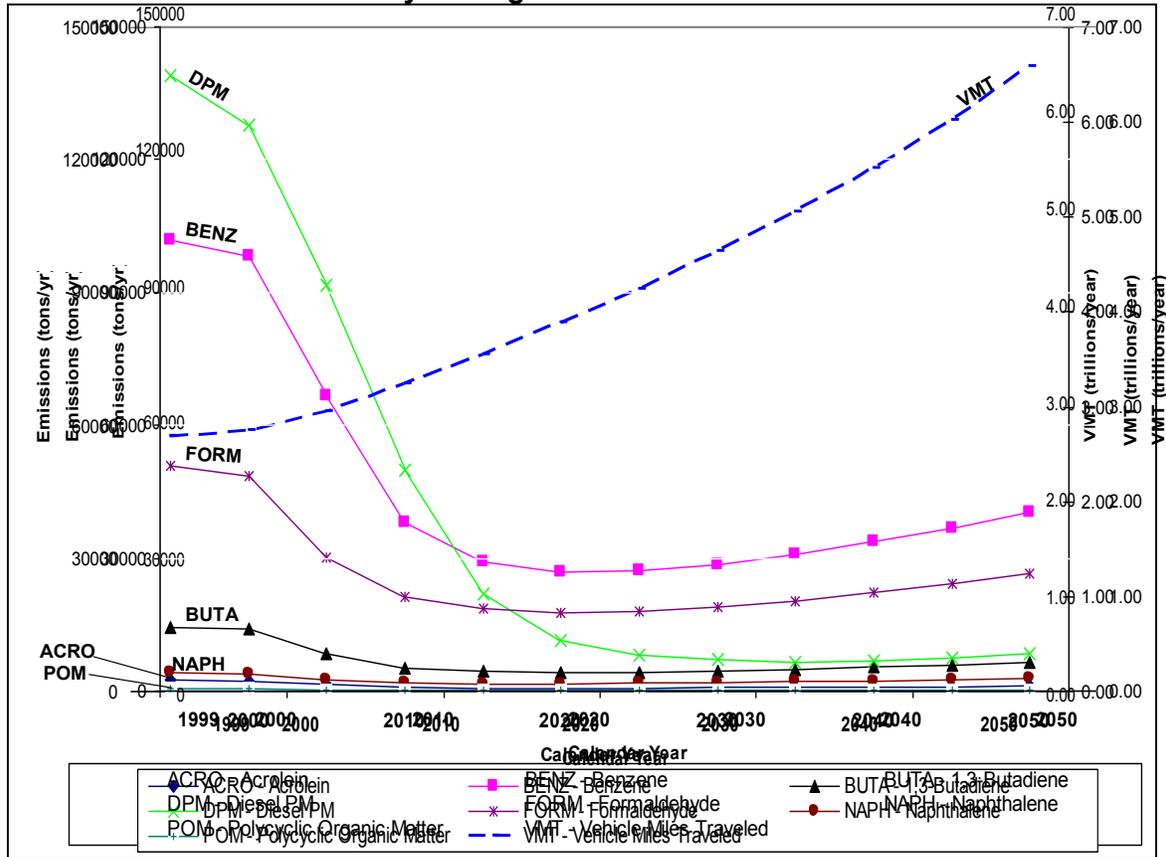
Sections 93.102(a)(2), 93.104(d), 93.116, and 93.117 of Title 40 Code of Federal Regulations (CFR) indicate that project level conformity analyses (i.e., hot spot analyses) only apply to FHWA/FTA projects. The proposed project has no federal funding and requires no USDOT decision; therefore, a project level hot spot analysis is not required.

4.4.2.5 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 (<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.

The 2007 rule on the Control of Hazardous Air Pollutants from Mobile Sources requires controls that will dramatically decrease Mobile Source Air Toxics (MSAT) emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using EPA's MOBILE6.2 model, even if vehicle activity (vehicle-miles travelled (VMT)) increases by 145% as assumed, a combined reduction of 72% in the total annual emission rate for the priority MSAT is projected from 1999 to 2050, as shown in **Figure 4-1** and **Table 4-12**.

Figure 4-1: National MSAT Emission Trends 1999 – 2050 for Vehicles Operating on Roadways Using EPA's MOBILE6.2 Model



Source: **Table 4-13** below

Notes: (1) Annual emissions of polycyclic organic matter are projected to be 561 tons/yr for 1999, decreasing to 375 tons/yr for 2050. (2) Trends for specific locations may be different, depending on locally derived information representing VMT, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology and other factors

Table 4-12: National MSAT Emissions and Percent Reduction for 1999-2050 for Vehicles Operating on Roadways Using EPA's MOBILE6.2 Model

Pollutant/VMT	Pollutant Emissions (tons) and VMT by Calendar Year							Reduction
	1999	2000	2010	2020	2030	2040	2050	1999 to 2050
Acrolein	2,570	2,430	1,000	775	824	970	1160	-55%
Benzene	102,000	98,400	38,000	27,000	28,700	33,900	40,500	-60%
1,3-Butadiene	14,400	14,100	5,410	4,360	4630	5,460	6,520	-55%
Diesel PM	139,000	128,000	50,000	11,400	7,080	7,070	8,440	-94%
Formaldehyde	50,900	48,800	21,400	17,800	19,000	22,400	26,800	-47%
Naphthalene	4,150	4,030	1,990	1,780	2,030	2,400	2,870	-31%
Polycyclic Organic Matter	561	541	259	233	265	313	373	-33%
Trillions VMT	2.69	2.75	3.24	3.88	4.63	5.51	6.58	145%

Source: EPA. MOBILE6.2 Model run August 20, 2009.

Air toxics analysis is a continuing area of research. While much work has been completed to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how the potential health risks posed by MSAT exposure should be factored into project level decision-making within the context of the National Environmental Policy Act (NEPA). The FHWA, EPA, the Health Effects Institute (HEI), and others have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions associated with highway projects. The FHWA will continue to monitor the developing research in this emerging field.

Project Specific MSAT Assessment

A qualitative analysis provides a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the reasonable alternatives. The qualitative assessment presented below is derived in part from a study conducted by the FHWA entitled *A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives* (FHWA 2010).

For each of the reasonable alternatives analyzed in the Draft EIS, the amount of MSATs emitted would be proportional to the VMT, assuming that other variables such as fleet mix are the same for each reasonable alternative. The VMT estimated for each of the reasonable alternatives is slightly higher than that for the No-Build Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. The increase in VMT would lead to higher MSAT emissions for the reasonable alternatives, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds; according to the EPA's MOBILE6.2 emissions model, emissions of all of the priority MSATs except for diesel particulate matter which decreases as speed increases. The extent to which these speed-related emissions decrease will offset increases in VMT-related emissions that cannot be reliably projected due to the inherent deficiencies of technical models.

Because the estimated VMT under each of the reasonable alternatives is nearly the same, varying less than 10%, it is expected there would be no appreciable difference in overall MSAT emissions among the reasonable alternatives. Also, regardless of the reasonable alternative

chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by 72% between 1999 and 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

The additional travel lanes as part of the reasonable alternatives will have the effect of moving some traffic closer to nearby homes, schools, and businesses; therefore, under each reasonable alternative there may be localized areas where ambient concentrations of MSAT could be higher under certain conditions than the No-Build Alternative. Under the reasonable alternatives, the localized increases in MSAT concentrations would likely be most pronounced along the expanded roadway sections that would be built near Racetrack Drive and Executive Center Boulevard as well as along US 85 (Paisano Drive) and US 54. However, the magnitude and the duration of these potential increases compared to the No-Build Alternative cannot be reliably quantified due to incomplete or unavailable information in forecasting project specific MSAT health impacts.

In sum, when a highway is widened, the localized level of MSAT emissions for the reasonable alternatives could be higher relative to the No-Build Alternative, but this could be offset due to increases in speeds and reductions in congestion (which are associated with lower MSAT emissions). Also, MSAT will be lower in other locations when traffic shifts away from them. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will, over time, cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be lower in the future.

Incomplete or Unavailable Information for Project Specific MSAT Health Impacts Analysis

In FHWA's view, information is incomplete or unavailable to credibly predict the proposed project specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed project.

The EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the CAA and its amendments, and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain IRIS, which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (EPA 2012). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the HEI. Two HEI studies are summarized in Appendix D of FHWA's 2009 *Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents*. The appendix also discusses a variety of FHWA research initiatives related to air toxics. Among the adverse health effects linked to MSAT compounds at high exposures are: cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds

at current environmental concentrations (HEI 2007), or in the future as vehicle emissions substantially decrease (HEI 2009).

The methodologies for forecasting health impacts include: emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable. The results produced by the EPA's MOBILE6.2 model, the California EPA's Emfac2007 model, and the EPA's MOVES model in forecasting MSAT emissions are highly inconsistent. Indications from the development of the MOVES model are that MOBILE6.2 significantly underestimates Diesel Particulate Matter (DPM) emissions and significantly overestimates benzene emissions.

Regarding air dispersion modeling, an extensive evaluation of EPA's guideline CAL3QHC model was conducted in a National Cooperative Highway Research Program (NCHRP) study, which documents poor model performance at 10 sites across the country; three where intensive monitoring was conducted plus an additional seven with less intensive monitoring. The study indicates a bias of the CAL3QHC model to overestimate concentrations near highly congested intersections and underestimate concentrations near uncongested intersections. The consequence of this is a tendency to overstate the air quality benefits of mitigating congestion at intersections. Such poor model performance is less difficult to manage for demonstrating compliance with NAAQS for relatively short time frames than it is for forecasting individual exposure over an entire lifetime, especially given that some information needed for estimating 70-year lifetime exposure is unavailable. It is particularly difficult to reliably forecast MSAT exposure near roadways, and to determine the portion of time that people are actually exposed at a specific location (EPA 2003).

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI. As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for DPM. The EPA and HEI have not established a basis for quantitative risk assessment of DPM in ambient settings (EPA 1991, HEI 2007).

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA, as provided by the CAA, to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine a "safe" or "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than one in a million due to emissions from a source. The results of the statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than one in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia

Circuit upheld EPA's approach to addressing risk in its two step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than safe or acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between the reasonable alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh the information against project benefits, such as reducing traffic congestion and improved access for emergency response, that are better suited for quantitative analysis.

Conclusion

The qualitative assessment provided is relative to the reasonable alternatives of MSAT emissions and has acknowledged that the reasonable alternatives for the proposed project may result in increased exposure to MSAT emissions in certain locations. However, the concentrations and duration of exposures are uncertain, and because of the uncertainty, the health effects from these emissions cannot be estimated.

4.4.2.6 Air Quality Effects from Construction

Construction phase air emissions would primarily be in the form of fugitive dust from earth moving operations and diesel emissions from heavy construction equipment. Emissions would be temporary at any specific location, would typically be distributed widely over the construction site, and are composed of relatively large sized particles

Air Quality Construction Emissions Reduction Strategies

During the construction phase of this project, temporary increases in air pollutant emissions may occur from construction activities. The primary construction-related emissions are particulate matter (fugitive dust) from site preparation. These emissions are temporary in nature (only occurring during actual construction); it is not possible to reasonably estimate impacts from these emissions due to limitations of the existing models. However, the potential impacts of particulate matter emissions would be minimized by using fugitive dust control measures such as covering or treating disturbed areas with dust suppression techniques, sprinkling, covering loaded trucks, and other dust abatement controls, as appropriate.

Considering the temporary and transient nature of construction-related emissions, as well as the mitigation actions to be utilized, it is not anticipated that emissions from construction of the proposed project would have any significant impact on air quality in the area.

4.4.2.7 Greenhouse Gases (GHGs)

The collaborative efforts of many agencies on both sides of the U.S.-Mexican border have been called out as a model for success. This collaboration has led to significant improvements in regional air quality. In addition to these continuing efforts and in support of City Council's resolution to endorse the U.S. Mayor's Conference Climate Protection Agreement, the City of El Paso has set the following goals:

1. Complete GHG inventory and establish the 1990 baseline for the entire City by 2011.
2. Develop a plan to reduce GHG emissions to meet Kyoto Protocol guidelines by 2011.
3. Reach attainment of federal air quality standards by 2019.
4. Reduce the number of days with poor air quality index by 25%.

The El Paso MPO is employing analytic methods and tools, GHGs reduction strategies, potential impacts of climate change on transportation infrastructure, and approaches for integrating climate change considerations into transportation decision making. The approach would help offset any potential impacts as a result of the proposed project.

4.5 GEOLOGY AND SOILS IMPACTS

4.5.1 Impacts to Geologic Features

4.5.1.1 No-Build Alternative

Under the No-Build Alternative, there would be no anticipated impacts on geologic features.

4.5.1.2 Reasonable Alternatives

All of the reasonable alternatives would involve disturbance and permanent covering of previously exposed surface features, as well as excavation of *in situ* material for drainage ponds associated with each reasonable alternative. Each would traverse similar topography, soils, and geologic features consisting of both undivided Cretaceous-age rock and the overlying sediments of Holocene age. Anticipated direct impacts from project construction would include cut and fill along each reasonable alternative. **Table 4-13** below identifies impacts to geologic features for each reasonable alternative and their associated drainage ponds. Out of the seven geologic features within the study area, only four would potentially be impacted by the reasonable alternatives.

Effects from construction would be limited to disturbances of the existing topography due to grading, excavation, and trenching activities. Once roadway activities are complete in a given section, new grade and drainage patterns would be reestablished. Drainage patterns in the areas of the new drainage ponds would be slightly altered, but the impact would be insignificant. As a result, impacts on geologic features are not expected to be significant.

Table 4-13: Impacts to Geologic Features

Geologic Features	No-Build	Reasonable Alternatives (acres)											
		Alt. 1	Alt. 1 Ponds	Total Alt. 1	Alt. 2	Alt. 2 Ponds	Total Alt. 2	Alt. 3	Alt. 3 Ponds	Total Alt. 3	Alt. 4	Alt. 4 Ponds	Total Alt. 4
Qal¹	0	16.5	23.4	39.9	16.4	20.2	36.6	18.1	20.2	38.3	4.9	23.4	28.3
Qtb²	0	7.8	15.3	23.1	21.7	12.8	34.5	21.7	12.8	34.5	7.8	15.3	23.1
Qao³	0	1.0	1.5	2.5	1.0	1.5	2.5	1.5	1.5	3	1.5	1.5	3
K⁴	0	7.5	10.1	17.6	9.9	15.5	25.4	9.9	15.5	25.4	7.5	10.1	17.6
Total	0	32.8	50.3	83.1	48.9	50.1	99	51.1	50.1	101.2	21.7	50.3	72

Source: University of Texas Bureau of Economic Geology 1992

¹ Quaternary Alluvium

² Quaternary-Tertiary bolson deposits

³ older alluvial deposits

⁴ Cretaceous rocks; undivided

Table 4-14: Impacts to Soils

Soils	No-Build	Reasonable Alternatives (acres)											
		Alt. 1	Alt. 1 Ponds	Total Alt. 1	Alt. 2	Alt. 2 Ponds	Total Alt. 2	Alt. 3	Alt. 3 Ponds	Total Alt. 3	Alt. 4	Alt. 4 Ponds	Total Alt. 4
DCD¹	0	0.7	11.2	11.9	20.3	12.7	33	20.4	12.7	33.1	0.8	11.2	12
Mg²	0	19.7	39.1	58.8	13.4	37.4	50.8	15.8	37.4	53.2	22.2	39.1	61.3
Total	0	20.4	50.3	70.7	33.7	50.1	83.8	36.2	50.1	86.3	23.0	50.3	73.3

Source: Natural Resources Conservation Service 2012

¹ Delnorte-Canutio, hilly type

² Made land, Gila soil material

4.5.2 Impacts to Soils

4.5.2.1 No-Build Alternative

Under the No-Build Alternative, there would be no anticipated impacts on soils.

4.5.2.2 Reasonable Alternatives

Construction of a roadway involves compaction of soils and removal of vegetation that can increase the amount of erosion and subsequent sedimentation. Slope, soil texture, precipitation, and length of time exposure during construction determine the soil loss potential. Soil types that would be impacted by each of the reasonable alternatives are presented in **Table 4-14** above. Out of the four soil types within the study area, only two, the Delnorte-Canutio (hilly type) and the Made land (Gila soil) associations, would be impacted by the reasonable alternatives.

Erosion and sediment control measures would effectively minimize erosion and soil loss during construction. Long-term impacts to area soils can be reduced by implementing appropriate best management practices (BMPs) to minimize erosion during ancillary development. BMPs are addressed in **Section 4.6.1**.

To the maximum extent possible, where required, material excavated from road cuts would be used as fill material. If suitable soils are not found within the ROW, they would be obtained from other sites within a reasonable haul distance of the proposed project. Detailed investigations of soils for construction would be conducted during the final design phase of project development.

As noted in **Section 3.5.4.3**, none of the soils within the study area would be considered Prime or Other Important Farmland soils and the 2010 USCB map of the study area labels it as Urban Land (UA), and is therefore, not subject to the Farmland Protection Policy Act (FPPA). As such, the construction of any of the reasonable alternatives would be exempt from the requirements of the FPPA. No impacts on Prime Farmlands would result from the proposed project.

4.5.2.3 Construction Impacts on Soils

Roadway construction would clear and compact local soils in the study area, which may tend to increase erosion and sediment impacts along the proposed project boundaries. Compacted soils may also limit vegetation growth. BMP measures would be implemented to minimize soil loss and transport. To the extent possible, material excavated for roadway construction would be used as fill material in other parts of the proposed project, as needed. Additional suitable soils for construction would be used from the ROW, if available, and meet the traffic support and sub-grade technical requirements. If suitable soils cannot be found in the ROW, they would be obtained from approved commercial sites or nearby private sites that contain non-contaminated, suitable material within a reasonable haul distance from the proposed project site.

4.6 WATER RESOURCES IMPACTS

4.6.1 Surface Water Impacts

4.6.1.1 No-Build Alternative

Under the No-Build Alternative, there would be no anticipated impacts on water resources.

4.6.1.2 Reasonable Alternatives

Each of the four reasonable alternatives would cross arroyos, including three unnamed arroyos (one just north of Executive Center Boulevard, one approximately 0.25 mi south of Executive

Center Boulevard, and one approximately 0.5 mi south of Executive Center Boulevard) and the Hart's Mill Arroyo. In addition, portions of the City's municipal separate storm sewer system (MS4) may intercept stormwater runoff discharge directly into the Rio Grande, whereas, other areas of the MS4 discharge to drainage ditches, arroyos, and holding ponds. The City of El Paso and TxDOT have a Stormwater Management Program (SWMP) in place to address water quality concerns and other issues related to stormwater runoff. Aspects of the SWMP related to water quality include pollution prevention measures, pollutant removal techniques, stormwater monitoring, and other methods to control the discharge of pollutants from stormwater. The reasonable alternative ultimately selected as the Preferred Alternative would comply with the SWMP.

A Storm Water Pollution Prevention Plan (SW3P) would be prepared to minimize potential adverse impacts of construction on water quality. The SW3P has six main objectives:

- Identify all pollutant sources, including sources of sediment that may affect the quality of stormwater discharges associated with construction activity (stormwater discharges) from the construction site;
- Identify non-stormwater discharges;
- Identify, construct, implement in accordance with a time schedule, and maintain BMPs to reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges from the construction site during construction;
- Develop a maintenance schedule for BMPs installed during construction designed to reduce or eliminate pollutants after construction is completed (post-construction BMPs);
- Identify a sampling and analysis strategy and sampling schedule for discharges from construction activity which discharge directly into adjacent water bodies; and
- Identify a sampling and analysis strategy and sampling schedule for discharges that have been discovered through visual monitoring to be potentially contaminated by pollutants not visually detectable in the runoff.

Impacts on surface waters associated with construction activities include: increased erosion and sedimentation around proposed construction and staging areas; potential spills from construction equipment; and leaching and subsequent transport of potentially hazardous substances from areas of known soil contamination.

As explained in Chapter 3, 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.

Two listed impaired waters occur within five stream miles downstream of the project. 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. Segment 2308 is not on the 2010 Texas Integrated Report for CWA Sections 305(b) and 303(d) but has been listed in the past. Runoff from this project would discharge within five stream miles of Segment 2307 and directly into Segment 2308 of the Rio Grande.

BMP practices would be utilized to insure impacts to a 303(d) listed water body would be avoided. The proposed project is not expected to contribute any constituents of concern to a 303(d) listed water body. TxDOT would coordinate with the Texas Commission on Environmental Quality (TCEQ) per the requirements of the TxDOT-TCEQ Memorandum of Understanding (MOU).

It is anticipated that the project would not require a U.S. Army Corps of Engineers (USACE) Section 404 Permit or Pre-construction Notification to the USACE; therefore Section 401 Certification would not be required.

Erosion and Sedimentation

Excavation and grading activities associated with construction could potentially result in a temporary increase in the amount of suspended solids running off construction sites. In a storm event, construction site runoff could result in sheet erosion of exposed soil. BMPs would be incorporated at appropriate stages during construction to address erosion control, sedimentation control, and post-construction total suspended solids (TSS) control.

For erosion control, storm drain inlet protection would be employed, along with such soil stabilization methods, as deemed feasible and practicable. In the El Paso area, common methods of soil stabilization through re-seeding and revegetation can be less successful than in other areas due to the desert-like climate and length of time required for vegetation to re-establish. The reasonable alternative ultimately selected would incorporate erosion control BMPs required by the contract documents and other measures elected by TxDOT, the City of El Paso, and the contractor. The general approach to erosion control during construction would include the following practices:

- Preserve existing vegetation where required and when feasible.
- Apply temporary erosion control to remaining active and non-active areas and reapply as necessary to maintain effectiveness.
- Implement temporary erosion control measures at regular intervals throughout the defined rainy season (July); implement erosion control prior to the defined rainy season.
- Stabilize non-active areas as soon as feasible after the cessation of construction activities.
- Control erosion in concentrated flow paths by applying erosion control blankets, erosion control seeding as deemed necessary and appropriate, and lining swales as required in the contract documents.
- Sufficient erosion control materials would be maintained on-site to allow implementation in conformance with SWMP requirements.

BMPs employed for post-construction TSS control would consist of drainage ponds. For sedimentation control, silt fencing would be utilized and remain in place until project completion.

The project would include five or more acres of earth disturbance. Therefore, a Notice of Intent (NOI) would be required and TxDOT would comply with TCEQ's Texas Pollutant Discharge Elimination System (TPDES) Construction General Permit (CGP). A SW3P would be implemented, and a construction site notice would be posted on the construction site.

Spills

During construction, spills would be mainly limited to fuels (i.e., petrochemicals) and lubricants used for construction equipment. The contractor would take appropriate measures to prevent,

minimize, and control the potential spills of fuels, lubricants, and hazardous materials in the construction staging area. All spills, including those of less than 25 gallons, would be cleaned immediately and any contaminated soil shall be immediately removed from the site and be disposed of properly. Contractor personnel would perform a pre-trip inspection of construction vehicles to be brought on-site, which includes inspecting trucks for leaks and securing loads so that material is not spilled onto roadways.

Leaching

There is known and suspected soil and groundwater contamination along the proposed alignments of the northern portion of the proposed reasonable alternatives. Each of the reasonable alternatives evaluated would impact a portion of the ASARCO property, on which contaminated surface soils are present or suspected. GIS software was used to quantify the extent of the impact on the ASARCO property associated with each reasonable alternative. **Table 4-15** shows the estimated floodplain encroachment for each the reasonable alternatives on the ASARCO property. Other properties on which contamination is known or suspected may be impacted as well.

Table 4-15: ASARCO Property Floodplain Encroachment Impacts

Reasonable Alternative (roadway and drainage ponds ROW combined)	ASARCO property (acres)
No-Build	0
1	5.61
2	7.17
3	7.17
4	5.61

Source: Amaterra 2012

Storm events may occur while trenching in areas of known or potential soil contamination, requiring dewatering of the trenches. Soil contaminants may leach into accumulated stormwater prior to dewatering; as such, dewatering activity could result in the potential release of contaminated water. All dewatering activity would require a City of El Paso Dewatering Permit, and all discharges would comply with a TPDES Permit. Testing of stormwater collected from areas of known or suspected soil contamination would occur prior to discharge, and any water meeting the definition of a hazardous waste would be transported to a treatment or disposal facility. Without mitigation, potential adverse construction impacts associated with water quality would be anticipated under any of the reasonable alternatives.

Surface waters could be affected in numerous ways during operation, such as build-up of residual hydrocarbons and heavy metals on road surfaces. These materials would be carried outside of the roadway footprint by stormwater runoff, with some likely being transported into surface water bodies. The use of fertilizers, herbicides, and/or pesticides on or alongside the roadway could also adversely impact water quality due to runoff. The City of El Paso’s SWMP calls for limitations on the application of herbicides through manual removal practices.

4.6.2 Groundwater Impacts

4.6.2.1 No-Build Alternative

Under the No-Build Alternative, there would be no anticipated groundwater impacts.

4.6.2.2 Reasonable Alternatives

Construction, operation, and maintenance of the proposed project is not anticipated to adversely affect groundwater. The study area does not occur over any major or minor freshwater aquifers; therefore, the proposed project would not have any potential impacts to any aquifer resources.

Impacts to Public Drinking Water Systems

The proposed project is not anticipated to result in any effects on public drinking water systems. Potential impacts to public water supply wells were assessed using data gathered from the TCEQ and Texas Water Development Board databases. Well records indicated that eleven public water supply wells are located within the study area, but none of the reasonable alternatives cross or would displace any of these wells. The proposed project is not anticipated to alter drinking water quality or quantity. The proposed project could potentially result in some redirection of surface water runoff; however, any impacts would be localized and minimal.

4.6.3 Floodplain Impacts

4.6.3.1 No-Build Alternative

Under the No-Build Alternative, there would be no anticipated floodplain impacts.

4.6.3.2 Reasonable Alternatives

The floodplain assessment compares the amount of floodplain encroachment anticipated by each reasonable alternative and includes a discussion of the flooding risks, beneficial functions and values, and measures taken to avoid and minimize potential impacts.

Federal Insurance Rates Maps were obtained for El Paso County showing the regulatory base floodplains for the Rio Grande and associated tributaries in the study area. GIS software was used to identify floodplains in the study area and quantify the extent of the 100-year floodplain encroachment associated with each reasonable alternative.

Regulatory floodways are associated with the Rio Grande and all of the major arroyos in the study area. Floodplains occurring in the study area include the 100-year (Zone A) and 500-year (Zone B) floodplains of the Rio Grande near the Anapra Road bridge; these floodplains would potentially be impacted by the Reasonable Alternatives 1 and 4 only. Moving eastward, the 100-year floodplain (mapped as Zone A3) of an unnamed arroyo just north of Executive Center Boulevard (Flow Path No. 20 on FEMA Map No. 4802140032C) crosses the Reasonable Alternatives 1 through 4. Another unnamed arroyo (Flow Path No. 21A on FEMA Map No. 4802140032C), with a 100-year floodplain mapped as Zone A11 on the east side of I-10 and Zone A1 on the west side, crosses Reasonable Alternatives 2 and 3 approximately 0.25 mi south of Executive Center Boulevard. The arroyo drains into another unnamed arroyo (Flow Path No. 21 on FEMA Map No. 4802140032C), which crosses Reasonable Alternatives 2 and 3 approximately 0.5 mi south of Executive Center Boulevard and continues westward to cross Reasonable Alternatives 1 and 4. The 100-year floodplain for the arroyo is mapped as Zone A14 east of I-10 and A2 to the west, and is mapped as Zone A5 in the vicinity of Reasonable Alternatives 1 and 4. The 100-year (Zone A6) and 500-year (Zone B) floodplains of Hart's Mill Arroyo (Flow Path 23 on FEMA Map No. 4802140039C) cross the study area just north of Yandell Drive. Finally, an area immediately north of the Franklin Canal and west of the Government Hill Ditch Outlet Control drainage-way (Ponding Area 1 on FEMA Map No. 4802140040C) is mapped as Zone AH, meaning it is a 100-year floodplain with no flood hazard factors that have been determined.

Table 4-16 shows the estimated floodplain encroachment for each reasonable alternative for both roadway ROW and drainage pond ROW.

23 CFR 650.113 requires that encroachments on floodplains be the only practicable alternative, supported by the following information:

1. Reasons why the proposed project must be in the floodplain;
2. Alternatives considered and why they were not practicable; and
3. Statements indicating whether the action conforms to applicable state or local floodplain protection standards.

Table 4-16: Summary of 100-Year Floodplain Impacts per Reasonable Alternative and Associated Drainage Ponds (acres)

No-Build	Reasonable Alternatives											
	Alt. 1	Alt. 1 Ponds	Total Alt. 1	Alt. 2	Alt. 2 Ponds	Total Alt. 2	Alt. 3	Alt. 3 Ponds	Total Alt. 3	Alt. 4	Alt. 4 Ponds	Total Alt. 4
0	24.3	3.4	27.7	14.0	2.0	16	4.0	2.0	6	14.3	3.4	17.7

Source: FEMA 2012

Table 4-17: Potential Wetlands and Other Waters of the U.S. Within Reasonable Alternatives

Wetlands/Waters of the U.S.	No-Build	Reasonable Alternatives											
		Alt. 1	Alt. 1 Ponds	Total Alt. 1	Alt. 2	Alt. 2 Ponds	Total Alt. 2	Alt. 3	Alt. 3 Ponds	Total Alt. 3	Alt. 4	Alt. 4 Ponds	Total Alt. 4
Wetlands (acres)													
Riverine	0	0.9	0	0.9	0.6	0	0.6	0.3	0	0.3	0.5	0	0.5
Total	0	0.9	0	0.9	0.6	0	0.6	0.3	0	0.3	0.5	0	0.5
Waterbody Crossing (# of crossings)													
Arroyo	0	4	0	4	3	0	3	3	0	3	4	0	4
Drainage Ditch	0	2	0	2	1	0	1	1	0	1	2	0	2
Canal	0	6	0	6	4	0	4	2	0	2	4	0	4
Total	0	12	0	12	8	0	8	6	0	6	10	0	10

Source: U.S. Fish and Wildlife Service (USFWS) NWI 2012; HNTB 2012

The only reasonable alternative considered during the course of project development that would avoid encroachment on floodplains was the No-Build Alternative, which was determined to be not practicable and would not meet the purpose and need of the proposed project (**Chapter 1**). Moreover, the proposed project would conform to state floodplain protection standards. The remaining practicable reasonable alternatives were designed to avoid impacts to floodplains to the maximum extent feasible and practicable. The reasonable alternatives were quantitatively examined for encroachments on the study area's floodplains. Impacts to the FEMA 100-year floodplain would vary from approximately six acres with Reasonable Alternative 3 (roadway and drainage pond proposed ROW combined) to approximately 27.7 acres with Reasonable Alternative 1 (roadway and drainage pond proposed ROW combined). The proposed project is not anticipated to create a significant encroachment on any area floodplains as defined in 23 CFR 650. The impacts on floodplains would be mitigated by the construction of drainage ponds. Roadway encroachments on floodplains would be analyzed to determine any effects caused by the proposed facility should a 100-year flood occur. Inundation of the approaches, without causing significant damage to the approach roadway, is considered acceptable. The hydraulic design practices of the proposed project would be in accordance with current TxDOT and FHWA design policies and standards. Further avoidance and minimization of floodplain encroachments would be considered during preliminary and final design of the selected Preferred Alternative. If it is determined during design, that the proposed project would result in an increase of more than 1 ft of the base flood elevation, a conditional letter of map revision and coordination with FEMA, the USACE, and the International Boundary and Water Commission (IBWC) would be required. TxDOT would coordinate the design with the IBWC for impacts to the floodplain of the Rio Grande.

4.7 IMPACTS TO WATERS OF THE U.S., INCLUDING WETLANDS

4.7.1 No-Build Alternative

Under the No-Build Alternative, there would be no anticipated impacts to waters of the U.S., including wetlands.

4.7.2 Reasonable Alternatives

Land clearing during construction activities would remove vegetative cover and may increase surface runoff during storm events which could lead to erosion. If runoff is allowed to flow into water bodies without erosion and sediment control measures, increased turbidity and sedimentation may modify water chemistry due to elevated levels of sediments, nutrients, and pollutants. Changes in water chemistry could diminish suitable habitat for aquatic species, including littoral zone plants, and alter wetland functions and values. BMPs would be incorporated at appropriate stages during construction to address erosion and runoff and eliminate impacts to wetland and aquatic systems.

Wetland functions and values are the processes wetlands perform and the measurements of the benefit these functions. Examples of wetland functions include nutrient cycling, flood-flow alteration, sediment stabilization, and providing plant and animal habitat. The wetland values derived from these functions are measured in different ways, such as their ability to improve water quality, provide economic benefits for wetland-dependent businesses, help in stabilizing global levels of carbon dioxide, reduce flood damage, and provide recreational opportunities (Texas Parks and Wildlife Department [TPWD] 2007h). Short-term impacts to wetland functions and values include temporary water quality degradation, wildlife habitat loss, and a decrease in some recreational uses. Construction activities that fill wetlands can alter the ecological and hydrological values as well as the functions of those wetlands. The clearing of vegetation and

the filling of wetlands can result in a permanent loss of wetland wildlife habitat. Again, BMPs would be incorporated at appropriate stages during construction to address erosion and runoff and eliminate impacts to wetland and aquatic systems

The National Agricultural Imagery Program 2008 1-meter aerial photographs from the Texas Natural Resources Information System, National Wetland Inventory (NWI) maps, published soil survey maps, and geographic information system data from the Texas General Land Office were used to determine the location and acreage of potential wetlands within each reasonable alternative. Although a delineation was not completed, a site visit was made to verify locations of resources. All potential wetland areas were delineated on these maps and transferred to an aerial background image managed with a geographic information system. **Exhibit 4-6** details the locations of potential wetlands within each alternative.

Alternatives were reviewed as required by EO 11990 requirements, and no practicable alternatives to the proposed project were identified. **Table 4-17** above provides a summary of the potential wetlands located within the proposed ROW for all of the reasonable alternatives.

As shown in **Table 4-17**, potential NWI wetlands are located within the proposed ROW of all four reasonable alternatives. Wetlands within the proposed ROW for the reasonable alternatives ranges from a minimum of 0.3 acre (Alternative 3, roadway and drainage pond proposed ROW combined) to a maximum of 0.9 acre (Alternative 1, roadway and drainage pond proposed ROW combined). These wetlands are all located within the American Canal or adjacent to the Rio Grande. Additionally, all four reasonable alternatives would have crossings of potentially jurisdictional waters of the U.S. (arroyos) and man-made drainage features (drainage ditches and canals). Once the Preferred Alternative is chosen, a wetland delineation would be performed to identify and delineate all of the wetlands and other waters of the U.S. within the ROW for the Final EIS.

4.7.2.1 Permits

Based on preliminary design information, all features would be avoided during construction by placing all piers and pilings outside the jurisdictional limits of these areas. The project would not result in the placement of temporary or permanent dredge or fill material into jurisdictional waters of the U.S., including wetlands or other special aquatic sties. Bridge structures would span these features and no box culverts are proposed. Therefore, a Nationwide Permit 14 for Linear Transportation Crossings without a pre-construction notification would be utilized for bridges spanning these waters within the proposed ROW. Because impacts to U.S. waters or wetlands are not anticipated, compensatory mitigation would not be required. During the next phase of design, if design modifications are needed which have the potential to impact a jurisdictional wetland or waters of the U.S., further coordination with the USACE would be conducted and a Section 404 permit may be required.

There is no potential to affect federal-listed species, designated critical habitat, or any historical properties listed or eligible for listing on the NRHP which would be adversely impacted by the proposed project. The proposed project does not include a bridge in or over a navigable water of the U.S.; therefore, the General Bridge Act and Section 10 of the Rivers and Harbors Act does not apply.

4.8 ECOLOGICAL IMPACTS

4.8.1 Vegetation Impacts

4.8.1.1 No-Build Alternative

Under the No-Build Alternative, there would be no anticipated impacts to vegetation.

4.8.1.2 Reasonable Alternatives

The primary impacts to vegetation resulting from site preparation and construction of the proposed project is the removal of existing vegetation from the ROW and any construction staging areas. Direct impacts to vegetation communities could entail the alteration of vegetation, soils, and hydrology. Terrestrial vegetation may be mowed and/or removed in preparation for construction. Depending on construction needs, soils would be graded or amended with fill, and heavy equipment would compact soils, which often alters their characteristics. As the topography and vegetation are altered, hydrologic conditions associated with runoff and drainage flow would also change, although appropriate design measures would minimize these impacts. Unpaved disturbed areas within the ROW and staging areas would be revegetated. BMPs would include, at a minimum, seeding or sodding of disturbed areas.

The construction of a new roadway affects the environment at various levels of geographic scale, from the microscopic to the landscape level. On a landscape level, the ecological communities currently existing within the study area would be fragmented to some degree.

Habitat fragmentation is the disruption of large continuous blocks of habitat into smaller, less continuous habitats. The smaller habitat blocks support fewer individuals and the blocks can become isolated from adjacent blocks reducing the flow of genetic material throughout the population and between meta-populations. Habitat fragmentation is of greatest concern for wide-ranging animals. Each of the reasonable alternatives for the proposed project would contribute to the fragmentation of habitats within the study area. The general location and orientation of the reasonable alternatives contribute to the ecological significance of habitat fragmentation in the study area. All of the proposed reasonable alternatives are located within urban areas that are already heavily developed and fragmented.

The direct impacts of construction, operation, and maintenance of the proposed ROW add an element of disturbance to the ecosystem. The vegetation communities occurring along the reasonable alternatives would be directly impacted by construction-related activities. The potential fragmentation of habitat and wildlife corridors and the potential modifications of hydrologic and nutrient cycling as well as the transfer processes are also likely to have an impact on natural communities. Wetland and aquatic systems are impacted in a similar fashion through direct disturbance by heavy machinery compaction and scarification, the placement of fill and construction materials, and the disruption of hydrological and nutrient cycling. As with other elements of the ecosystem, wildlife communities are impacted by the permanent loss of habitat. In addition to direct construction-related mortality or injury, wildlife populations may suffer impacts associated with habitat fragmentation and displacement into adjacent habitats.

During a January 2012 field survey, a qualified biologist identified three vegetation communities. Each of which can be generally categorized under the mapped vegetation types of Texas. These communities include Mesquite-Sandsage Shrub, bare ground, and riparian. No rare vegetation series were identified within the preliminary study area used in **Chapter 3** or the refined study area in **Chapter 4**. Although each of these communities would be potentially

impacted, only riparian habitats, which may contain jurisdictional wetlands, within the community types are regulated by state and federal resource agencies.

Vegetation community impacts were calculated using aerial photo interpretations within a geographic information system and are summarized in **Table 4-18**. While vegetation communities do occupy the areas of the ROW for each reasonable alternative, a majority of the ROW contains areas of bare ground. Impacts to bare ground are provided in **Table 4-18**. Since these bare areas are not vegetated, they are not included in the totals for vegetation impacts, but are included in the totals for habitat impacts. The areas are occupied by existing ROW, rail yards, the former ASARCO smelter facility and various other structures. **Exhibit 4-7** details the location of vegetation communities within the study area. The descriptions are more specific to the area; therefore, vegetation community descriptions differ slightly from those listed in **Chapter 3**, which are regional in nature.

Reasonable Alternative 2 would have the most vegetation impacts; approximately 25.8 acres total (roadway and drainage pond proposed ROW combined). Reasonable Alternative 4 would have the least impacts, approximately 15.9 acres total (roadway and drainage pond proposed ROW combined). Additionally, Reasonable Alternative 2 would have the most habitat impacts; approximately 115.6 acres total (roadway and drainage pond proposed ROW combined). Reasonable Alternative 4 would have the lowest habitat impacts; approximately 92.3 acres total (roadway and drainage ponds proposed ROW combined).

Rare Vegetation Communities

No rare vegetation series (S1, S2, and S3) communities would be impacted by the reasonable alternatives. However, riparian sites are present along the Rio Grande within the study area. Riparian vegetation represents a very small proportion of the total vegetation within the study area. Reasonable Alternatives 1 and 4 would have the highest impact (approximately 1.06 acres), and Reasonable Alternative 2 would have the least impact (approximately 0.3 acre). Reasonable Alternative 3 would have no impact to riparian vegetation.

No known habitat for federal candidate species, S1 or S2 vegetation communities, occur within the study area.

Special Habitat Features

No bottomland hardwoods, caves, cliffs, bluffs, seeps, springs, or snags were identified within the study area.

4.8.1.3 Construction Phase Impacts on Vegetation

Grading and any vegetation clearing would be minimized to the areas needed and to the extent practical within the proposed project ROW. Only those areas that need to be cleared for construction would be disturbed. In addition to direct construction impacts to vegetation within the ROW, dust, erosion, and sediment may affect adjacent vegetation communities. These impacts would be minimized and detailed in contract specifications, where applicable, through an efficient construction schedule, appropriate use of temporary and long term BMPs throughout the period of potential disturbance, and the use of water application through a mist or spray for dust control. BMPs identified in construction specifications would include both temporary and permanent planting, seeding, and compost manufactured top soil to enhance re-vegetation, where applicable. Reseeding and re-vegetation using native species is highly recommended, where soil and growing conditions warrant.

Table 4-18: Vegetation Community Impacts Within Reasonable Alternatives

Vegetation Types	No-Build	Reasonable Alternatives											
		Alt. 1	Alt. 1 Ponds	Total Alt. 1	Alt. 2	Alt. 2 Ponds	Total Alt. 2	Alt. 3	Alt. 3 Ponds	Total Alt. 3	Alt. 4	Alt. 4 Ponds	Total Alt. 4
Mesquite-Sandsage Shrub	0	14.0	4.8	18.8	20.4	5.1	25.5	16	5.1	21.1	10	4.8	14.8
Bare Ground	0	56.6	25.3	81.9	61.8	28	89.8	56.5	28	84.5	51.1	25.3	76.4
Riparian	0	1.06	0	1.06	0.3	0	0.3	0	0	0	1.06	0	1.06
Total Habitat	0	71.7	30.1	101.8	82.5	33.1	115.6	72.5	33.1	105.6	62.2	30.1	92.3
Total Vegetation	0	15.1	4.8	19.9	20.7	5.1	25.8	16.0	5.1	21.1	11.1	4.8	15.9

Note: All numbers are shown in acres
 Source: HNTB 2012

4.8.2 Wildlife Impacts

4.8.2.1 Terrestrial Wildlife

No-Build Alternative

Under the No-Build Alternative, there would be no anticipated impacts to terrestrial wildlife.

Reasonable Alternatives

Potential impacts to wildlife resulting from the proposed project can be attributed to the interaction/avoidance of wildlife with construction machinery, the loss of wildlife habitat, habitat fragmentation, and wildlife/vehicle collision mortalities. These impacts would occur during construction of the proposed project and would potentially result in direct impacts to fish and wildlife resources in the study area. Additionally, some impacts including wildlife/vehicle collision would continue to occur, subsequent to construction of the proposed project.

Wildlife inhabiting areas within the reasonable alternatives would be required to relocate to adjacent habitats in order to survive. Heavy machinery and other construction equipment may induce mortality of wildlife species that are slow moving, fossorial (adapted to burrowing and life underground), or those species that seek cover in debris and fallen vegetation. These include species of amphibians, gophers, lizards, and snakes.

Wildlife populations adjacent to the study area would also be impacted by construction noise and activity that could cause adjacent wildlife populations to seek refuge further away from the edge of the study area. Once completed, noise and traffic activity would continue to persist, albeit at a lower level. Studies have indicated that breeding activity and population size of certain avian species such as the Eastern Meadowlark (*Sturnella magna*) and Horned Lark (*Eremophila alpestris*) decrease as traffic (i.e., traffic noise) increases, while other species such as the Red-winged Blackbird (*Agelaius phoeniceus*) increase (Forman 2002; Clark 1979). It is difficult to differentiate the effects of visual disturbance, habitat fragmentation, or increased mortality due to the roadway from the effects of increased noise. Species that benefit from edge habitats and tolerate increased noise and visual disturbances would occupy habitats near the road or within the ROW upon completion of the proposed project. However, these species tend to be generalists and are not considered to be species that are declining. Overall, it is expected that wildlife diversity and composition would be slightly altered as a result of the proposed project; however, no substantial long-term impacts to wildlife populations would result from increased noise and visual disturbances beyond the buffered area adjacent to the proposed project ROW. Impacts due to habitat fragmentation may occur beyond the buffer area.

The primary impacts from the reasonable alternatives to wildlife species inhabiting the study area are loss of habitat and habitat fragmentation. As shown in **Table 4-18**, Reasonable Alternative 4 would result in the least amount of impacts (92.3 acres, roadway and drainage pond proposed ROW combined) to wildlife habitat (Mesquite-Sandsage Shrub, bare ground, and riparian) resulting in the least amount of adverse impacts to wildlife. Reasonable Alternative 2 would result in the largest amount of impacts (115.6 acres) to wildlife habitat. Because a majority of these impacts are located on bare ground or previously disturbed areas, such as ASARCO and existing ROW, impacts to area habitat are not anticipated to be significant.

4.8.2.2 Migratory Bird Treaty Act (MBTA) No-Build Alternative

No impacts to migratory birds would be anticipated with the No-Build Alternative.

Reasonable Alternatives

The MBTA 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. Multiple parks and recreation areas in El Paso provide important migratory bird fallout areas for birds migrating along the Central Flyway (TPWD 2005). A cursory nest survey was conducted in January 2012 within the areas proposed for clearing under the proposed design changes. No active nests were observed at the time of the site survey, and no evidence of migratory birds was observed within the overpass and drainage improvement project limits. In accordance with the MBTA, no vegetation would be removed containing nests, eggs, or young should clearing occur during the nesting and breeding season. If a nest, eggs, or young of a ground-dwelling bird is observed before or during construction, the proper participating agencies would be notified and steps would be taken to avoid impacts to the bird and nest.

4.8.2.3 Essential Fish Habitat (EFH) No-Build Alternative

No impacts to EFH would be anticipated with the No-Build Alternative.

Reasonable Alternatives

The Magnuson-Stevens Fishery Conservation and Management Act defines EFH as "...those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 U.S.C. 1802, 2010) (NMFS 2012). Although the Rio Grande and several of its tributaries occur in the study area and meet the definition of EFH, 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. The reasonable alternatives are not expected to impact EFH as defined by 16 U.S.C. 1802.

4.8.3 Threatened and Endangered Species Impacts

4.8.3.1 No-Build Alternative

No impacts to threatened and endangered species would be anticipated with the No-Build Alternative.

4.8.3.2 Reasonable Alternatives

Chapter 3 provides a complete listing, status, and habitat requirements of all federal- and state-listed threatened and endangered species that are known to occur within El Paso, County. **Chapter 3** also details if habitat for federal- or state-listed threatened and endangered species is located within the study area. The following discussions and tables identify those species which may be impacted by the reasonable alternatives. Species or habitat omitted from the sections below have not been identified within the ROW and are not anticipated to experience impacts or effects from the proposed project.

A review of the TPWD's Texas Natural Diversity Database (TxNDD) occurrences for the proposed project was obtained January 2012. TxNDD documented 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 in further detail in the following sections. In addition, the Western Burrowing Owl, a state rare species, was observed near the eastern

portions of the study area, and their habitat is present within the proposed ROW for the reasonable alternatives. There have been no other recorded sightings of any federal- or state-listed species within close proximity of the study area or within the proposed ROW. However, it should be noted that an absence of data for a particular species does not mean an absence of occurrence for threatened, endangered, and rare species. **Table 4-19** below identifies each species and a determination of effect or impact for each.

Table 4-19: Potential Impacts to Rare, Threatened and Endangered Species

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

Table 4-19: Potential Impacts to Rare, Threatened and Endangered Species

Scientific Name	Common Name	USFWS Status*	TPWD Status**	Habitat Present	Determination of Effect/Impact
<i>Myotis ciliolabrum</i>	western small-footed bat		--	No	No Impact
<i>Myotis yumanensis</i>	Yuma myotis bat		--	Yes	May Impact
REPTILES					
<i>Trachemys gaigeae</i>	Big Bend slider		--	No	No Impact
<i>Trimorphodon vilkinsonii</i>	Chihuahuan desert lyre snake		T	No	No Impact
<i>Phrynosoma hernandesi</i>	mountain short-horned lizard		T	No	No Impact
<i>Thamnophis sirtalis dorsalis</i>	New Mexico garter snake		--	Yes	May Impact
<i>Phrynosoma cornutum</i>	Texas horned lizard		T	Yes	May Impact
MOLLUSKS					
<i>Sonorella metcalfi</i>	Franklin Mountain talus snail		--	No	No Impact
<i>Ashmunella pasonis</i>	Franklin Mountain wood snail		--	No	No Impact

Source: TPWD last updated: 11/1/2011; USFWS 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

Plant Species

Rare, threatened, and endangered plant species would be directly impacted during ROW clearing activities. Due to the stationary nature of plant species, the clearing of ROW would result in the removal of the species from the proposed ROW area. Plant species used to revegetate the ROW would have the potential to out-compete the native threatened and endangered plant species. In addition, the disturbance of the soils during ROW preparation would increase the potential for invasive species, including non-native invasive species, to become established in the study area further competing with native plant species.

The TxNDD reports known populations of sand prickly-pear and Texas false saltgrass within the study area. Soil conditions in the proposed ROW are not conducive for supporting populations of the sand prickly-pear. However, soil conditions within the proposed ROW could support populations of Texas false saltgrass and the desert night blooming cereus. However, none of these species was observed during field reconnaissance.

Table 4-20 lists the plant species that would be potentially impacted by the proposed Loop 375 Border Highway West Extension Project.

Table 4-20: Potentially Impacted Rare, Threatened and Endangered Plants

Scientific Name	Common Name
<i>Allolepis texana</i>	Texas false saltgrass
<i>Brickellia baccharidea</i>	resin-leaf brickellbush
<i>Colubrina stricta</i>	Comal snakewood
<i>Peniocereus greggii var greggii</i>	desert night blooming cereus

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

Texas false saltgrass is a state-listed rare species. The TxNDD reports a population of Texas false saltgrass (EO ID 784) within the western portion of the study area. Sandy to silty soils (suitable habitat for Texas false saltgrass) are present within the proposed ROW of all the reasonable alternatives. No Texas false saltgrass populations were identified within the proposed ROW. However, the proposed project may impact Texas false salt grass.

Resin-leaf brickellbush is a state-listed rare species. The TxNDD does not report any populations within the study area. Gravelly soils derived from limestone and igneous rocks (suitable habitat for the resin-leaf brickellbush) occur along all of the reasonable alternatives. No resin-leaf brickellbush populations were identified within the proposed ROW. However, the proposed project may impact resin-leaf brickellbush.

Comal snakewood is a state-listed rare species. The TxNDD does not report any populations within the study area. Sandy soils at the base of igneous rock outcrops (suitable habitat for Comal snakewood) occur along Reasonable Alternatives 2 and 3. No Comal snakewood populations were identified within the proposed ROW. However, the proposed project may impact Comal snakewood.

Desert night blooming cereus is a state-listed rare species. The TxNDD does not report any populations within the study area. Sandy to silty soils (suitable habitat for desert night blooming cactus) are present within the proposed ROW of all the reasonable alternatives. No desert night blooming cactus populations were identified within the proposed ROW. However, the proposed project may impact desert night blooming cactus.

Amphibians

Amphibian species may be directly affected by displacement due to habitat conversion within the proposed ROW. Individuals in the study area may also experience harassment effects (in the form of disturbance of normal behavior or activities) as a result of construction. These effects would be temporary; occurring only during the construction activities. Due to the relatively small home ranges of the threatened and endangered amphibian species, the clearing of ROW could lead to the destruction of an individual’s home range. Individuals occupying the proposed ROW would be pushed into adjacent habitats where they would be forced to compete with existing populations for food and cover resources. Due to the fossorial habits of most of the amphibians, the clearing of ROW and earth moving construction activities could lead to the mortality of individual amphibians.

Table 4-21 lists the amphibian species potentially impacted by project activities.

Table 4-21: Potentially Impacted Rare, Threatened and Endangered Amphibians

Scientific Name	Common Name
<i>Rana pipiens</i>	Northern leopard frog

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

The TxNDD does not report any populations of the state-listed rare Northern leopard frog within the study area. Canals, floodplains, and streams (suitable habitat for the Northern leopard frog) occur along all reasonable alternatives. No Northern leopard frog populations were identified within the proposed ROW. However, the proposed project may impact Northern leopard frog.

Birds

Bird species may be directly affected by displacement due to habitat conversion within the proposed ROW. Individuals in the study area may also experience harassment-effects (in the form of disturbance of normal behavior or activities) as a result of construction. These effects would be temporary; occurring only during the construction activities. Because of their mobility, direct mortality of bird species from project construction activity is unlikely to occur. However, the loss of nesting, foraging, and cover habitats could impact the fecundity and survival of the bird species. Individuals occupying the proposed ROW would be pushed into adjacent habitats where they would be forced to compete with existing populations for food and cover resources.

Table 4-22 lists the bird species potentially impacted by project activities.

Table 4-22: Potentially Impacted Rare, Threatened and Endangered Birds

Scientific Name	Common Name
<i>Athene cunicularia hypugaea</i>	Western Burrowing Owl

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

The TxNDD does not report any populations of the state-listed rare Western Burrowing Owl within the study area. Habitat, especially vacant lots near human habitation, campuses, and banks of irrigation canals (all suitable for the Western Burrowing Owl) occurs along all of the proposed reasonable alternatives. One Western Burrowing Owl was observed (June 2012) outside the study area at the Bowie High School. No ROW impacts would take place at this location. No Western Burrowing Owls, or their burrows, were identified within the proposed ROW. However, habitat for the Western Burrowing Owl is present along all of the reasonable alternatives. Therefore, the proposed project may impact Western Burrowing Owl.

Insects

Insect species may be directly affected by displacement due to habitat conversion within the proposed ROW. Individuals in the study area may also experience harassment-effects (in the form of disturbance of normal behavior or activities) as a result of construction. These effects would be temporary; occurring only during construction activities. Due to the relatively small home ranges of the threatened and endangered insect species, the clearing of ROW could lead to the destruction of an individual’s home range. Individual insects occupying the proposed ROW would be pushed into adjacent habitats where they would be forced to compete with existing populations for food and cover resources. There is no known habitat for any state- or federal-listed threatened and endangered or state-listed rare insect species located within the proposed reasonable alternatives ROW or the study area.

Fish

Fish species could be directly impacted by the increased suspended sediment occurring during sediment disturbing activities associated with the placement of piers and pilings for the bridge structures. Individuals in the study area may also experience harassment-effects (in the form of disturbance of normal behavior or activities) as a result of construction. These effects would be temporary; occurring only during construction activities. However, at this time no direct impacts to waters (See **Section 4.6** and **4.7**) are anticipated. All piers and pilings for elevated structures would span any water bodies and no box culverts are proposed.

Table 4-23 lists the fish species potentially impacted by project activities.

Table 4-23: Potentially Impacted Rare, Threatened and Endangered Fish

Scientific Name	Common Name
<i>Notropis simus simus</i>	bluntnose shiner

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

The TxNDD does not report any populations of the state-listed threatened bluntnose shiner within the study area. Although suitable habitat for the bluntnose shiner is present along Reasonable Alternatives 1, 2, and 4, the species is now believed to be extirpated from the Rio Grande. No populations of the bluntnose shiner were identified within the proposed ROW. However, the proposed project may impact bluntnose shiner.

Mammals

Mammal species may be directly affected by displacement due to habitat conversion within the proposed ROW. Individuals in the study area may also experience harassment effects (in the form of disturbance of normal behavior or activities) as a result of construction. These effects would be temporary and occur only during construction activities. Because of the mobility of most mammals, direct mortality from project construction activity is unlikely to occur. However, fossorial species, such as the desert pocket gopher, would be susceptible to mortality due to ROW and earth moving construction activities. The loss of nesting, foraging, and cover habitats could impact the fecundity (the ability to produce offspring frequently and in large numbers) and survival of the mammal species. Individuals occupying the proposed ROW would be pushed into adjacent habitats where they would be forced to compete with existing populations for food and cover resources. Mammal species with relatively large home ranges or species that migrate between habitats would be impacted by the fragmentation of migration corridors and the increased risk of wildlife/vehicle collisions.

Table 4-24 lists the mammal species potentially impacted by project activities.

Table 4-24: Potentially Impacted Rare, Threatened and Endangered Mammals

Scientific Name	Common Name
<i>Myotis velifer</i>	cave myotis bat
<i>Geomys arenarius</i>	desert pocket gopher
<i>Myotis thysanodes</i>	fringed bat
<i>Corynorhinus townsendii pallescens</i>	pale Townsend's big-eared bat
<i>Ondatra zibethicus ripensis</i>	Pecos River muskrat
<i>Myotis yumanensis</i>	Yuma myotis bat

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

The cave myotis bat, the fringed bat, pale Townsend's big-eared bat, and the Yuma myotis bat are all state-listed rare species. The TxNDD does not report any populations for these species within the study area. Suitable habitat for all of these bat species is present within the proposed ROW for all of the reasonable alternatives. No populations of the cave myotis bat, the fringed bat, pale Townsend's big-eared bat, or the Yuma myotis bat were identified within the proposed ROW. However, the proposed project may impact these species.

The desert pocket gopher is a state-listed rare species. The TxNDD does not report any populations within the study area. Habitat including edges of rivers and irrigation canals (suitable habitat for the desert pocket gopher) are present along Reasonable Alternatives 1, 2, and 4. Desert pocket gophers are a fossorial species and would be susceptible to mortality due to ROW and earth moving construction activities. No populations of the desert pocket gopher were identified within the proposed ROW. However, the proposed project may impact these species.

The Pecos River muskrat is a state-listed rare species. The TxNDD reports occurrence of the Pecos River muskrat (EO 1459) within the study area. Bodies of slow-moving water (suitable habitat for the Pecos River muskrat) are present along Reasonable Alternatives 1, 2, and 4. No populations of the Pecos River muskrat were identified within the proposed ROW. However, the proposed project may impact the Pecos River muskrat.

Reptiles

Reptile species may be directly affected by displacement due to habitat conversion within the proposed ROW. Individuals in the study area may also experience harassment-effects (in the

form of disturbance of normal behavior or activities) as a result of construction. These effects would be temporary; occurring only during construction activities. Due to the relatively small home ranges of some of the threatened and endangered reptile species, the clearing of ROW could lead to the destruction of an individual’s home range. Due to the burrowing habits of the snakes and the Texas horned lizard, the clearing of ROW and earth moving construction activities could lead to the mortality of individual reptiles. Individual terrestrial reptiles occupying the proposed ROW would be pushed into adjacent habitats where they would be forced to compete with existing populations for food and cover resources.

Table 4-25 lists the reptile species potentially impacted by project activities.

Table 4-25: Potentially Impacted Rare, Threatened and Endangered Reptiles

Scientific Name	Common Name
<i>Thamnophis sirtalis dorsalis</i>	New Mexico garter snake
<i>Phrynosoma cornutum</i>	Texas horned lizard

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

The New Mexico garter snake is a state-listed threatened species. The TxNDD does not report any populations within the study area. Although suitable habitat for the New Mexico garter snake is present along all of the reasonable alternatives; the species is now believed to be extirpated from Texas. No populations of the New Mexico garter snake were identified within the proposed ROW. However, the proposed project may impact the New Mexico garter snake.

The Texas horned lizard is a state-listed threatened species. The TxNDD does not report any populations within the study area. Suitable habitat for the Texas horned lizard is present along all of the reasonable alternatives. No populations of the Texas horned lizard were identified within the proposed ROW. However, the proposed project may impact the Texas horned lizard.

Mollusks

Mollusks can be directly impacted by the increased suspended sediment occurring during sediment disturbing activities associated with the placement of piers and pilings for the bridge structures. These effects are temporary; occurring only during construction activities. There is no known habitat for any federal- or state-listed threatened and endangered or state-listed rare mollusk species located within the proposed reasonable alternatives ROW or the study area.

Summary of Threatened and Endangered Species Impacts

The proposed project has the potential to affect three species of rare plants, one species of rare amphibians, one species of rare birds, one species of rare fish, six species of rare mammals, and two species of rare reptiles. The TxNDD reports occurrences for three state-listed rare species (Pecos River muskrat, sand prickly-pear, and Texas false saltgrass) within the study area. The sand prickly-pear does not have habitat within the reasonable alternatives. The Pecos River muskrat and Texas false saltgrass both have habitat within the ROW of the reasonable alternatives and may be impacted by the proposed project. As cooperating and participating agencies, U.S. Fish and Wildlife Department (USFWS) and TPWD have been included the planning process for the proposed project. Coordination will continue for any potential impacts to federal- or state-listed species.

4.8.3.3 Construction Phase Impacts on Threatened and Endangered Species

Ground scraping and vegetation removal are activities that can potentially affect threatened and endangered species. Marginal habitat for some of the state and federal listed species is present in the proposed study area, but no actual listed species were found or recorded within the

proposed project limits. If listed species are found or suspected during any phase of construction, work would cease in that area and TxDOT personnel would be notified. TxDOT would then immediately notify the USFWS and/or TPWD of the occurrence. Work would not continue at that location until all required coordination is complete and necessary permits/clearances have been obtained.

4.9 CULTURAL RESOURCES IMPACTS

4.9.1 Impacts to Archeological Resources

4.9.1.1 No-Build Alternative

No impacts to archeological resources in the study area would be anticipated under the No-Build Alternative.

4.9.1.2 Reasonable Alternatives

The El Paso area boasts a rich archeological and cultural heritage representing the Paleo-Indian through Historic periods. The Area of Potential Effect (APE) for the proposed project is the ROW for the roadway and drainage ponds. The entire APE falls within a wide band of Holocene alluvium associated with the Rio Grande drainage system. 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 deeply buried archeological deposits. It is particularly true for older prehistoric sites, which can potentially be very deeply buried. However, most later-period sites (Mesilla through Historic period) would typically be found on the surface or shallowly buried. The contextual integrity of those surface archeological discoveries may be poor as a result of later construction activities in the urbanized proposed project APE.

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 may be buried in some locations within the study area in contexts that retain varying degrees of integrity.

Although there are many sites within the general study area, only four sites are actually within the reasonable alternatives (including the proposed drainage ponds) for the Loop Border Highway West Extension Project. These four sites are 41EP5792, 41EP6782, 41EP4673, and 41EP37. In general, however, the potential for unrecorded archeological resources within the APE is high. The proposed project runs through downtown El Paso and many of the buildings and structures there are of historic-age, if not already listed as a federal, state, or local landmark of significance. Historic period unrecorded archeological resources could be present in several locations, though it is true that in well-developed portions of the study area, many surface sites relating to the Historic period may have been destroyed by recent construction and development. However, some features, such as buildings, have potential to preserve archeological sites (mainly Historic period sites) underneath their foundations. It is particularly true within the downtown El Paso area, where buildings and parking lots constructed during the first to middle half of the twentieth century could have been built over the foundations and remains from earlier occupations. Removal of these building and parking lots often reveal partially intact remains from earlier time periods.

For the purpose of the discussion, the reasonable alternatives have been broken down into their components (Border A, Border B, Rail Yard A, Rail Yard B), followed by a summary of the combined alternatives. This analysis includes the proposed ROW for the proposed drainage

ponds. There are several areas in particular where the potential is very high for the proposed project to impact archeological resources: 1) within the ASARCO property along the Rail Yard B Alternative, 2) along the combined alternatives near Site 41EP37 and the Globe Mills property, 3) along the Border A Alternative where it overlaps the former Franklin Canal (now American Canal Extension), and 4) along the Rail Yard A Alternative that cuts through the Chihuahuita neighborhood. The areas are discussed in more detail below.

Border A

One archeological site is located within Border A: the Franklin Canal (Site 41EP4673). The Franklin Canal was constructed in 1889 to divert water from the Rio Grande to irrigate farmlands on the American side of the U.S.-Mexico border. Within Border A, the canal runs roughly parallel to the Rio Grande. Originally the canal was an open earthen ditch which frequently filled with silt and blocked water flow. As a result, portions have been improved with cement over the years. Elements of the original canal run adjacent to or overlap Border A as well as Rail Yard A. It is not clear whether the resource would contain interpretable archeological remains. However, the canal is a NRHP-listed resource that is within the proposed ROW of the reasonable alternatives. Consultation regarding effects is ongoing with the THC.

Border B

There are no previously recorded archeological sites within Border B. Much of the area in and around the alternative was previously surveyed and no cultural resources were documented. Currently, the land comprising Border B is industrial and heavily altered. There is low overall potential for unrecorded archeological resources within Border B.

Rail Yard A

There are no previously recorded archeological sites within Rail Yard A. However, Rail Yard A crosses through the Chihuahuita neighborhood. The neighborhood is considered a local historic district and bears a City of El Paso historical marker, but it is not currently on the NRHP. The neighborhood is locally significant for its association with early immigration. The 1908 Sanborn Fire Insurance Maps indicate that development was a mix of light industrial and residential, with most residential development consisting of tenements for Mexican immigrants. Currently, the area that would be impacted by Rail Yard A consists of warehouses, commercial structures, and parking lots. However, it is possible that the remains of those earlier tenement structures are located underneath the existing buildings. If present, these remains could be very significant under Criterion D of the NRHP listing criteria, since they could provide important data about Mexican immigrant lives at the beginning of the twentieth century. Therefore, there is high potential for unrecorded Historic period archeological resources within Rail Yard A.

Rail Yard B

There is one site, Site 41EP5792, within Rail Yard B. It is a bridge support from an early twentieth century roadway structure located just west of present-day I-10. It was recommended as ineligible for NRHP listing.

It should be noted that there is a moderate to high potential for archeological remains within Rail Yard B. Potential for prehistoric archeological remains is moderate along Rail Yard B within the ASARCO property. The area has not been surveyed archeologically and there are no structures currently located within the APE on that property. Aerial photography from 1950 suggests that some structures probably associated with ASARCO were close to portions of Rail Yard B, but some areas were vacant. Hence, surface or shallowly buried prehistoric sites may still be present on the property.

Archeological sites could also relate to ASARCO itself. ASARCO opened its lead smelting operation in El Paso in 1887. It began producing copper in 1910 and eventually processed other metals as well. At the beginning of the twentieth century, ASARCO officials laid out the basic outlines of a company town on the grounds of the smelter operation. In addition to residential and commercial facilities provided by the company, stores, saloons, and other businesses were established along the County Road (now US 85 (Paisano Drive)) that served as the backbone of the community. The resulting community was known as Smelertown and included the neighborhoods of Buena Vista, La Calavera Canyon (also known as Laguna due to frequent flooding), El Alto, El Bajo, Courchesne, and the descriptively named Smelter Terrace. Smelertown Cemetery, still in use, was established on the ASARCO grounds (Perales 2010).

Prior to 2009, the ASARCO property was highly contaminated and has been recently mitigated for hazardous materials. It is currently not known to what degree that mitigation may have affected the integrity of surface or near surface archeological deposits. However, significant earthwork has occurred on site for remediation purposes.

All Reasonable Alternatives

Two sites, 41EP37 and 41EP6782, are located within the ROW of all of the reasonable alternatives.

41EP37- Listed on the NRHP, Site 41EP37 relates to several periods and themes of significance for El Paso history. The NRHP listing identifies it as significant to El Paso history during the period 1850-1880, and as a former site of Fort Bliss. Its earliest period of significance is related to Simeon Hart, one of El Paso's earliest pioneers, who built a flour mill and home on the property. According to the National Register listing, Hart came to Texas in 1848 with a Cavalry unit stationed along the border. In 1849, he met and married the daughter of a wealthy grain miller in Chihuahua. That same year, he established his own flour mill on the north side of the Rio Grande, and within a year he had contracts with U.S. Army to supply grain. These contracts continued through the Civil War, making Hart the wealthiest man in El Paso when the 1860 census was taken. He built his home next to the mill and the building, formerly a restaurant, is still standing (El Paso County 2012).

In 1879, the heirs of Simeon Hart sold 135 acres of the Hart land grant, just north of the Hart home to the U.S. military to establish a new home for Fort Bliss. However, Simeon Hart's son, Juan, retained the Hart home and mill site and continued to live on the Hart property through the first years of the twentieth century, until his death in 1918 (El Paso Times 1936). When he died, he was buried on the property, but his remains were later moved to the Evergreen Cemetery. The remains of Simeon and his wife, Jesuita, were also interred on the Hart property and were believed to be near a monument that was removed during construction of US 85 (Paisano Drive) (Crawford et al. 2009). It is not clear whether their remains are still there, or whether they were disinterred when the road was built.

When the railroads were constructed in El Paso in the early 1880s, they went through the middle of the Fort Bliss Parade Ground (Cavalry Outpost 1996), splitting the post in two. Ultimately, the division led the military to seek a better and more strategic location for the post, and in 1893 it moved to its current location at Lanoria Mesa, north of town. The Old Fort Bliss property was eventually subdivided and sold off in lots.

In the early twentieth century, Globe Grain of California purchased a portion of the Old Fort Bliss site and opened the El Paso Grain and Milling Company, which eventually grew to be one of the City's most important industries (El Paso Herald 1910). The Globe Grain Company added ice

manufacturing to its industry shortly after opening the mill. Finally, a cotton seed oil compress was later built adjacent to the Globe Flour Mill.

There are several standing structures associated with Hart's Mill and Old Fort Bliss. These include two two-story apartment buildings that once served as officer's quarters, two barracks buildings, and the Hart home. Another set of buildings located just north of the Hart home may also be associated with either Hart's Mill or Old Fort Bliss. These structures are all located west of US 85 (Paisano Drive), both of which truncated older lot lines and demolished structures once associated with Hart's Mill or Old Fort Bliss. No archeological investigations have occurred at Site 41EP37, but the potential for archeological remains associated with Hart or Old Fort Bliss is generally considered to be high in the 41EP37 area.

The current site boundary was drawn more than 40 years ago, when it was nominated for the NRHP, and research suggests it was arbitrarily drawn. Archeologically, remains relating to Hart's Mill and Old Fort Bliss could be present from the Rio Grande all the way to the Globe Mills property on the east, and extending northward well past Ruhlen Court. In fact, Site 41EP6782 is believed to potentially relate to Old Fort Bliss, though based on the suite of materials reported at the site, it could just as easily relate to some later occupation. The 1889 City of El Paso map depicts Hart's Mill and the boundary of Old Fort Bliss, which extends into the APE for the combined alternatives within the Globe Mills property.

Further, the Globe Mills property itself likely has significant industrial archeological remains related to its use as a flour mill and ice factory. Many of the original buildings associated with Globe Mills, the ice factory and the cotton oil compress are also still standing, though they are not currently considered contributing elements to the NRHP/SAL property for Hart's Mill and Old Fort Bliss. Nonetheless, these standing structures or the archeological remains around them could be eligible for listing since they appear to be relatively unaltered from their original construction and in context. Several early twentieth century buildings on the southern part of the Globe Mills complex are no longer standing, and foundations as well as other remains related to these could be present under parking lots and paved areas. Archeological remains related to Globe Mills could be quite significant, as they would represent industry in the early twentieth century. Similar sites have not been well-investigated archeologically in Texas, and well-preserved archeological remains related to Globe Mills could yield important data about industrial practices on the frontier.

Site 41EP6782- In 2011, recorders identified a debris concentration that they believed could relate to Old Fort Bliss or a domestic occupation. A large quantity of artifacts relating to the late nineteenth and early twentieth centuries was found in shovel tests to a depth of 50 centimeters below ground surface. The material found included gold-edged whiteware, aqua and solarized bottle glass, a bullet, stoneware, buttons, and animal bones. Recorders recommended backhoe trenching to determine the maximum depth of the debris, as well as identify possible features.

Summary Impacts to Archeological Resources for the Reasonable Alternatives

Table 26 illustrates the impacts for each reasonable alternative. To this data there is no public controversy regarding the project's impact on archeological sites and cemeteries.

**Table 4-26: Summary of Impacts to Archeological Resources
 by Reasonable Alternative**

Reasonable Alternatives (roadway and drainage ponds ROW combined)	Archeological Resource	Potential for Unrecorded Historic Period Archeological Resources
1	Site 41EP4673; Site 41EP6782; Site 41EP37	Low to Moderate
2	Site 41EP4673; Site 41EP5792; Site 41EP6782; Site 41EP37	Moderate to High
3	Site 41EP5792; Site 41EP6782 ; Site 41EP37	High
4	Site 41EP6782; Site 41EP37	High

Source: AmaTerra 2012

4.9.2 Impacts to Non-Archeological Historic Resources

4.9.2.1 No-Build Alternative

Effects to historic resources in the study area would not be anticipated with the No-Build Alternative.

4.9.2.2 Reasonable Alternatives Overview and Methodology

A Non-Archeological reconnaissance level Historic-age Resources Survey Report (HRSR) was completed for the proposed project. The report is on file at both TxDOT El Paso District and TxDOT Environmental Affairs Division (ENV) offices. The survey included only NRHP-listed resources and SALs located on parcels wholly or partially within the APE for the proposed project in El Paso County, El Paso, Texas.

The HRSR is divided into three segments for ease of discussion. Segment 1 extends approximately 1.5 mi from Racetrack Drive southeast to Executive Center Boulevard. Segment 2 extends approximately 4.7 mi from Executive Center Boulevard south along US 85 and south approximately 4.7 mi along the western ROW of I-10 to a point south of where the Yandell Bride crossed I-10. Segment 3 extends from the point south of where the Yandell Bridge crosses I-10 southeast to Santa Fe Street and then west for approximately 3.6 mi along Loop 375 to a point near Cypress Avenue. At Cypress Avenue, Segment 3 includes an interchange with US 85 with work extending approximately 0.7 mi west along US 85 from Cypress Avenue, Segment 3 extends approximately 1.4 mi to an end point at US 54.

The requirements related to historic resources for a state-funded project are defined under the Antiquities Code of Texas (ACT) (Texas Natural Resource Code, Title 9, Chapter 191) and the TAC (Title 13, Part 2, Chapter 26), including Rule Section 26.14 (c)(3)(C), which defines the APE of a state-funded project as follows:

The area of potential effects for all non-federal undertakings will be confined to the limits of the proposed project right of way (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 the HRSR included the entirety of all parcels wholly and partially within the existing or proposed

ROW (including the proposed drainage ponds), whichever were greater. The APE is believed to be adequate for the proposed project. The Survey Study Area (SSA) for the proposed project extends 1,300 ft beyond the APE for the proposed reasonable alternatives.

Table 4-27 presents the NRHP-listed historic districts within the APE and the anticipated proposed project effects to the districts. **Table 4-28** presents the NRHP-listed resources (individual properties, resources contributing to historic districts, and whole historic districts) and resources designated as SALs and the anticipated proposed project effects to these resources. **Exhibit 4-8a** shows NRHP-listed and SAL resources within the APE for the reasonable alternatives.

Table 4-27: Summary of Effects to NRHP-Listed Historic Districts in APE

Segment No.	Name of Historic District	Applicable Criteria and Area of Significance	Effect
2	Old Fort Bliss/Hart's Mill	A – Military and Commerce	ROW is required within the recommended boundary of the NRHP-listed historic district. However, no contributing resources are located within the APE. There would be no direct effects to the contributing resources and no adverse effect to the historic district. The effect determination to non-archeological resources is pending the archeology findings after the archeology survey.
3	El Paso County Water Improvement District No. 1 (EPCWID1)	A – Engineering and Agriculture	Proposed project will span contributing feature of EPCWID1, but No Adverse Effect

Source: Texas Historic Sites Atlas; HNTB 2012.

Table 4-28: Summary of Effects to NRHP-Listed Resources (Individual Properties and Individual Resources Contributing to Historic Districts) and Resources Designated as SALs and the Anticipated Proposed Project Effects to These Resources

Segment No.	Resource No. and Location	Individually Listed/Contributing to a Historic District/SAL	Relationship to APE	Effect
2	1dd – 1932 West Paisano Drive	Contributing to Old Fort Bliss/Hart’s Mill Historic District	District in APE, but not Resource	No Direct Effect
2	1hh – 1844 West Paisano Drive	Contributing to Old Fort Bliss/Hart’s Mill Historic District	District in APE, but not Resource	No Direct Effect
2	1ii – 1836 West Paisano Drive	Contributing to Old Fort Bliss/Hart’s Mill Historic District	District in APE, but not Resource	No Direct Effect
2	1oo – 1720 West Paisano Drive	Contributing to Old Fort Bliss/Hart’s Mill Historic District	District in APE, but not Resource	No Direct Effect
3	2f – Franklin Canal (western section of NRHP-Listed Canal)	Contributing to the EPCWID1 Historic District and contributing section of the Individually Listed Franklin Canal	In APE	No Adverse Effect
3	3 – El Paso Union Passenger Station	Individually NRHP-listed and designated as an SAL	Parcel in APE	No Adverse Effect to Building; ROW required from parcel

Sources: Texas Historic Sites Atlas; HNTB 2012; Upper Rio Grande Flood Control Project at: http://www.ibwc.state.gov/Organization/Operations/Field_Offices/URGFCP.html, accessed August 10, 2012.

Previously Designated Historic Resources Located within the APE

Both field and archival research revealed that the APE for Segment 1 contains no NRHP-listed or SAL resources with unrestricted addresses. Segment 2 contains one NRHP-listed historic district but no SALs with unrestricted addresses. Although the Texas Historic Sites Atlas shows the Elephant Butte Historic District extending into Segment 2, the district does not actually extend that far south as explained more thoroughly in Section 4.2.1 of the HRSR located at the TxDOT El Paso District and TxDOT ENV offices.

The previously designated NRHP-listed resources located in Segment 2 are the Old Fort Bliss/Hart’s Mill Historic District and the alignment of the NRHP-listed Franklin Canal near Hart’s Mill that was reconstructed in 1997 as the American Canal Extension. In 1972, the former site of Old Fort Bliss was added to the NRHP as a historic district that also included the site of Simeon Hart’s residence. Because the historic district included the site of Hart’s Mill and the Hart Residence, the district is referred to in the HRSR as the Old Fort Bliss/Hart’s Mill Historic District. The historic district is within the proposed project APE and is listed under Criterion A (Event) at the state level of significance within the areas of Commerce and Military. The NRHP Registration Form specifically identifies only the two extant Officers’ Quarters residences and “two long structures identified in Old Forts of the Southwest [Book authored by Herbert M. Hart, published in 1964 by Superior Publishing Company of Seattle Washington], as barracks buildings” as Fort Bliss buildings within the district (NRHP Old Fort Bliss 1972). However, in 1978, local historians realized that the original Fort Bliss adobe guardhouse, built in 1881, was extant and had been used as both a residence and a café over the years and is currently an office (Old, 1984). Although the 1972 NRHP listing does not specifically include the guardhouse, the listing boundary appears to include the location of the guardhouse site. The NRHP Registration Form also mentions, “A thorough archeological investigation of the site is expected to reveal numerous ruins of Old Fort Bliss structures and the remains of Simeon Hart’s mill and residence.” The investigation for the HRSR revealed the following:

- The Hart Residence is extant with relatively few alterations since the Hart Family ceased to occupy it in 1935.
- The “two long structures” identified as barracks in the 1972 Registration Form are no longer extant and appear to have been constructed after the Old Fort Bliss period (1879-1893). These buildings were not shown on the plat prepared by Captain George Ruhlen on September 1893 and furthermore are not visible on any of the historic photographs or drawings of Old Fort Bliss. These buildings are visible in photographs taken during the construction of the American Canal and may have been added to the property when the Officers’ Quarters were converted to apartments. Consultants for the proposed project do not believe that the buildings identified as barracks in the 1972 NRHP Registration Form were ever associated with Old Fort Bliss.
- The Old Fort Bliss Guard House is extant at 1920 West Paisano Drive, but has been altered by relatively large additions on the south and east sides.

The boundary information in the 1972 NRHP Registration Form is minimal, which was not uncommon in early NRHP registration forms. It consists of a verbal description as well as four latitude/longitude coordinates and an amount of acreage. The three boundary descriptions are in conflict with each other and therefore consultant historians were asked to recommend an appropriate boundary for the historic district. See **Exhibit 4-8b** for the Old Fort Bliss/Hart’s Mill Boundary Study.

The recommended NRHP boundary for Old Fort Bliss/Hart’s Mill includes the following:

- Land where all the Old Fort Bliss structures were located as shown on the 1893 Ruhlen plat as well as buildings shown in historic photographs and drawings and the extant Old Fort Bliss buildings; and
- Land where Hart’s Mill buildings and structures were located as shown in historic photographs and drawings as well as the extant Hart Residence.

Maps delineating the boundary recommendation can be found in the HRSR on file at the TxDOT El Paso District and TxDOT ENV offices.

The recommended boundary does not include all of Lot 23 noted as the cemetery on the 1893 Ruhlen plat. Because most of Lot 23 is either under I-10 or is included in the area excavated to construct the underpass for West Schuster Avenue to pass under I-10, those parts of Lot 23 are not included within the recommended boundary. The project archeologists and historians believe that whatever remains may have been in the ground were so disturbed by the construction activities associated with I-10, that the area is no longer a probable archeological site.

The 1992 NRHP nomination for the Franklin Canal included parts of the Franklin Canal in Segments 2 and 3, but the parts of the Franklin Canal located in Segment 2 were reconstructed in 1997. Segment 3 includes the EPCWID1 Historic District, and the El Paso Union Passenger Station. Within Segment 3, the open section of the Franklin Canal (east of downtown) is the only resource contributing to the EPCWID1 Historic District. Although the EPCWID1 includes most of the Franklin Canal, the EPCWID1 NRHP nomination written in 1997 specifically excluded the American Canal Extension which was under construction at that time. The American Canal Extension was part of the Upper Rio Grande Flood Control Project and the American Canal Extension was a 12-mi project which reconstructed the Franklin Canal from the

headgate at Hart's Mill to the Leon Street Wasteway near Chihuahuita, and then followed a route along the U.S. side of the Rio Grande until it connected to the Riverside Canal east of downtown El Paso. Therefore; the EPCWID1 Historic District definitely does not include any part of the Franklin Canal west of the Leon Street Wasteway because that section was reconstructed to become part of the American Canal Extension. The generalized polygon boundary for EPCWID1 shown in the THC Historic Sites Atlas is misleading and inaccurate because it appears to include the American Canal Extension and exclude part of the Franklin Canal. The actual nomination makes it clear that EPCWID1 includes Franklin Canal east of downtown and excludes the American Canal Extension. See **Exhibits 4-8c** (American Canal Detail) and **4-8d** (Franklin Canal and EPCWID1 Detail).

When the Franklin Canal NRHP nomination was written in 1992, the American Canal Extension had not been proposed. The Franklin Canal NRHP nomination excluded the part of the canal that had been relocated in the 1960s as follows:

The canal, without the concrete lined sections present in some places today, has been in existence since 1889 along its present route with the exception of a 1 1/2 mile section through downtown El Paso. [The changed route dates only from the 1960s so the newer section of the canal is not nominated. Neither is the segment of the original canal which now serves as a city park through downtown El Paso. Consequently the nomination is for two sections of 1 1/4 and 27 3/4 miles.]

The 1.5 mi changed route from the 1960s is located between the Leon Street Wasteway and where the Franklin Canal changed direction to flow north, away from the Rio Grande (near Loop 375 and the eastern terminus of East First Avenue). However, since the Franklin Canal NRHP nomination was approved, the section of the canal between the headgate at Hart's Mill and the Leon Street Wasteway (about 1.25 mi) has been completely reconstructed and re-named as the American Canal Extension. As a result of the reconstruction, that section of the canal is almost entirely underground with only three very short open sections, one at a railroad crossing, one at the Robertson-Umbenhauer Water Treatment Plant, and one at the Leon Street Wasteway. Therefore, the reconstruction completely changed the character of the previously open canal. Therefore, Resources 2a, 2b, 2c, 2d, and 2e are recommended as non-contributing elements of the Franklin Canal NRHP-listed property. In contrast, Resource 2f contributes to the Franklin Canal historic resource and is also a contributing element of the EPCWID1 Historic District.

The El Paso Union Passenger Station is listed in the NRHP, designated as a SAL, and designated as an RTHL, and is located on a parcel within the APE. The parcel on which the El Paso Union Passenger Station sits is 32 acres. The 1974 hard-copy NRHP Nomination from the THC file states that there are three acres included in the NRHP nomination for the El Paso Union Passenger Station. The project consultant examined the site and identified a logical NRHP boundary of about three acres of land surrounding the El Paso Union Passenger Station building (See **Exhibit 4-8e** for the El Paso Union Passenger Station Detail). The interpreted NRHP boundary for the El Paso Union Passenger Station is within the SSA but outside the APE. None of the reasonable alternatives would have a direct effect to the land within the interpreted NRHP boundary or to the El Paso Union Passenger Station building itself, but the proposed project would require ROW from the 32-acre parcel on which the El Paso Union Passenger Station sits.

The Magoffin Homestead is the other extant SAL with an unrestricted address located within the SSA of Segment 3, but is located outside the APE. The Magoffin Homestead is also NRHP-

listed and is designated as a State Historic Site, a local Landmark, and is listed as contributing to the local Magoffin Historic District. The Old Bowie High School had been designated as SAL, but was demolished in 1989 and a new Administration and Resource Building for Guillen Intermediate School was constructed on the site.

Summary of NRHP-Listed and SAL Properties Within the APE

No NRHP-listed resources are located within Segment 1. As previously described, the nearest NRHP-listed property is the Elephant Butte Irrigation District, but no contributing features of that Historic district are located within the APE or the SSA of the proposed project. See **Exhibit 4-8f** for the Elephant Butte Irrigation Boundary Study. The only NRHP-listed resources in Segment 2 are the Old Fort Bliss/Hart's Mill Historic District (including four resources that contribute to the historic district) and two non-contributing elements of the NRHP-listed Franklin Canal.

The 1992 NRHP nomination for the Franklin Canal includes property in both Segments 2 and 3 within the APE. The only NRHP-listed resources in Segment 3 within the APE are the Franklin Canal, the EPCWID1 Historic District, and the El Paso Union Passenger Station. The El Paso Union Passenger Station is also SAL. Within Segment 3, the Franklin Canal is the only resource contributing to the EPCWID1 Historic District, but the EPCWID1 does not include the American Canal Extension which was under construction at that time of the nomination. Therefore, the EPCWID1 Historic District definitely does not include any part of the Franklin Canal west of the Leon Street Wasteway because that section was reconstructed to become part of the American Canal Extension (See **Exhibit 4-8c** American Canal Detail and **Exhibit 4-8d** Franklin Canal and EPCWID1 Detail). Thus, Resources 2a, 2b, 2c, 2d, and 2e are not part of the EPCWID1 Historic District, and are recommended as non-contributing elements of the Franklin Canal NRHP-listed property. In contrast, Resource 2f contributes to the Franklin Canal historic resource and is also a contributing element of the EPCWID1.

Effects to NRHP-Listed or SAL Properties

Because there are no NRHP-listed or SALs with unrestricted addresses within the APE for Segment 1, there are no effects from the proposed project within Segment 1.

In Segment 2, there would be no direct impacts to any of the four resources (Resource Nos. 1dd, 1hh, 1ii, and 1oo) contributing to the Old Fort Bliss/Hart's Mill Historic District. The proposed project proposes to acquire ROW on the east side of US 85 (Paisano Drive) within the recommended boundary of the NRHP-listed Old Fort Bliss/Hart's Mill Historic District. However, the acquisition of ROW within the recommended boundary is not an adverse effect because there would be no direct impact to the contributing resources of the district. The contributing resources, which vary in integrity of materials, design, and workmanship, would retain integrity of location and association with the Old Fort Bliss/Hart's Mill Historic District. The integrity of setting and feeling have been compromised over time by the following:

- Introduction of the Yandell bridge;
- Introduction of buildings constructed after the period of significance (1878-1893) surrounding the contributing resources;
- Changes to the roads in front of the contributing resources; and
- Construction of the American Canal behind the contributing resources.

The historic-age resources located on the east side of US 85 (Paisano Drive) date from 1909-1950s and were therefore not associated with either Old Fort Bliss or Hart's Mill. The changes proposed would not affect the ability of the Old Fort Bliss/Hart's Mill Historic District's

contributing resources to convey their significance under Criterion A for Military and Commerce. The proposed project is proposed as a state-funded project and, therefore, Section 4(f) of the Department of Transportation Act of 1966 (as amended) would not apply. However, the following conclusions can be made by using the regulation as guidance: the act of acquiring property without contributing resources is not an adverse effect as long the acquisition does not adversely affect the contributing resources within the historic district. Should an adverse impact occur to the property, a Chapter 26 A Notice of Availability (NOA) would be published in the *Texas Register*, and a public hearing notice would be published four times in the both the *El Paso Times* and *El Diario de El Paso* newspapers in accordance with Chapter 26. Chapter 26 does not constitute a mandatory prohibition against the use of a historic district property if findings are made that justify the approval of a program or project. It should be noted that the determination can only be made after notice and a public hearing have been held.

Potential archeological resources are the only possible contributing resources located within the historic district areas proposed to be acquired for ROW. Effects to archeological resources would be addressed in an archeological resources survey report to be completed during the Final EIS process.

Effects to the Franklin Canal/EPCWID1 would be adverse only if the proposed project disturbed the structure or function of the irrigation system. In other words, spanning the Franklin Canal or a contributing element of EPCWID1 Historic District would not be an adverse effect. The proposed project would cross the alignment of the original Franklin Canal at three places. Of the three places that the proposed project proposes to cross listed below, the first two are in the portion recommended as non-contributing to the NRHP-listed Franklin Canal because it was reconstructed as the American Canal Extension. The three crossings are:

1. Just southwest of the western terminus of Porfirio Diaz Street (west of Sunset Heights) – Recommended as non-contributing to the NRHP-listed Franklin Canal.
2. At the Leon Street Wasteway, near the western terminus of Calleros Court – Recommended as non-contributing to the NRHP-listed Franklin Canal.
3. At César E. Chávez Border Highway (Loop 375), just south of the eastern terminus of East First Avenue – contributing to both the NRHP-listed Franklin Canal and the EPCWID1 Historic District

The current schematic plans call for completely spanning the Franklin Canal as well as the American Canal Extension with no piers impacting the canal, and therefore there would be no adverse effect to the American Canal Extension, the Franklin Canal, or to EPCWID1.

All reasonable alternatives would require ROW for two retention ponds from the 32-acre parcel on which the El Paso Union Passenger Station (aka Resource No. 3) sits. Reasonable Alternatives 3 and 4 would require ROW for new alignment southwest of the El Paso Union Passenger Station building (See **Exhibit 4-8e**). Currently, Sun Metro has bus pavilions and maintenance facilities on the same 32-acre parcel as El Paso Union Passenger Station. All of the reasonable alternatives would replace the Sun Metro bus pavilion with a retention pond. The bus pavilion is located across a street and just west of the El Paso Union Passenger Station building, but within the 32-acre parcel. The second retention pond is smaller and about 1000 feet west of the station building. Neither the retention ponds nor the alignments for Alternative 3 and 4 would have any direct effect to the El Paso Union Passenger Station building. The building retains integrity of location, materials, design, and workmanship. The integrity of feeling and setting have been compromised by changes to the surrounding area over time including the buildings introduced to the site by Sun Metro. As a transportation resource,

the introduction of more transportation infrastructure as shown in the proposed project reasonable alternatives would have no adverse effect to the El Paso Union Station Passenger building because the resource would retain its ability convey its significance under Criterion A for Transportation and Criterion C for Architecture after the introduction of the retention ponds and new alignments.

4.10 HAZARDOUS MATERIALS SITES IMPACTS

4.10.1 No-Build Alternative

Current conditions on existing hazardous materials sites would remain unaltered with the No-Build Alternative, unless remediation plans are in place. Existing remediation plans, such as those underway for the ASARCO site, would continue to occur independently of the proposed project under the jurisdiction of the TCEQ and EPA.

4.10.2 Reasonable Alternatives

For any of the four reasonable alternatives, impacts associated with hazardous materials would most likely occur during construction and would be related to activities on or near existing hazardous materials sites. The hazardous materials sites either have already impacted and/or have the potential to impact the existing environment. Regulated sites also create the potential of contaminating sites adjacent to them, creating a risk for the acquisition of those properties. ROW acquisition would be required for the Preferred Alternative. Prior to ROW negotiation and/or acquisition, an American Society for Testing and Materials (ASTM) Phase I Environmental Site Assessment (ESA) would need to be conducted for the Preferred Alternative. A Phase II ESA may also be necessary depending on the findings of the Phase I ESA. The Phase II ESA would provide additional testing and sampling of all potential hazardous materials sites and would include a remediation plan, if warranted.

During the hazardous materials analysis, the proposed roadway alignment and associated drainage structures for each reasonable alternative were combined. Therefore, each reasonable alternative is defined as the roadway improvements with associated drainage improvements for the purposes of analyzing the total potential hazardous materials impacts.

4.10.2.1 Regulated Hazardous Materials Sites

GIS spatial data layers of hazardous materials records were overlaid onto existing mapping of the study area in order to locate all documented sites associated with the regulatory database search (**Appendix H**). Appropriate search distances, as shown in **Table 4-29**, were used for each of the four reasonable alternatives. **Table 4-29** also serves as an index to hazardous materials database acronyms referenced in **Section 4.10**.

Table 4-29: Search Distances for Regulated Materials Recorded within ASTM Standard

Database	Search Radius (miles) from Project Limits	Number of Sites Recorded within Limits, per Database
Federal		
National Priority List (NPL)	1.00	0
Delisted National Priority List (DNPL)	0.50	0
Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS)	0.50	7
Comprehensive Environmental Response, Compensation and Liability Information System No Further Remedial Action Planned (CER NFRAP)	0.50	6
Resource Conservation and Recovery Act (RCRA) Information System – Corrective Action (RCRA COR ACT)	1.00	1
RCRA Information System – Treatment, Storage, & Disposal (RCRA TSD)	0.50	16
RCRA Information System – Generators (RCRA GEN)	0.25	34
Federal Engineering and Institutional Controls (Federal IC/EC)	0.50	0
Federal Brownfields (FED BROWNS)	0.25	6
Emergency Response Notification System (ERNS)	0.25	27
State/Tribal		
State/Tribal Sites	1.00	1
State/Tribal CERLIS (ST CER)	0.50	0
State/Tribal Solid Waste Disposal or Landfill (SWLF)	0.50	2
State/Tribal Leaking Underground Storage Tanks (LPST)	0.50	139
State/Tribal Underground/Aboveground Storage Tanks (PST)	0.25	250
State/Tribal Engineering Controls (ST EC)	0.50	0
State/Tribal Institutional Controls (ST IC)	0.25	0
State/Tribal Voluntary Cleanup Program (VCP)	0.50	7
State/Tribal Brownfields	0.50	1
Other		
RCRA	0.25	102
Dry Cleaners (DRYC)	0.25	4
Industrial Hazardous Waste (IHW)	0.25	153

Source: Banks 2010

Of the 756 regulated hazardous materials records identified within the study area, approximately 260 records for 154 sites were located within the ASTM search radii of the four reasonable alternatives. Site visits were conducted in January 2012 to verify the locations of the documented sites and to identify other potential risks that may not have been previously documented for the study area. Project aerials were also reviewed. **Table 4-30** lists the sites within the ASTM search distances for each reasonable alternative. **Exhibit 4-9** depicts the location of each site.

Table 4-30: Regulated Hazardous Materials Sites

Map ID No.	Company	City of El Paso Address	Database	Within ASTM Standard Search Radius of Alternative
4	Manufacturera del Bravu Sade CV	300 East Main Street	IHW	All
4	Bravo Manufacturing	300 East Main Street, Suite 902	RCRA	All
5	Sitsa Transportation	1730 Bassett Avenue, Ste A	IHW, RCRA GEN, RCRA TSD	All
6	Speedy Press	100 Porfirio Diaz Street	IHW	All
6	UPRR Tower 196 Fueling Facility	800 Porfirio Diaz Street	PST	All
8	Applied Environmental Services	1600 Delta Drive	IHW(2), RCRA	All
8	Elsa E Mendoza Transportation	1600 Delta Drive, Suite F	RCRA TSD	All
11	Southdown, Inc./SW Portland Cement Co.	2825 West Paisano Drive	CER NFRAP, IHW, VCP	All
11	Jobe Concrete	2825 West Paisano Drive	IHW, RCRA GEN, RCRA TSD	All
11	Sunbelt Concrete	2825 West Paisano Drive	LPST	All
11	Southwestern Sunbelt	2825 West Paisano Drive	PST	All
13	El Paso Gas, Electric Light & Power	Corner West 3 rd and Santa Fe Street	CERCLIS	All
15	Texaco Bulk Plant	Paisano Drive and Eucalyptus St	CER NFRAP	All
16	El Paso Drum Site	525 Canal Road	CERCLIS	All
16	El Paso Terminal Warehouse	525 Canal Road	PST	All
17	Midtown Body & Glass	1615 East Paisano Drive	IHW, RCRA	All
19	Sun Metro	200 San Francisco, 700 A San Francisco Street	IHW(2), LPST(2), PST, RCRA	All
23	Ward Company	1515 Magoffin Avenue, Suite 31	IHW, RCRA	All
25	El Paso Natural Gas	100 North Stanton Street	IHW, RCRA(2)	All
25	El Paso Hydrocarbons	Texas at Stanton Street	IHW	All
25	Terrell Plant	100 North Stanton Street	IHW	All
25	100 North Stanton Tower	112 North Stanton Street	PST	All
25	Pecos Co.	Texas at Stanton Street	RCRA	All
28	Earthgrains Baking Co.	711 South Kansas Street	IHW	All
28	Rainbo Baking Co.	711 South Kansas Street	PST	All
32	General Tire Service	160 North Cotton Street	IHW, PST, RCRA	All
36	Farah USA	1500 East 3rd Avenue	IHW	All

Table 4-30: Regulated Hazardous Materials Sites

Map ID No.	Company	City of El Paso Address	Database	Within ASTM Standard Search Radius of Alternative
38	Whitfield Tanks Lines	777 Executive Center Boulevard	IHW, LPST, PST, RCRA	All
40	N/A	805 South Santa Fe Drive	ERNS	All
40	In-Terminal Services	805 South Santa Fe Drive	IHW	All
40	Santa Fe Rail Yard	805 South Santa Fe Drive	PST	All
45	Taylor-Simpkins Welding	1805 West Paisano Drive	IHW, RCRA	All
52	Transportes J y R	306 East Paisano Drive, Suite 232	IHW, RCRA	All
54	American Plating Co.	120 North Cotton Street	IHW	All
55	IBWC, American Dam	2616 West Paisano Drive	IHW, LPST, PST, RCRA	1, 4 (Border B)
56	Why Wastewater	3350 Doniphan Drive	IHW	All
57	South El Paso Hospital	702 East Paisano Drive	IHW, RCRA	All
59	Missouri Pacific Truck Lines, Inc.	1500 East Overland Street	IHW	All
59	UPRR Dallas Yard	1500 East Overland Street	PST, RCRA	All
61	El Paso Electric	601 South Santa Fe Drive behind the Maintenance Facility	IHW, LPST	All
61	Santa Fe Service Center	601 South Santa Fe Drive	PST, RCRA	All
63	Chevron Facility 70868	219 East Paisano Drive	IHW, LPST, PST, RCRA	All
74	Chevron Facility 73303	600 Mesa Street	IHW, RCRA	All
75	National Business Services	1601 Magoffin Avenue	IHW, RCRA	All
82	A Division of Ansell Corporation Warehouse	323 Canal Road	IHW	All
82	El Paso Distribution Center	323 Canal Road	PST	All
83	Rainbo Baking	600 West Paisano Drive	IHW(2)	All
84	Division of Acme Boots	1500 East Paisano Drive	IHW	All
84	Dan Post Boots	1500 East Paisano Drive	RCRA	All
86	Guynes Printing Co.	614 South Stanton Street	IHW, RCRA	All
87	Fire Department Maintenance Dept.	131 North Cotton Street	IHW, LPST, PST	All
89	Chevron Facility 74340	220 East Paisano Drive	IHW, LPST(2), PST, RCRA	All
93	EDEC	303 North Oregon Street	IHW	All
96	US Plating Works	101 Ruhlen Court	IHW	All
97	Hilton Camino Real Paso Del Norte	101 South El Paso Street	IHW, PST, RCRA	All

Table 4-30: Regulated Hazardous Materials Sites

Map ID No.	Company	City of El Paso Address	Database	Within ASTM Standard Search Radius of Alternative
100	W. Silver Recycling	1720 Magoffin Avenue	IHW, LPST, PST	All
101	El Paso Iron & Metal	1535 East San Antonio Avenue	IHW	All
103	Pronto Paint & Body Shop	1420 Myrtle Avenue	IHW, RCRA GEN	All
104	City Hall Building, Energy Generator	2 Civic Center Plaza	IHW, PST	All
105	Paisano Auto Savage	1908 West Paisano Drive	LPST	All
105	Arturo Garcia	1908 West Paisano Drive	PST	All
108	El Paso Fire Department, City of El Paso	1930 Magoffin Avenue	IHW, RCRA	All
109	Wrangler, Inc.	501 West Paisano Drive	IHW, LPST(2), PST, RCRA	All
113	Greyhound Bus Maintenance Facility, Lines	201 West Main Street	LPST, PST, RCRA GEN	All
114	EDCO Corp	West Paisano Drive	LPST, PST	All
115	Kessels Pump Service	1806 Magoffin Avenue	LPST(2)	All
115	BAMCO	1806 Magoffin Avenue	PST	All
117	Diamond Shamrock 1266	1600 East Paisano Drive	LPST(2), PST	All
118	Ruddock Manufacturing	1825 Magoffin Avenue	IHW	All
119	Mayfield Lumber Pool	1516 East San Antonio Street	LPST, PST	All
121	National Restaurant Supply	West San Antonio Street	LPST, PST	All
122	Midwest Textile Company	1600 East San Antonio Drive	LPST	All
123	Hanley Paint MFG	1531 Magoffin Avenue	LPST, PST	All
124	Hampport Investments	1609 East Paisano Drive	LPST, PST	All
127	Rio Grande Thunderbird	2000 West Paisano Drive	LPST, PST	All
128	Federal Research Bank of Dallas	301 East Main Street, El Paso Branch	LPST, PST	All
129	KOC Equipment Company	1700 Paisano Drive	LPST, PST	All
130	Borden Machinery Company	1708 Paisano Drive	LPST, PST(2)	All
130	Ortega Construction Company, Inc.	1708 East 1 st Street	LPST, PST	All
131	Tree Lawn Corp	3424 Doniphan Drive	LPST	All
133	Chevron USA	600 North Mesa Street	LPST, PST	All
135	El Paso Waste Material	900 Canal Road	LPST, PST	All

Table 4-30: Regulated Hazardous Materials Sites

Map ID No.	Company	City of El Paso Address	Database	Within ASTM Standard Search Radius of Alternative
140	Paragon Cable	1500 Bassett Maintenance Area	LPST, PST	All
141	Guillen School	900 South Cotton Street	LPST,PST	All
142, 14	ASARCO	2301, 2401 West Paisano Drive	CERCLIS, ERNS(3), IHW, LPST(2), PST, RCRA COR, RCRA GEN, RCRA TSD, VCP	All
143	Environmental Impact	3452 Doniphan Drive	LPST	All
145	Northwest Wastewater Treatment Plant	701 Executive Center Drive	LPST, PST	All
148	Chevron 78065	618 North El Paso Street	LPST, PST	All
153	Paisano Auto Supply	East Paisano Drive	LPST	All
153	Paisano Texaco	600 East Paisano Drive	PST	All
154	UPRR El Paso Fueling Facility, Yard	Cotton and Overland Streets	LPST, PST	All
154	N/A	No address available	ERNS	All
156	N/A	1518 Ladrillo Place	ERNS	All
157	N/A	300 North Park	ERNS	All
158	N/A	Executive Center Boulevard/ UPRR	ERNS	1, 4 (Border B)
163	El Paso Valley Cotton Association	212 Southeast 8th Street	LPST, PST	All
165	Production International	1533 Bassett Avenue	RCRA GEN	All
167	Oglebay Norton Minerals, Inc.	I-10 and Executive Center Boulevard	VCP	All
170	Oglebay Norton Industrial	34 San Marcos Street	RCRA GEN	All
171	Bortec, Inc	221 North Kansas Street, Suite 1205	RCRA	All
175	A&I Supply Co	139 North Cotton Street	IHW, RCRA GEN	All
176	El Paso Machine & Steel	1600 East 4th Avenue	PST	All
185	Diamond Shamrock 1365	300 South Saint Vrain Street	PST	All
186	Professional Food Systems	1700 Delta Drive	PST	All
187	Wardy Nut	1620 Myrtle Avenue	PST	All
190	Paisano Truck Stop	311 West Paisano Drive	PST	All
191	Circle K Store 2701227	1400 West Yandell Drive	PST	All
193	C&R Fuel Systems	28 San Marcos Street	PST	All
194	Paso Del Norte Parking	120 West San Antonio Avenue	PST	All
195	Parkrite Garage	405 North Oregon Street	PST	All

Table 4-30: Regulated Hazardous Materials Sites

Map ID No.	Company	City of El Paso Address	Database	Within ASTM Standard Search Radius of Alternative
199	Greyhound Lines	200 West San Antonio Street	PST	All
200	Wylar Industrial Works	711 South Street Vrain Street	PST	All
201	RB Wicker Tire & Rubber	701 West Paisano Drive	PST	All
205	Billy the Kid	331 South Santa Fe Street	IHW	All
205	No. 11 Fire Station	331 South Santa Fe Street	PST	All
207	El Paso Water Utilities	220 North Lee Street; 210 North Lee Street	PST(2)	All
209	Biodyne Chemical Co	1315 West Main Street	PST	All
210	Gas Mart USA	401 South Santa Fe Street	PST	All
211	El Paso- Los Angeles Limo Express	720 South Oregon Street	PST	All
214	CEMEX Torro Plant	3125 West Paisano Drive	PST	All
216	Super Motor	1001 East Paisano Drive	PST	All
218	Futrell Funeral Home	201 East Yandell Drive	PST	All
222	Ochoa Bulk Plant	719 South Ochoa Street	PST	All
223	Commercial Bakery	1312 East San Antonio Street	PST	All
226	Tristate Equipment Company	410 South Cotton Street	PST	All
227	Stanton Street Property	601 North Stanton Street	PST	All
229	Ultra Mart	1414 East Paisano Drive	PST	All
229	Los Paisanos LV Yardieni	1414 East Paisano Drive	PST	All
230	Downtown Chevron 9	715 North Stanton Street	PST	All
231	MAG Industries	1535 Bassett Street	PST	All
232	Cortez on the Plaza	310 North Mesa Street	PST	All
234	Witel Communications ELPTXIW	201 East Main Drive	PST	All
234	Quest El Paso Main	201 East Main Street	PST	All
235	Mack Massey	950 Crockett Street	PST	All
243	Mission Linen Supply of El Paso	1431 Texas Street	PST	All
247	Fleet Car-Truck Rental	1420 Texas Avenue	PST	All
251	The 2nd Hand Store	180 North Cotton Street	PST	All
258	Western Auto	425 East Paisano Drive	PST	All
261	Wylar Warehouse	802 South Saint Vrain Street	PST	All
263	Frontier Foods	1515 East Paisano Drive	PST	All
266	N/A	1601 East 4 th Avenue	ERNS	All
268	N/A	418 South Durango Street	FED BROWNS	All
270	N/A	1614 Texas Street	ERNS	All

Table 4-30: Regulated Hazardous Materials Sites

Map ID No.	Company	City of El Paso Address	Database	Within ASTM Standard Search Radius of Alternative
277	Eastside Ind. Property	Stanton Street & Yandell Drive	PST	All
279	Lawyers Title of El Paso	East Yandell Drive	PST	All
284	Agelus Cleaners	816 North Mesa Street	DRYC, IHW, RCRA	All
286	Harding-Orr & McDaniel	320 Montana Avenue	PST	All
290	So Cal	506 West Yandell Drive	IHW	All
294	Discount Furniture	900 North Mesa Street	PST	All
295	Sunland Park Automotive/Exxon	950 Sunland Drive	LPST(2), PST	All
306	First Savings Bank	909 North Mesa Street	LPST, PST	All
330	Brisco	447 Executive Center Boulevard	PST	2, 3 (Rail Yard B)
370	Ray Ward and Sons	417 Executive Center Boulevard	LPST	2, 3 (Rail Yard B)
371	Lester Humphrey Inc.	4120 Rio Bravo Street, Suite 105	IHW, RCRA	2, 3 (Rail Yard B)

Source: Banks 2010

Of the approximately 260 records for 154 sites noted within the ASTM standard search radii for the reasonable alternatives, 51 documented sites fall within, or are located immediately adjacent to, the proposed ROW of one or more reasonable alternatives. Each of the sites was ranked on a level of risk (low, moderate, high) for encountering recognized environmental conditions (RECs) during construction of the proposed project. The risk level was based on the nature of the REC, the documented status of the site, and whether the REC was adjacent to or within the footprint of the proposed reasonable alternative. The documented sites are summarized in **Table 4-31**.

Table 4-31: Documented REC Sites Within or Adjacent to the Reasonable Alternatives ROW

Map ID; Ex 4-9 Pg. #	Site Name	Within Proposed Footprint or Adjacent to Reasonable Alternative (list)	Database	Status	Level of Risk
8; Pg. 6	Applied Environmental Services	Alternatives 1, 2, 3, 4: Adjacent	IHW(2)	(1) Inactive, (1) Active	Low
			RCRA	Not a generator; violations issued	
	Elsa E Mendoza Transportation	Alternatives 1, 2, 3, 4: Adjacent	RCRA TSD	Not a generator	Low
11; Pg. 2	Southdown, Inc./SW Portland Cement Co.	Alternatives 1, 4: Within	CER NFRAP	Archived 1982	High
			IHW	Inactive	
			VCP	No data available	
	Jobe Concrete	Alternatives 1, 4: Within	IHW	Merged	High
			RCRA GEN	Conditionally Exempt Small Quantity Generator; violation issued	
			RCRA TSD	Conditionally Exempt Small Quantity Generator	
Sunbelt Concrete	Alternatives 1, 4: Within	LPST	Final concurrence issued, case closed	High	
Southwestern Sunbelt	Alternatives 1, 4: Within	PST	1 tank out of use; 3 tanks removed from ground	High	
13; Pg. 5	El Paso Gas, Electric Light & Power	Alternatives 1, 2, 3, 4: Adjacent	CER	2005: Site unarchived	High
14; Pgs. 2, 3	American Smelting Co – El Paso Smelting Works (ASARCO)	Alternatives 1, 2, 3, 4: Within	CER	Site is managed by a Trustee and is actively under remediation refer to Section 4.16.2 for additional details.	High
16; Pg. 5	El Paso Drum Site	Alternatives 1, 2, 3, 4: Adjacent	CER	1991: Admin record opened	High
	El Paso Terminal Warehouse	Alternatives 1, 2, 3, 4: Adjacent	PST	3 tanks: In use 5 tanks: Temp out of use 8 tanks: Removed from ground	Moderate
17; Pg. 5	Midtown Body & Glass	Alternatives 1, 2, 3, 4: Within	IHW	Inactive	Moderate
			RCRA	Not a generator; violations issued	
19; Pgs. 4, 5	Sun Metro	Alternatives 1, 2, 3, 4: Within	IHW(2)	Inactive	High
			LPST(2)	(2) Final concurrence issued, case closed, groundwater impact	
			PST	4 tanks: In use; 5 tanks: Temp out of us; 7 tanks: removed from ground	
			RCRA	Not a generator; violations issued	
36; Pg. 6	Farah USA	Alternatives 1, 2, 3, 4: Adjacent	IHW	Inactive	Low

Table 4-31: Documented REC Sites Within or Adjacent to the Reasonable Alternatives ROW

Map ID; Ex 4-9 Pg. #	Site Name	Within Proposed Footprint or Adjacent to Reasonable Alternative (list)	Database	Status	Level of Risk
38; Pg. 2	Whitfield Tanks Lines	Alternatives 1, 4: Within	IHW	IHW: Active	High
			LPST	Final concurrence issued, case closed, soil impact	
			PST	4 tanks: removed from ground	
			RCRA	Not a generator; violations issued	
40; Pg. 5	In-Terminal Services	Alternatives 1, 2: Adjacent	IHW	Inactive	Low
	In-Terminal Services	Alternatives 3, 4: Within	IHW	Inactive	Moderate
	N/A	Alternatives 1, 2: Adjacent Alternatives 3, 4: Within	ERNS	Non-hazardous incident	None
	Santa Fe Rail Yard	Alternatives 1, 2: Adjacent Alternatives 3, 4: Within	PST	2 tanks: In use; 2 tanks: Removed from ground	Moderate
45; Pg. 4	Taylor-Simpkins Welding	Alternatives 1, 4: Adjacent	IHW	Inactive	Moderate
			RCRA	Not a generator; violations issued	
		Alternatives 2, 3: Within	IHW	Inactive	High
			RCRA	Not a generator; violations issued	
55; Pg. 2	IBWC, American Dam	Alternatives 1, 4: Within	IHW	Inactive	Moderate
			LPST	Final concurrence issued, case closed, GW impact	
			PST	5 tanks: Removed from ground; 1 tank: Filled in place	
			RCRA	Not a generator	
56; Pg. 1	Why Wastewater	Alternatives 1, 2, 3, 4: Within	IHW	Inactive	Moderate
			RCRA TSD	Not a generator; corrective actions issued	
59; Pg. 6	Missouri Pacific Truck Lines, Inc.	Alternatives 1, 2, 3, 4: Adjacent	IHW	Active	Low
	UPRR Dallas Yard	Alternatives 1, 2, 3, 4: Adjacent	PST	2 tanks: Removed from ground	Low
			RCRA	Not a generator; violations issued	
61; Pg. 5	El Paso Electric	Alternatives 1, 2, 3, 4: Adjacent	IHW	Closure request	Moderate
	Santa Fe Service Center	Alternatives 1, 2, 3, 4: Adjacent	LPST	Final concurrence issued, case closed, soil impact	Moderate
			PST	4 tanks: Removed from ground	
			RCRA	Not a generator; violations issued	

Table 4-31: Documented REC Sites Within or Adjacent to the Reasonable Alternatives ROW

Map ID; Ex 4-9 Pg. #	Site Name	Within Proposed Footprint or Adjacent to Reasonable Alternative (list)	Database	Status	Level of Risk
82; Pg. 5	A Division of Ansell Corporation Warehouse	Alternatives 1, 2: Adjacent Alternatives 3, 4: Within	IHW	Inactive	Low
	El Paso Distribution Center	Alternatives 1, 2: Adjacent Alternatives 3, 4: Within	PST	6 tanks: Removed from ground	Low
83; Pg. 5	Rainbo Baking	Alternatives 1, 2: Adjacent	IHW(2)	Inactive, Merged	Low
		Alternatives 3, 4: Within	IHW(2)	Inactive, Merged	Moderate
84; Pg. 6	Division of Acme Boots	Alternatives 1, 2, 3, 4: Within	IHW	Inactive	Moderate
	Dan Post Boots	Alternatives 1, 2, 3, 4: Within	RCRA	Not a generator; violations issued	Moderate
96; Pg. 4	US Plating Works	Alternatives 1, 2, 3, 4: Adjacent	IHW	Inactive	Low
105; Pgs. 3, 4	Paisano Auto Savage, Arturo Garcia	Alternatives 1, 2, 3, 4: Adjacent	LPST	Pre-assessment / release determination, soil impact	Moderate
109; Pg. 5	Wrangler, Inc.	Alternatives 1, 2, 3, 4: Adjacent	IHW	Inactive	High
			LPST(2)	Final concurrence issued, case closed	
			PST (2)	6 tanks: Removed from ground	
			RCRA	RCRA: not a generator; violations issued	
114; Pg. 5	EDCO Corp	Alternatives 3, 4: Adjacent	LPST	Final concurrence pending documentation of well plugging; groundwater impact	High
			PST	1 tank removed from ground	
117; Pg. 6	Diamond Shamrock 1266	Alternatives 1, 2, 3, 4: Within	LPST(2)	1) Final concurrence issued, case closed; aquifer impact 2) Final concurrence issued, case closed; groundwater impact	High
			PST	4: In Use	
124; Pg. 6	Hamport Investments (UT System)	Alternatives 1, 2, 3, 4: Within	LPST	Final concurrence issued, case closed; groundwater impact	High
			PST	17 tanks: Removed from ground	
127; Pgs. 3, 4	Rio Grande Thunderbird	Alternatives 1, 2, 3, 4: Adjacent	LPST	Monitoring; groundwater impact	High
			PST	4 tanks: Removed from ground	
129; Pg. 6	KOL Equipment Company	Alternatives 1, 2, 3, 4: Adjacent	LPST	Final concurrence issued, case closed; groundwater impact	High
			PST	6 tanks: Removed from ground	

Table 4-31: Documented REC Sites Within or Adjacent to the Reasonable Alternatives ROW

Map ID; Ex 4-9 Pg. #	Site Name	Within Proposed Footprint or Adjacent to Reasonable Alternative (list)	Database	Status	Level of Risk
130; Pg. 6	Borden Machinery Company	Alternatives 1, 2, 3, 4: Adjacent	LPST	Final concurrence issued, case closed; soil impact 1) 5 tanks removed from ground; 2) 1 tank removed from ground	Moderate
			PST (2)		
	Ortega Construction Company, Inc.	Alternatives 1, 2, 3, 4: Adjacent	LPST	Final concurrence issued, case closed; ground impact	High
			PST	Out of use	
131; Pg. 1	Tree Lawn Corp	Alternatives 1, 2, 3, 4: Within	LPST	Final concurrence issued, case closed; ground impact	High
135; Pg. 5	El Paso Waste Material	Alternatives 1, 2: Adjacent Alternatives 3, 4: Adjacent	LPST	Final concurrence issued, case closed; soil impact	Moderate
			PST	7 tanks: Removed from ground	
142, 14; Pgs. 2, 3	ASARCO	Alternatives 1, 2, 3, 4: Within	CER, ERNS(3), IHW, LPST(2), PST, RCRA COR, RCRA GEN, RCRA TSD	Site is managed by a Trustee and is actively under remediation. Refer to Section 4.16.2 for additional details.	High
143; Pg. 1	Environmental Impact	Alternatives 1, 2, 3, 4: Adjacent	LPST	Final concurrence issued, case closed; ground impact	High
145; Pg. 2	Northwest Wastewater Treatment Plant (City of El Paso)	Alternatives 1, 2, 3, 4: Adjacent	LPST	Final concurrence issued, case closed; soil impact	Moderate
			PST	1 tank: In use	
154; Pg. 6	UPRR El Paso Fueling Facility, Yard	Alternatives 1, 2, 3, 4: Adjacent	LPST	Monitoring; aquifer impact	High
			PST	4 tanks: Removed from ground	
	N/A	Alternatives 1, 2, 3, 4: Adjacent	ERNS	Tank car release	Moderate
157; Pg. 6	N/A	Alternatives 1, 2, 3, 4: Adjacent	ERNS	2001: Drum leak	Low
158; Pg. 2	N/A	Alternatives 1, 4: Within	ERNS	Derailment; no release	Low
163; Pg. 5	El Paso Valley Cotton Association	Alternatives 1, 2, 3, 4: Adjacent	LPST	Final concurrence pending documentation of well plugging; groundwater impact	Moderate
			PST	1 tank: Removed from ground	
167; Pg. 2	Oglebay Norton	Alternatives 1, 2, 3, 4: Adjacent	VCP	No data available	Low

Table 4-31: Documented REC Sites Within or Adjacent to the Reasonable Alternatives ROW

Map ID; Ex 4-9 Pg. #	Site Name	Within Proposed Footprint or Adjacent to Reasonable Alternative (list)	Database	Status	Level of Risk
170; Pg. 2	Oglebay Norton Industrial	Alternatives 1, 2, 3, 4: Adjacent	RCRA Gen	Conditionally Exempt Small Quantity Generator; violations recorded	Low
176; Pg. 6	El Paso Machine & Steel	Alternatives 1, 2, 3, 4: Within	PST	2 tanks: Filled in place 2 tanks: Removed from ground	Moderate
185; Pg. 6	Diamond Shamrock Stations Inc.	Alternatives 1, 2, 3, 4: Adjacent	PST	3 tanks: In use	Low
186; Pg. 6	Professional Food Systems	Alternatives 1, 2, 3, 4: Adjacent	PST	2 tanks: Removed from ground	Low
190; Pg. 5	Paisano Truck Stop	Alternatives 1, 2, 3, 4: Adjacent	PST	5 tanks: In use	Low
193; Pg. 2	C&R Fuel Systems	Alternatives 1, 4: Adjacent	PST	1 tank: Removed from ground	Low
201; Pg. 5	RB Wicker Tire & Rubber	Alternatives 3, 4: Adjacent	PST	1 tank: Temp out of use 1 tank: Removed from ground	Low
214; Pg. 2	CEMEX El Torro	Alternatives 1, 2, 3, 4: Within	PST	1 tank: In use 2 tanks: Out of use	Moderate
216; Pg. 6	Super Motor	Alternatives 1, 2, 3, 4: Within	PST	2 tanks: Removed; 1 tank: Filled in place	Moderate
226; Pg. 6	Tristate Equipment Company	Alternatives 1, 2, 3, 4: Within	PST	2 removed from ground	Low
229; Pg. 6	Ultra Mart	Alternatives 1, 2, 3, 4: Adjacent	PST	1 tank: In use; 3 tanks: Removed from ground	Moderate
263; Pg. 6	Frontier Foods	Alternatives 1, 2, 3, 4: Within	PST	4 tanks: Removed from ground	Low
266; Pg. 6	N/A	Alternatives 1, 2, 3, 4: Adjacent	ERNS	Release secured	Low
268; Pg. 5	N/A	Alternatives 1, 2, 3, 4: Adjacent	Federal Brownsfield	Unknown status; soil impacted	High

Source: Banks 2010; HNTB 2012.

There is one Federal Brownfield (Map ID 268) located adjacent to the reasonable alternatives at 418 S. Durango Street in downtown El Paso. The site is a former automotive garage and mechanic shop. No controls or remediation plans are listed for the site. Therefore, there is a high potential risk of RECs located onsite.

There are four CERCLIS sites within or immediately adjacent to the reasonable alternatives. These include: Southdown Inc./ SW Portland Cement Co. (the property is also known as Jobe Concrete or Sunbelt Concrete- Map ID 11); El Paso Gas, Electric Light and Power (Map ID 13); El Paso Drum Site (Map ID 16); and American Smelting Co-El Paso Smelting Works (ASARCO, Map ID 14 and 142). Each of these sites has continuing remediation records, or the records are incomplete. Therefore, each of these sites was determined to have potentially high risk to the proposed project of encountering RECs onsite, with possible migration to adjacent parcels.

Of the 51 sites documented within or adjacent to the proposed reasonable alternatives, 17 sites are listed on the IHW database. Only two of the 17 records were listed as active. When located adjacent to the proposed reasonable alternatives, these sites posed a low risk if no other records were documented. However, the IHW sites pose a moderate risk of encountering RECs when located within the proposed ROW for a reasonable alternative.

Of the 51 sites documented within or adjacent to the proposed reasonable alternatives, 16 sites are listed in a RCRA database. Twelve records had a confirmed status as not a generator; three had a status listing as a conditionally exempt small quantity generator; and one site, the ASARCO property, was previously listed as a large quantity generator with several violations and a RCRA corrective action. Refer to **Section 4.10.2.2** for a more detailed discussion of the ASARCO property. When located adjacent to the proposed reasonable alternatives, these RCRA sites pose a low to moderate risk of encountering RECs, if no other records were documented onsite. However, the RCRA sites pose a moderate to high risk of encountering RECs when located within the proposed ROW for a reasonable alternative.

No data was available from the Banks (2010) report on the two VCP records noted within and adjacent to the proposed reasonable alternatives. The record for Southdown, Inc (Map ID 11) was determined to be a high risk of encountering RECs due to the seven additional database records for the site. However, the VCP record for Oglebay Norton (Map ID 167) was determined to pose a low risk to the proposed project because it is not located within the proposed ROW for any of the reasonable alternatives.

Eight ERNS records on six sites were documented within or adjacent to the proposed ROW for the reasonable alternatives. Three records were noted for the ASARCO site. One record did not involve an REC and therefore posed no risk to the proposed project. Three records were determined to pose a low risk; one record for the UPRR El Paso Fueling Facility and Yard (Map ID 154) was determined to pose a moderate risk to the proposed project alternatives because there was no record of the clean-up of the release.

There were 35 PST records documented within or adjacent to the proposed reasonable alternatives. The site was documented as a moderate or high risk if the tanks remained onsite and were in use, temporarily out of use, or permanently filled in place. The sites were considered to be a low risk to the proposed project if the tanks were removed from the ground and no other RECs were documented on the site.

25 LPST records were documented within or adjacent to the proposed reasonable alternatives. The current status of each record is listed below:

- Two documented LPSTs on the ASARCO property had the status of: 1) final occurrence, case closed with impacts to soils, and 2) corrective action plan, with impacts to groundwater and surface water;
- Three LPST records had a documented status of closed with no impact noted;
- Two LPST records had a status of final occurrence pending notification of well plugging with impacts to groundwater;
- One LPST record had a status of reassessment/release determination with impact soils;
- Two LPST records had a status of monitoring, one of which noted an groundwater impact and the other noted an impact to the aquifer;
- One LPST record was issued a final occurrence, case closed with an impact to an aquifer;

- Nine LPST records were issued final occurrence, case closed with impacts to groundwater; and
- Five LPST records were issued final occurrence, case closed with impacts to soils.

Each of the sites within or adjacent to the reasonable alternatives were determined to be a moderate or high risk. The determination was made due to the nature of the release and the potential for encountering residual or migrated contamination within soils or groundwater at or near these locations.

Of the 51 hazardous materials sites that have the potential of being impacted by the reasonable alternatives, 21 would be directly impacted by one or more of the reasonable alternatives, while the remaining sites are located adjacent to or in close proximity of the proposed ROW for the reasonable alternatives. Additional studies should be performed after the Preferred Alternative is chosen to determine the current status of RECs that may remain onsite or migrated offsite.

4.10.2.2 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 (TCEQ 2012).

Limited Phase I ESA Analysis Results

As noted in Chapter 3, a limited Phase I ESA was performed by an independent TxDOT consultant in October 2010 for a portion of the study area along I-10 at the ASARCO site (LCA 2010). The Phase I ESA study focused on data available from the Trustee. The limited Phase I ESA report recommended a Phase II ESA be performed on the property. The complete Limited Phase I ESA Report is available on file at the TxDOT El Paso District office.

Limited Phase II ESA Analysis Results

A qualified consultant performed a limited Phase II ESA for a portion of the ASARCO site within the proposed ROW for Reasonable Alternatives 2 and 3, within the Rail Yard B segment located immediately adjacent to I-10 in June and July 2011 (LCA 2011).

In June 2011, low-flow groundwater samples were collected. The samples analyzed from Well ASARCO-4 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}). The TRRP Tier 1 PCL thresholds are the default cleanup standards in the Texas Risk Reduction Program (TCEQ 2012). Well EP-110 contained dissolved vanadium at concentration equal to the TRRP Tier 1 C/I ^{GW}GW_{ing} PCL (LCA 2011).

It was the opinion of the consultant that if the property was acquired for ROW purposes, it would be unlikely that the shallow groundwater would be used for any practical purpose. Based on the field analysis, the shallow groundwater may be withdrawn at a sustained yield of at least 150 gallons per day, which is the cutoff yield for Class 3 groundwater. All reported analytes were below the corresponding TRRP Tier 1 C/I PCLs for non-beneficial groundwater (LCA 2011).

Soil samples were also collected and analyzed. The analysis of these soil samples indicated that several metals are present within the proposed ROW for Reasonable Alternatives 2 and 3

in concentrations that exceed the respective TRRP Tier 1 the soil to groundwater ingestion pathway ($^{GW}Soil_{Ing}$) PCLs for C/I property; the threshold is also more commonly referred to as the “groundwater protection standard.” The soils analyzed for the proposed ROW for Reasonable Alternatives 2 and 3 on the ASARCO property had groundwater protection standard exceedances for the following metals: antimony, arsenic, barium, cadmium, copper, lead, selenium, silver, thallium, and zinc. The consultant noted that of these metals found to be present in the soil samples in high concentrations, only antimony, arsenic, selenium, and vanadium are also identified in the groundwater samples taken from the parcel site. The finding suggested to the researcher that metals present in the soil were not leaching into groundwater in comparably high concentrations at the sampling location (LCA 2011).

The analysis of the soil samples determined that surface composite samples, from 0.0 to 5.0 ft, generally exhibit higher metal concentrations than the deeper composite samples. However, the data suggests that the profile is not uniform across the portion of the ASARCO site that was analyzed, and no clear trends across all of the sampling locations were found for the metals analyzed, including: arsenic, cadmium, chromium, iron, mercury, molybdenum, nickel, and thallium. Of the metals analyzed, only vanadium exceeded the Tier 1 C/I soil exposure standard, the $^{Tot}Soil_{Comb}$ PCL. Analysis of the soil samples determined that the vanadium exceedances are widespread throughout the proposed ROW for Reasonable Alternatives 2 and 3 (LCA 2011). No additional recommendations were documented in the limited Phase II ESA. 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 and Phase II ESA studies by others noted above, the project team documented the following 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 documents heavy metals, in particular lead, arsenic, and cadmium, on the ASARCO property 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 environmental constraints, even after the planned remediation, would be limited. Uses that result in extended exposure to humans, and in particular exposure to children and ill persons, is prohibited. The prohibited uses include facilities such as: residences, schools, daycares, and medical facilities. The current ASARCO remediation plan calls for contaminants to be sealed under “caps” to prevent direct contact with slag (Texas Custodial Trust 2011). These containment cells are areas below the surface where smelter waste materials have been placed within a sealed liner and covered with thick plastic, a layer of clean earth and finally “capped” with a layer of asphalt (Texas Custodial Trust 2011). Any new use must be configured around three existing containment cells and a fourth cell currently under construction (Texas Custodial Trust 2012). Because the containment cells must remain sealed, it eliminates the possibility of future development of buildings, trees, or even light poles on the property (Dover et al. 2010). 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.

Qualified TxDOT personnel determined that all reasonable alternatives crossing the ASARCO site are anticipated to encounter soil contamination, slag, and groundwater contamination. Contaminated groundwater would be encountered at a significantly shallower depth along I-10, near the locations of the Reasonable Alternatives 2 and 3, than other portions of the property. Drill cuttings and groundwater would require special handling and disposal. Outside the ASARCO parcel boundaries, all of the reasonable alternatives approaching the ASARCO site from either side are likely to encounter some residual surface soil contamination and possibly some minor groundwater contamination, which would likely increase in concentration as the alternatives near the former smelter site.

A worker safety plan should be drafted prior to construction. Any removed soil and groundwater generated as a result of drilled piers, roadwork, leveling, etc. would require special handling and/or disposal. Drill cuttings may need to be characterized for proper handling and groundwater generated from construction of the reasonable alternatives may require special handling/disposal. Reuse of the slag on these routes would require significant coordination with the TCEQ and may require special waste management unit permitting. The entombment of the slag in embankments or under the roadway would likely require long-term management, such as deed restrictions, engineering controls, worker health and safety issues, tracking, and monitoring.

4.10.2.3 Other Sites of Concern

The study area was also analyzed for sites/facilities located in or adjacent to the proposed ROW that may not appear on a federal or state regulatory database but may handle petroleum or other regulated products. There was one site of concern identified within the study area; 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). The subject site is not within the proposed ROW of any reasonable alternative and should not be impacted by or pose a risk to the proposed project.

All four reasonable alternatives would impact the Globe Mills area. The area around Globe Mills is currently in commercial use and is bordered by railroad tracks on two sides. There are two documented records for the area, Taylor-Simpkins Welding (Map ID 45) and US Plating Works (Map ID 96). However, due to the age and nature of the businesses and structures, there is a greater probability of additional RECs associated with mills, railroads, wood working, welding, and various construction and maintenance activities occurring within the area. Further investigation of the areas should be performed prior to construction.

Within the downtown area, three warehouse-type commercial buildings in the 500 block of US 85 (Paisano Drive) would be displaced by the proposed alignments for Reasonable Alternatives 3 and 4, and a proposed drainage pond for all four reasonable alternatives. One building is owned by the El Paso Art Association. The other two buildings are of undetermined use. Due to the location of the buildings adjacent to the rail yard, it is anticipated that these buildings were historically used for warehousing purposes and may contain RECs. In addition to the sites listed on the Banks report (2010), several rail yards and rail lines are located throughout the proposed project corridor. While the potential risk from the close proximity of the rail facilities is low, the nature of both the materials used in the construction of the track and the materials potentially transported along the line should be considered when planning the

proposed construction activities. In the locations where the yard or line is crossed by a reasonable alternative, further investigation of these areas should be performed prior to construction.

The area of the proposed Coles Street Interchange is a commercial and industrial area. Drainage ponds proposed near the interchange are located on two commercial/industrial properties which have no records listed in the databases searched. However, due to the age and industrial nature of the businesses located in the area there is a high probability that RECs may be present onsite or may have migrated from adjacent properties. One property proposed for a drainage pond location is an open lot with the approximate address of Delta Drive adjacent to Ortega Construction (Map ID 130). The Delta Drive lot has several pads and a constructed ramp, which might be used for loading or off-loading of tractor trailers for one or more of the warehousing or distributors in the area. The two additional drainage pond locations proposed in the area would both displace the Master Fibers Inc. Recycling Center, located at 1724 East Paisano Drive. There are five structures on the property and recycling materials stored throughout the site. Further investigation of these areas should be performed prior to construction.

4.10.2.4 Asbestos and Lead-based Paint

For all of the proposed reasonable alternatives, relocation and/or removal of existing structures in the ROW would require asbestos and lead-based paint surveys to be completed for these structures. Prior to project letting, structures to be demolished would be analyzed for the presence or absence of lead-based paint. Asbestos and lead-based paint issues would be addressed during the ROW process prior to construction. If suspect asbestos material is encountered, a mitigation plan for the removal and disposal of materials containing hazardous materials would need to be developed according to federal, state, and local regulations. Asbestos and lead paint inspections, specifications, notification, license, accreditation, abatement, and disposal, as applicable, would comply with federal and state regulations. If lead-based paint is discovered, contingencies would be developed to address worker safety, material recycling, and proper management of any paint-related wastes, as necessary.

4.10.2.5 Oil/Gas Well Sites

Based on the Banks Oil & Gas Well Report (2010) data, there are no oil/gas well sites located within the Loop 375 Border Highway West Extension study area. However, there is one permitted well location within the boundaries of the ASARCO site. The permitted well is located adjacent to the proposed ROW of Reasonable Alternatives 2 and 4.

Oil and gas wells located within the footprint of the Preferred Alternative would be required to be plugged prior to construction. Requirements for the proper procedures in plugging these types of wells are provided in the TAC, Title 16, Part I, Chapter 3, Section 3.14 under the jurisdiction of the Railroad Commission of Texas.

Naturally Occurring Radioactive Material (NORM) is found almost everywhere. However, NORM can be brought to the surface in the formation of water and accumulate during oil and gas production. NORM levels from the water are typically low and are not a problem in Texas unless accumulation occurs. The accumulation of NORM could pose health risks to exposed workers if digested or inhaled. Health effects from potential impacts should not be an issue if the wells are plugged and abandoned properly.

4.10.2.6 Petroleum Pipelines

There are 25 petroleum pipelines within the study area (RRC 2012). **Table 4-32** lists the number of pipeline crossings for each reasonable alternative.

**Table 4-32: Reasonable Alternatives
Number of Pipeline Crossings**

Reasonable Alternative	Number of Petroleum Pipeline Crossings
1	16
2	16
3	14
4	15

Source: RRC 2012

The petroleum pipelines do not appear to have a positive or negative impact within the study area. During ROW acquisition, additional investigation may be required in order to determine if removal or adjustments to the pipelines would be necessary. If petroleum pipelines are impacted, negotiations would be conducted with pipeline owners to properly relocate or deepened the effected pipelines. A map of the petroleum pipelines identified within the study area is presented in **Exhibit 4-8**. Refer to **Section 4.1.3** for an additional discussion of utility impacts within the proposed project corridor.

4.10.2.7 Potential Impacts from Construction Activities

Storage and use of hazardous materials would be necessary during the construction of the proposed project. Use and handling of hazardous materials associated with construction machinery/equipment would pose minimal risk to the environment, if plans, safety measures, and BMPs are followed. Storage of on-site hazardous materials is discouraged and any required material would be limited to small quantities and only for short-term operational needs of the site. Site storage would be limited to areas designated as low risk to the environment and would not be located in or adjacent to drainage areas. Any on-site storage would be temporary and removed when the need to support construction operations is no longer required.

Temporary above ground storage tanks (ASTs) containing oil and diesel are typically used to provide fuels for the equipment and vehicles used in roadway construction. These ASTs would be regulated and would require control measures for spills and leaks. Potential impacts could occur from small spills and leaks from fueling and maintenance of equipment and vehicles. These impacts should be minimal and would not pose a substantial impact to the environment. Every effort would be taken to reduce these types of impacts during the construction activities. Activities dealing with the use and storage of hazardous materials during roadway construction would be required to conform to TxDOT standards for spill containment and control strategies.

4.10.2.8 Summary of Hazardous Materials Impacts

The No-Build Alternative would not result in hazardous materials impacts associated with the construction or operation of the proposed project. The No-Build Alternative would provide no immediate changes within the study area. As El Paso and the outlying communities continue to grow, the need for available land would also grow; current land uses and conditions would continue to change over time. Residential, commercial, and industrial growth would also continue within the study area, except were development is prohibited or regulated, such as the ASARCO property. The number of sites containing hazardous materials such as gas stations,

warehouses, and industrial facilities is likely to continue to increase due to the geographical location and El Paso's conduciveness for trade and industrial-based businesses.

The four reasonable alternatives would have high risks for encountering hazardous materials within the proposed project corridors. Of the 51 regulated sites that were identified within or near the reasonable alternatives, 21 regulated sites may be directly impacted by the proposed reasonable alternatives. The regulated sites create a higher potential for encountering hazardous materials contamination during construction. Impacts would most likely occur on or near documented sites containing known hazardous materials, such as: ASARCO; Sun Metro; Southdown, Inc./SW Portland Cement Company; El Paso Gas, Electric, Light and Power; and El Paso Drum.

Asbestos and lead-based paint investigations for all structures impacted by the Preferred Alternative would be addressed during the ROW acquisition process prior to construction. If suspect material is encountered, a mitigation plan for the removal and disposal of materials containing hazardous materials would be developed according to federal, state, and local regulations.

Banks Regulatory database records (2010) indicate that there are no active oil or gas production wells within the study area; however, there is one permitted location that may be impacted by the reasonable alternatives. Due to the inaccuracy of the well bore data, additional verification of the absence, or confirmation of the existence and exact location, of the well site would be required for the Preferred Alternative. During the ROW acquisition and negotiation process, responsible well operators/owners would be contacted to determine appropriate actions to take for each site. Any wells that would be plugged and abandoned would be done according to applicable plugging and supervision requirements provided in the TAC, Title 16, Part 1, Chapter 3, Section 3.14 under the jurisdiction of the Railroad Commission of Texas.

The reasonable alternatives cross/impact approximately 25 petroleum pipeline segments. The pipelines may cross more than one reasonable alternative. After development of the Preferred Alternative, owners and/or operators of these pipelines would be contacted. Exact locations and depths of these lines would need to be established. During ROW negotiation, determinations would be required to make necessary adjustments and/or relocations of these pipelines. Location and depth of pipelines that would remain in place would need to be marked on the ground (in the field) prior to construction activities, in order to prevent damage to the pipelines. If proper precautions are taken, impacts related to petroleum lines within the study area should be minimal.

Potential development associated with the construction of the reasonable alternatives could have additional impacts on potential hazardous materials sites. However, risks can be minimized by conducting ESAs according to the ASTM standards to identify, avoid, and mitigate hazardous materials sites. Further investigation of potential hazardous materials sites, including Phase I and Phase II ESAs, if necessary, should be completed during project development and prior to ROW acquisition. Coordination with federal and state regulatory agencies for all hazardous materials contamination would be handled in accordance with applicable regulations.

4.11 VISUAL AND AESTHETIC QUALITY IMPACTS

4.11.1 No-Build Alternative

No impacts to visual and aesthetic quality would be anticipated under the No-Build Alternative.

4.11.2 Reasonable Alternatives

4.11.2.1 Visual Assessment Methodology

The visual impacts of project alternatives are determined by assessing the visual resource change due to the proposed project and predicting viewer response to that change. As stated in **Chapter 3**, FHWA guidelines were used as a resource for the analysis. Visual resource change is the sum of the change in visual character and change in visual quality. The first step in determining visual resource change is to assess the compatibility of the proposed project with the visual character of the existing landscape. The second step is to compare the visual quality of the existing resources with projected visual quality after the proposed project is constructed. The third step is to determine the viewer response to project changes, which is the sum of viewer exposure and viewer sensitivity to the proposed project. The resulting level of visual impact is determined by combining the severity of resource change with the degree to which people are likely to oppose the change. In order to evaluate changes in visual resources, four key viewpoints to depict the current visual character of the visual environment study area were identified. The key viewpoints are the points from which the selected key views were analyzed. Key viewpoints were identified using FHWA criteria and are shown in **Table 4-33** below and correspond with the key views in **Exhibit 4-10** (the viewpoints from which the selected key views were analyzed are represented by yellow triangles that represent the key views in the **Exhibit 4-10**).

Table 4-33: Key Viewpoints

Key View Number*	Key View	Description
1	Looking south towards reasonable alternatives from I-10	Representative view of alternatives in the Industrial landscape unit
2	Looking south towards reasonable alternatives from I-10 and UTEP campus	Representative view of alternatives in the UTEP landscape unit
3	Looking southwest from the Sunset Heights neighborhood towards the reasonable alternatives	Representative view of alternatives in the Sunset Heights landscape unit
4	Looking south from the near downtown area towards the reasonable alternatives	Representative view of alternatives in the Near Downtown landscape unit

Source: HNTB 2012

*Key viewpoint location number. These numbers correspond with the key view numbers in Exhibit 4-10

Note: Each key viewpoint is applicable to all four reasonable alternatives.

The visual impact for each key view was assessed and rated according to the level of the roadway's visual impact (Low, Moderate, Moderately High, and High). The visual impact levels for each key view as defined as:

Low - Minor adverse change to the existing visual resource, with low viewer response to change in the visual environment. May or may not require mitigation.

Moderate - Moderate adverse change to the visual resource with moderate viewer response. Impact can be mitigated within five years using conventional practices.

Moderately High - Moderate adverse visual resource change with high viewer response or high adverse visual resource change with moderate viewer response. Extraordinary mitigation practices may be required. Landscape treatment required would generally take longer than five years to mitigate.

High - A high level of adverse change to the resource or a high level of viewer response to visual change such that architectural design and landscape treatment cannot mitigate the impacts. Viewer response level is high. An alternative project design may be required to avoid highly adverse impacts.

The visual assessment results are shown in **Table 4-34**.

Table 4-34: Visual Assessment for Each Reasonable Alternative

Reasonable Alternative	Key Viewpoint Number**	Visual Quality - Existing Conditions			Visual - With Project			Viewers Response			Resulting Visual Impact		
		Low	Mod.	High	Low	Mod.	High	Low	Mod.	High	Low	Mod.	High
1	1	•			•				•		•		
	2		•			•		•			•		
	3		•			•		•			•		
	4		•			•		•			•		
2	1	•			•			•			•		
	2		•			•		•			•		
	3		•			•		•			•		
	4		•			•		•			•		
3	1	•			•			•			•		
	2		•			•		•			•		
	3		•			•		•			•		
	4		•			•		•			•		
4	1	•			•				•		•		
	2		•			•		•			•		
	3		•			•		•			•		
	4		•			•		•			•		

Source: HNTB 2012

*Key viewpoint location number, these numbers correspond with the key view numbers in **Exhibit 4-10**

Note: Each key viewpoint is applicable to all reasonable alternatives. Mod.-Moderate

4.11.2.2 Analysis of Key Views

Key View #1

The key view is looking south towards the old ASARCO plant from I-10, and is a representative view of the entire Industrial landscape unit. The limited sight distance to either side of I-10, views of disturbed hillsides and slag piles exhibit a “low” visual quality. In Reasonable Alternatives 1 and 4, the proposed project would include an elevated roadway above the current US 85 (Paisano Drive) and minor changes to Executive Center Boulevard. The proposed design would result in a minor change in the visual environment; therefore, there would be no change in the visual quality/character of the key view with Reasonable Alternatives 1 and 4. Travelers along US 85 (Paisano Drive) would be traveling underneath the proposed project, and would have a “moderate” awareness of the changes. Travelers along I-10 would have brief

views of the proposed project near the split at US 85 (Paisano Drive), and again at the lower end of the landscape unit. Due to their slightly higher elevation, they would have low awareness of the visual changes, even the elevated sections. The proposed project would result in a minor change in the visual environment; therefore, there would be no change in the visual quality/character of the key view and the visual quality with Reasonable Alternatives 1 and 4.

In Reasonable Alternatives 2 and 3, the proposed project would include an at-grade roadway along current US 85 (Paisano Drive), towards the southern edge of the I-10 ROW, then becoming elevated above the current railroad facilities in the narrow pass between US 85 (Paisano Drive) and I-10. The proposed project would result in a minor change in the visual environment; therefore, there would be no change in the visual quality/character of the key view and the visual quality with Reasonable Alternatives 2 and 3.

There would be low adverse changes to Key View #1 due to the implementation of Reasonable Alternatives 1, 2, 3, and 4.

Key View #2

The key view is looking southwest from I-10 and the UTEP campus, and is a representative view of the proposed project from the entire UTEP landscape unit. In the landscape unit, all four reasonable alternatives would not differ significantly in visual character, as they have the same elevated roadway and ROW. The natural topography, views of UTEP, overhead utility lines, roadway billboards, and several segments of elevated roadways exhibit an “moderate” visual quality. The proposed project would include the construction of an elevated highway along the I-10 and US 85 (Paisano Drive) corridor, resulting in a minor change in the visual environment; therefore, there would be no change in the visual quality/character of the key view, and the visual quality with all alternatives would be “moderate.” Travelers using I-10 and US 85 (Paisano Drive) would have short term foreground ground views of the alternatives alongside their line of travel, and viewer awareness of the changes is likely to be low. Viewers from the UTEP campus would have low awareness to the visual changes due to the presence of I-10 in the foreground.

There would be low adverse changes to Key View #2 due to the implementation of Reasonable Alternatives 1, 2, 3, and 4.

Key View #3

The key view is looking southwest from the Sunset Heights neighborhood, and is a representative view of the Sunset Heights landscape unit. The views of I-10 and several railroad facilities contribute to a “moderate” visual quality. In the landscape unit, all four reasonable alternatives would not differ significantly in visual character, as they have the same elevated roadway and similar ROW. The construction of the proposed project would result in a minor change in the visual environment due to its proximity and similarity to I-10, US 85 (Paisano Drive) and railroad corridors; therefore there would be no change in the visual quality/character of the key view, and the visual quality with Reasonable Alternatives 1, 2, 3 and 4 would be “moderate”. Travelers using I-10 and US 85 (Paisano Drive) would have short term foreground views of the proposed project as they pass beside and underneath the proposed project, and viewer awareness of the changes is likely to be low. Viewers from the Sunset Heights neighborhood would have low awareness to the visual changes due to the presence of I-10 in the foreground.

There would be low adverse changes to Key View #3 due to the implementation of Reasonable Alternatives 1, 2, 3, and 4.

Key View #4

The key view is looking south from the near downtown area, and is representative of the views of the entire near downtown landscape unit. The flat natural topography and views of highly developed landscapes contribute to a “moderate” visual quality. In Reasonable Alternatives 1 and 2, the proposed project would include the construction of a new elevated roadway above the U.S. Customs and Border Protection service road, and over the international transfer rail line, dropping to an at-grade roadway under the Paso Del Norte POE, then meeting up with the current Loop 375. The presence of US 85 (Paisano Drive), a large Burlington Northern Santa Fe Railway Company (BNSF) rail yard, and the existing Loop 375 along Reasonable Alternatives 1 and 2 result in the proposed project causing minor change to the visual environment; therefore, there would be no change in the visual quality/character of the key view with Reasonable Alternatives 1 and 2. Viewers from the near downtown area would likely have low awareness to the visual changes due to the US 85 (Paisano Drive) bridge, the BNSF rail yard, and international crossings all being in the foreground.

Reasonable Alternatives 3 and 4 start with an at-grade roadway in the section, descending into a trench section as the alternatives pass under US 85 (Paisano Drive), continuing under the BNSF rail yard, climbing back to at-grade underneath the Paso Del Norte POE, and meeting up with the existing loop 375. With the majority of the new roadway below grade in Reasonable Alternatives 3 and 4, the construction would cause minor change to the visual environment; therefore, there would be no change in the visual quality/character of the key view Reasonable Alternatives 3 and 4. Viewers from the near downtown area would likely have low awareness to the visual changes due to the US 85 (Paisano Drive) bridge, the BNSF rail yard, and international crossings all being in the foreground, and the majority of the new roadway being below-grade.

There would be low adverse changes to Key View #4 due to the implementation of Reasonable Alternatives 1, 2, 3, and 4.

4.11.2.3 Context Sensitive Solutions Design

The outward appearance of the proposed project is being designed with a collaborative interdisciplinary approach called CSS. The process involves the public in identifying visual issues of potential viewers, and participating in developing visual solutions that protect and reflect the aesthetic, historical and cultural values of the area. **Chapter 7** contains a more detailed discussion on the CSS process.

4.12 ENERGY IMPACTS

4.12.1 No-Build Alternative

No energy impacts would be anticipated with the No-Build Alternative.

4.12.2 Reasonable Alternatives

All of the reasonable alternatives would require short-term energy consumption during construction activity. Construction-related energy consumption would be generally based on the construction cost of the alternative. The amount of energy required for the production and placement of materials (asphalt, structures, cut, fill, etc.) during construction would be a fixed one-time cost. Construction-related energy consumption would be short-term in nature and could be offset by operational energy efficiencies gained through the use of an improved transportation facility over many decades. Energy impacts are a function of several variables

including average running speed, vehicle-miles of travel, and the mix of vehicle types in the system.

The designation of the proposed project as a toll road is not expected to result in an adverse impact to energy resources. The proposed project is expected to be an electronic toll collection facility. An electronic toll collection system provides operational efficiencies and would help reduce the stop-and-go conditions that are associated with conventional cash booths at toll plazas, resulting in lower consumption of energy resources. The toll designation would allow the roadway to be built sooner than with traditional funding; therefore, network construction would occur sooner. The proposed project would result in energy consumption reductions.

4.14 RELATIONSHIP OF LOCAL SHORT-TERM USES VERSUS LONG-TERM PRODUCTIVITY

As described in **Section 4.13**, the proposed project would result in temporary construction-related increases in noise, traffic congestion and delays, and air pollutants. The proposed reasonable alternatives may also impact land use patterns.

These and other short-term environmental impacts (i.e., "uses" of the environment) identified throughout **Chapter 4** would be balanced by achieving improved local and regional connectivity and the related project needs identified in **Chapter 1**.

4.15 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Construction of the proposed project would involve an irreversible and irretrievable commitment of resources. The commitment of land required for the proposed ROW would vary in size depending on which of the reasonable alternatives is constructed. The land includes residential and business properties as well as industrial areas. Land occupied by the proposed project would be considered an irreversible commitment during the period that the land is used for a transportation facility. However, if a greater need arises for use of the land, or if the transportation facility is no longer needed, the land could be converted to another use. The natural resources required for construction include aggregate, cement, asphalt, sand, and iron ore for steel products. Once used for construction, these resources cannot be replaced as natural resources. They are not in short supply, and their use would not have an adverse effect upon the continued availability of these resources. Construction would also require an expenditure of fossil fuel. The commitment of these resources is based on the concept that residents in the immediate area and region would benefit by the improved quality of the transportation system including improved system capacity and linkage as well as improved traffic safety.

4.16 SUMMARY OF ENVIRONMENTAL IMPACTS

Refer to **Table 4-35** for a summary of impacts for the reasonable alternatives (roadway and drainage pond proposed ROW combined).

**Table 4-35: Summary of Environmental Impacts for the Reasonable Alternatives
 (roadway and drainage pond proposed ROW combined)**

Resource	Units of Measure	Alternative				
		No-Build	Reasonable Alternative 1	Reasonable Alternative 2	Reasonable Alternative 3	Reasonable Alternative 4
Land Use						
Commercial	acres	0	9.6	9.7	15.7	15.6
Residential	acres	0	0.2	0.2	0.2	0.2
Industrial	acres	0	80.6	84.4	91.3	82.2
Mixed Use	acres	0	0.8	0.8	1.8	1.8
Undeveloped Lands	acres	0	29.8	25.8	20	24
Government	acres	0	0.1	0.1	0.1	0.1
Schools	acres	0	0	0	0	0
Park	acres	0	0.2	0.2	0	0
Transportation	acres	0	98.3	77.3	76.4	97.5
Vacant	acres	0	0	0	0	0
Canal	acres	0	3.5	1.5	0	2
Total Land Use Impact	acres	0	223.1	200	205.5	223.4
Total Land Use Conversion	acres	0	124.8	122.7	129.1	125.9
Displacements						
Residential Buildings	number	0	2	2	1	1
Commercial Buildings	number	0	41	42	49	48
Total Displacements	number	0	43	44	50	49
Proposed ROW						
Proposed ROW	acres	0	119.1	134.4	133.2	118
Noise						
Representative Noise Receivers Impacted	number	0	13	13	13	12
Geologic Features						
Qa1 ¹	acres	0	39.9	36.6	38.3	28.3
Qtb ²	acres	0	23.1	34.5	34.5	23.1
Qao ³	acres	0	2.5	2.5	3	3
K ⁴	acres	0	17.6	25.4	25.4	17.6
Total	acres	0	83.1	99	101.2	72
Soils						
DCD ⁶	acres	0	11.9	33	33.1	12
Mg ⁷	acres	0	58.8	50.8	53.2	61.3
Total	acres	0	70.7	83.8	86.3	73.3
FEMA Floodplain						
100-year Floodplain	acres	0	27.7	16	6	17.7
Wetlands/Waters of the U.S. within ROW						
Riverine	acres	0	0.9	0.6	0.3	0.5
Waterbody Crossings						
Arroyo	number	0	4	3	3	4
Drainage Ditch	number	0	2	1	1	2
Canal	number	0	6	4	2	4
Total	number	0	12	8	6	10

**Table 4-35: Summary of Environmental Impacts for the Reasonable Alternatives
 (roadway and drainage pond proposed ROW combined)**

Resource	Units of Measure	Alternative				
		No-Build	Reasonable Alternative 1	Reasonable Alternative 2	Reasonable Alternative 3	Reasonable Alternative 4
Vegetation/Habitat						
Mesquite-Sandsage Shrub	acres	0	18.8	25.5	21.1	14.8
Bare Ground	acres	0	81.9	89.8	84.5	76.4
Riparian	acres	0	1.06	0.3	0	1.06
Total Habitat	acres	0	101.8	115.6	105.6	92.3
Total Vegetation	acres	0	19.9	25.8	21.1	15.9
Threatened and Endangered Species						
Potentially Impacted Threatened and Endangered Species	number	0	14	14	14	14
Cultural Resources						
Listed Archeological Resources within APE	number	N/A	3	4	3	2
Potential for Unrecorded Historic Period Archeological Resources	Low, Moderate or High	N/A	Low to Moderate	Moderate to High	High	High
Effects to NRHP-Listed Historic Districts, Including Individually Listed Resources Contributing to a Historic District	Adverse Effect or No Adverse Effect	N/A	No Adverse Effect	No Adverse Effect	No Adverse Effect	No Adverse Effect
Hazardous Materials						
Potential Hazardous Materials Impacts	number	0	51	51	51	51
Visual Impact						
Visual Impacts	Low, Medium or High	N/A	Low	Low	Low	Low

Source: HNTB 2012

4.16 PREFERRED ALTERNATIVE

Based on the environmental impact analysis summarized in **Table 4-35**, the alternatives analysis documented in **Chapter 2**, and public involvement discussed in **Chapter 7**, Reasonable Alternative 2 is recommended as the Preferred Alternative. **Table 4-36** summarizes the selection of the Preferred Alternative.

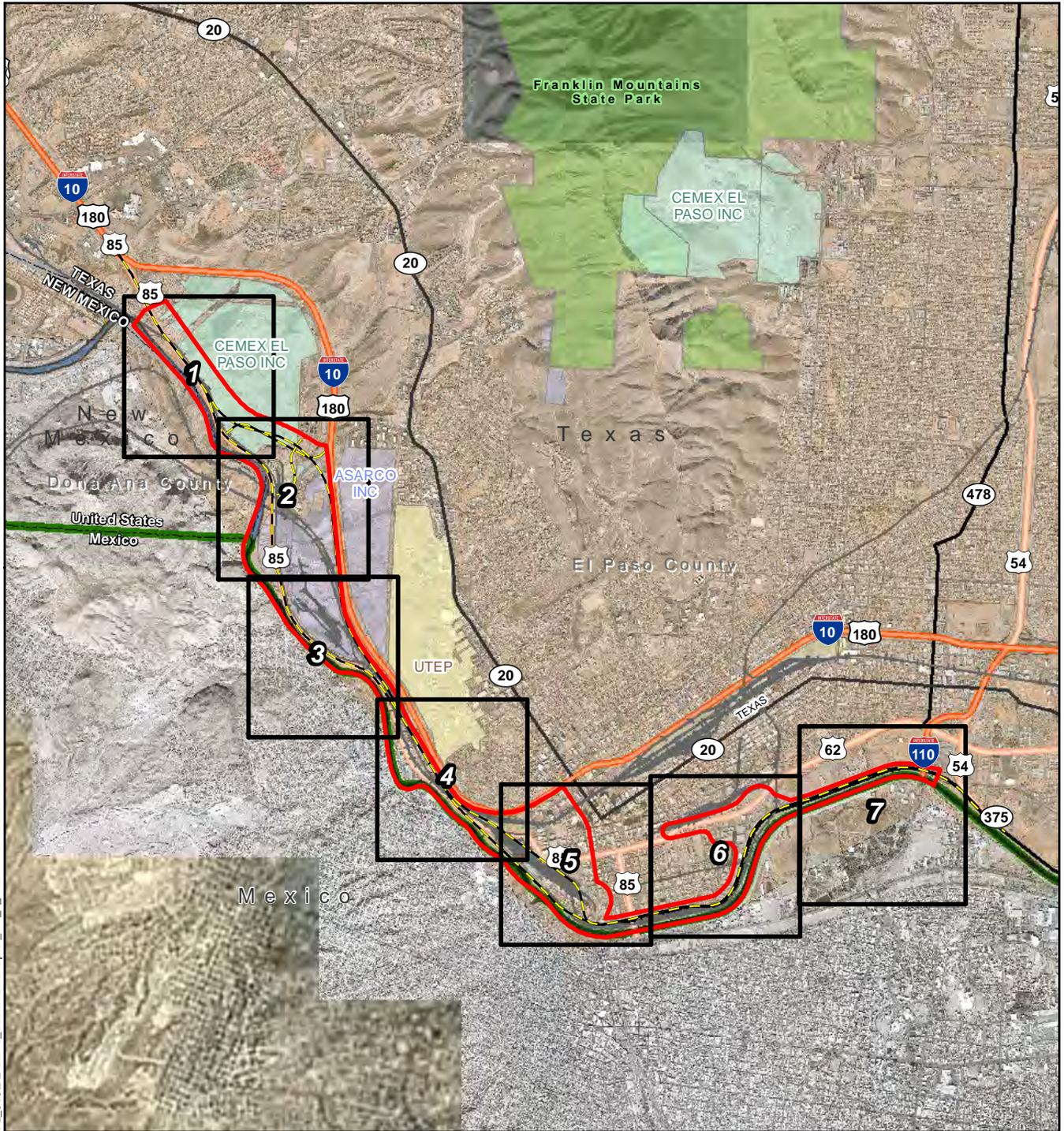
Table 4-36: Summary of Selection for Preferred Alternative

Alternative	Decision	Comments
Alternative 1 (Border B + Border A)	Not Carried Forward	All Border B Alternatives have a design which includes a Rio Grande overhang; heavy impact to existing utilities; higher floodplain impacts
PREFERRED ALTERNATIVE Alternative 2 (Rail Yard B + Border A)	Selected as Preferred Alternative	The design does not overhang the Rio Grande. Generally supported by both the public and coordinating and participating agencies.
Alternative 3 (Rail Yard B + Rail Yard A)	Not Carried Forward	All Rail Yard A Alternatives do not have coordination or participating agency or public support; heavy impact to existing utilities.
Alternative 4 (Border B + Rail Yard A)	Not Carried Forward	Same as Alternative 1

Chapter 4 Exhibits

- Exhibit 4-1: Land Use Within Reasonable Alternatives
 - Exhibit 4-2: Potential Displacements Within Reasonable Alternatives
 - Exhibit 4-3: Minority and Low-Income Census Geographies and Displacements Within Reasonable Alternatives
 - Exhibit 4-4a: Traffic Analysis Zones (TAZ) and Low-Income Populations Within the El Paso MPA
 - Exhibit 4-4b: Traffic Analysis Zones (TAZ) and EJ Populations
 - Exhibit 4-4c: Traffic Analysis Zones (TAZ) Number of Trips
 - Exhibit 4-4d: Number of Trips for Environmental Justice Traffic Analysis Zones (TAZ)
 - Exhibit 4-5: Noise Receivers Within Reasonable Alternatives
 - Exhibit 4-6: Water Resources Within Reasonable Alternatives
 - Exhibit 4-7: Vegetation Communities Within Reasonable Alternatives
 - Exhibit 4-8a: NRHP-Listed Resources/Historic Districts and SALs in the APE
 - Exhibit 4-8b: Old Fort Bliss/Hart's Mill Boundary Study
 - Exhibits 4-8c: American Canal Detail
 - Exhibit 4-8d: Franklin Canal and EPCWID1 Detail
 - Exhibit 4-8e: El Paso Union Passenger Station - 700 San Francisco NRHP-Listed Property Subject Parcel Detail
 - Exhibit 4-8f: Elephant Butte Irrigation District Boundary Study
 - Exhibit 4-9: Hazardous Materials Within Reasonable Alternatives
 - Exhibit 4-10: Proposed Visual Impact Assessment Locations
-

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- | | |
|------------------------|-------------------------------|
| Interstate | Study Area |
| US Highway | Rio Grande |
| State Highway | CEMEX |
| Reasonable Alternative | ASARCO |
| Railroad | Railroad Yard |
| International Boundary | University of Texas El Paso |
| | Franklin Mountains State Park |



Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

Exhibit 4-1 Land Use Within Reasonable Alternatives

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El Paso County, Texas

CSJ: 2552-04-027
August, 2012

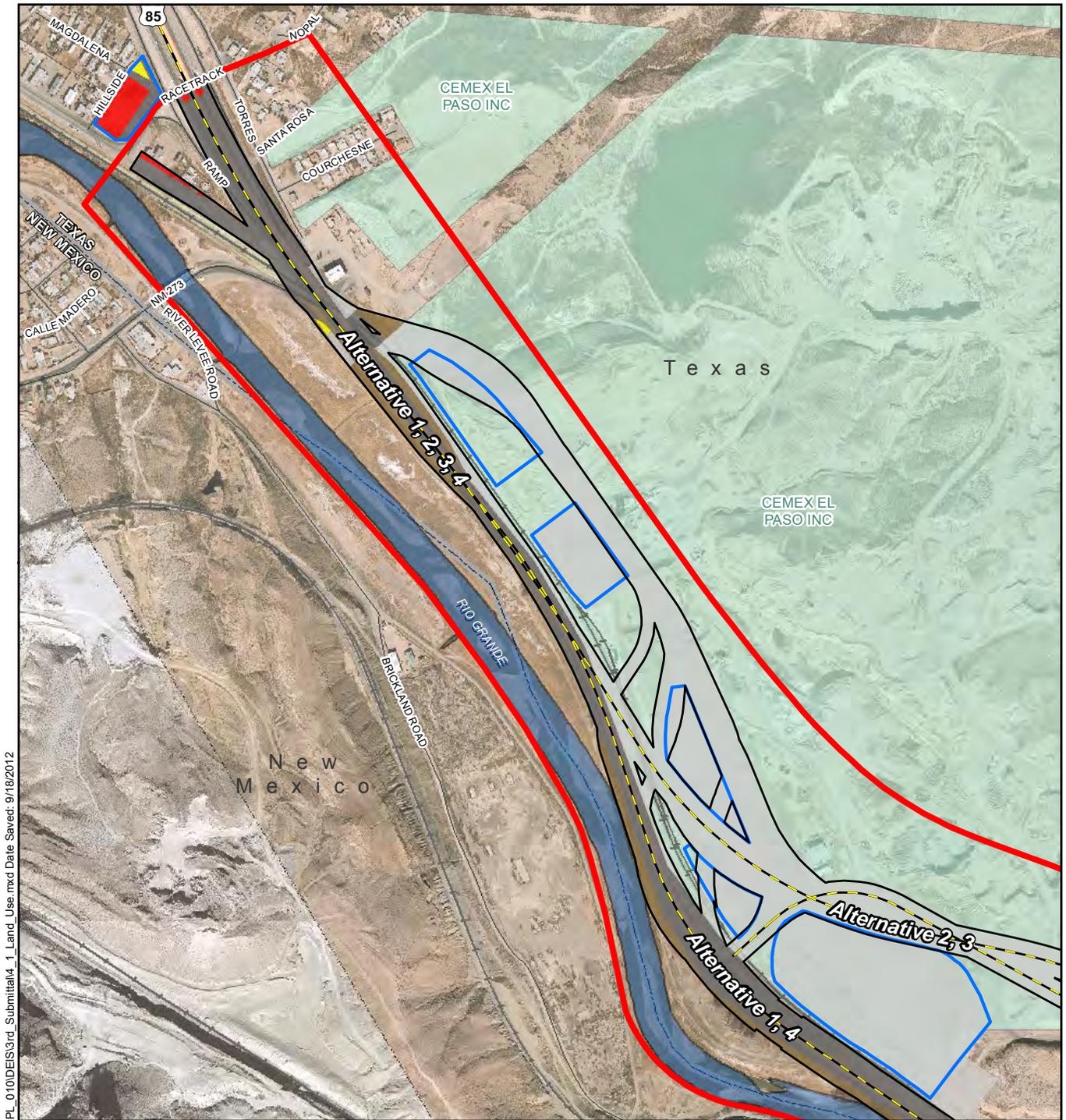


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1" = 5,280'



Alternatives, Ponds: Halff & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP:
City of El Paso parcel data
Parks: City of El Paso, 1999
Historic District: Texas Historic Commission Atlas

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Interstate	Historic District
US Highway	Alternative Boundary
State Highway	Canal
Reasonable Alternative	Commercial
Railroad	Government
International Boundary	Industrial
Study Area	Mixed Use
Rio Grande	Residential
CEMEX	Transportation
ASARCO	Undeveloped
Railroad Yard	Park
University of Texas El Paso	Drainage Pond

This project does not cross international boundaries.

Land Use: City of El Paso data
Land Use: HNTB - (2009 aerial interpretation)
Alternatives, Ponds: Half & Assoc., 2012
Study Area: HNTB, 2012
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Historic District: Texas Historic Commission Atlas

Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

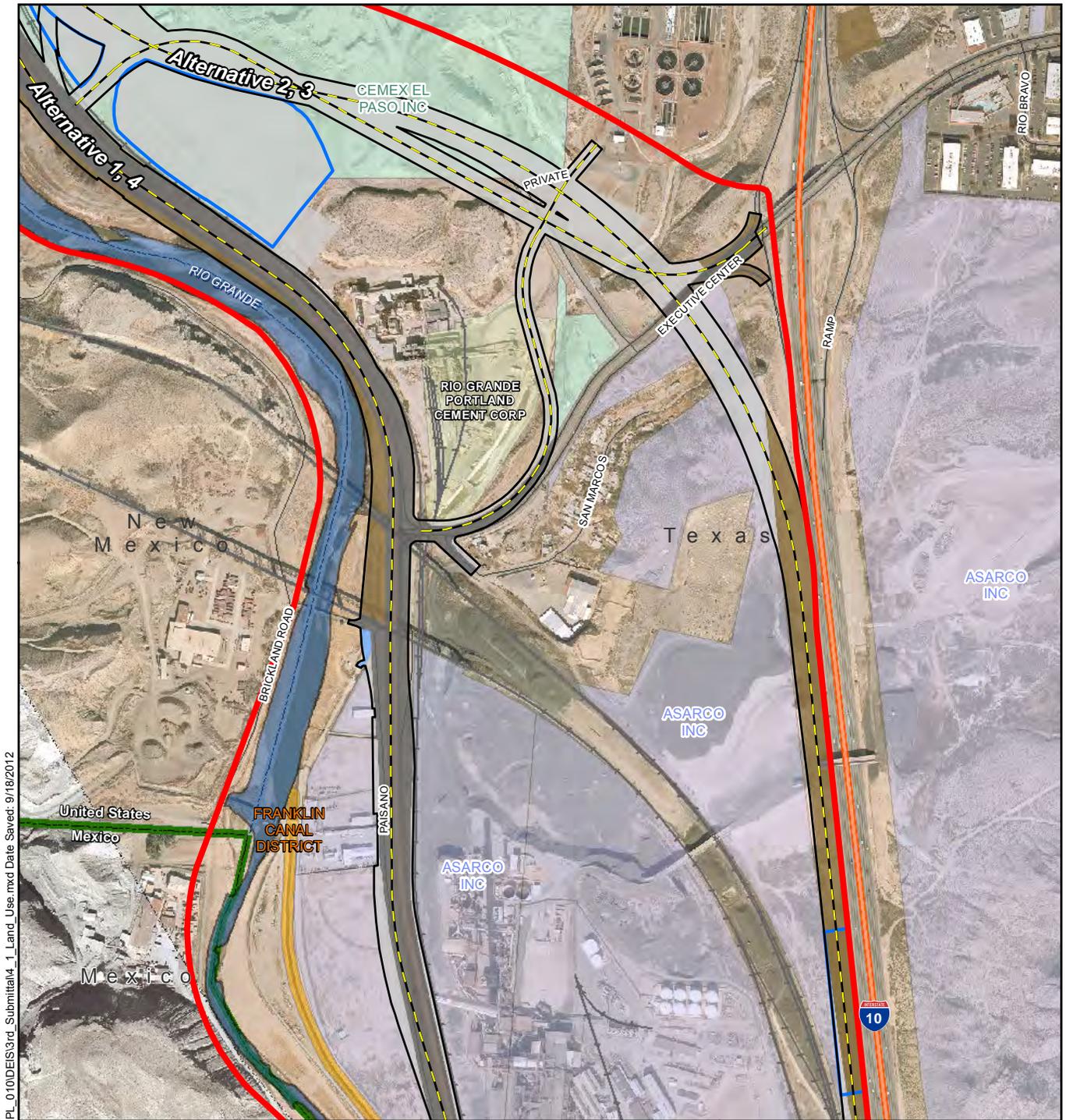
Exhibit 4-1

Land Use Within Reasonable Alternatives

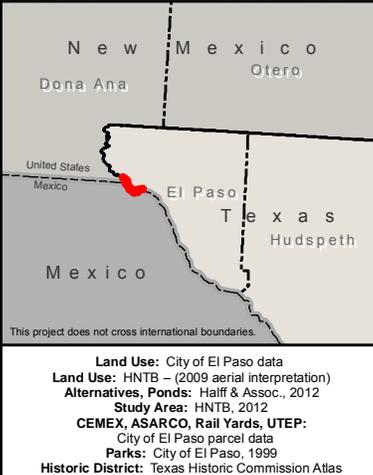
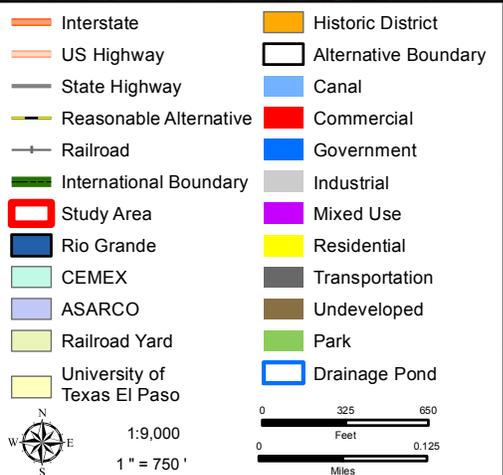
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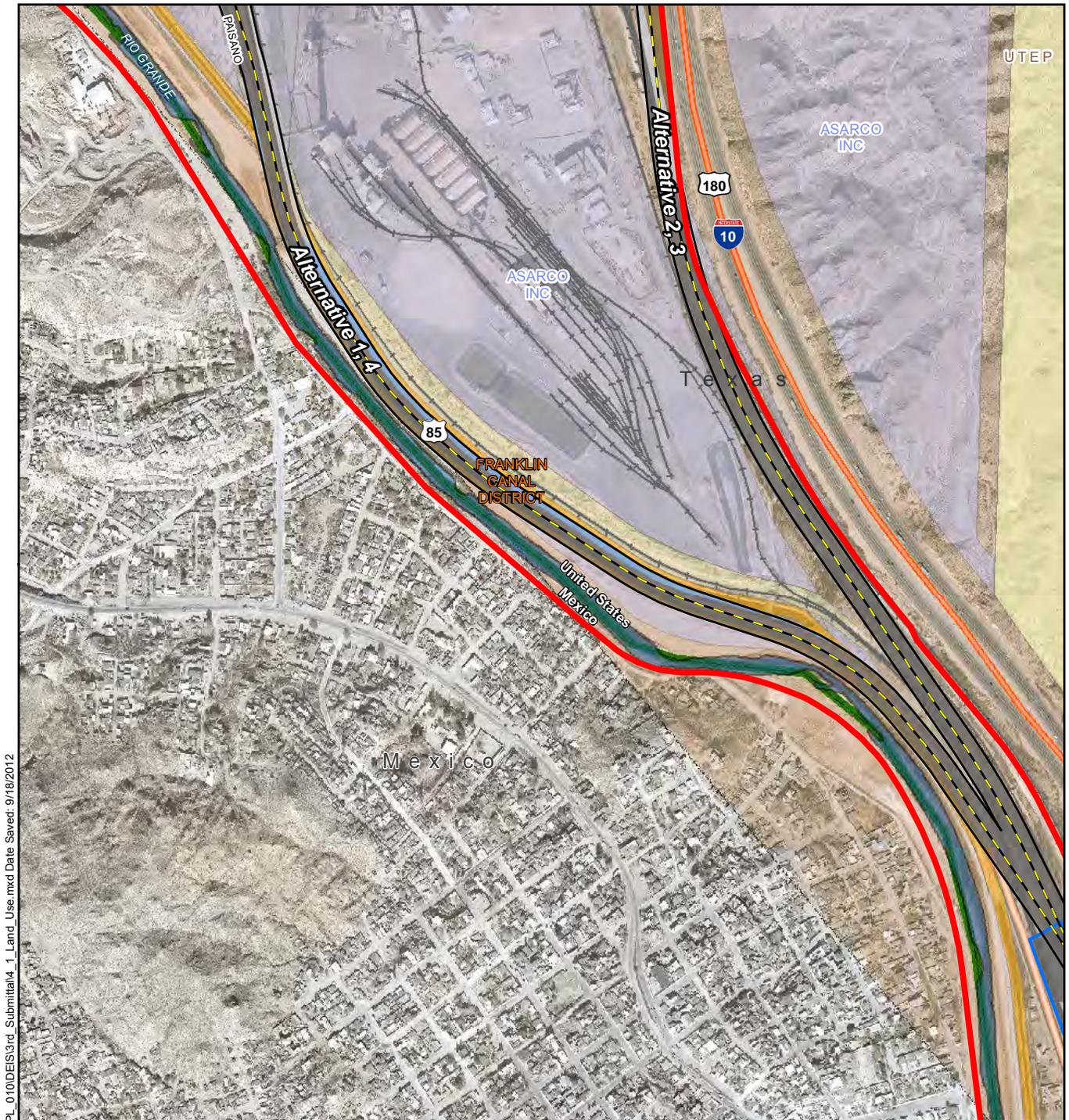
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Exhibit 4-1 Land Use Within Reasonable Alternatives

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	Interstate		Historic District
	US Highway		Alternative Boundary
	State Highway		Canal
	Reasonable Alternative		Commercial
	Railroad		Government
	International Boundary		Industrial
	Study Area		Mixed Use
	Rio Grande		Residential
	CEMEX		Transportation
	ASARCO		Undeveloped
	Railroad Yard		Park
	University of Texas El Paso		Drainage Pond

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Land Use: HNTB - (2009 aerial interpretation)
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Study Area: HNTB, 2012
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From Racetrack Drive to US 54

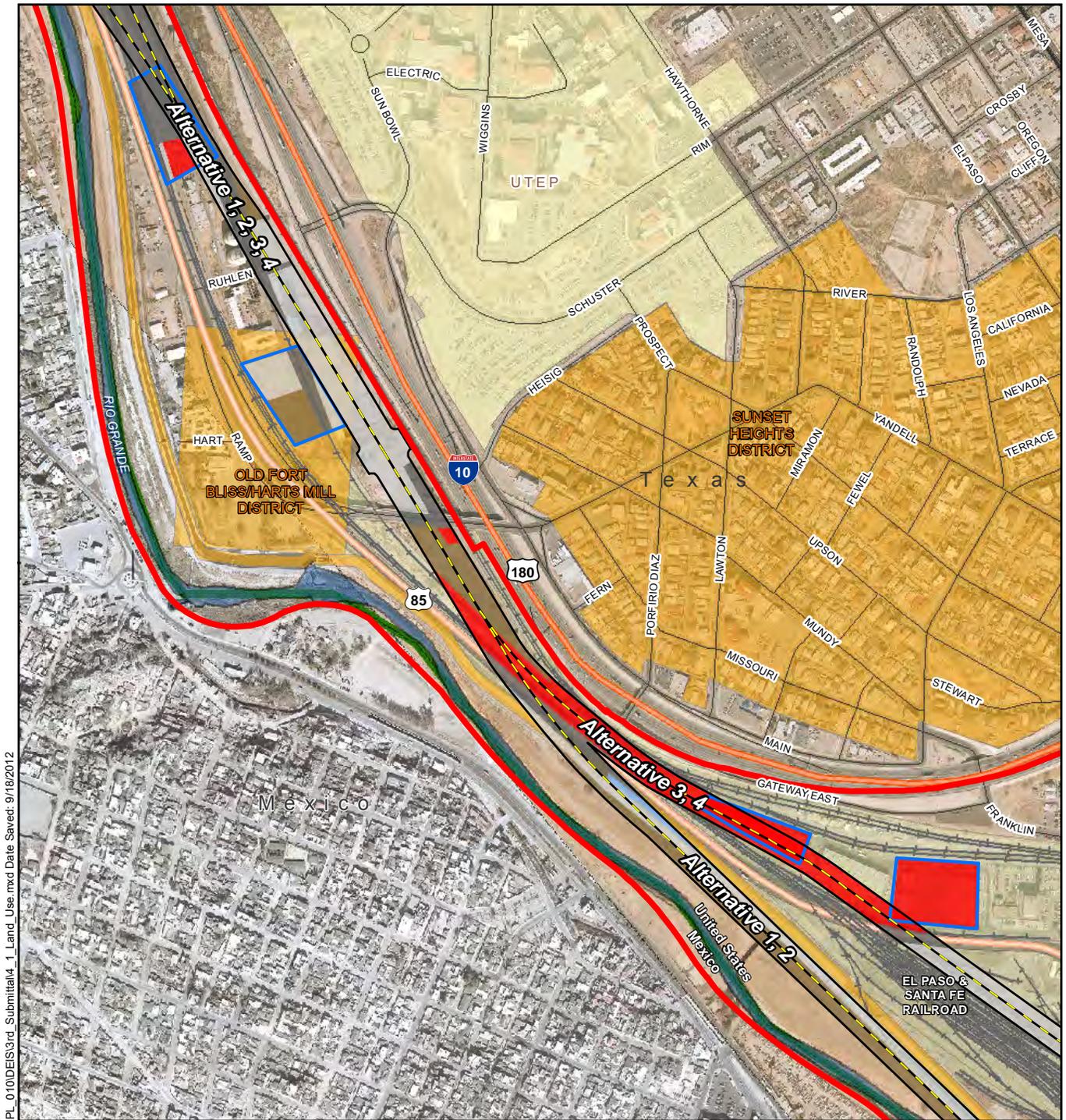
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Land Use Within Reasonable Alternatives

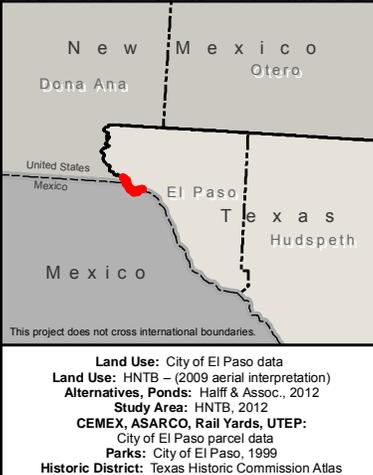
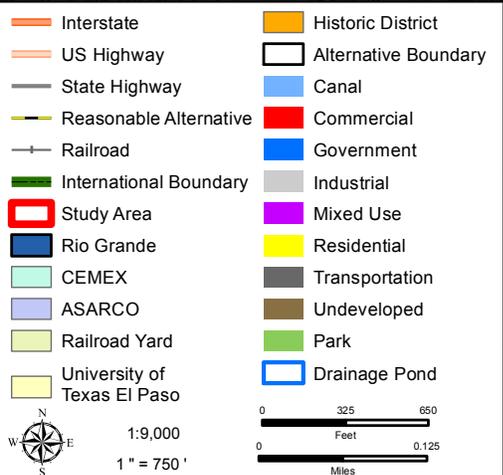
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Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

Exhibit 4-1 Land Use Within Reasonable Alternatives

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El Paso County, Texas
CSJ: 2552-04-027
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Land Use: City of El Paso data

Land Use: HNTB - (2009 aerial interpretation)

Alternatives, Ponds: Half & Assoc., 2012

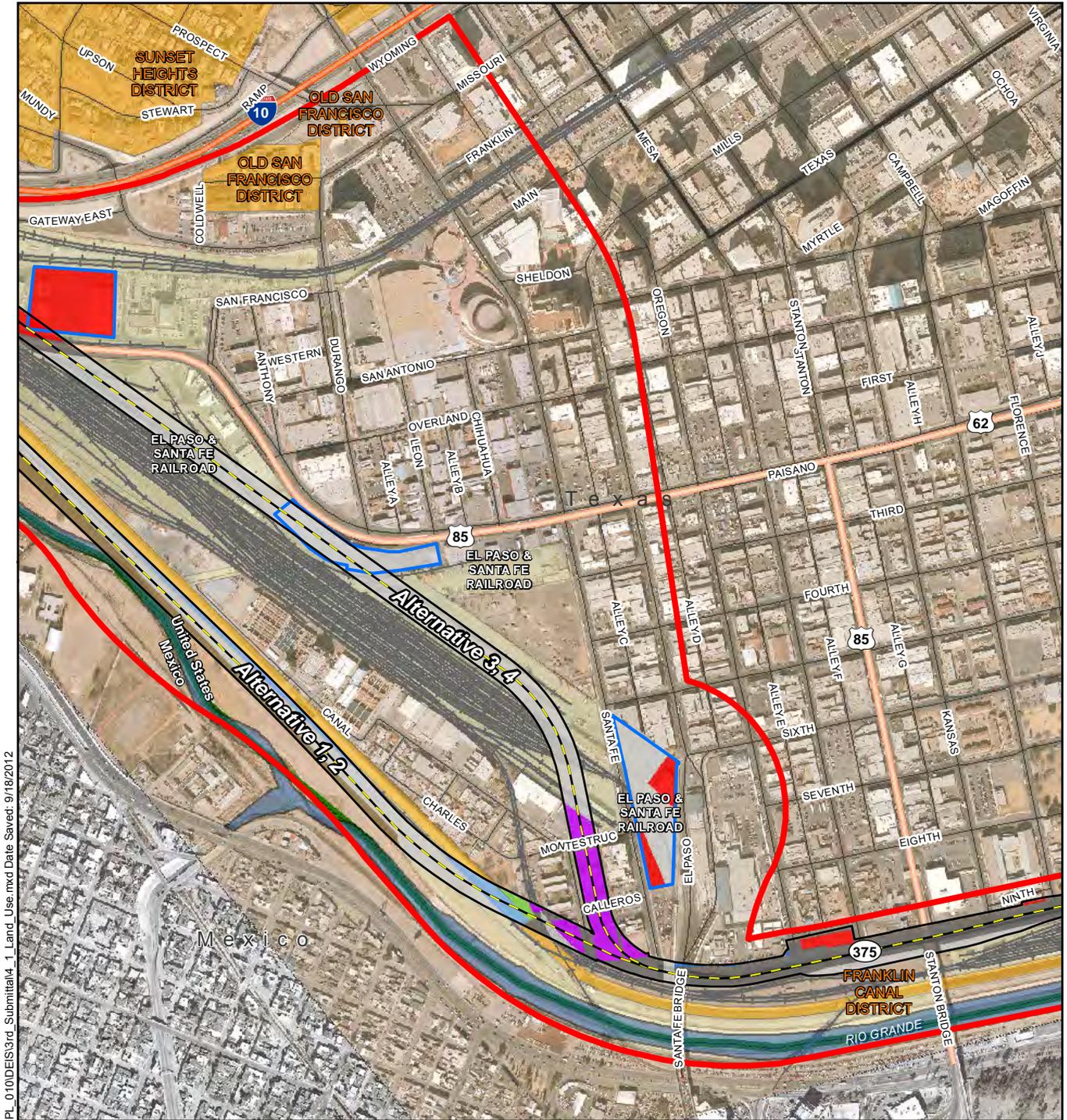
Study Area: HNTB, 2012

CEMEX, ASARCO, Rail Yards, UTEP: City of El Paso parcel data

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Interstate	Historic District
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Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

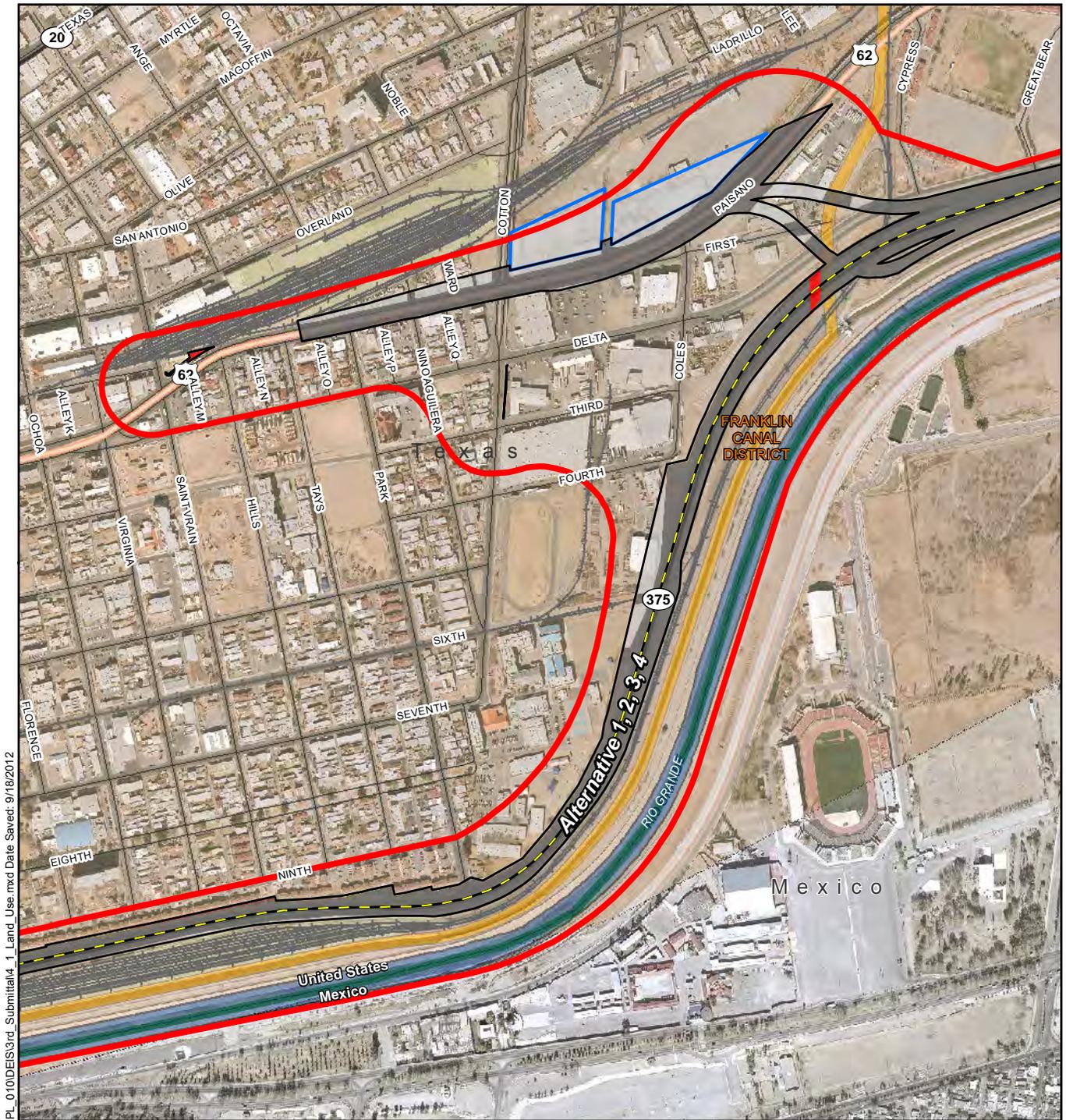
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Land Use Within Reasonable Alternatives

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Interstate	Historic District
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CEMEX	Transportation
ASARCO	Undeveloped
Railroad Yard	Park
University of Texas El Paso	Drainage Pond

Scale: 1:9,000
1" = 750'

0 325 650 Feet
0 0.125 Miles

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Land Use: HNTB - (2009 aerial interpretation)
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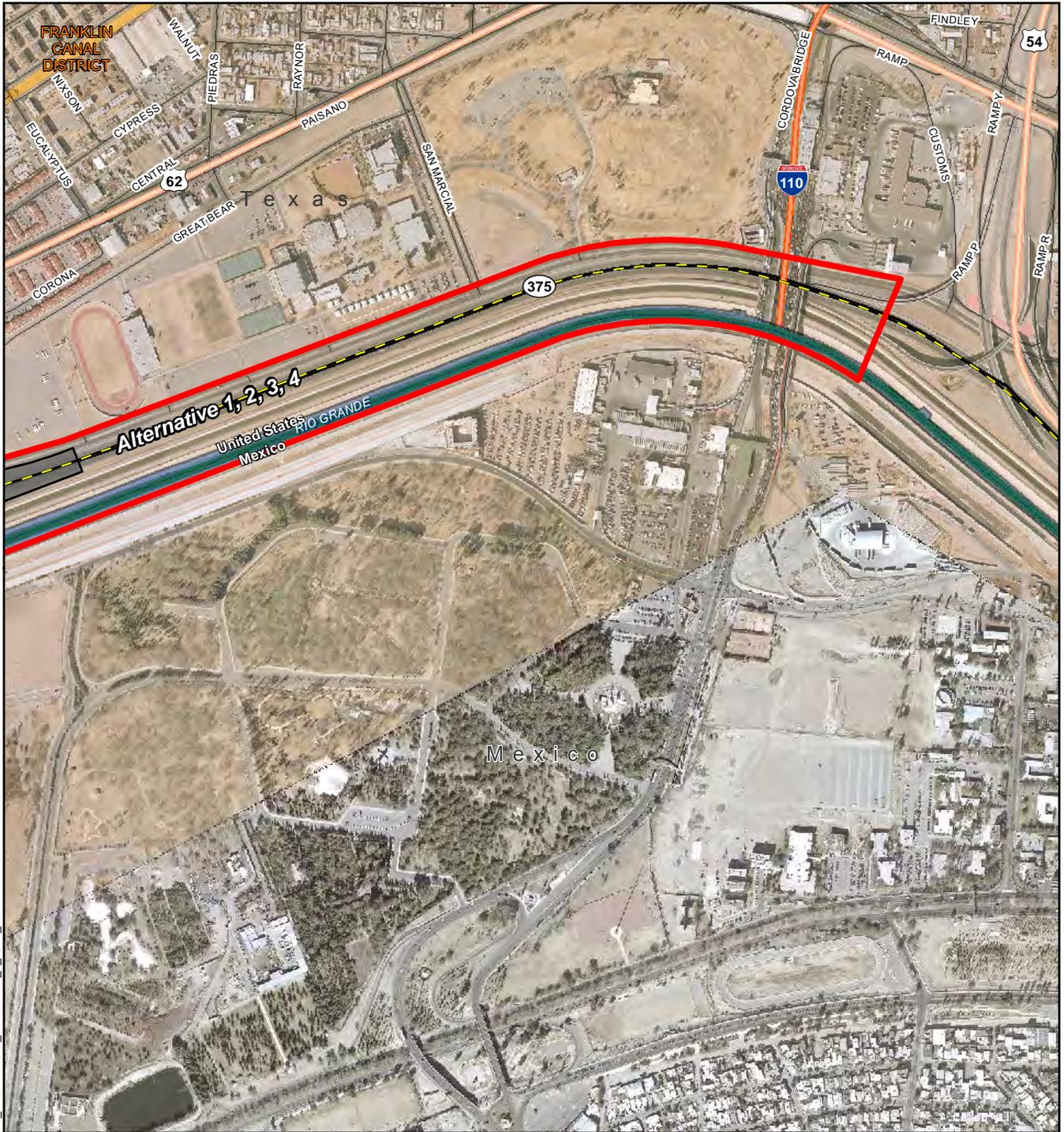
Loop 375 Border Highway West Extension Project
 From Racetrack Drive to US 54

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Land Use Within Reasonable Alternatives

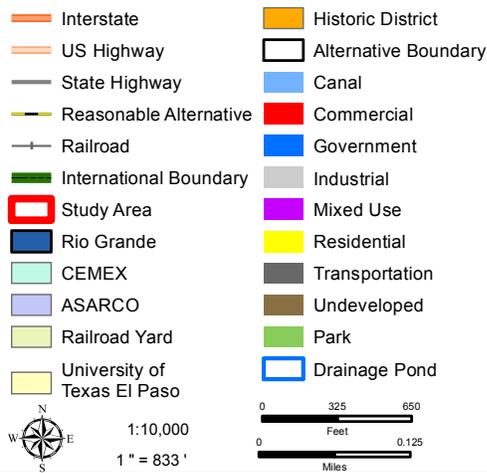
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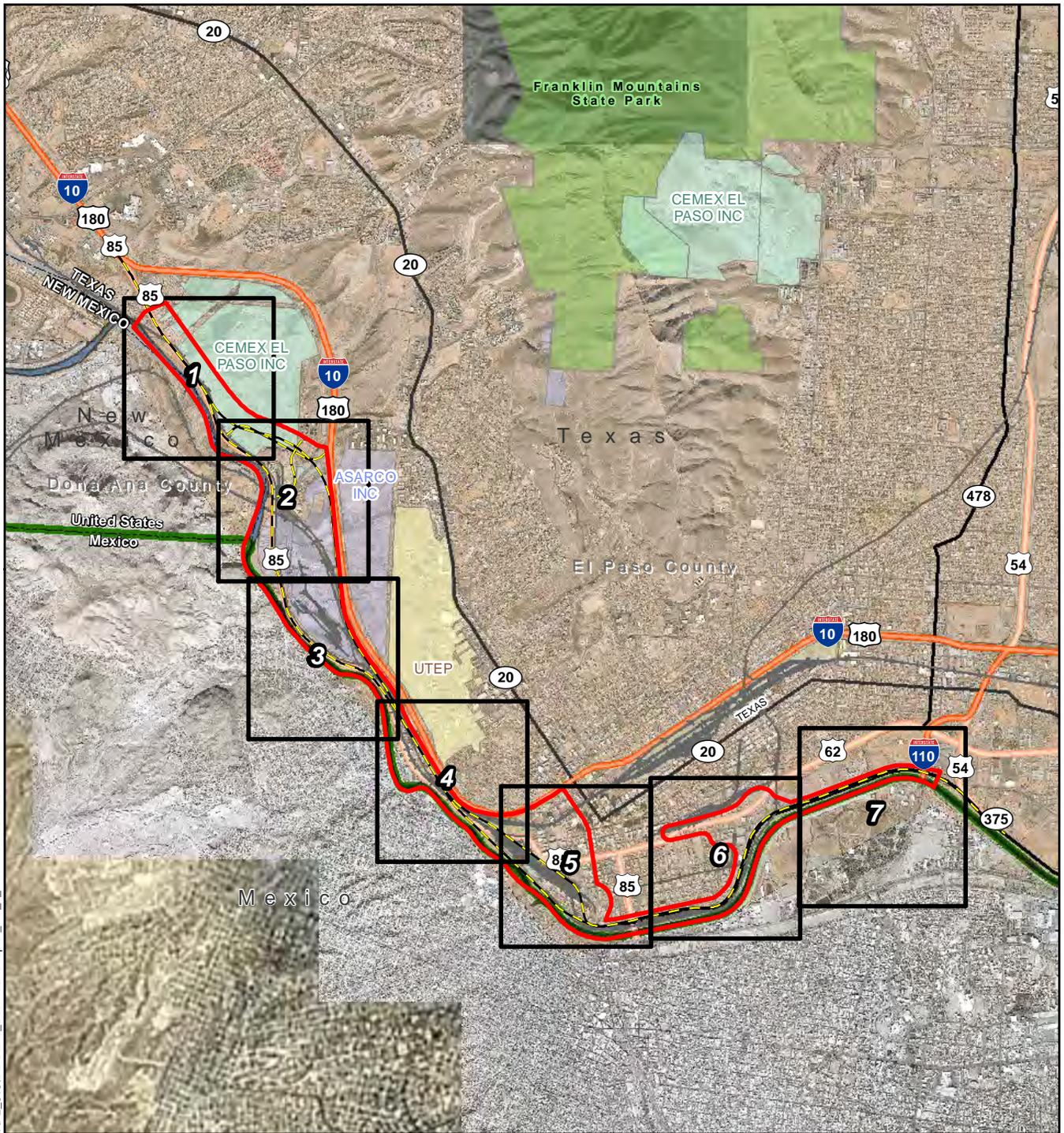
Exhibit 4-1 Land Use Within Reasonable Alternatives

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El Paso County, Texas
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- | | |
|------------------------|-------------------------------|
| Interstate | Study Area |
| US Highway | Rio Grande |
| State Highway | CEMEX |
| Reasonable Alternative | ASARCO |
| Railroad | Railroad Yard |
| International Boundary | University of Texas El Paso |
| | Franklin Mountains State Park |

1:63,360
1" = 5,280'

0 2,500 5,000
0 1
Feet
Miles



Alternatives, Ponds: Halff & Assoc., 2012
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Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

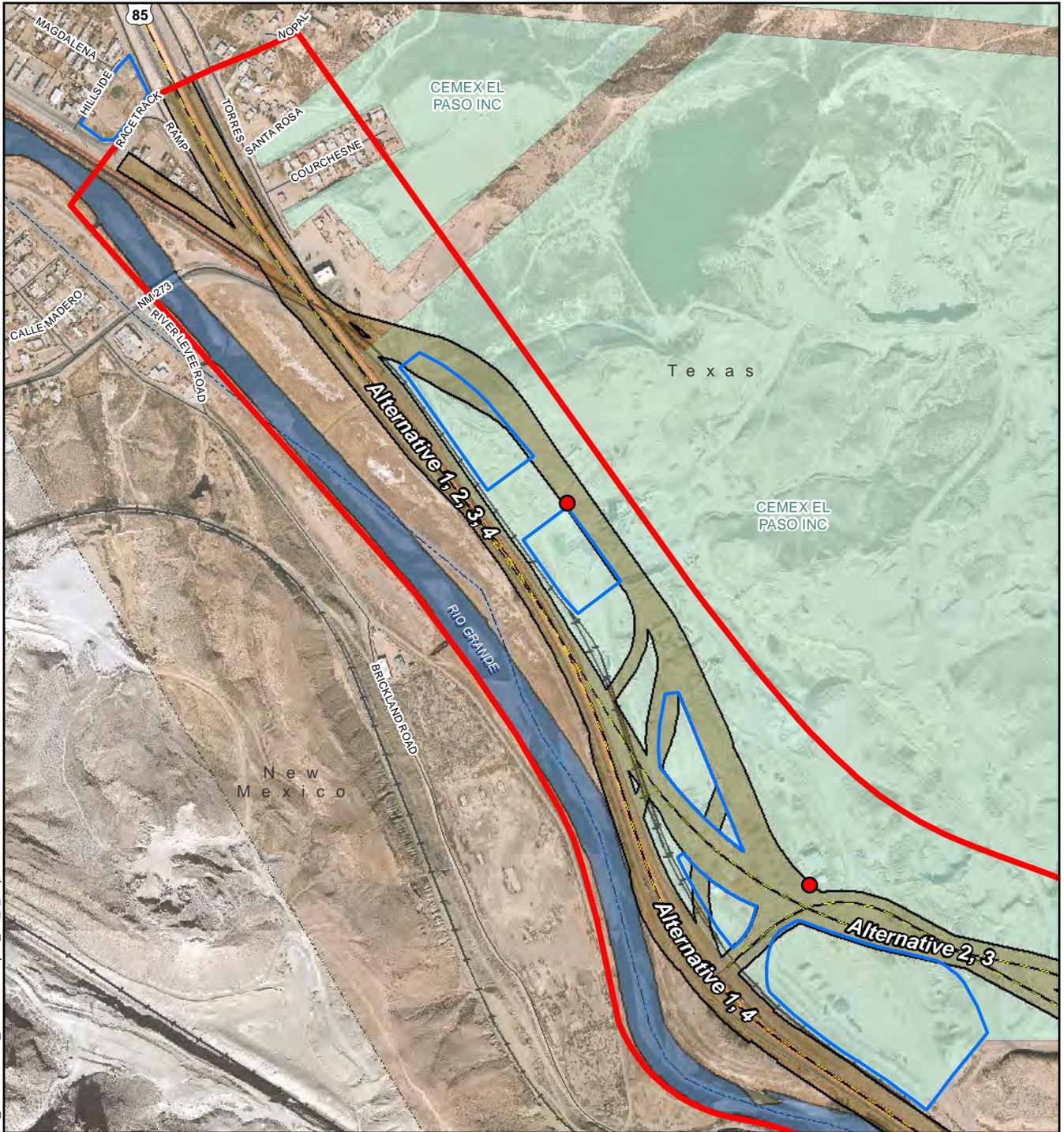
Exhibit 4-2 Potential Displacements within Reasonable Alternatives

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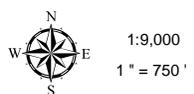
El Paso County, Texas
CSJ: 2552-04-027
August, 2012

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- Commercial Displacement
- Residential Displacement
- Interstate
- US Highway
- State Highway
- State Loop
- International Boundary
- Reasonable Alternative
- Railroad
- Study Area
- Park
- Rio Grande
- Park Displacement
- Drainage Pond
- Alternative Boundary
- CEMEX
- ASARCO
- Railroad Yard
- University of Texas El Paso
- Historic District



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Displacements: HNTB, Half & Assoc., 2012
Alternatives, Ponds: Half & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP: City of El Paso parcel data
Parks: City of El Paso, 1998
Historic District: Texas Historic Commission Atlas



Loop 375 Border Highway West Extension Project

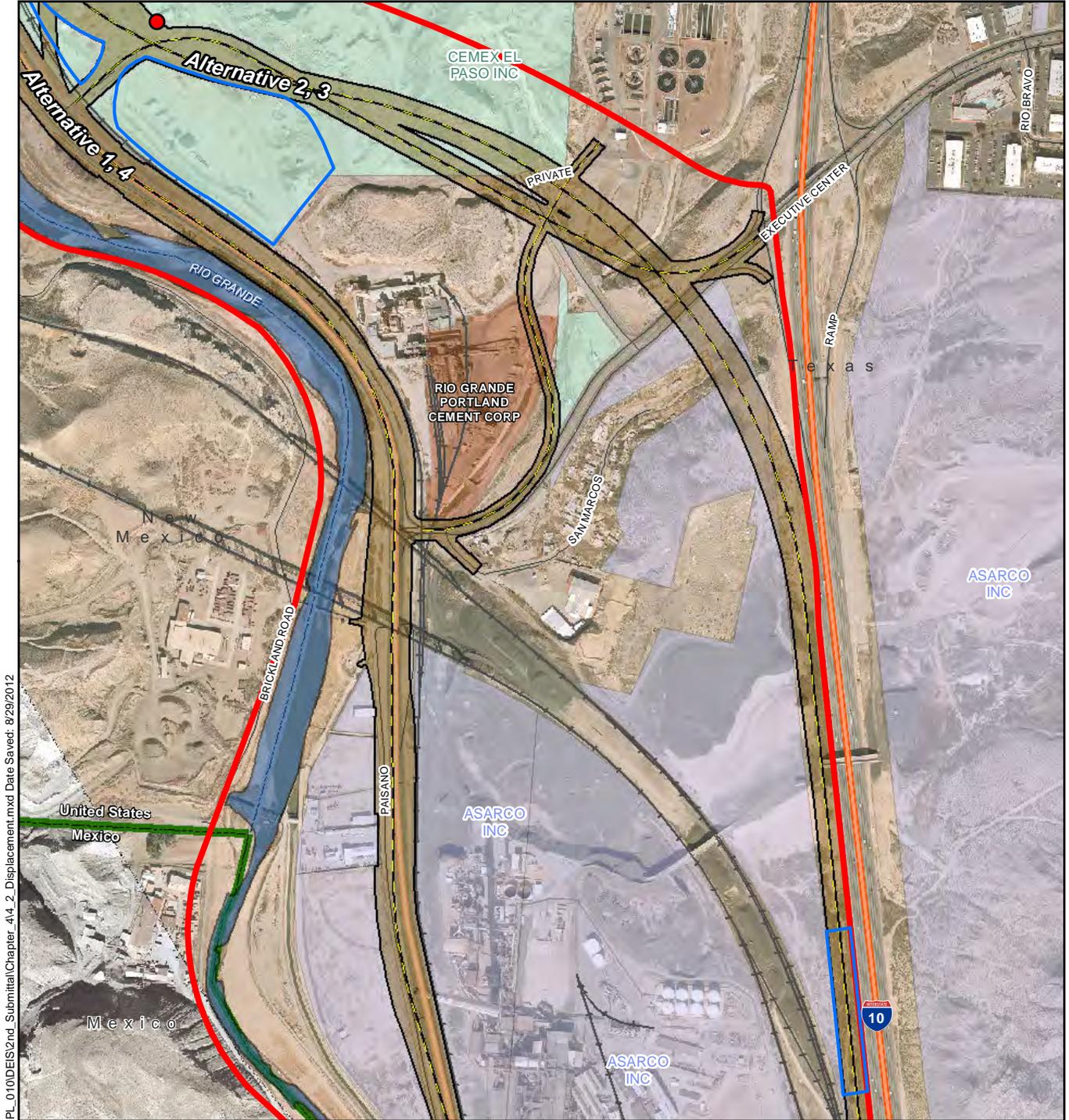
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Exhibit 4-2 Potential Displacements within Reasonable Alternatives

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El Paso County, Texas
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- | | | | |
|--|--------------------------|--|-----------------------------|
| | Commercial Displacement | | Park |
| | Residential Displacement | | Rio Grande |
| | Interstate | | Park Displacement |
| | US Highway | | Drainage Pond |
| | State Highway | | Alternative Boundary |
| | State Loop | | CEMEX |
| | International Boundary | | ASARCO |
| | Reasonable Alternative | | Railroad Yard |
| | Railroad | | University of Texas El Paso |
| | Study Area | | Historic District |



Displacements: HNTB, Half & Assoc., 2012
Alternatives, Ponds: Half & Assoc., 2012
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CEMEX, ASARCO, Rail Yards, UTEP:
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Loop 375 Border Highway West Extension Project

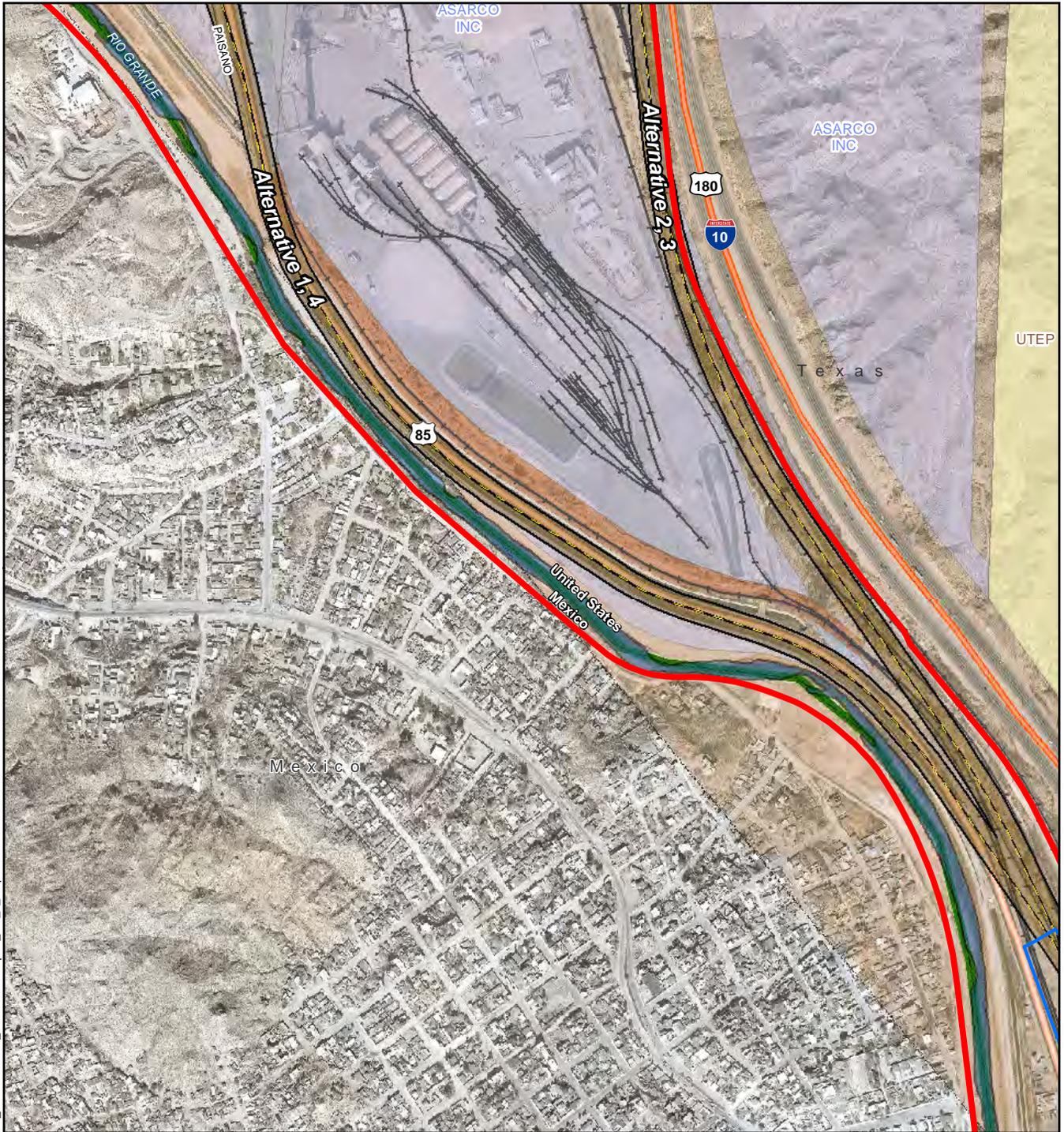
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Exhibit 4-2 Potential Displacements within Reasonable Alternatives

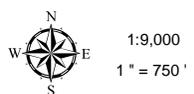
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- Commercial Displacement
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Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

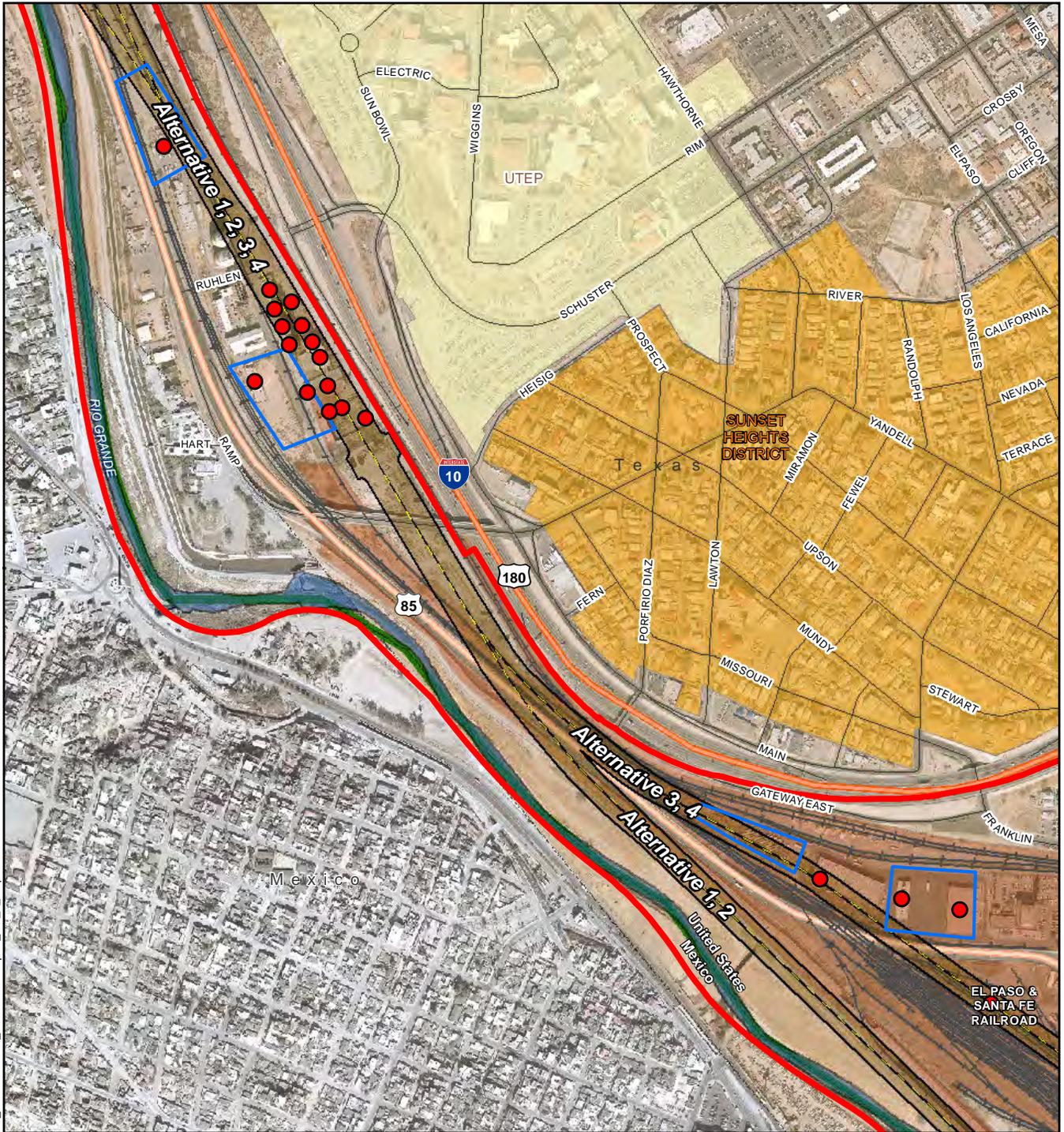
Exhibit 4-2 Potential Displacements within Reasonable Alternatives

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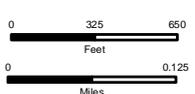
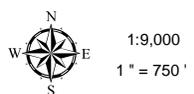
El Paso County, Texas
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- Commercial Displacement
- Residential Displacement
- Interstate
- US Highway
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- State Loop
- International Boundary
- Reasonable Alternative
- Railroad
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- Park
- Rio Grande
- Park Displacement
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- ASARCO
- Railroad Yard
- University of Texas El Paso
- Historic District



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Displacements: HNTB, Hall & Assoc., 2012
Alternatives, Ponds: Hall & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP: City of El Paso parcel data
Parks: City of El Paso, 1999
Historic District: Texas Historic Commission Atlas



Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

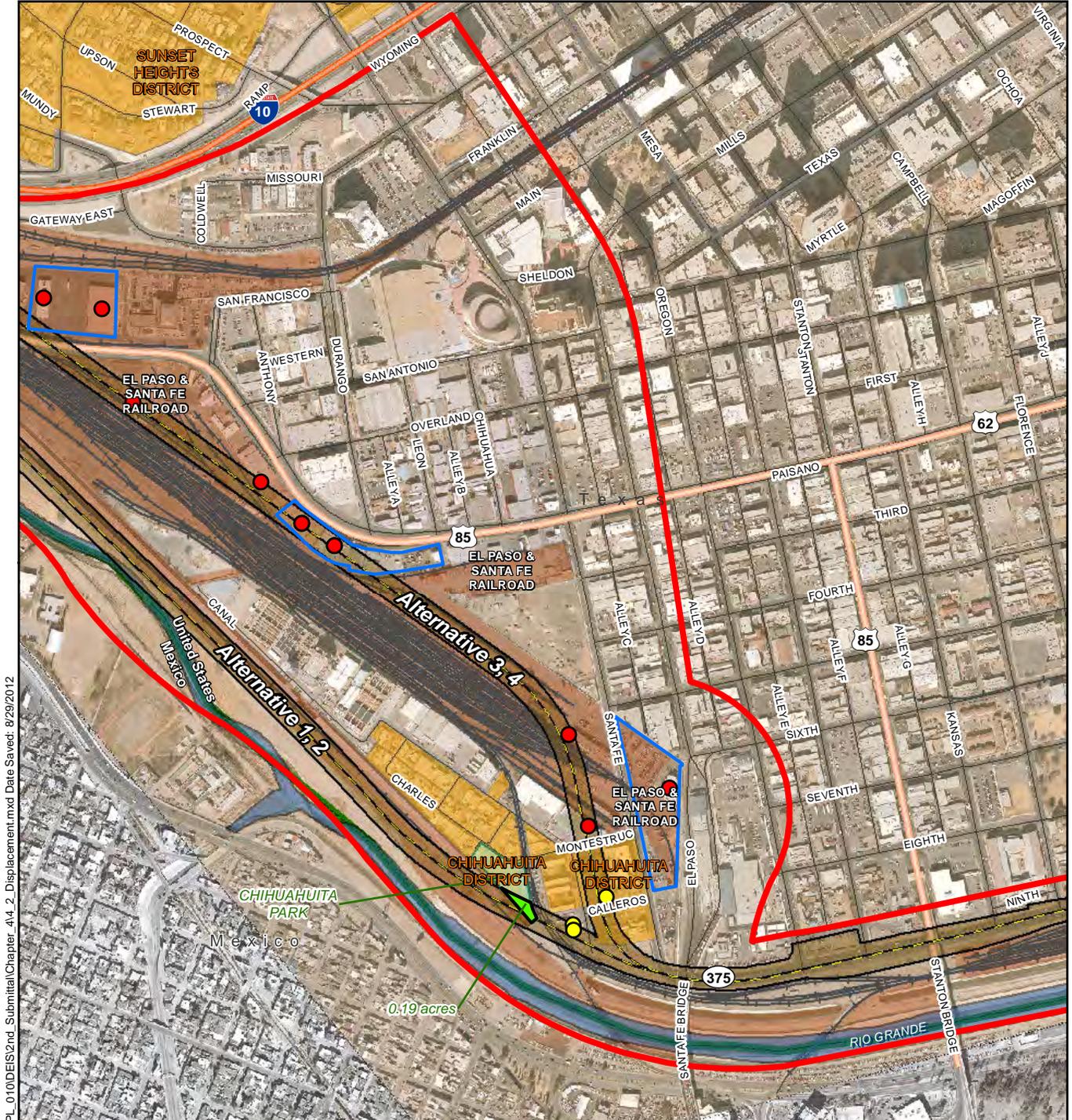
Exhibit 4-2 Potential Displacements within Reasonable Alternatives

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El Paso County, Texas

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Displacements: HNTB, Hall & Assoc., 2012
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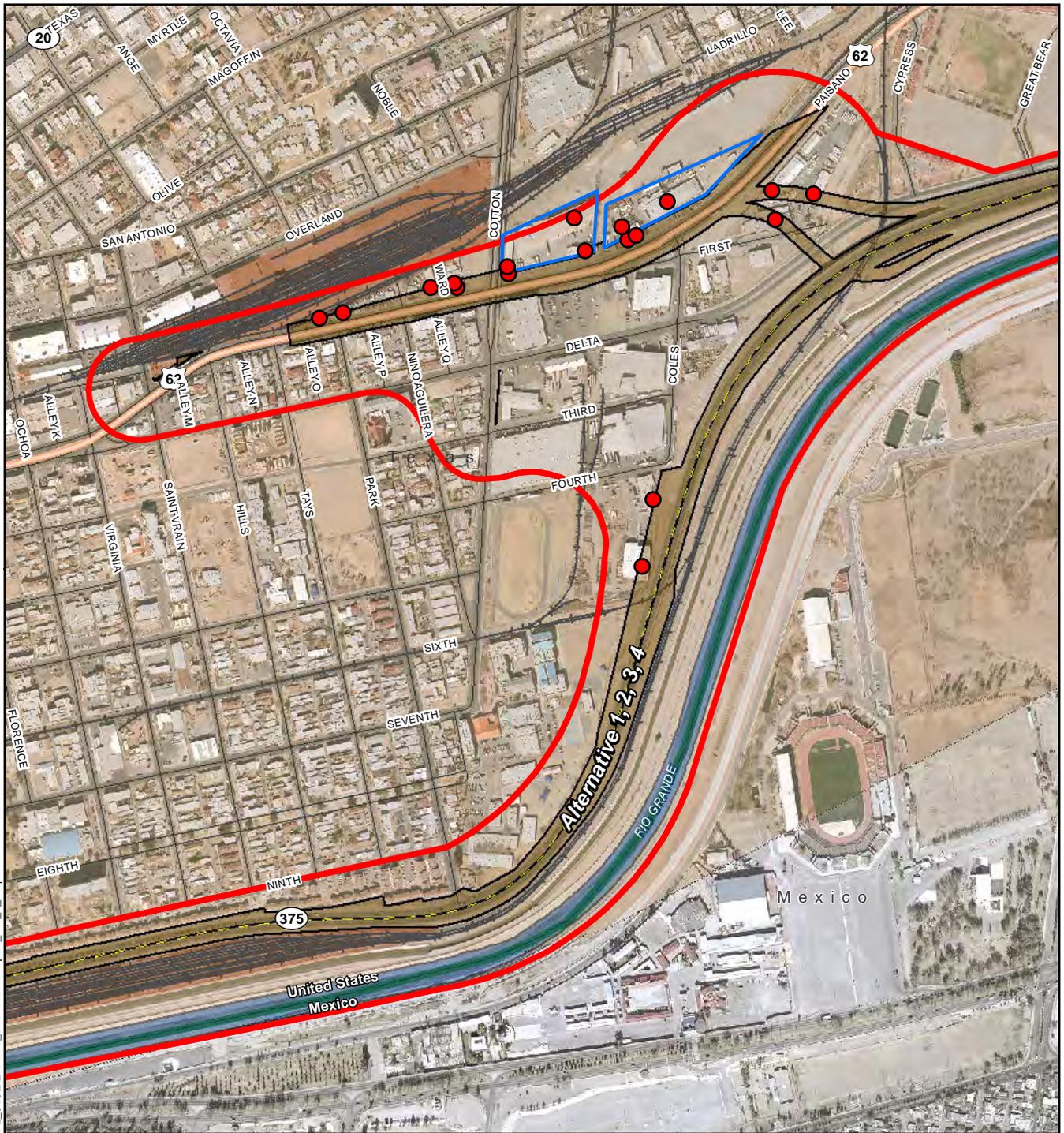
Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

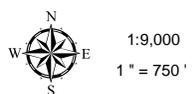
Exhibit 4-2 Potential Displacements within Reasonable Alternatives

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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- Commercial Displacement
- Residential Displacement
- Interstate
- US Highway
- State Highway
- State Loop
- International Boundary
- Reasonable Alternative
- Railroad
- Study Area
- Park
- Rio Grande
- Park Displacement
- Drainage Pond
- Alternative Boundary
- CEMEX
- ASARCO
- Railroad Yard
- University of Texas El Paso
- Historic District



This project does not cross international boundaries.

Displacements: HNTB, Hall & Assoc., 2012
Alternatives, Ponds: Hall & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP:
 City of El Paso parcel data
Parks: City of El Paso, 1998
Historic District: Texas Historic Commission Atlas



Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

Exhibit 4-2 Potential Displacements within Reasonable Alternatives

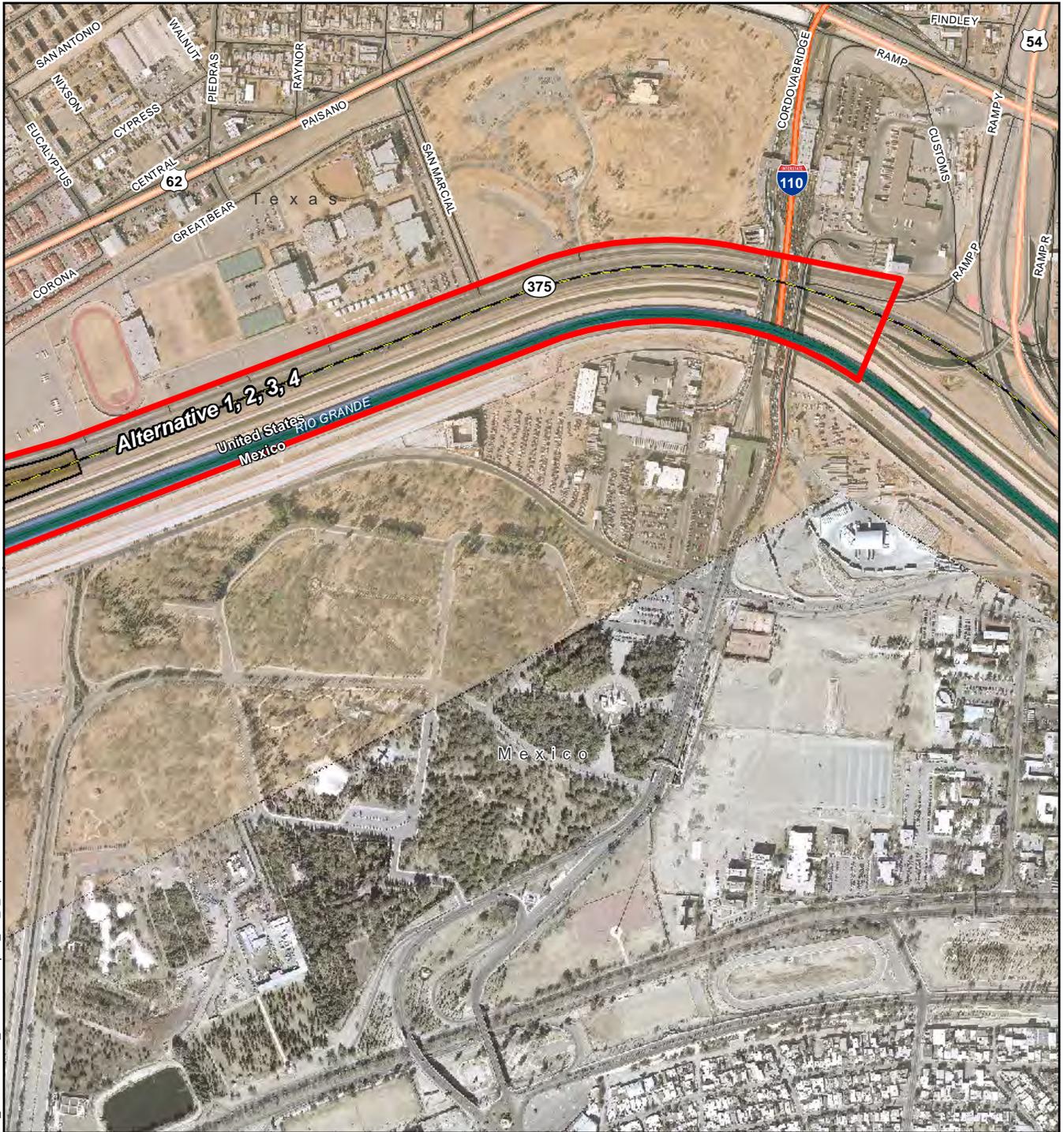
Page 6 of 7

El Paso County, Texas

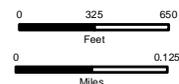
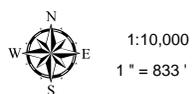
CSJ: 2552-04-027
August, 2012

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- | | | | |
|--|--------------------------|--|-----------------------------|
| | Commercial Displacement | | Park |
| | Residential Displacement | | Rio Grande |
| | Interstate | | Park Displacement |
| | US Highway | | Drainage Pond |
| | State Highway | | Alternative Boundary |
| | State Loop | | CEMEX |
| | International Boundary | | ASARCO |
| | Reasonable Alternative | | Railroad Yard |
| | Railroad | | University of Texas El Paso |
| | Study Area | | Historic District |



Displacements: HNTB, Hall & Assoc., 2012
 Alternatives, Ponds: Hall & Assoc., 2012
 Study Area: HNTB, 2012
 CEMEX, ASARCO, Rail Yards, UTEP:
 City of El Paso parcel data
 Parks City of El Paso, 1998
 Historic District Texas Historic Commission Atlas



Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

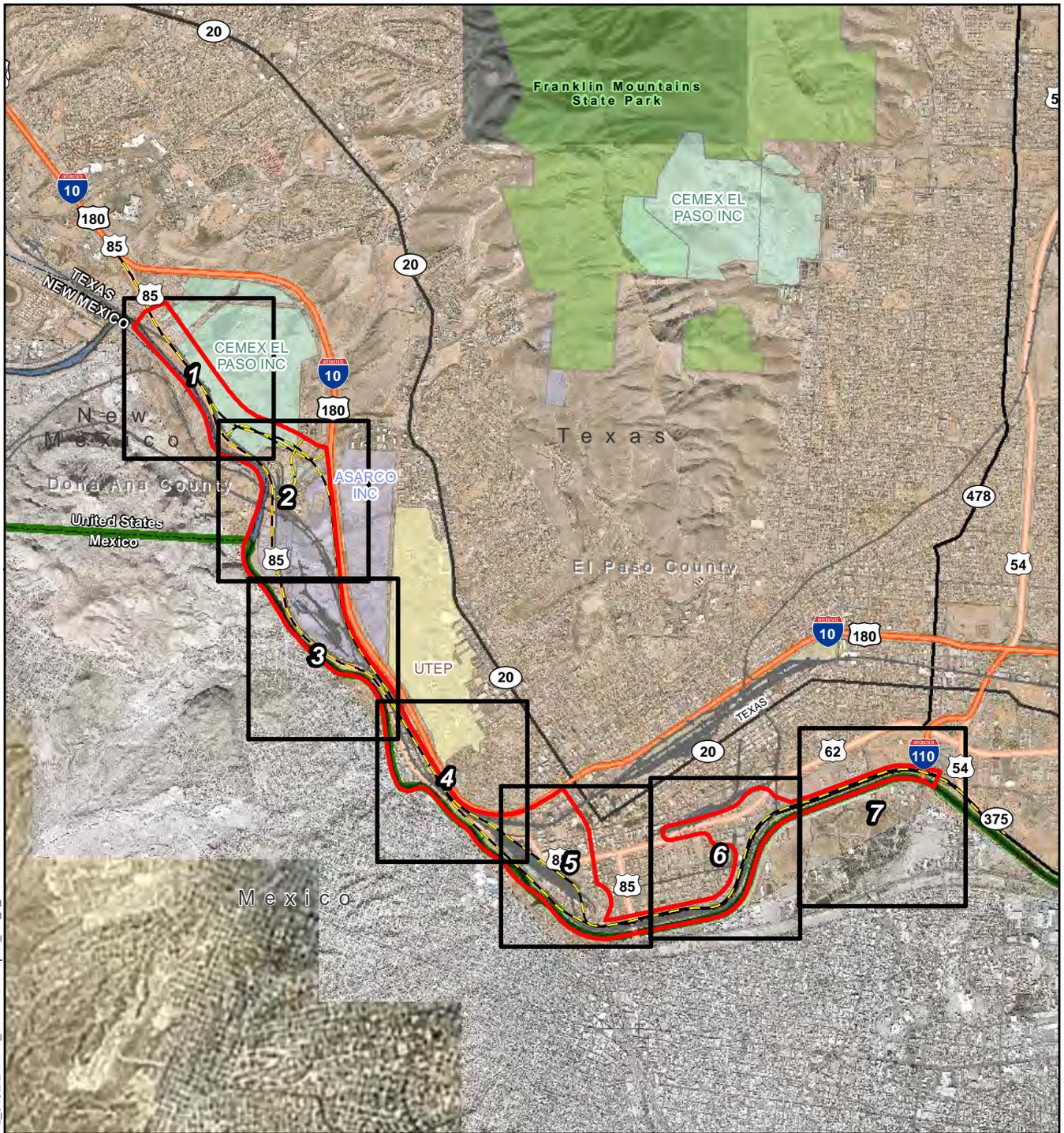
Exhibit 4-2 Potential Displacements within Reasonable Alternatives

Page 7 of 7

El Paso County, Texas
 CSJ: 2552-04-027
 August, 2012

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- | | |
|------------------------|-------------------------------|
| Interstate | Study Area |
| US Highway | Rio Grande |
| State Highway | CEMEX |
| Reasonable Alternative | ASARCO |
| Railroad | Railroad Yard |
| International Boundary | University of Texas El Paso |
| | Franklin Mountains State Park |



Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

Exhibit 4-3 Minority and Low-Income Census Geographies and Displacements Within Reasonable Alternatives

Index
El Paso County, Texas
CSJ: 2552-04-027
August, 2012

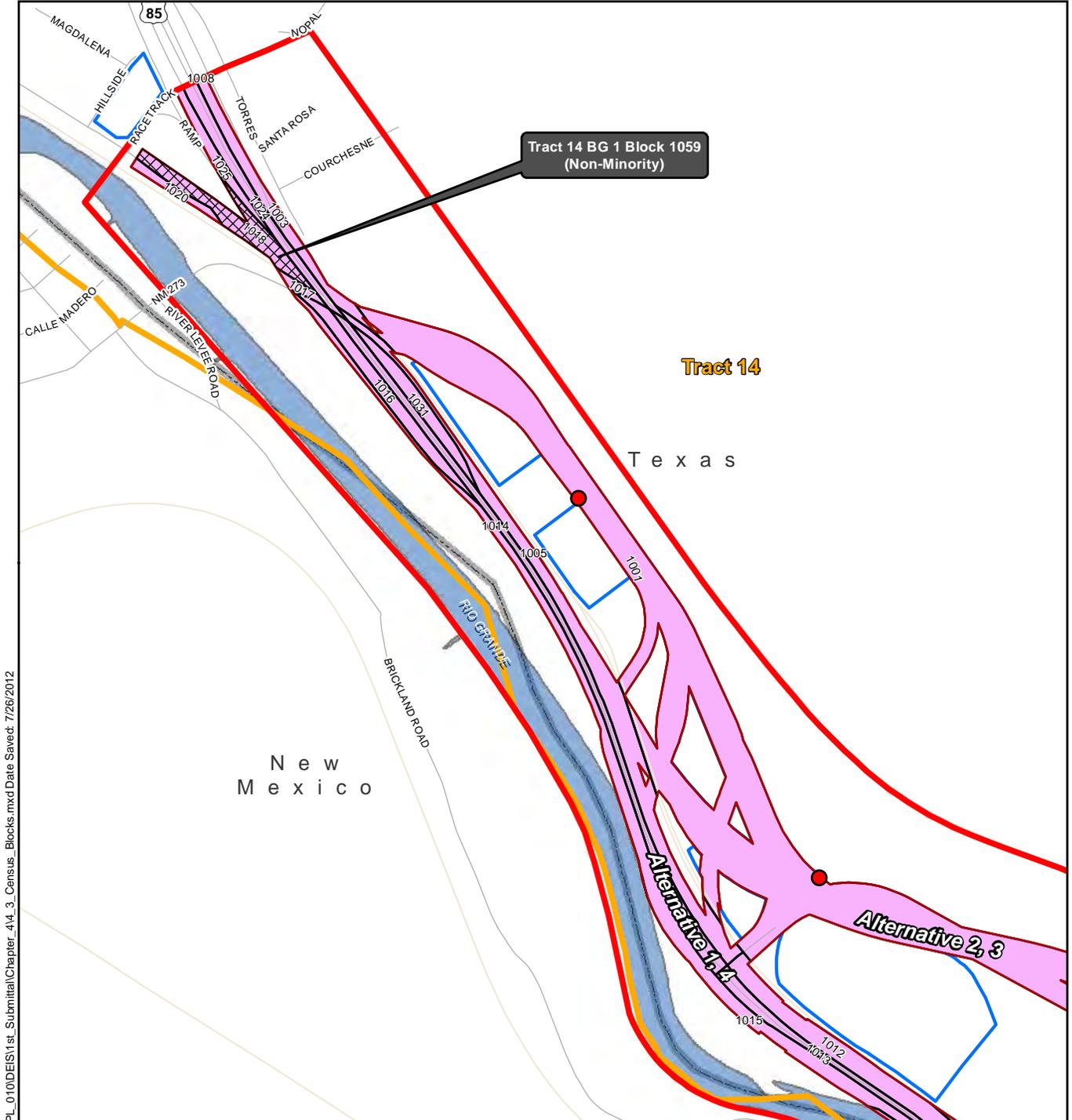
Alternatives, Ponds: Halff & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP:
City of El Paso parcel data
Parks: City of El Paso, 1999
Historic District: Texas Historic Commission Atlas



1:63,360
1" = 5,280'



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Path: \\Ausw001\jobs\42085 Border Hwy West\Techprod\GIS\MX\DIEX\HT\PL_010DEIS\1st_Submittal\Chapter_4\4_3_Census_Blocks.mxd Date Saved: 7/26/2012

<ul style="list-style-type: none"> ● Commercial Displacement ● Residential Displacement — Streets — Railroad International Boundary Study Area Alternative Boundary Drainage Pond Rio Grande Census Tract Minority Census Block NOT Minority Block 	<p>Low Income Block Group</p> <ul style="list-style-type: none"> Block Group 1 Block Group 2 Block Group 3 Block Group 4 Block Group 5 Block Group 6 Block Group 7 Block Group 8 NOT Low Income Block Group Park Displacement
--	--

Sources

Displacements: HNTB, Hall & Assoc., 2012
Census Data: U.S. Census Bureau, 2010
Alternatives, Ponds: Hall & Assoc., 2012
Study Area: HNTB, 2012

Loop 375 Border Highway West Extension Project

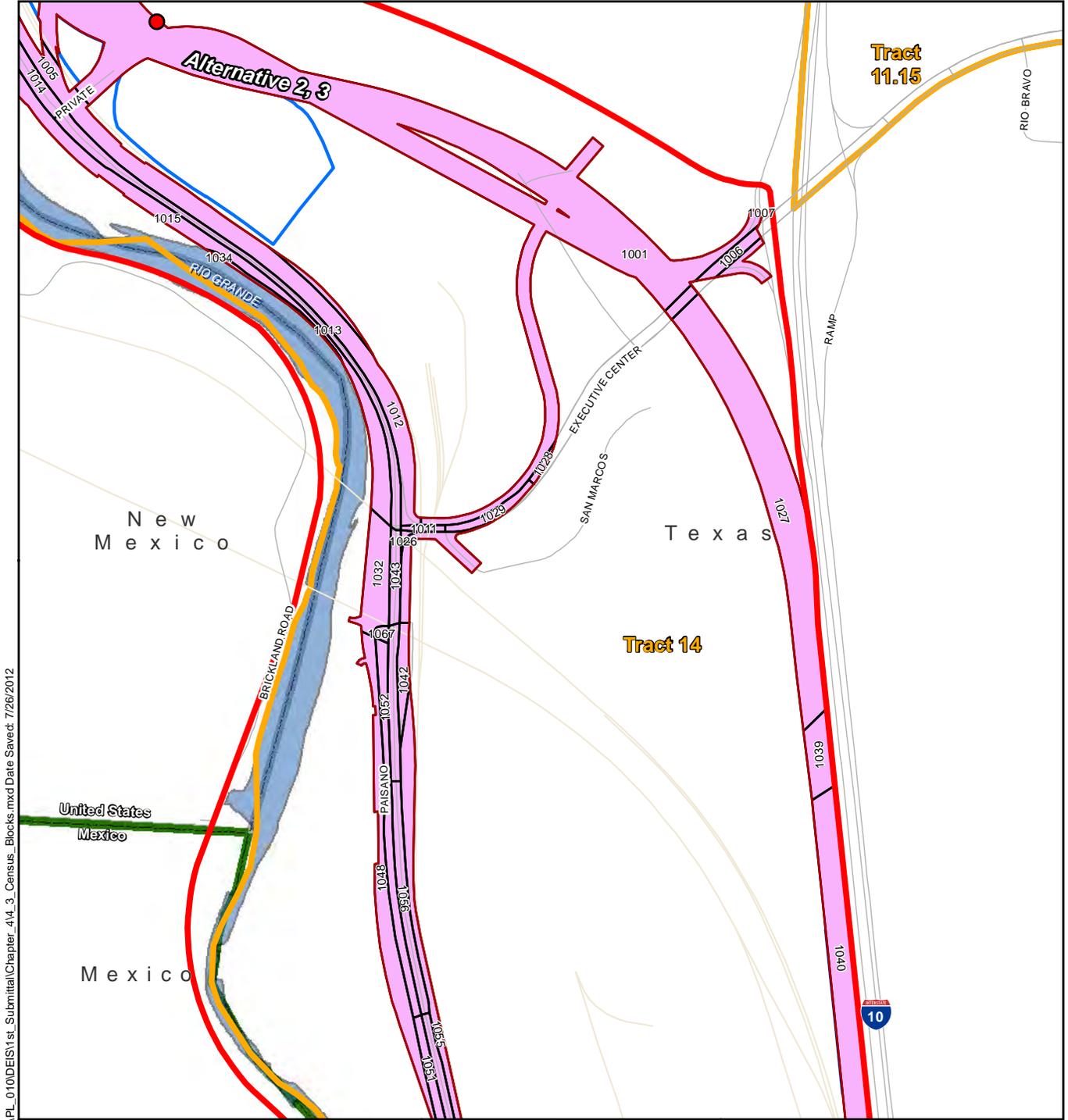
From Racetrack Drive to US 54

Exhibit 4-3

Minority and Low-Income Census Geographies and Displacements Within Reasonable Alternatives

Page 1 of 7
El Paso County, Texas
CSJ: 2552-04-027
July, 2012

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<ul style="list-style-type: none"> ● Commercial Displacement ● Residential Displacement — Streets — Railroad — International Boundary Study Area Alternative Boundary Drainage Pond Rio Grande Census Tract Minority Census Block NOT Minority Block 	<p>Low Income Block Group</p> <ul style="list-style-type: none"> Block Group 1 Block Group 2 Block Group 3 Block Group 4 Block Group 5 Block Group 6 Block Group 7 Block Group 8 NOT Low Income Block Group Park Displacement
--	--

1:9,000
1" = 750'

0 325 650 Feet
0 0.125 Miles

Sources

Displacements: HNTB, Hall & Assoc., 2012
 Census Data: U.S. Census Bureau, 2010
 Alternatives, Ponds: Hall & Assoc., 2012
 Study Area: HNTB, 2012

Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

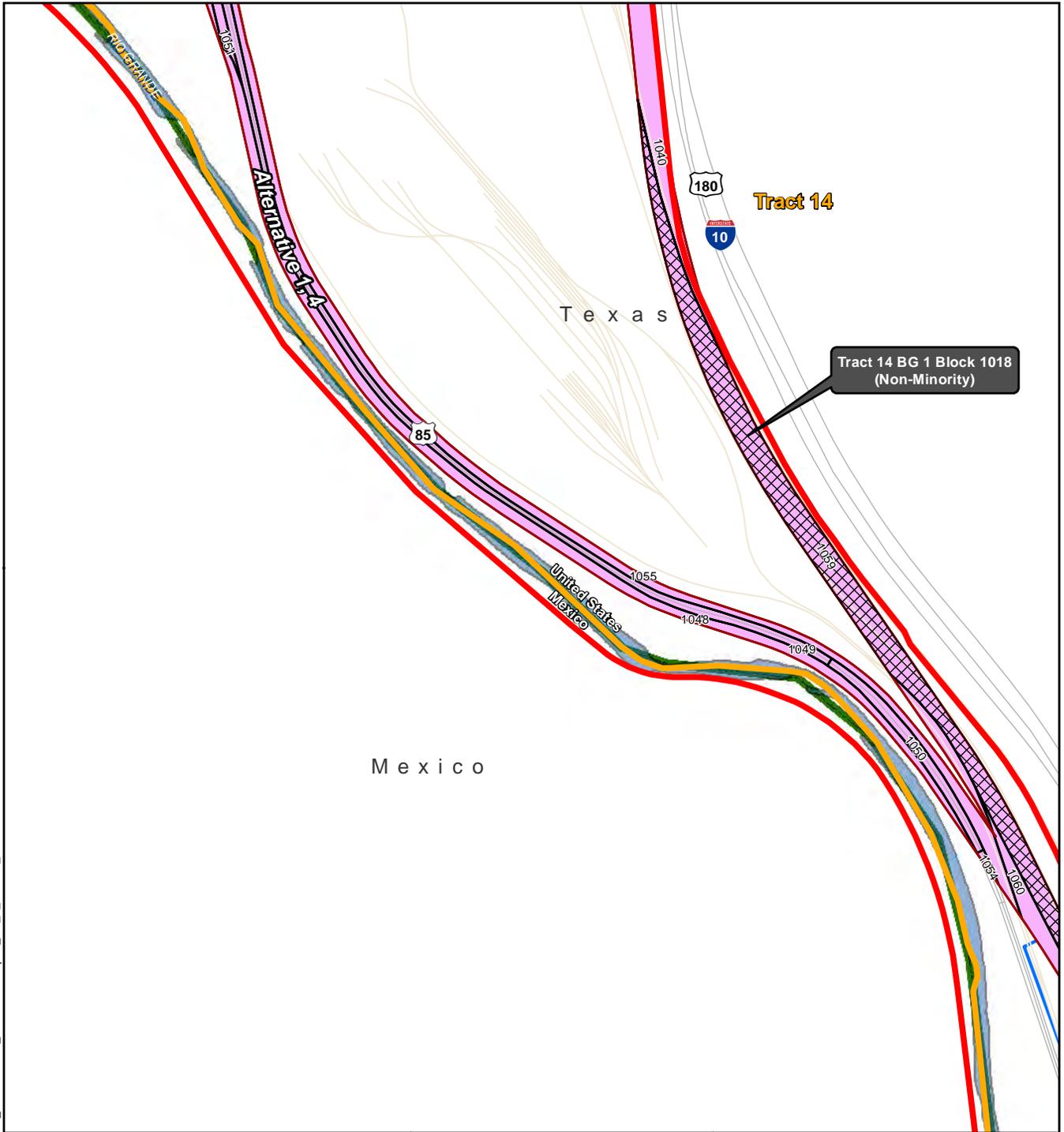
Exhibit 4-3

Minority and Low-Income Census Geographies and Displacements Within Reasonable Alternatives

Page 2 of 7
 El Paso County, Texas
 CSJ: 2552-04-027
 July, 2012

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Commercial Displacement	Block Group 1
Residential Displacement	Block Group 2
Streets	Block Group 3
Railroad	Block Group 4
International Boundary	Block Group 5
Study Area	Block Group 6
Alternative Boundary	Block Group 7
Drainage Pond	Block Group 8
Rio Grande	NOT Low Income Block Group
Census Tract	Park Displacement
Minority Census Block	
NOT Minority Block	

This project does not cross international boundaries.

Sources

Displacements: HNTB, Hall & Assoc., 2012
 Census Data: U.S. Census Bureau, 2010
 Alternatives, Ponds: Hall & Assoc., 2012
 Study Area: HNTB, 2012

Loop 375 Border Highway West Extension Project

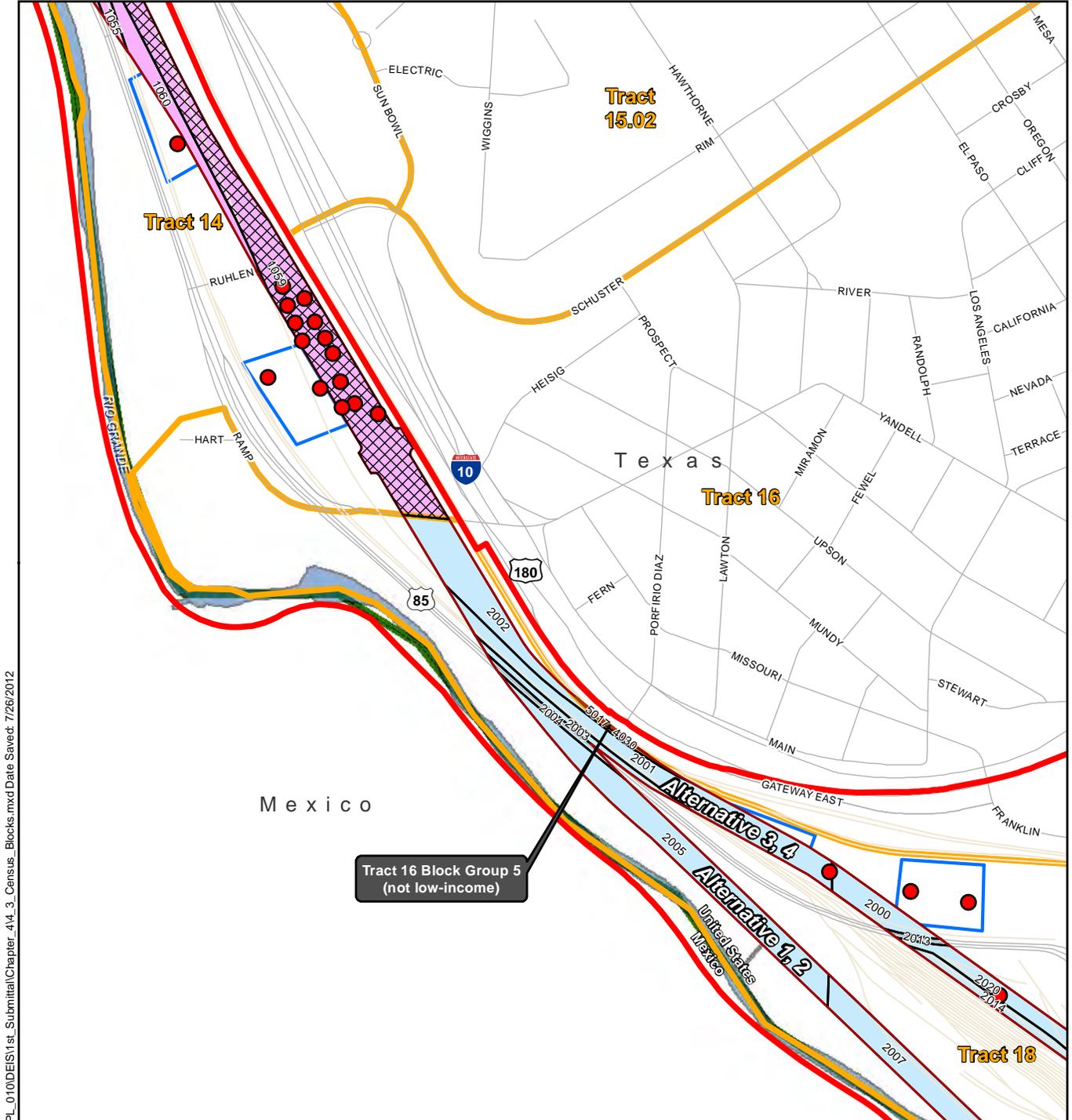
From Racetrack Drive to US 54

Exhibit 4-3

Minority and Low-Income Census Geographies and Displacements Within Reasonable Alternatives

Page 3 of 7
 El Paso County, Texas
 CSJ: 2552-04-027
 July, 2012

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<ul style="list-style-type: none"> ● Commercial Displacement ● Residential Displacement — Streets — Railroad — International Boundary Study Area Alternative Boundary Drainage Pond Rio Grande Census Tract Minority Census Block NOT Minority Block 	<p>Low Income Block Group</p> <ul style="list-style-type: none"> Block Group 1 Block Group 2 Block Group 3 Block Group 4 Block Group 5 Block Group 6 Block Group 7 Block Group 8 NOT Low Income Block Group Park Displacement
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New Mexico

Dona Ana Otero

United States

Mexico El Paso Texas Hudspeth

Mexico

This project does not cross international boundaries.

Sources

Displacements: HNTB, Hall & Assoc., 2012
 Census Data: U.S. Census Bureau, 2010
 Alternatives, Ponds: Hall & Assoc., 2012
 Study Area: HNTB, 2012

Loop 375 Border Highway West Extension Project

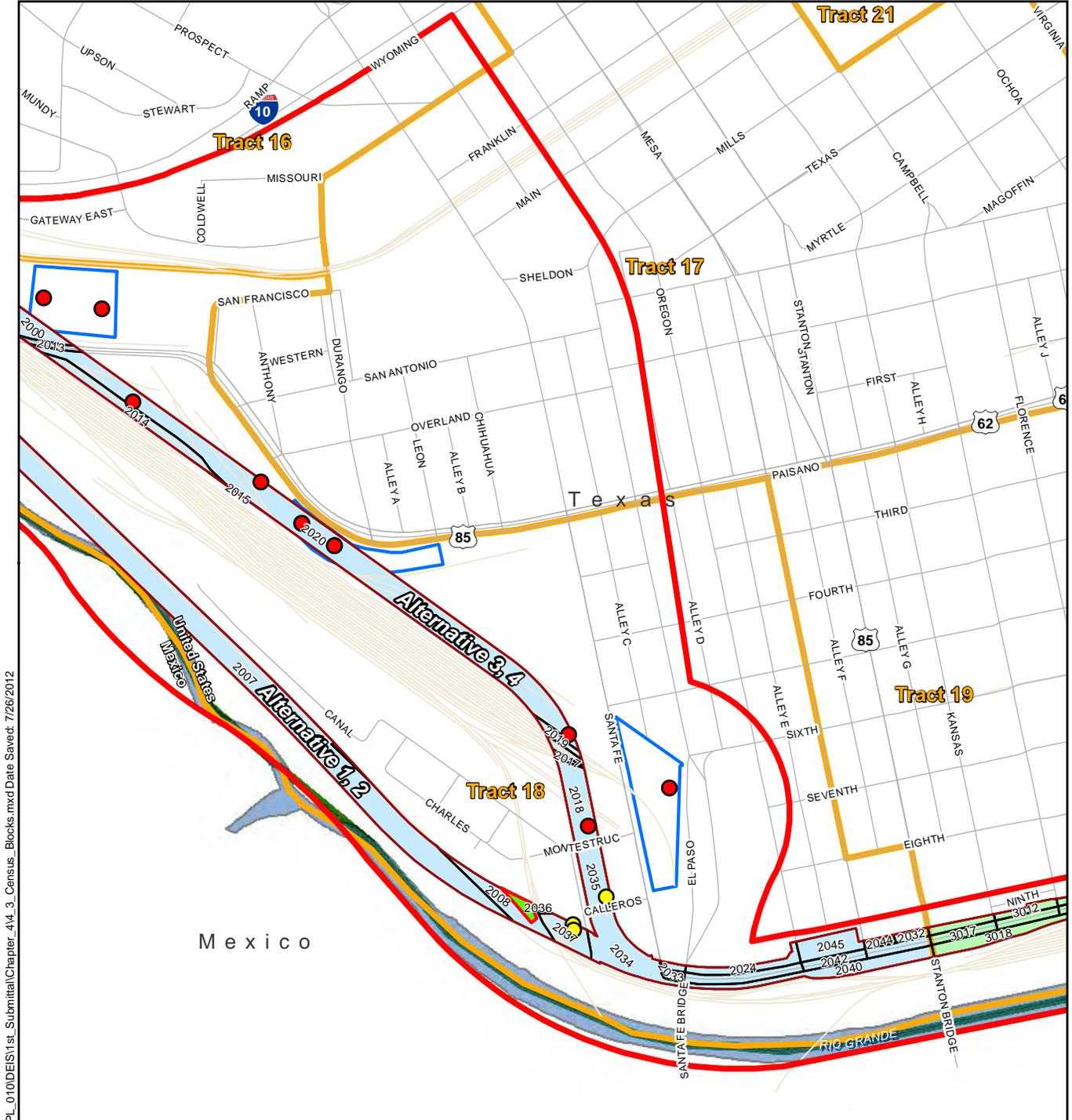
From Racetrack Drive to US 54

Exhibit 4-3

Minority and Low-Income Census Geographies and Displacements Within Reasonable Alternatives

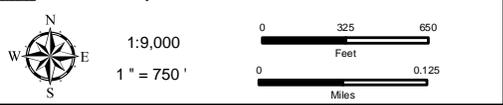
Page 4 of 7
 El Paso County, Texas
 CSJ: 2552-04-027
 July, 2012

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- | | |
|----------------------------|------------------------------|
| ● Commercial Displacement | ● Low Income Block Group |
| ● Residential Displacement | ■ Block Group 1 |
| — Streets | ■ Block Group 2 |
| — Railroad | ■ Block Group 3 |
| — International Boundary | ■ Block Group 4 |
| ▭ Study Area | ■ Block Group 5 |
| ▭ Alternative Boundary | ■ Block Group 6 |
| ▭ Drainage Pond | ■ Block Group 7 |
| ▭ Rio Grande | ■ Block Group 8 |
| ▭ Census Tract | ■ NOT Low Income Block Group |
| ▭ Minority Census Block | ■ Park Displacement |
| ▭ NOT Minority Block | |



Sources
 Displacements: HNTB, Hall & Assoc., 2012
 Census Data: U.S. Census Bureau, 2010
 Alternatives, Ponds: Hall & Assoc., 2012
 Study Area: HNTB, 2012

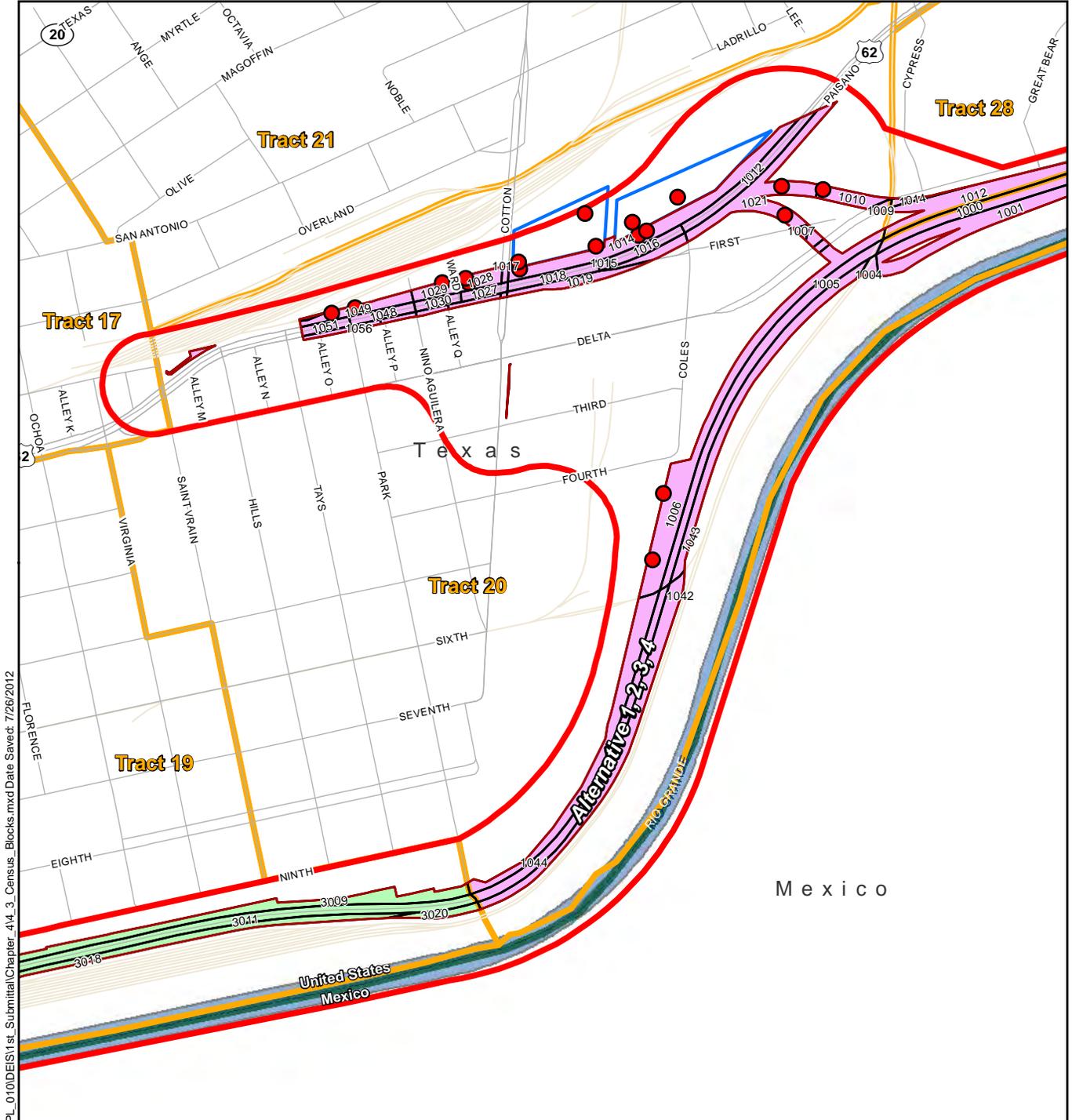


Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

Exhibit 4-3 Minority and Low-Income Census Geographies and Displacements Within Reasonable Alternatives

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● Commercial Displacement	Low Income Block Group
● Residential Displacement	Block Group 1
— Streets	Block Group 2
— Railroad	Block Group 3
— International Boundary	Block Group 4
▭ Study Area	Block Group 5
▭ Alternative Boundary	Block Group 6
▭ Drainage Pond	Block Group 7
▭ Rio Grande	Block Group 8
▭ Census Tract	NOT Low Income Block Group
▭ Minority Census Block	● Park Displacement
▭ NOT Minority Block	

Sources

Displacements: HNTB, Hall & Assoc., 2012
 Census Data: U.S. Census Bureau, 2010
 Alternatives, Ponds: Hall & Assoc., 2012
 Study Area: HNTB, 2012

Loop 375 Border Highway West Extension Project

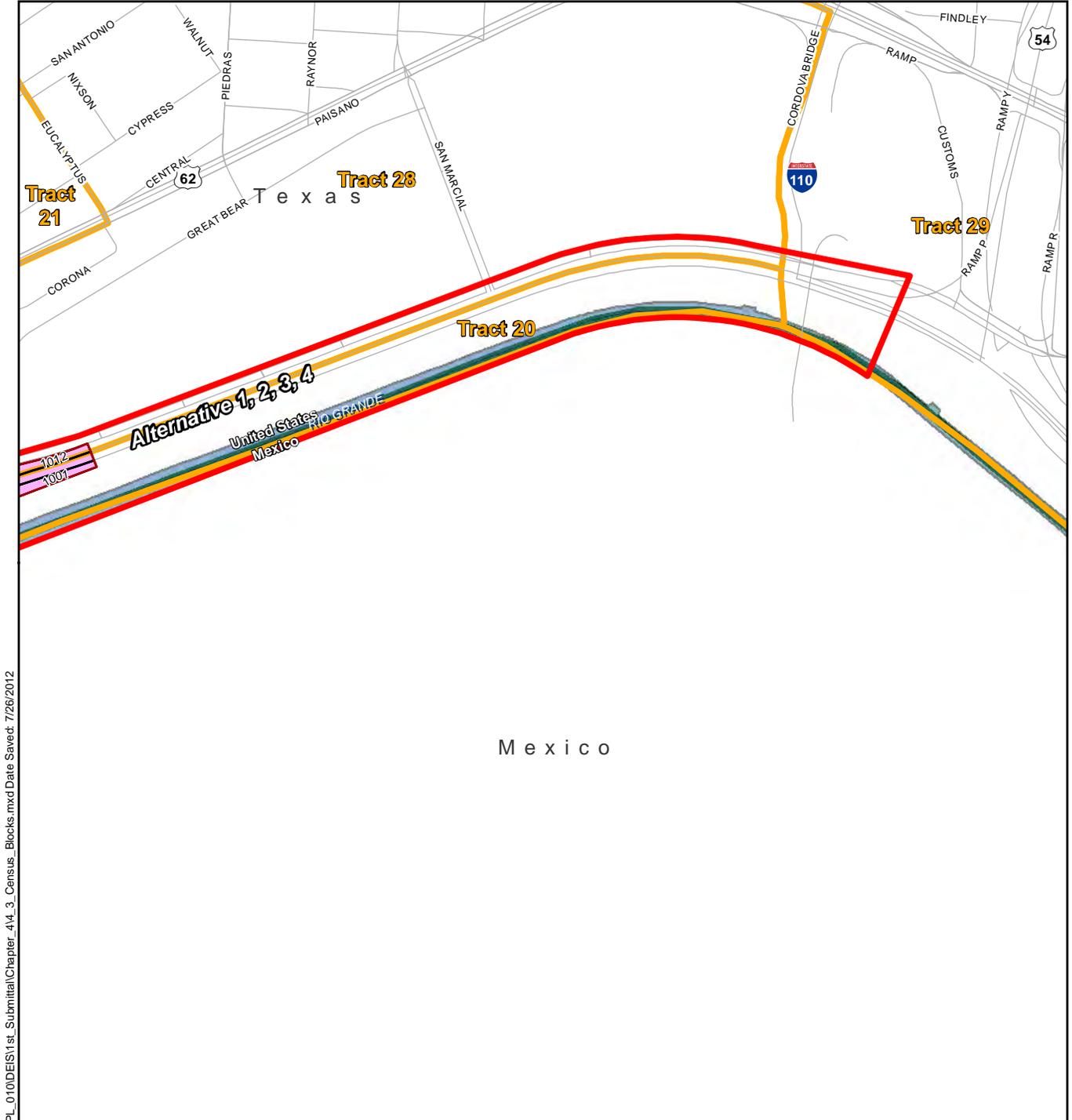
From Racetrack Drive to US 54

Exhibit 4-3

Minority and Low-Income Census Geographies and Displacements Within Reasonable Alternatives

Page 6 of 7
 El Paso County, Texas
 CSJ: 2552-04-027
 July, 2012

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Commercial Displacement	Block Group 1
Residential Displacement	Block Group 2
Streets	Block Group 3
Railroad	Block Group 4
International Boundary	Block Group 5
Study Area	Block Group 6
Alternative Boundary	Block Group 7
Drainage Pond	Block Group 8
Rio Grande	NOT Low Income Block Group
Census Tract	Park Displacement
Minority Census Block	
NOT Minority Block	

Sources

Displacements: HNTB, Hall & Assoc., 2012
 Census Data: U.S. Census Bureau, 2010
 Alternatives, Ponds: Hall & Assoc., 2012
 Study Area: HNTB, 2012

Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

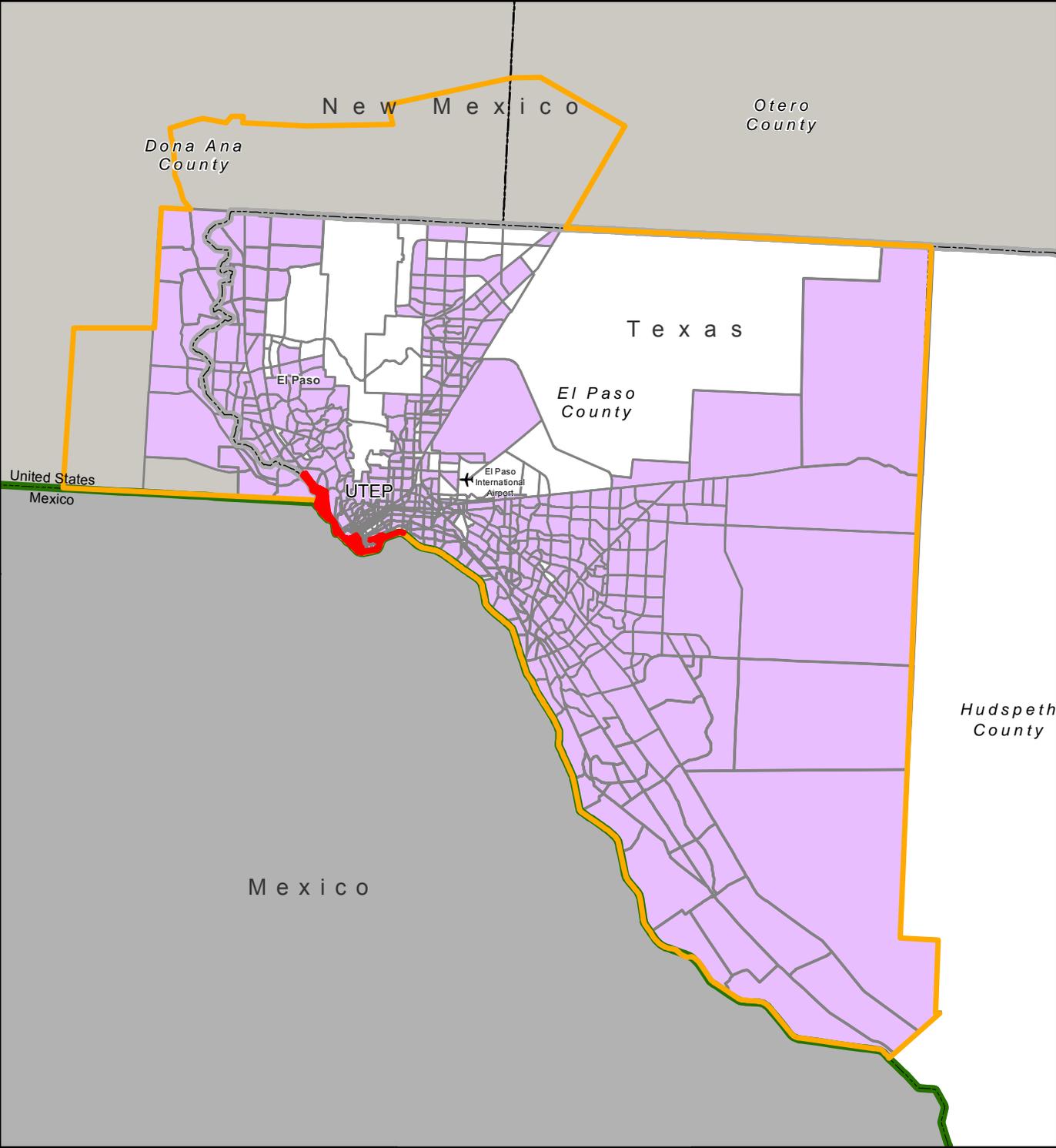
Exhibit 4-3

Minority and Low-Income Census Geographies and Displacements Within Reasonable Alternatives

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 El Paso County, Texas
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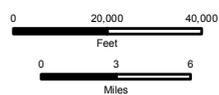


- Limits of Reasonable Alternatives
- TAZ with low-income populations*
266 total, 36.4% of total TAZs
- TAZ with populations > 0
628 total, 86.1% of total TAZs
- El Paso MPA
- International Boundary

* Low-income population is defined as having a median household income ≤\$23,050



1:485,784
1" = 40,482'



Sources
Study Area: HNTB, 2012
TAZ and El Paso MPA: El Paso MPO, 2012



Loop 375 Border Highway West Extension Project

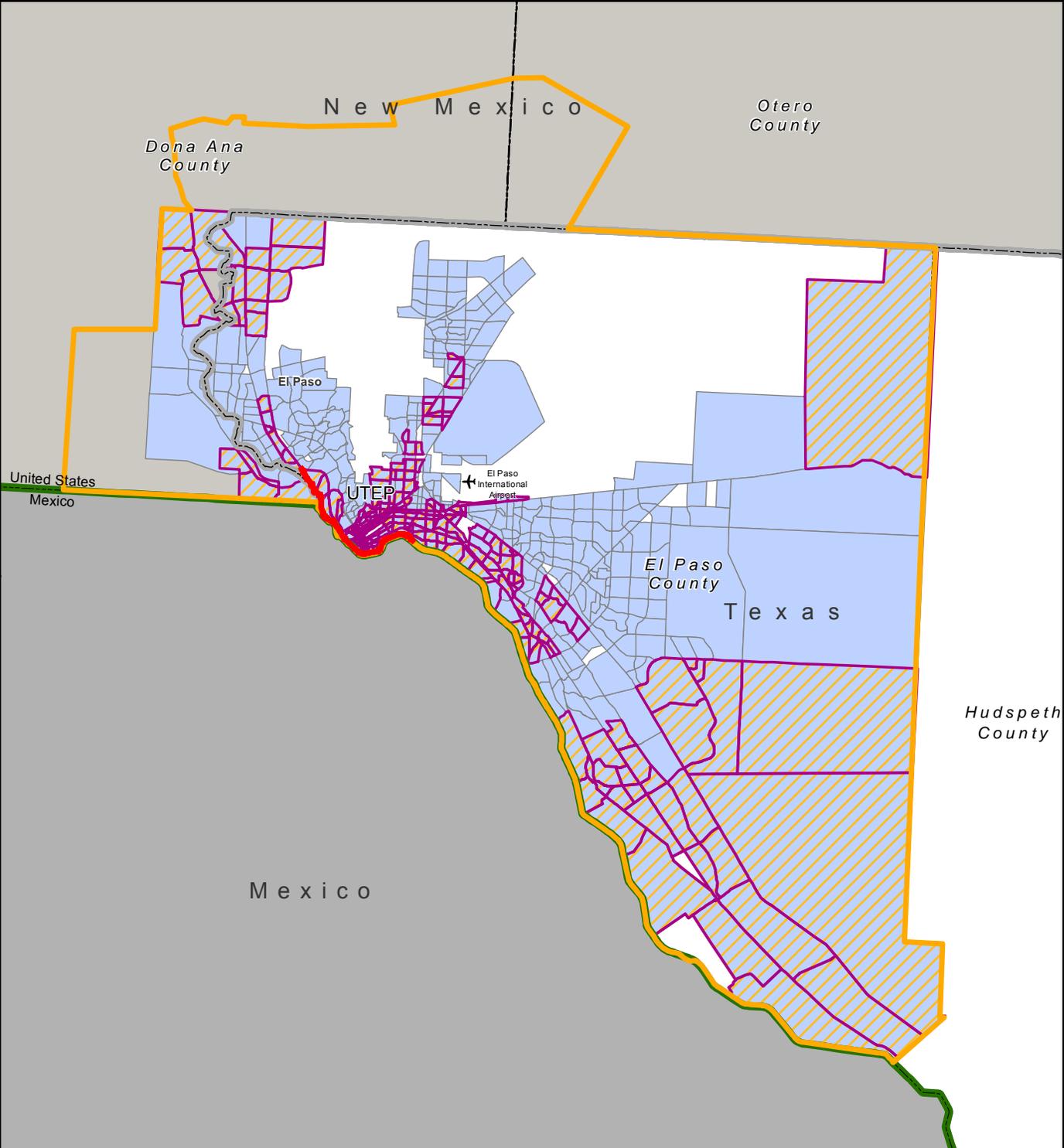
From Racetrack Drive to US 54

Exhibit 4-4a Traffic Analysis Zones (TAZ) and Low-Income Populations Within the El Paso MPA

El Paso County, Texas
CSJ: 2552-04-027
July, 2012

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- Reasonable Alternative
- TAZ with at least 1 trip utilizing Reasonable Alternative 1 (2035 daily trips)
- TAZ with EJ population*
- EJ TAZ * with at least 1 trip utilizing Reasonable Alternative 1 (2035 daily trips)
- El Paso MPA
- International Boundary

*EJ TAZ: median household income \leq \$23,050
 The number of trips was derived from the El Paso MPO daily travel demand model.



Sources
 Reasonable Alternative: Half and Associates, 2012
 TAZ and El Paso MPA: El Paso MPO, 2012



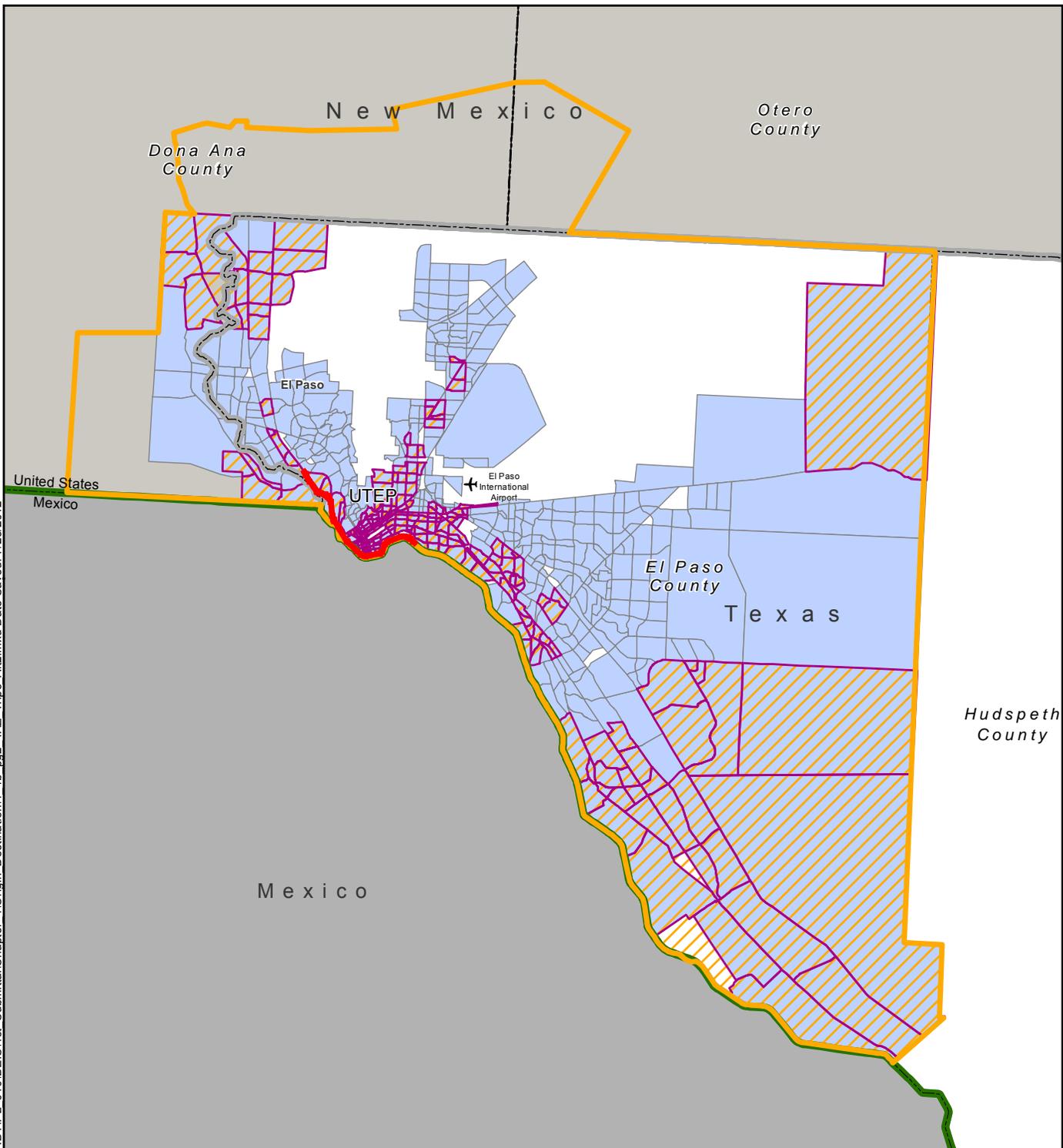
Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

Exhibit 4-4b, page 1 Traffic Analysis Zones (TAZ) and EJ Populations - Reasonable Alternative 1

El Paso County, Texas
 CSJ: 2552-04-027
 July, 2012

Path: \\AUSW00\Jobs\42085 Border Hwy West\Techprod\GIS\MXD\EXHBT\PL_010\DEIS\1st_Submittal\Chapter_4\Origin_Destination\4_4b_pg2_TAZ_Trips_Alt2.mxd Date Saved: 7/25/2012



- Reasonable Alternative
- TAZ with at least 1 trip utilizing Reasonable Alternative 2 (2035 daily trips)
- TAZ with EJ population*
- EJ TAZ with at least 1 trip utilizing Reasonable Alternative 2 (2035 daily trips)
- El Paso MPA
- International Boundary

*EJ TAZ: median household income ≤\$23,050
 The number of trips was derived from the El Paso MPO daily travel demand model.



Sources
 Reasonable Alternative: Half and Associates, 2012
 TAZ and El Paso MPA: El Paso MPO, 2012



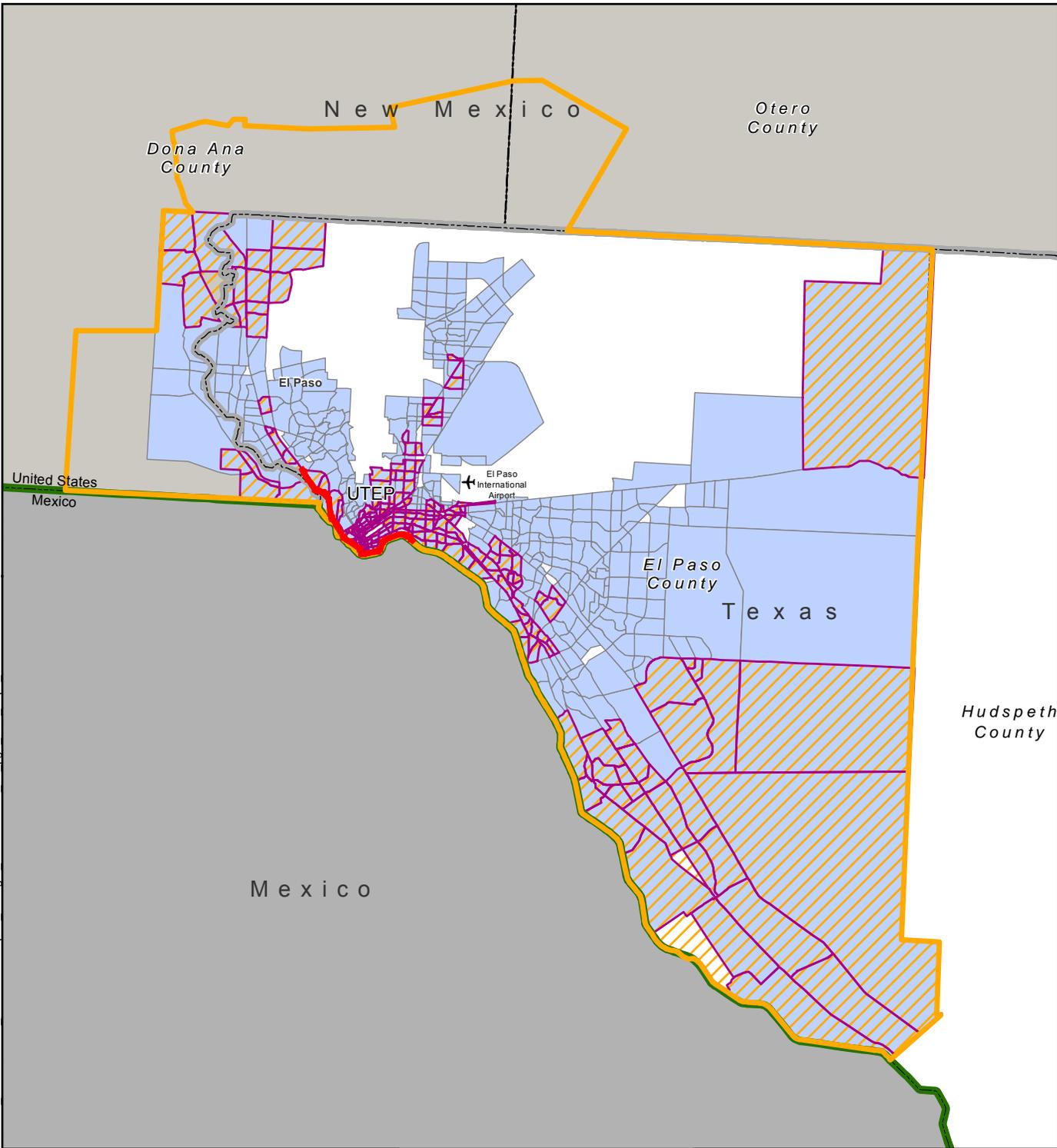
Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

Exhibit 4-4b, page 2 Traffic Analysis Zones (TAZ) and EJ Populations - Reasonable Alternative 2

El Paso County, Texas
 CSJ: 2552-04-027
 July, 2012

Path: \\AUSW00\Jobs\42085 Border Hwy West\Techprod\GIS\Map\EXHIBIT\PL_010\DEIS\1st_Submittal\Chapter_4\Origin_Destination\4_4b_pg3_TAZ_Trips_Alt3.mxd Date Saved: 7/25/2012



-  Reasonable Alternative
-  TAZ with at least 1 trip utilizing Reasonable Alternative 3 (2035 daily trips)
-  TAZ with EJ population*
-  EJ TAZ with at least 1 trip utilizing Reasonable Alternative 3 (2035 daily trips)
-  International Boundary
-  El Paso MPA

*EJ TAZ: median household income \leq \$23,050
 The number of trips was derived from the El Paso MPO daily travel demand model.



Sources
 Reasonable Alternative: Half and Associates, 2012
 TAZ and El Paso MPA: El Paso MPO, 2012



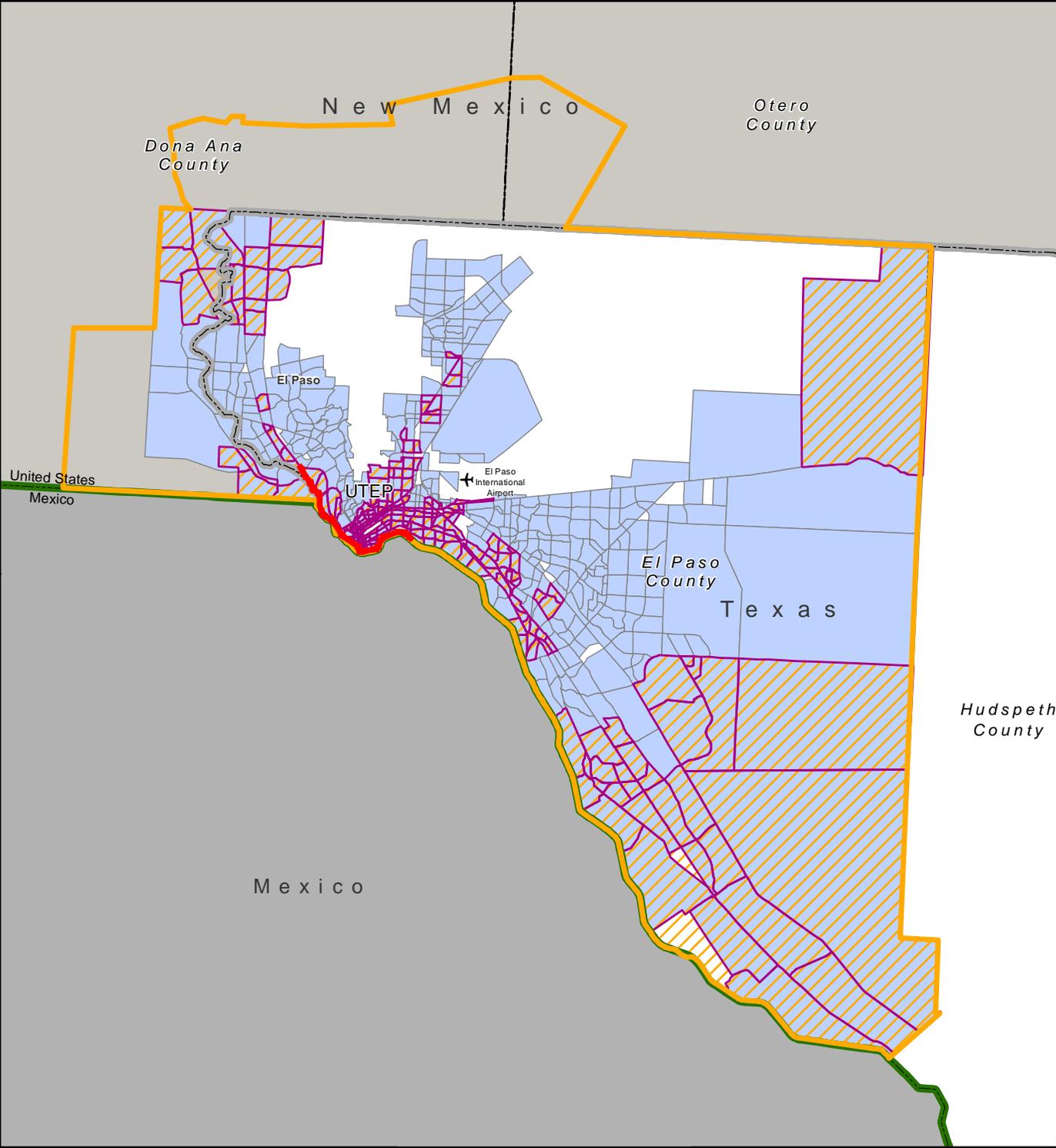
Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

Exhibit 4-4b, page 3 Traffic Analysis Zones (TAZ) and EJ Populations - Reasonable Alternative 3

El Paso County, Texas
 CSJ: 2552-04-027
 July, 2012

Path: \\AUSW00\Jobs\42085 Border Hwy West\Techprod\GIS\Map\EXHIBIT\PL_010\DEIS\1st_Submittal\Chapter_4\Origin_Destination\4_4b_pg4_TAZ_Trips_Alt4.mxd Date Saved: 7/25/2012



- Reasonable Alternative
- TAZ with at least 1 trip utilizing Reasonable Alternative 4 (2035 daily trips)
- TAZ with EJ population*
- EJ TAZ with at least 1 trip utilizing Reasonable Alternative 4 (2035 daily trips)
- El Paso MPA
- International Boundary

*EJ TAZ: median household income <= \$23,050
 The number of trips was derived from the El Paso MPO daily travel demand model.



Sources
 Reasonable Alternative: Half and Associates, 2012
 TAZ and El Paso MPA: El Paso MPO, 2012



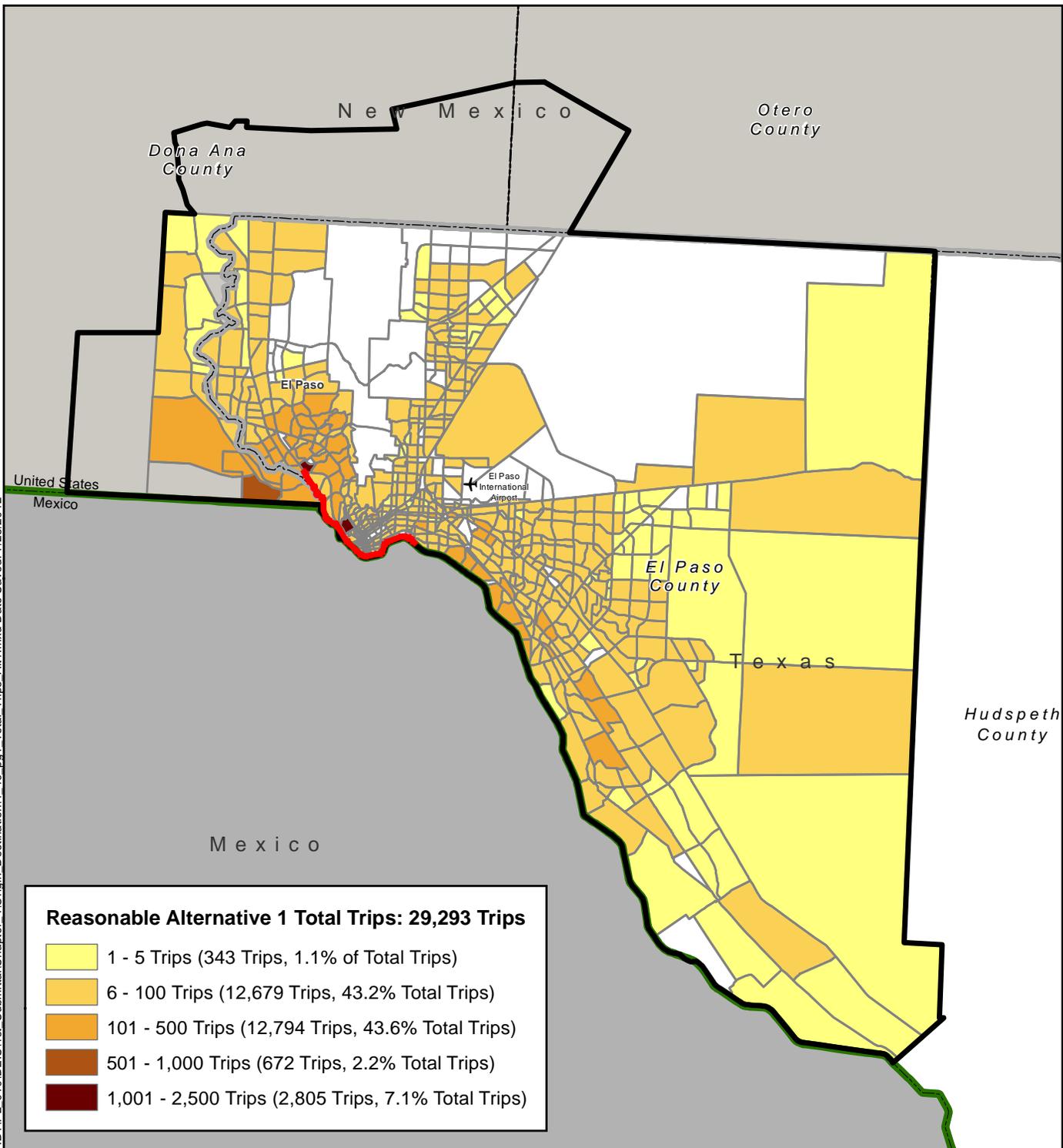
Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

Exhibit 4-4b, page 4 Traffic Analysis Zones (TAZ) and EJ Populations - Reasonable Alternative 4

El Paso County, Texas
 CSJ: 2552-04-027
 July, 2012

Path: \\AUSW00\Jobs\42085 Border Hwy West\Techprod\GIS\MXD\EXHBTPL_010\DEIS\1st_Submittal\Chapter_4\Origin_Destination\4_4c_pg1_Total_Trips_Alt1.mxd Date Saved: 7/25/2012



Reasonable Alternative 1 Total Trips: 29,293 Trips

	1 - 5 Trips (343 Trips, 1.1% of Total Trips)
	6 - 100 Trips (12,679 Trips, 43.2% Total Trips)
	101 - 500 Trips (12,794 Trips, 43.6% Total Trips)
	501 - 1,000 Trips (672 Trips, 2.2% Total Trips)
	1,001 - 2,500 Trips (2,805 Trips, 7.1% Total Trips)

Reasonable Alternative
 El Paso MPA
 International Boundary

1:485,784
 1" = 40,482'

0 20,000 40,000
 Feet
 0 3 6
 Miles

Sources

Reasonable Alternative: Half and Associates, 2012
 TAZ and El Paso MPA: El Paso MPO, 2012

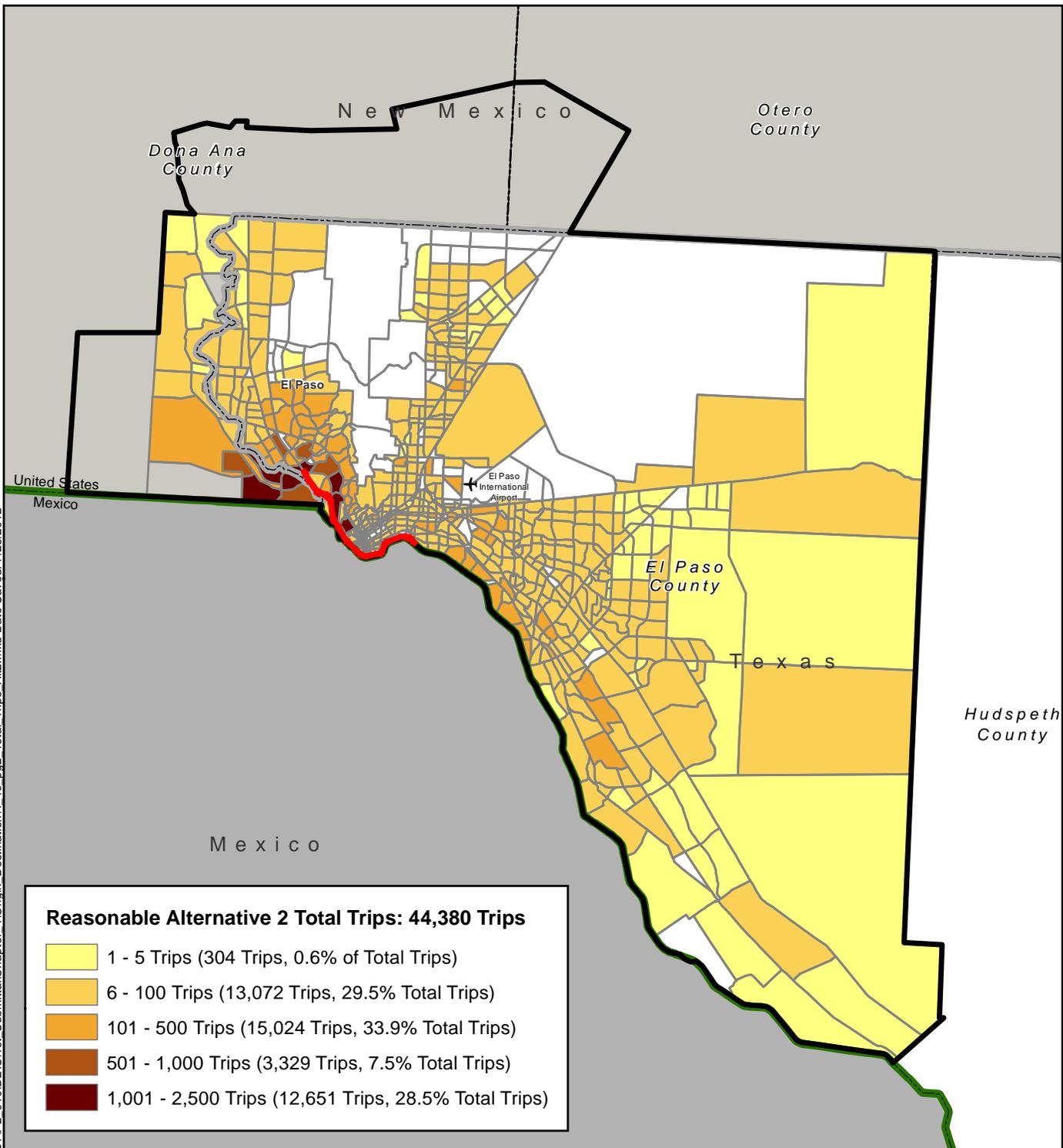
Loop 375 Border Highway West Extension Project
 From Racetrack Drive to US 54

Exhibit 4-4c, page 1
 Traffic Analysis Zones (TAZ)
 Number of Trips for
 Reasonable Alternative 1

El Paso County, Texas
 CSJ: 2552-04-027
 July, 2012

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Path: \\Ausw00\jobs\42085 Border Hwy West\Techprod\GIS\MXD\EXHBT\PL_010\DE\SV1st_Submittal\Chapter_4\Origin_Destination\4_c_pg2_Total_Trips_Alt2.mxd Date Saved: 7/25/2012



Reasonable Alternative 2 Total Trips: 44,380 Trips

	1 - 5 Trips (304 Trips, 0.6% of Total Trips)
	6 - 100 Trips (13,072 Trips, 29.5% Total Trips)
	101 - 500 Trips (15,024 Trips, 33.9% Total Trips)
	501 - 1,000 Trips (3,329 Trips, 7.5% Total Trips)
	1,001 - 2,500 Trips (12,651 Trips, 28.5% Total Trips)

Reasonable Alternative
 El Paso MPA
 International Boundary

1:485,784
 1" = 40,482'

0 20,000 40,000
 Feet
 0 3 6
 Miles

New Mexico
 Dona Ana Otero
 United States Mexico
 El Paso Texas
 Hudspeth
 Mexico
 This project does not cross international boundaries.

Sources

Reasonable Alternative: Half and Associates, 2012
 TAZ and El Paso MPA: El Paso MPO, 2012

Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

Exhibit 4-4c, page 2

Traffic Analysis Zones (TAZ)

Number of Trips for Reasonable Alternative 2

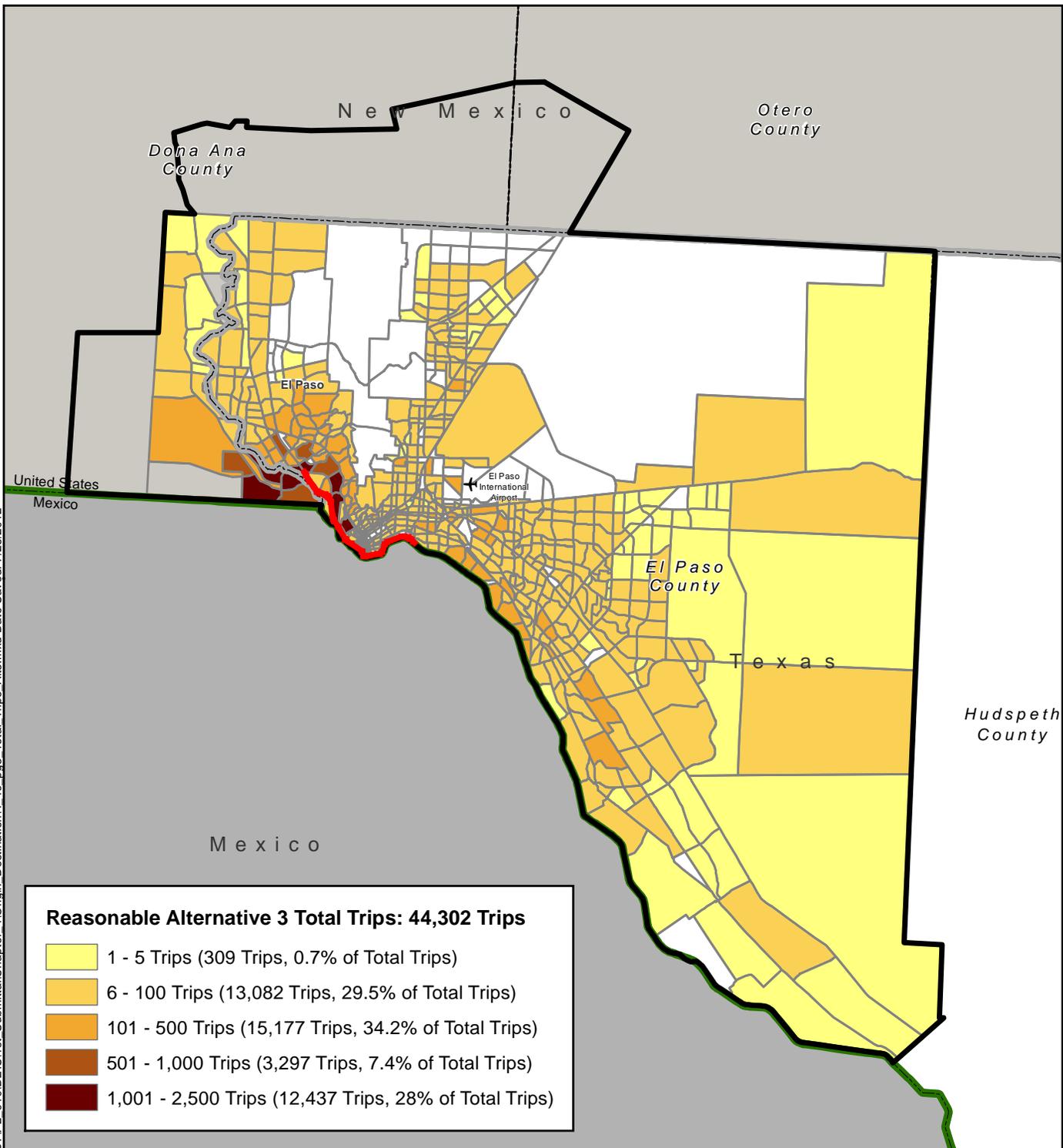
El Paso County, Texas

CSJ: 2552-04-027

July, 2012

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Reasonable Alternative 3 Total Trips: 44,302 Trips

	1 - 5 Trips (309 Trips, 0.7% of Total Trips)
	6 - 100 Trips (13,082 Trips, 29.5% of Total Trips)
	101 - 500 Trips (15,177 Trips, 34.2% of Total Trips)
	501 - 1,000 Trips (3,297 Trips, 7.4% of Total Trips)
	1,001 - 2,500 Trips (12,437 Trips, 28% of Total Trips)

Reasonable Alternative
 MPO Planning Area
 International Boundary

1:485,784
 1" = 40,482'

0 20,000 40,000
 Feet
 0 3 6
 Miles

Sources

Reasonable Alternative: Half and Associates, 2012
 TAZ and El Paso MPA: El Paso MPO, 2012

This project does not cross international boundaries.

Loop 375 Border Highway West Extension Project

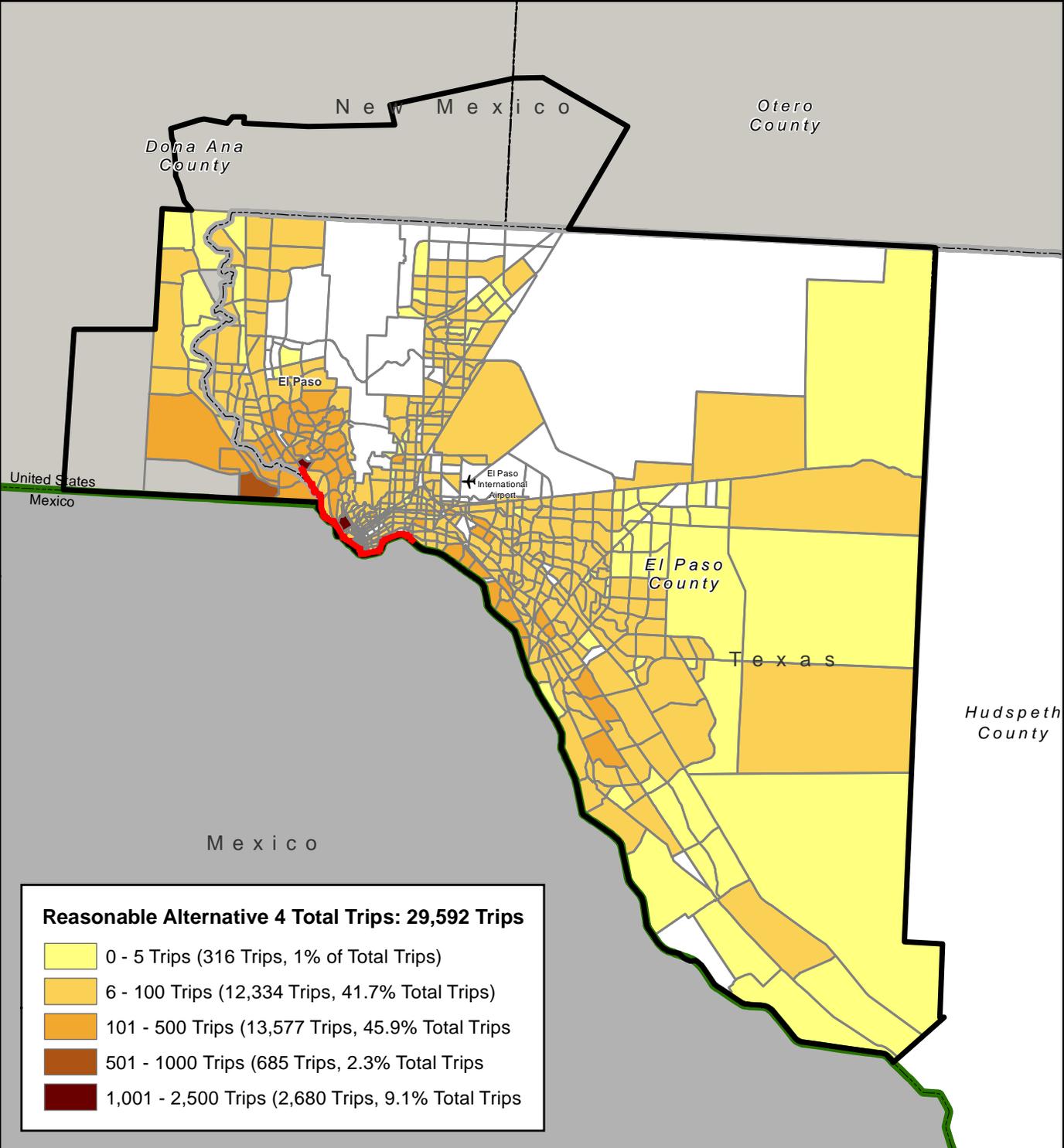
From Racetrack Drive to US 54

Exhibit 4-4c, page 3
 Traffic Analysis Zones (TAZ)
 Number of Trips for
 Reasonable Alternative 3

El Paso County, Texas
 CSJ: 2552-04-027
 July, 2012

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Reasonable Alternative 4 Total Trips: 29,592 Trips

	0 - 5 Trips (316 Trips, 1% of Total Trips)
	6 - 100 Trips (12,334 Trips, 41.7% Total Trips)
	101 - 500 Trips (13,577 Trips, 45.9% Total Trips)
	501 - 1000 Trips (685 Trips, 2.3% Total Trips)
	1,001 - 2,500 Trips (2,680 Trips, 9.1% Total Trips)

 Reasonable Alternative
 MPO Planning Area
 International Boundary

1:485,784
 1" = 40,482'

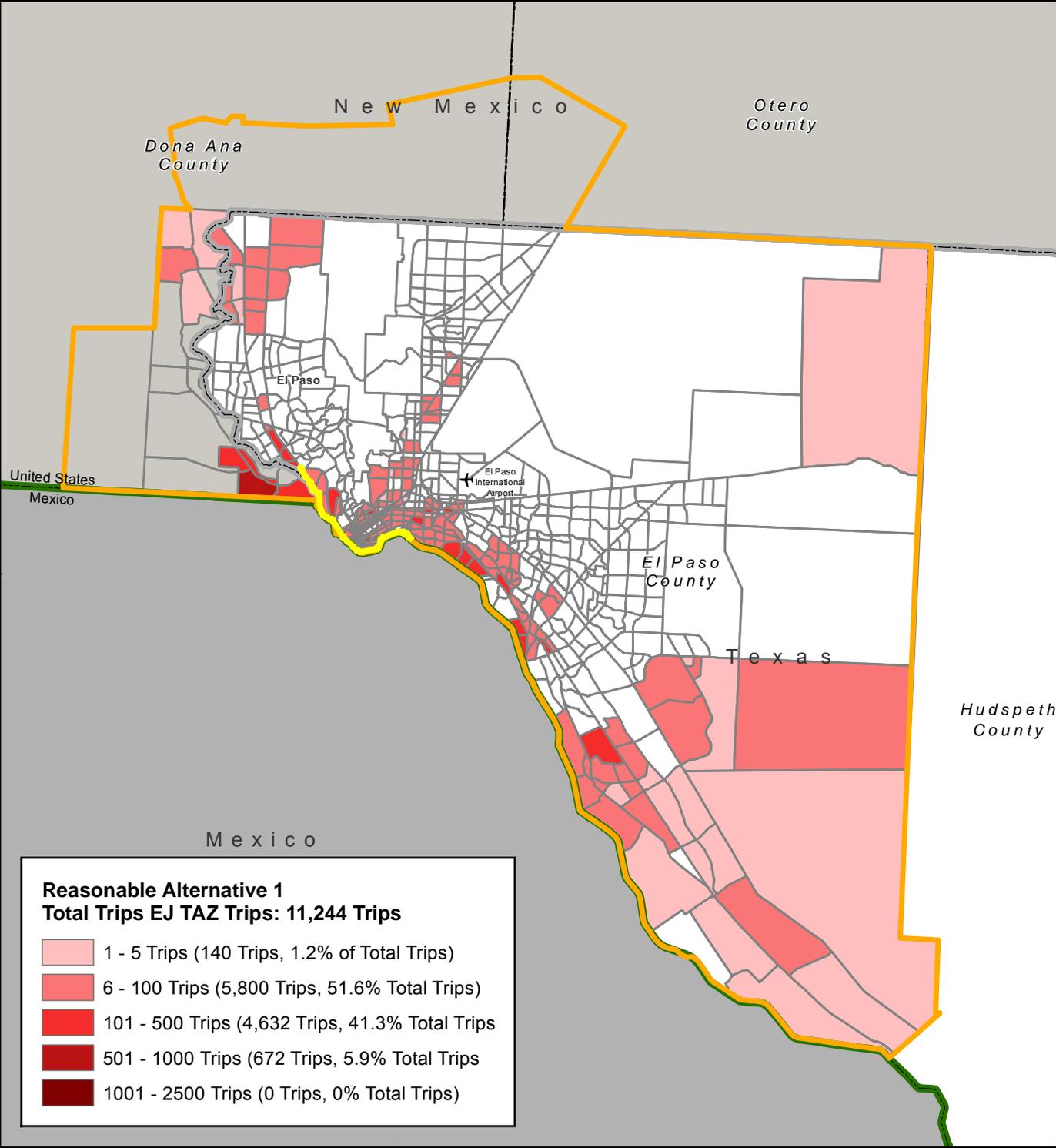
0 20,000 40,000
 Feet
 0 3 6
 Miles

New Mexico
 Dona Ana Otero
 United States Mexico
 El Paso Texas
 Hudspeth
 Mexico
 This project does not cross international boundaries.
 Sources
 Reasonable Alternative: Half and Associates, 2012
 TAZ and El Paso MPA: El Paso MPO, 2012

Loop 375 Border Highway West Extension Project
 From Racetrack Drive to US 54
Exhibit 4-4c, page 4
Traffic Analysis Zones (TAZ)
Number of Trips for Reasonable Alternative 4
 El Paso County, Texas
 CSJ: 2552-04-027
 July, 2012

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Reasonable Alternative 1
Total Trips EJ TAZ Trips: 11,244 Trips

- 1 - 5 Trips (140 Trips, 1.2% of Total Trips)
- 6 - 100 Trips (5,800 Trips, 51.6% Total Trips)
- 101 - 500 Trips (4,632 Trips, 41.3% Total Trips)
- 501 - 1000 Trips (672 Trips, 5.9% Total Trips)
- 1001 - 2500 Trips (0 Trips, 0% Total Trips)

- Reasonable Alternative
- MPO Planning Area
- International Boundary

*EJ TAZ: median household income ≤\$23,050
 The number of trips was derived from the El Paso MPO daily travel demand model.

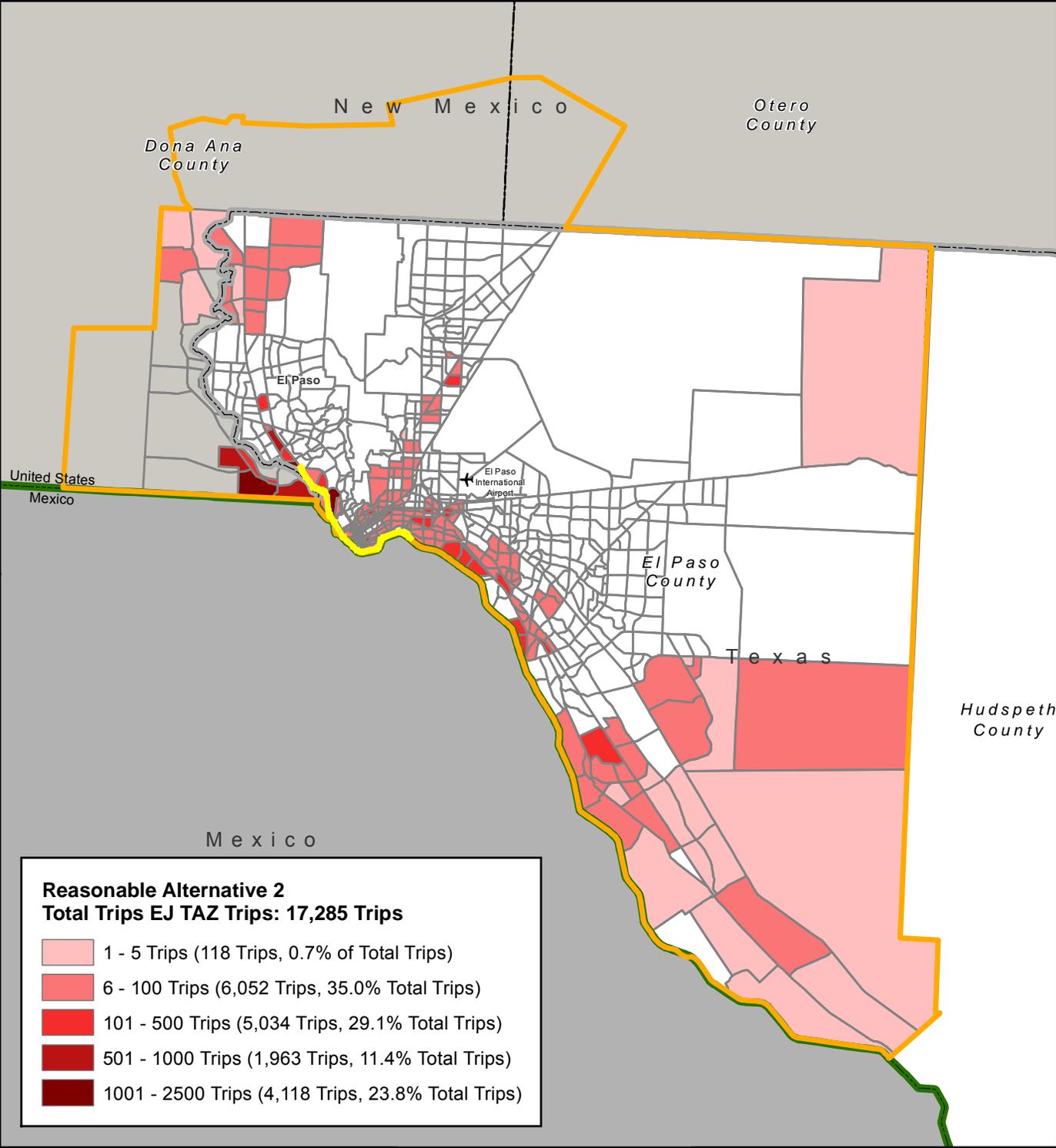
Sources
 Reasonable Alternative: Half and Associates, 2012
 TAZ and El Paso MPA: El Paso MPO, 2012

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

Exhibit 4-4d, page 1
 Number of Trips for
 Environmental Justice
 Traffic Analysis Zones (EJ TAZ)
 Reasonable Alternative 1
 El Paso County, Texas
 CSJ: 2552-04-027
 July, 2012

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Reasonable Alternative 2
Total Trips EJ TAZ Trips: 17,285 Trips

	1 - 5 Trips (118 Trips, 0.7% of Total Trips)
	6 - 100 Trips (6,052 Trips, 35.0% Total Trips)
	101 - 500 Trips (5,034 Trips, 29.1% Total Trips)
	501 - 1000 Trips (1,963 Trips, 11.4% Total Trips)
	1001 - 2500 Trips (4,118 Trips, 23.8% Total Trips)

Reasonable Alternative
 MPO Planning Area
 International Boundary

*EJ TAZ: median hoshould income ≤\$23,050
 The number of trips was derived from the El Paso MPO daily travel demand model.

1:485,784
 1" = 40,482'

0 20,000 40,000
 Feet

0 3 6
 Miles

New Mexico
 Dona Ana Otero

United States
 Mexico

El Paso
 Texas
 Hudspeth

Mexico

This project does not cross international boundaries.

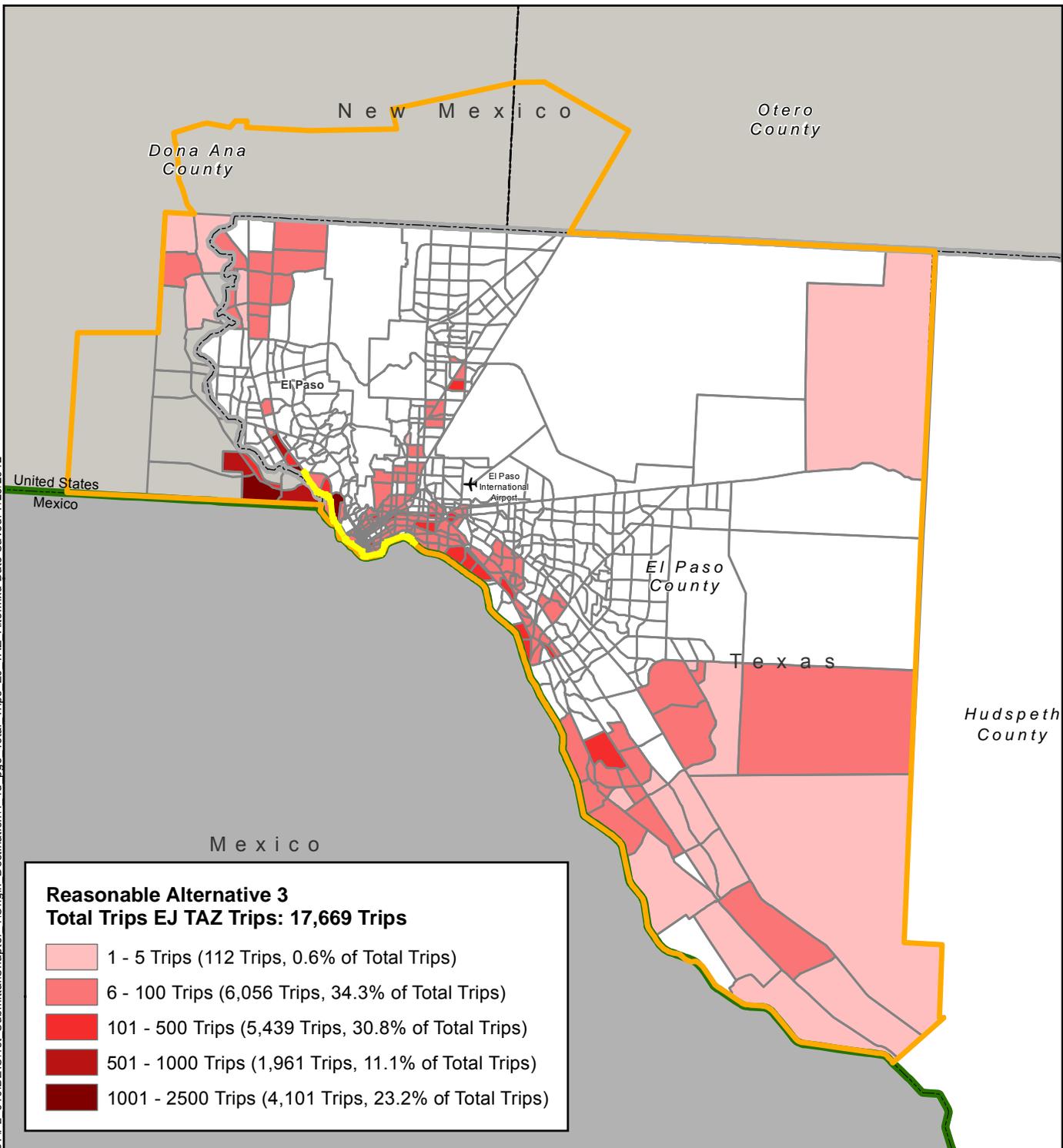
Sources
 Reasonable Alternative: Half and Associates, 2012
 TAZ and El Paso MPA: El Paso MPO, 2012

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

Exhibit 4-4d, page 2
 Number of Trips for
 Environmental Justice
 Traffic Analysis Zones (EJ TAZ)
 Reasonable Alternative 2
 El Paso County, Texas
 CSJ: 2552-04-027
 July, 2012

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Reasonable Alternative 3
Total Trips EJ TAZ Trips: 17,669 Trips

	1 - 5 Trips (112 Trips, 0.6% of Total Trips)
	6 - 100 Trips (6,056 Trips, 34.3% of Total Trips)
	101 - 500 Trips (5,439 Trips, 30.8% of Total Trips)
	501 - 1000 Trips (1,961 Trips, 11.1% of Total Trips)
	1001 - 2500 Trips (4,101 Trips, 23.2% of Total Trips)

Reasonable Alternative
 MPO Planning Area
 International Boundary

*EJ TAZ: median household income ≤\$23,050
 The number of trips was derived from the El Paso MPO daily travel demand model.

1:485,784
 1" = 40,482'

0 20,000 40,000
 Feet
 0 3 6
 Miles

New Mexico
 Dona Ana Otero

United States
 Mexico

El Paso
 Texas
 Hudspeth

Mexico

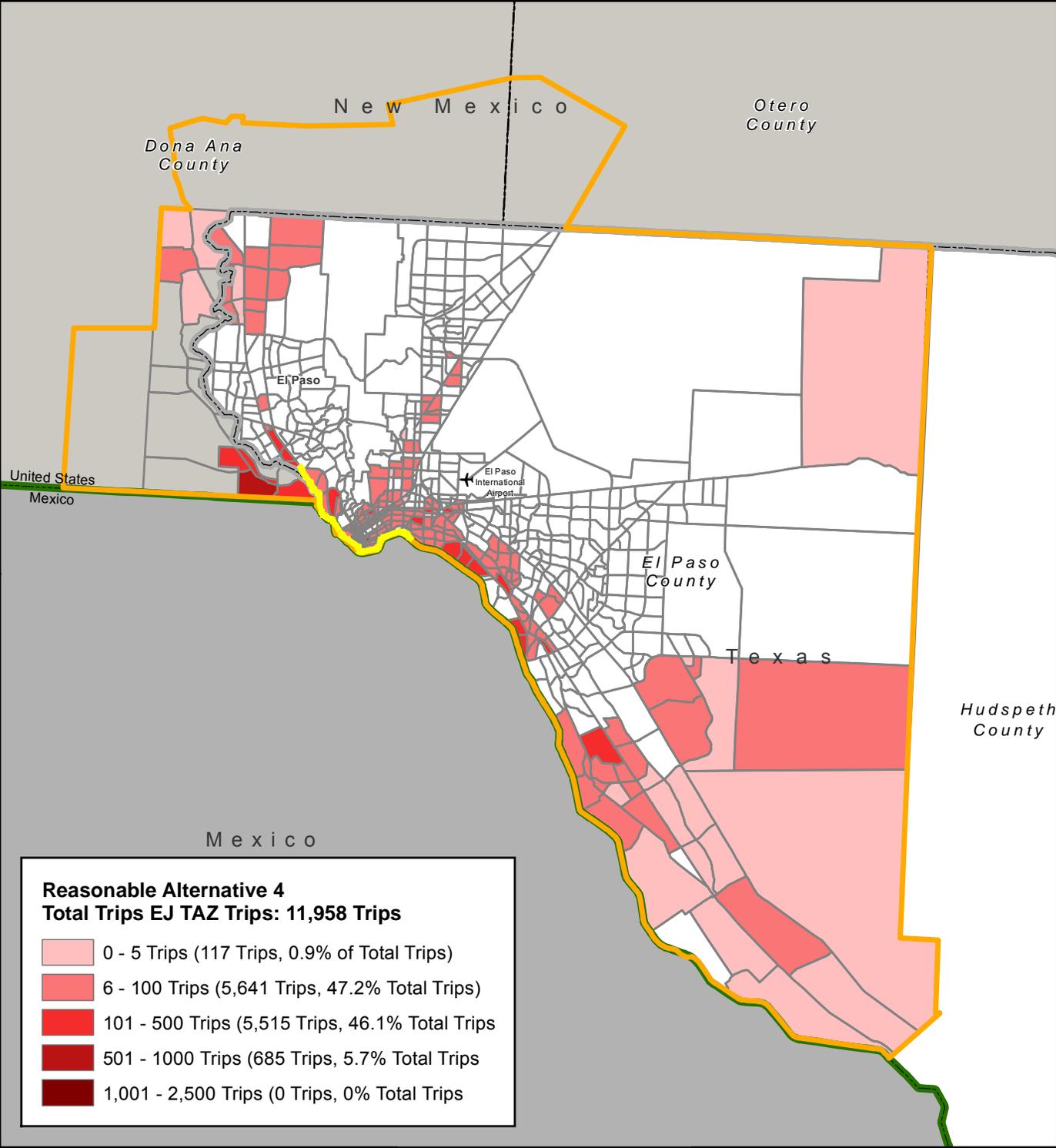
This project does not cross international boundaries.

Sources
 Reasonable Alternative: Half and Associates, 2012
 TAZ and El Paso MPA: El Paso MPO, 2012

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

Exhibit 4-4d, page 3
 Number of Trips for
 Environmental Justice
 Traffic Analysis Zones (EJ TAZ)
 Reasonable Alternative 3
 El Paso County, Texas
 CSJ: 2552-04-027
 July, 2012

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Reasonable Alternative 4
Total Trips EJ TAZ Trips: 11,958 Trips

0 - 5 Trips	(117 Trips, 0.9% of Total Trips)
6 - 100 Trips	(5,641 Trips, 47.2% Total Trips)
101 - 500 Trips	(5,515 Trips, 46.1% Total Trips)
501 - 1000 Trips	(685 Trips, 5.7% Total Trips)
1,001 - 2,500 Trips	(0 Trips, 0% Total Trips)

— Reasonable Alternative
 MPO Planning Area
 International Boundary

*EJ TAZ: median household income ≤\$23,050
 The number of trips was derived from the El Paso MPO daily travel demand model.

1:485,784
 1" = 40,482'

Sources
 Reasonable Alternative: Half and Associates, 2012
 TAZ and El Paso MPA: El Paso MPO, 2012

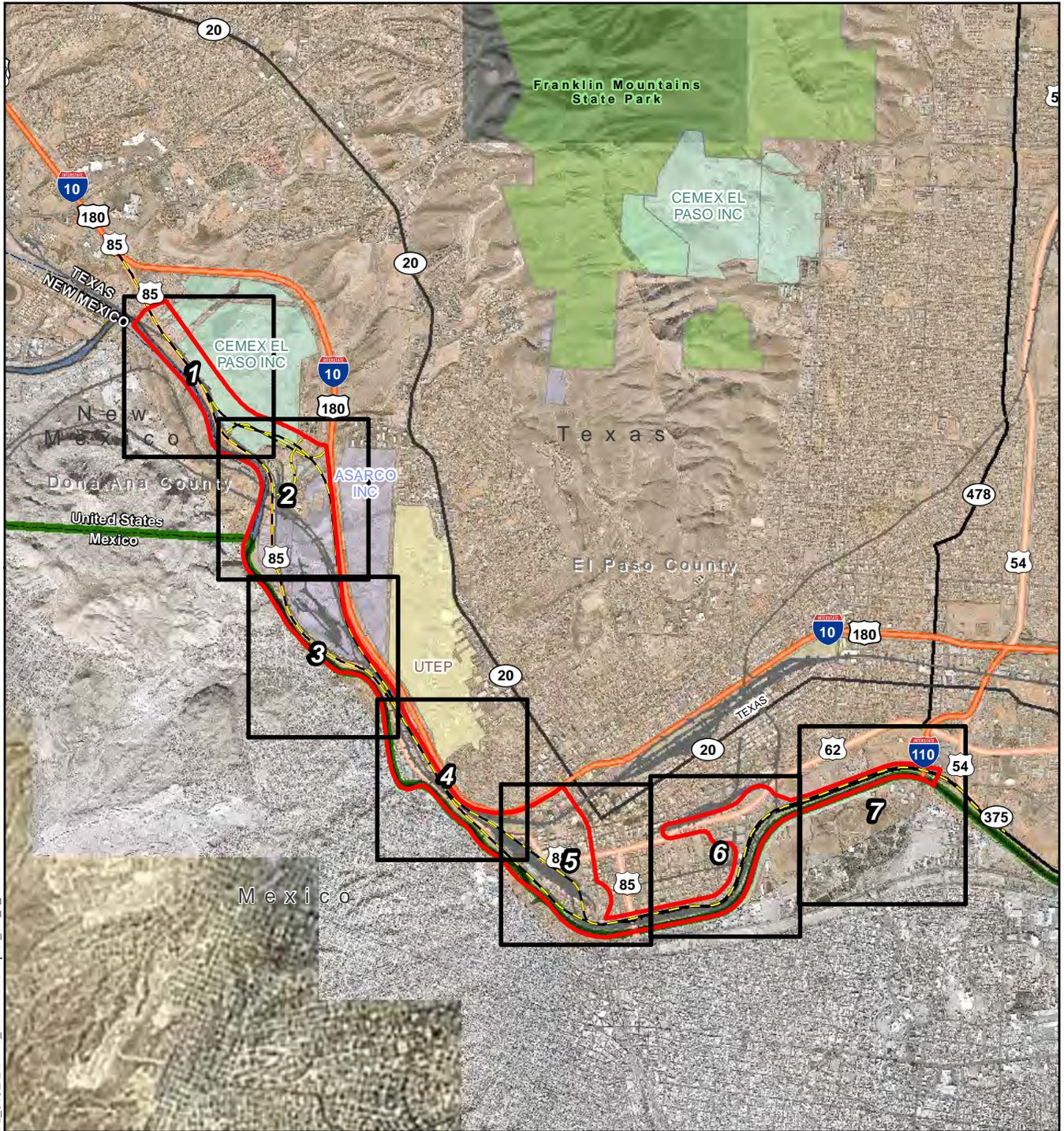
This project does not cross international boundaries.

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

Exhibit 4-4d, page 4
 Number of Trips for
 Environmental Justice
 Traffic Analysis Zones (EJ TAZ)
 Reasonable Alternative 4
 El Paso County, Texas
 CSJ: 2552-04-027
 July, 2012

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Path: \\Ausw00\jobs\42085 Border Hwy West\Techprod\GIS\MX\DEX\HT\PL_010\DEIS\2nd_Submittal\Chapter_4\4.5_Index.mxd Date Saved: 8/29/2012



- | | |
|------------------------|-------------------------------|
| Interstate | Study Area |
| US Highway | Rio Grande |
| State Highway | CEMEX |
| Reasonable Alternative | ASARCO |
| Railroad | Railroad Yard |
| International Boundary | University of Texas El Paso |
| | Franklin Mountains State Park |



1:63,360
1" = 5,280'



Alternatives, Ponds: Halff & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP:
City of El Paso parcel data
Parks: City of El Paso, 1999
Historic District: Texas Historic Commission Atlas



Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

Exhibit 4-5 Noise Receivers within Reasonable Alternatives

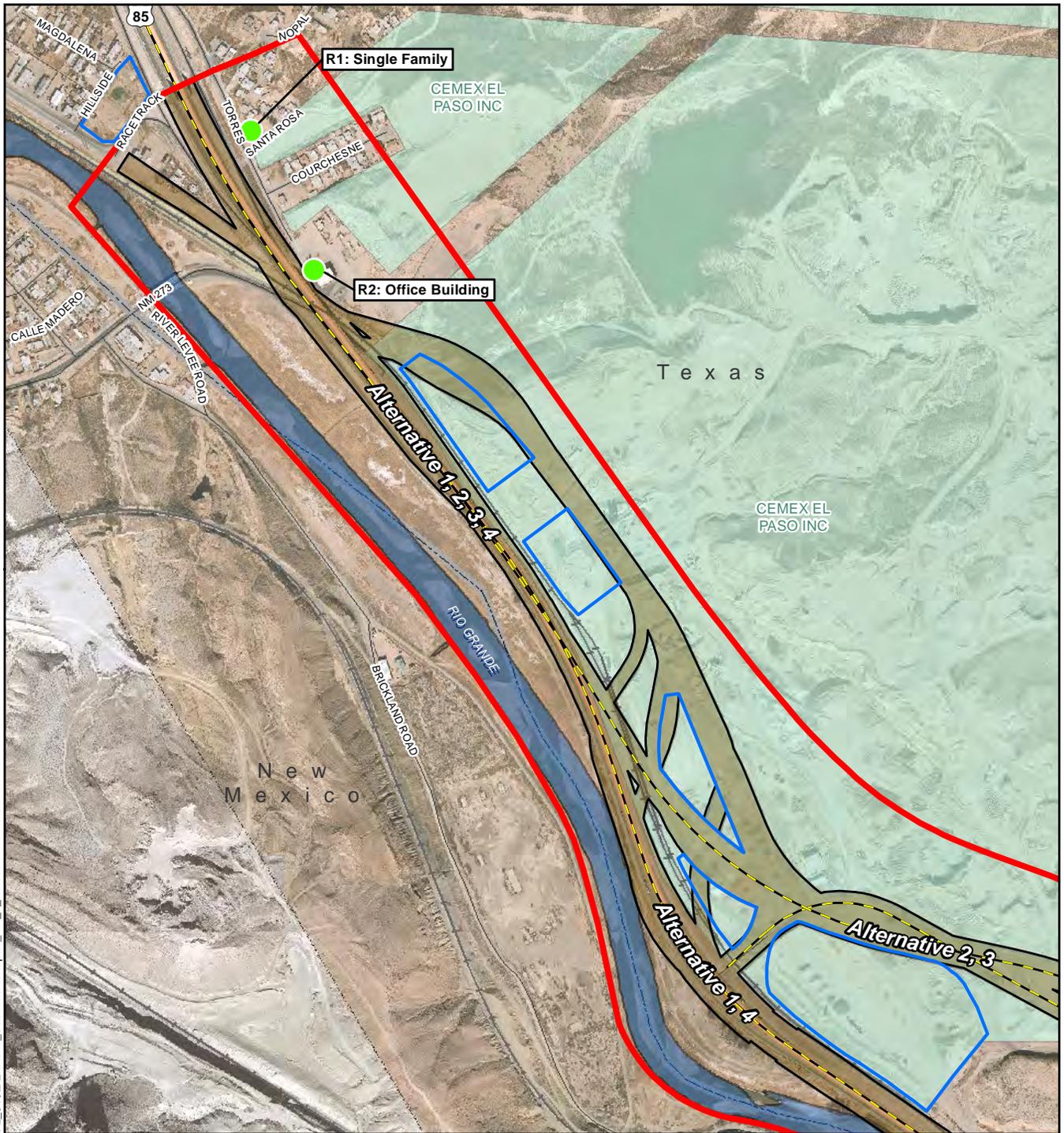
Index

El Paso County, Texas

CSJ: 2552-04-027
August, 2012

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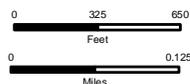
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- | | | | |
|--|-------------------------|--|-----------------------------|
| | Noise Modeling Receiver | | Study Area |
| | Interstate | | Rio Grande |
| | US Highway | | Drainage Pond |
| | State Highway | | CEMEX |
| | State Loop | | ASARCO |
| | International Boundary | | Railroad Yard |
| | Reasonable Alternative | | University of Texas El Paso |
| | Railroad | | Historic District |
| | Alternative Boundary | | |



1:9,000
1" = 750'



Noise Receivers: HNTB, 2012
 Alternatives, Ponds: Hallif & Assoc., 2012
 Study Area: HNTB, 2012
 CEMEX, ASARCO, Rail Yards, UTEP:
 City of El Paso parcel data
 Parks: City of El Paso, 1999
 Historic Districts: Texas Historic Sites Atlas - THC



Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

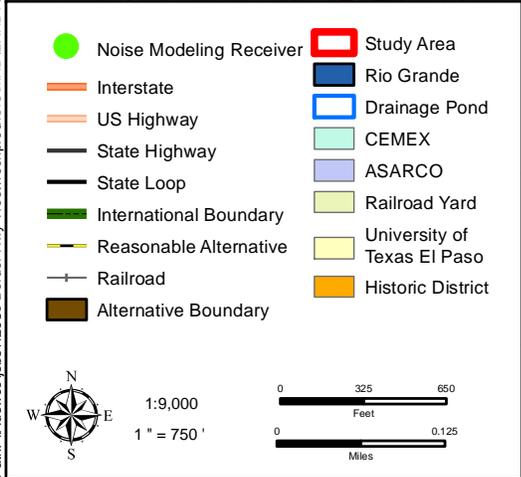
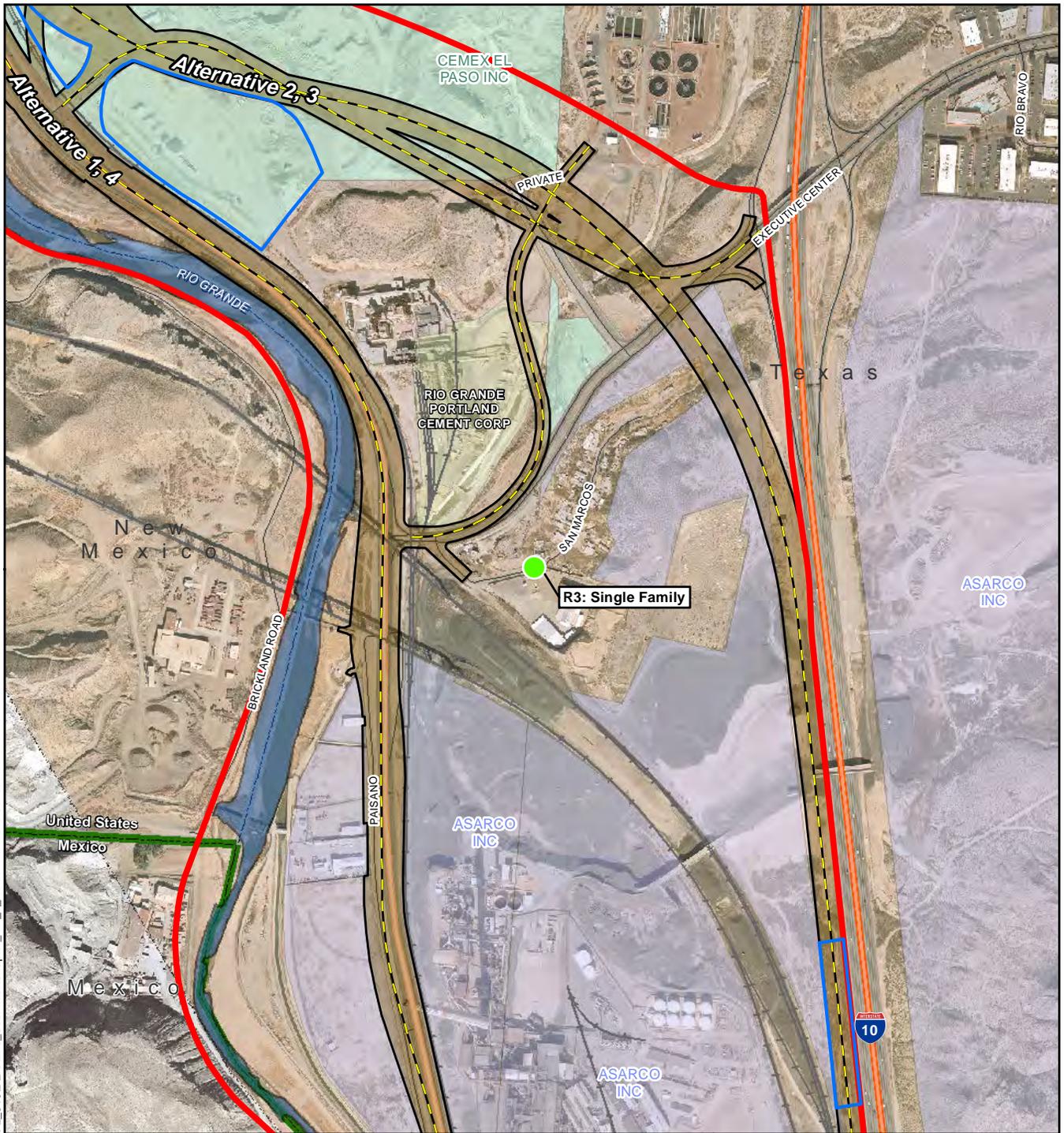
Exhibit 4-5 Noise Receivers within Reasonable Alternatives

Page 1 of 7

El Paso County, Texas
 CSJ: 2552-04-027
 August, 2012

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Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

Exhibit 4-5 Noise Receivers within Reasonable Alternatives

Page 2 of 7

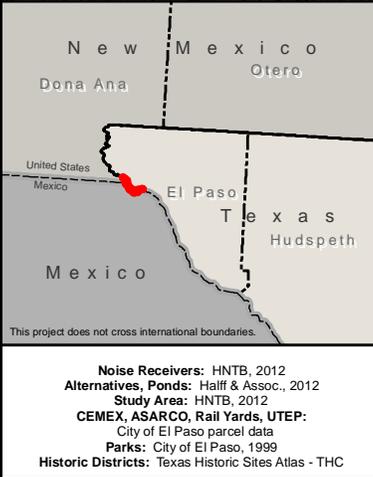
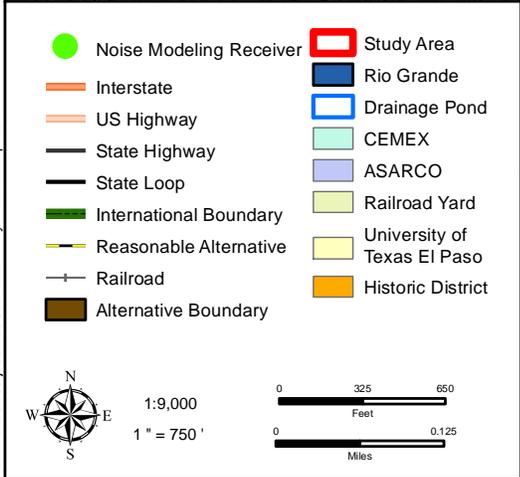
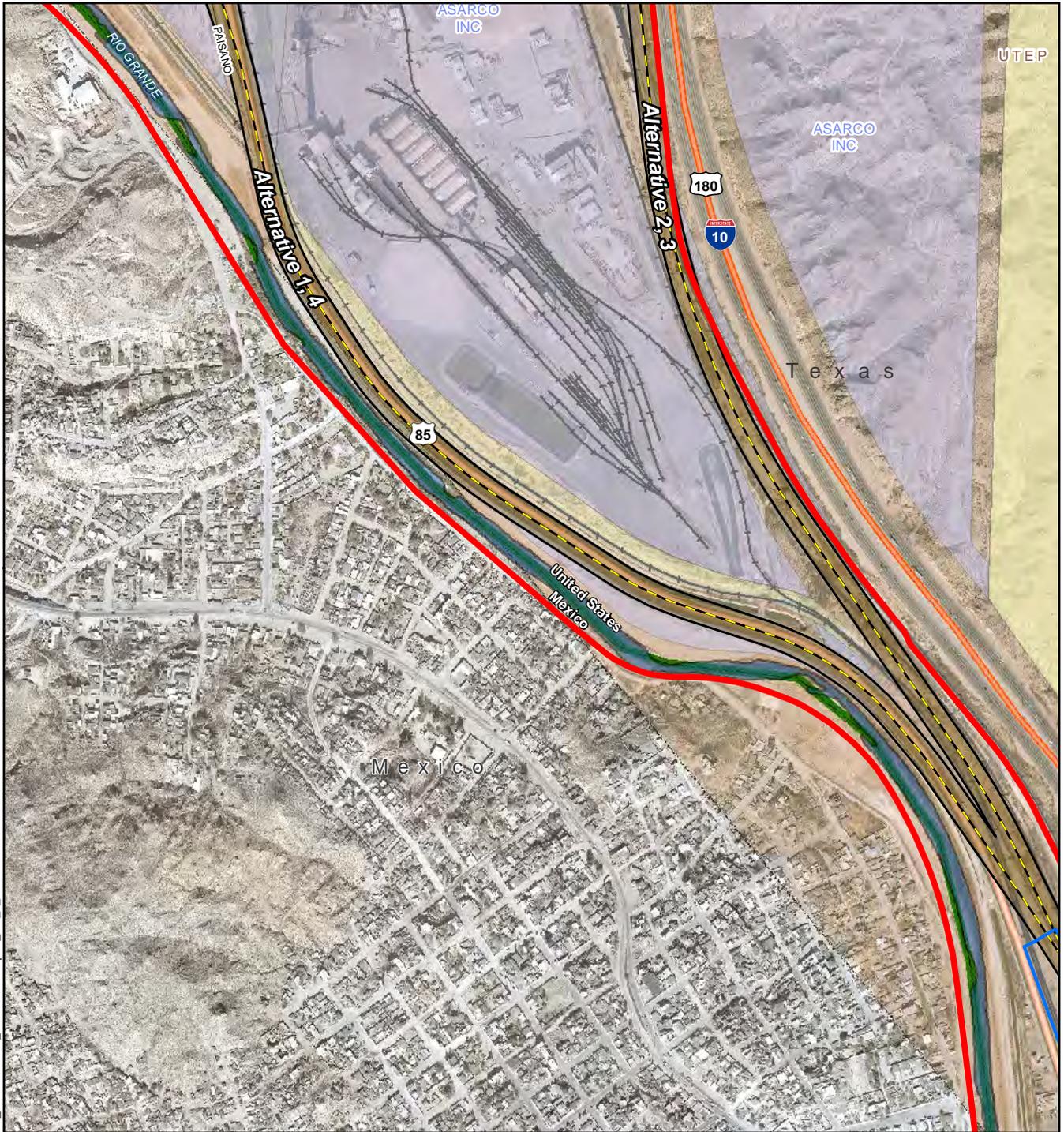
El Paso County, Texas
CSJ: 2552-04-027
August, 2012



Noise Receivers: HNTB, 2012
Alternatives, Ponds: Hallif & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP: City of El Paso parcel data
Parks: City of El Paso, 1999
Historic Districts: Texas Historic Sites Atlas - THC

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Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

Exhibit 4-5 Noise Receivers within Reasonable Alternatives

Page 3 of 7

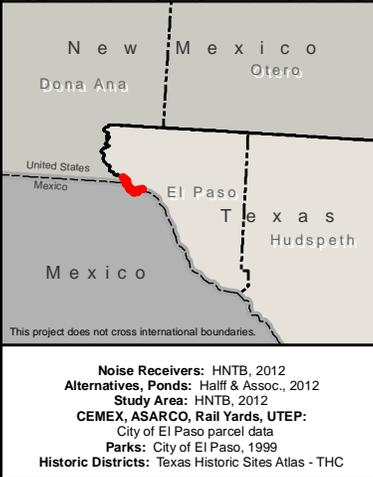
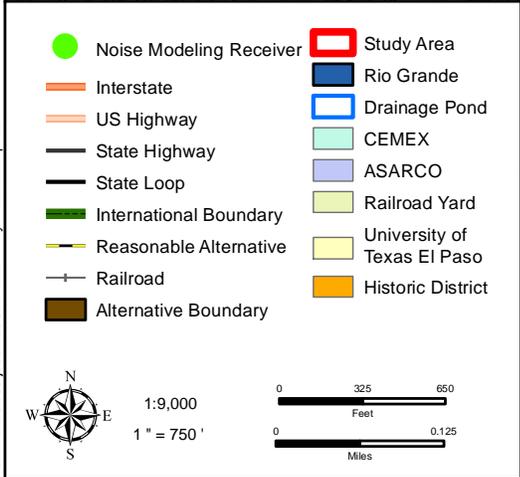
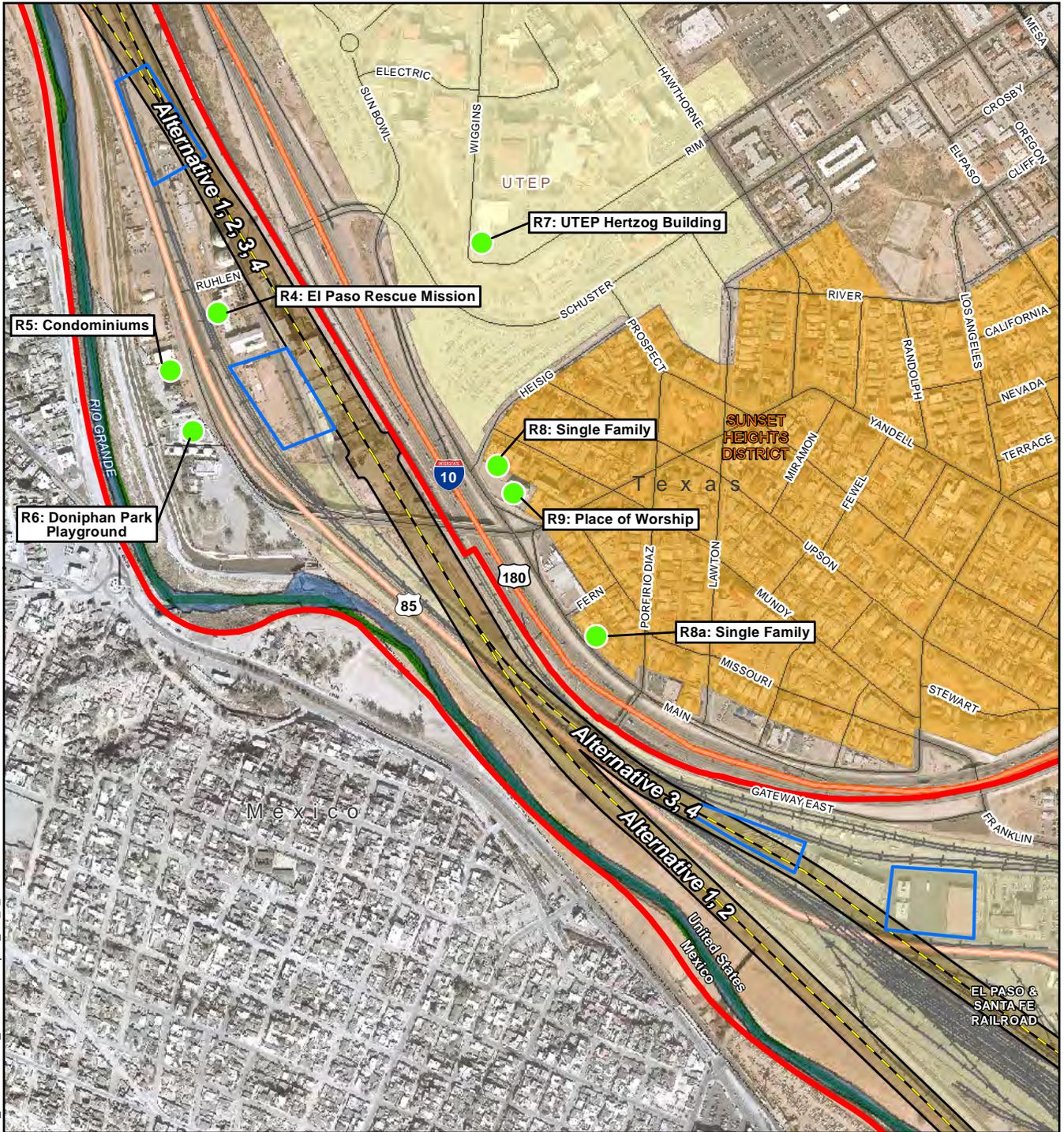
El Paso County, Texas
CSJ: 2552-04-027
August, 2012



Noise Receivers: HNTB, 2012
Alternatives, Ponds: Halif & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP: City of El Paso parcel data
Parks: City of El Paso, 1999
Historic Districts: Texas Historic Sites Atlas - THC

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Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

Exhibit 4-5

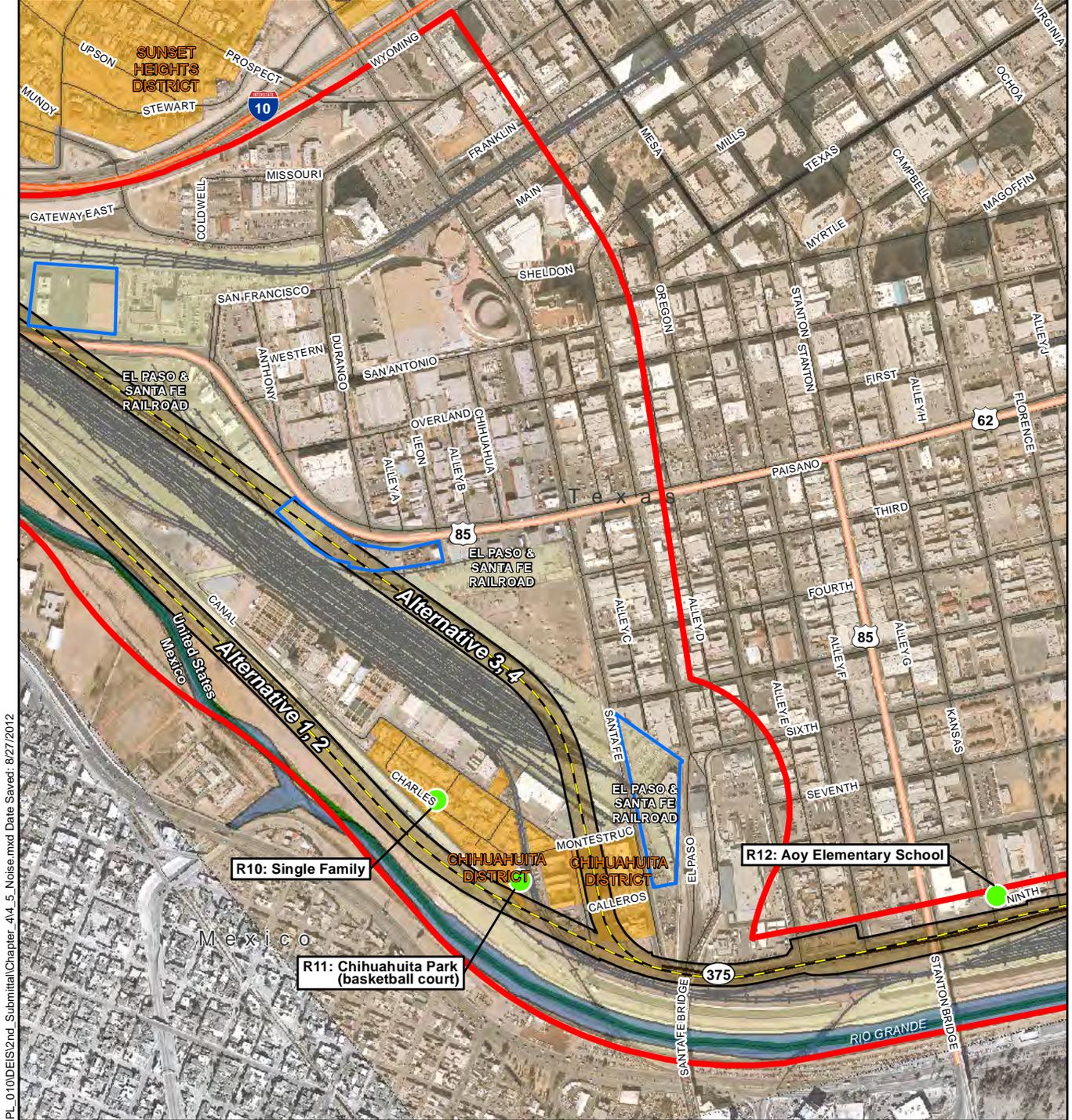
Noise Receivers within Reasonable Alternatives

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El Paso County, Texas
CSJ: 2552-04-027
August, 2012

Noise Receivers: HNTB, 2012
Alternatives, Ponds: Halif & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP: City of El Paso parcel data
Parks: City of El Paso, 1999
Historic Districts: Texas Historic Sites Atlas - THC

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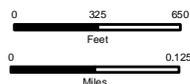


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- | | | | |
|--|-------------------------|--|-----------------------------|
| | Noise Modeling Receiver | | Study Area |
| | Interstate | | Rio Grande |
| | US Highway | | Drainage Pond |
| | State Highway | | CEMEX |
| | State Loop | | ASARCO |
| | International Boundary | | Railroad Yard |
| | Reasonable Alternative | | University of Texas El Paso |
| | Railroad | | Historic District |
| | Alternative Boundary | | |



1:9,000
1" = 750'



This project does not cross international boundaries.

Noise Receivers: HNTB, 2012
Alternatives, Ponds: Halff & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP:
 City of El Paso parcel data
Parks: City of El Paso, 1999
Historic Districts: Texas Historic Sites Atlas - THC



Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 84

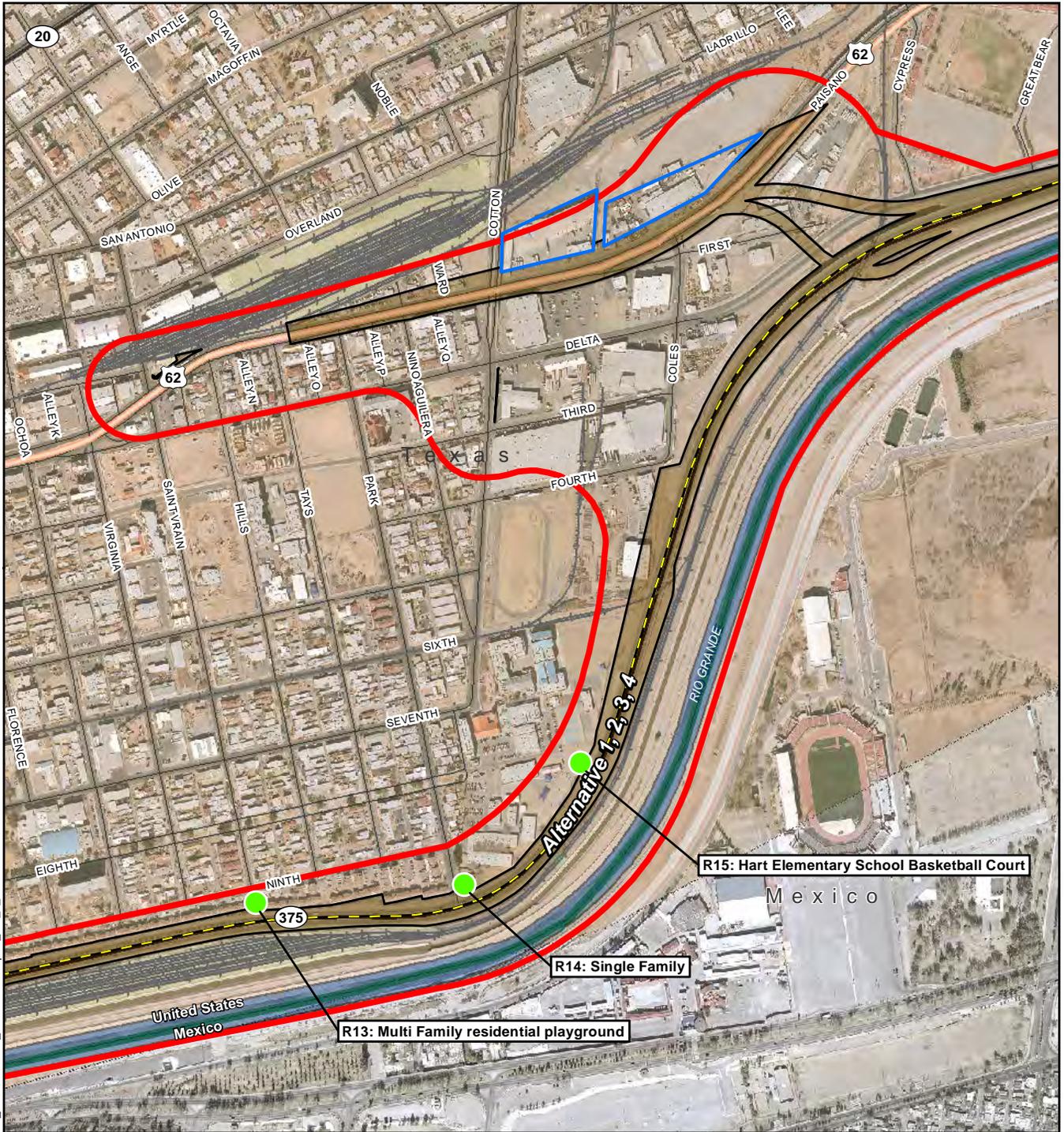
Exhibit 4-5 Noise Receivers within Reasonable Alternatives

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El Paso County, Texas
 CSJ: 2552-04-027
 August, 2012

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	Noise Modeling Receiver		Study Area
	Interstate		Rio Grande
	US Highway		Drainage Pond
	State Highway		CEMEX
	State Loop		ASARCO
	International Boundary		Railroad Yard
	Reasonable Alternative		University of Texas El Paso
	Railroad		Historic District
	Alternative Boundary		



This project does not cross international boundaries.

Noise Receivers: HNTB, 2012
Alternatives, Ponds: Hallif & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP: City of El Paso parcel data
Parks: City of El Paso, 1999
Historic Districts: Texas Historic Sites Atlas - THC

Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

Exhibit 4-5

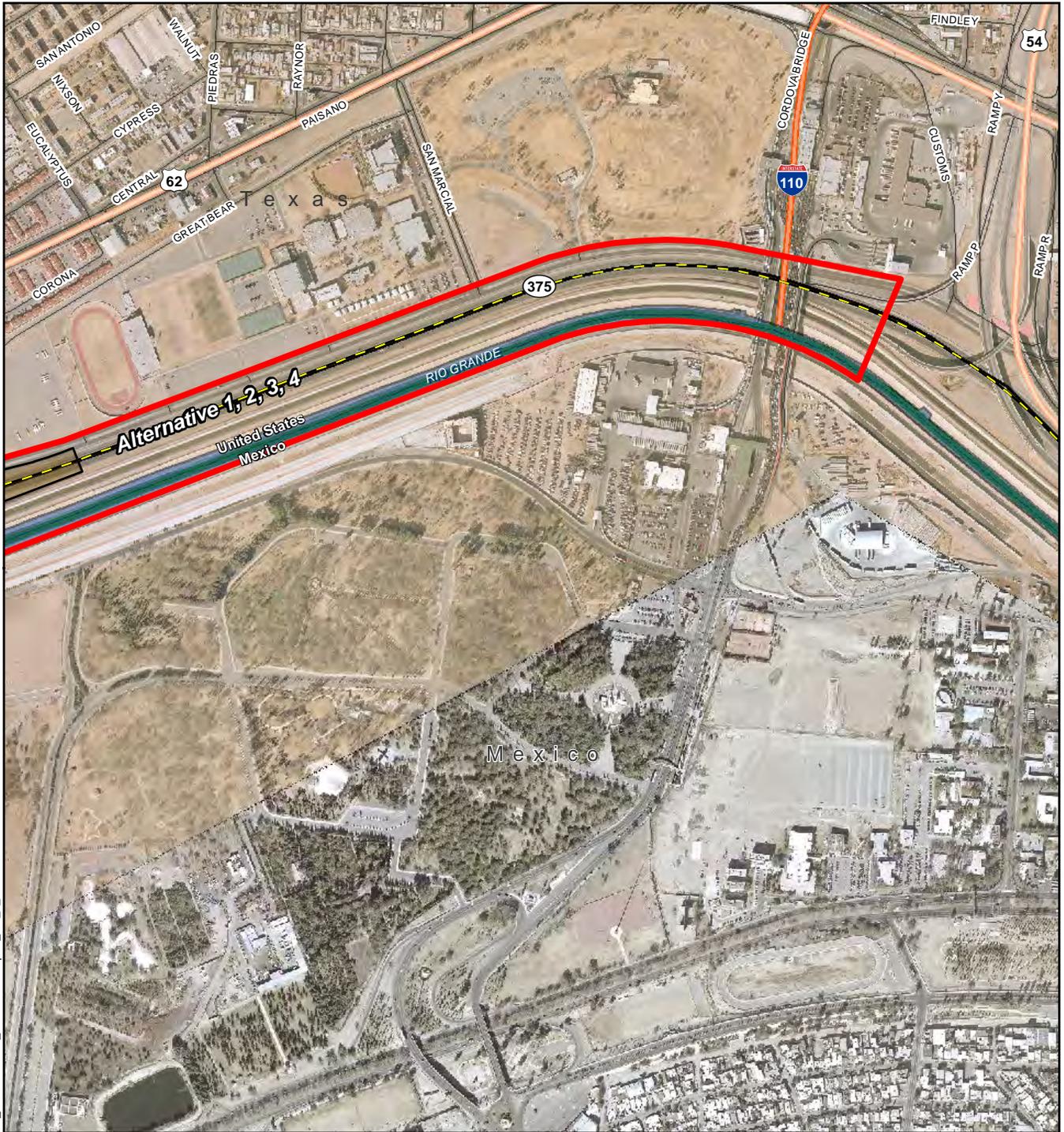
Noise Receivers within Reasonable Alternatives

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El Paso County, Texas
 CSJ: 2552-04-027
 August, 2012

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	Noise Modeling Receiver		Study Area
	Interstate		Rio Grande
	US Highway		Drainage Pond
	State Highway		CEMEX
	State Loop		ASARCO
	International Boundary		Railroad Yard
	Reasonable Alternative		University of Texas El Paso
	Railroad		Historic District
	Alternative Boundary		

This project does not cross international boundaries.

Noise Receivers: HNTB, 2012
Alternatives, Ponds: Hallif & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP: City of El Paso parcel data
Parks: City of El Paso, 1999
Historic Districts: Texas Historic Sites Atlas - THC

Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

Exhibit 4-5

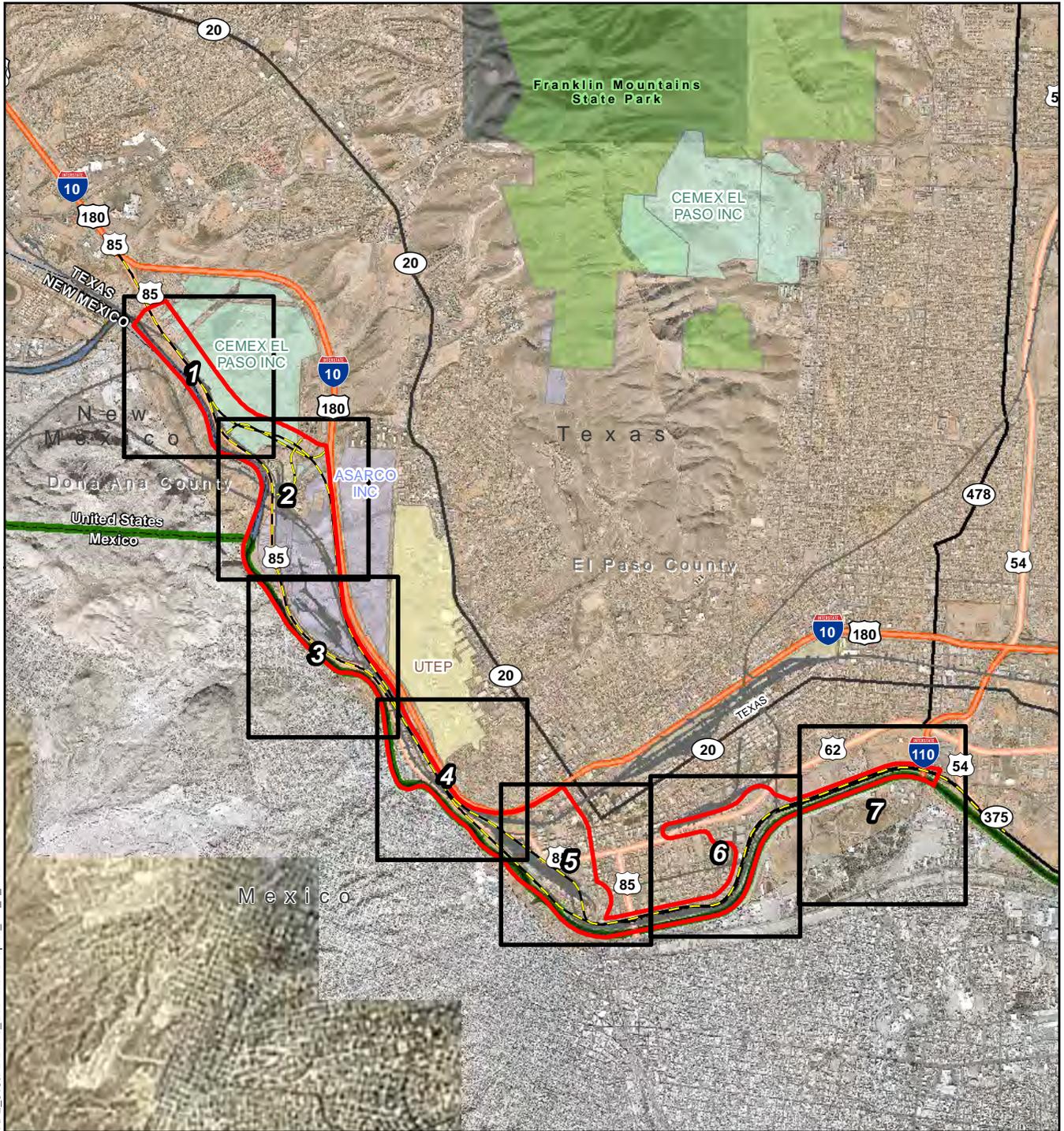
Noise Receivers within Reasonable Alternatives

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El Paso County, Texas
 CSJ: 2552-04-027
 August, 2012

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- | | |
|------------------------|-------------------------------|
| Interstate | Study Area |
| US Highway | Rio Grande |
| State Highway | CEMEX |
| Reasonable Alternative | ASARCO |
| Railroad | Railroad Yard |
| International Boundary | University of Texas El Paso |
| | Franklin Mountains State Park |



1:63,360
1" = 5,280'



Alternatives, Ponds: Halff & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP:
City of El Paso parcel data
Parks: City of El Paso, 1999
Historic District: Texas Historic Commission Atlas



Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

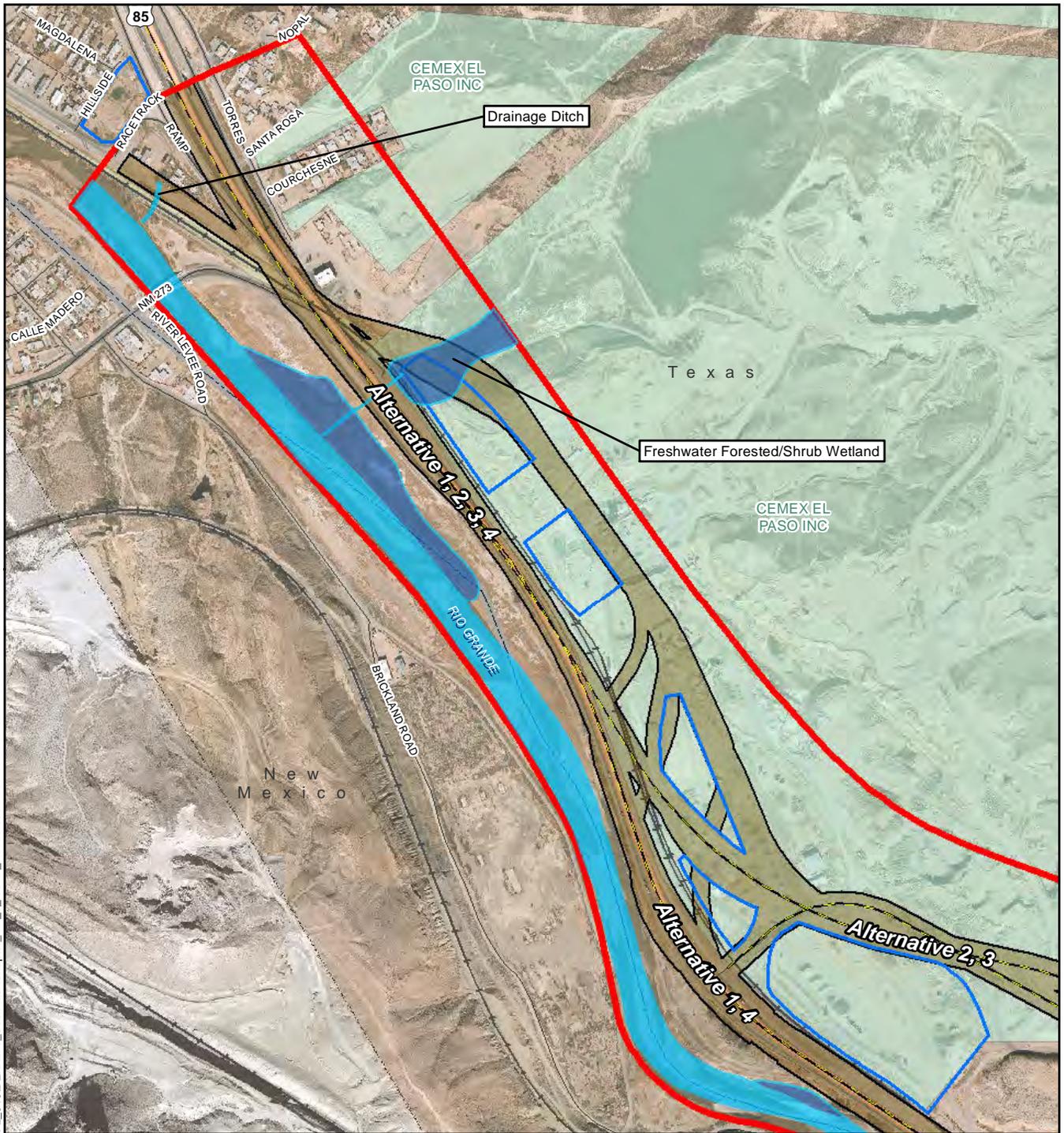
Exhibit 4-6 Water Resources within Reasonable Alternatives

Index
El Paso County, Texas

CSJ: 2552-04-027
August, 2012

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	Interstate		Study Area
	US Highway		Wetland
	State Highway		Water
	State Loop		Drainage Pond
	International Boundary		CEMEX
	Reasonable Alternative		ASARCO
	Railroad		Railroad Yard
	Alternative Boundary		University of Texas El Paso
			Historic District

Wetlands: USFWS National Wetland Inventory, 2012
Waters: USGS topo maps, HNTB, 2012
Alternatives, Ponds: Hallf & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP: City of El Paso parcel data
Parks: City of El Paso, 1999
Historic Districts: Texas Historic Sites Atlas - THC

Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

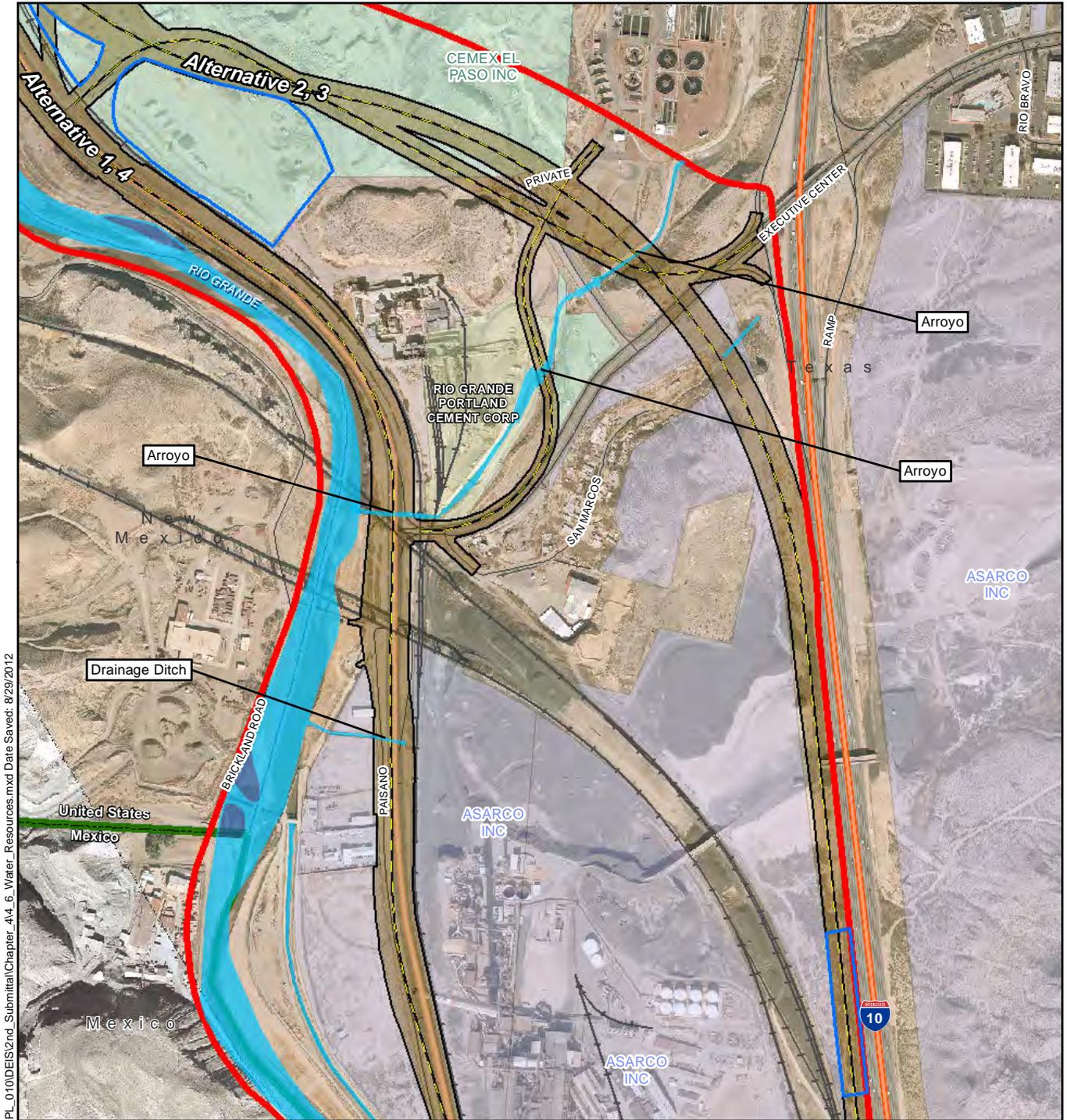
Exhibit 4-6

Water Resources within Reasonable Alternatives

Page 1 of 7

El Paso County, Texas
 CSJ: 2552-04-027
 August, 2012

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_010DEIS\2nd_Submittal\Chapter_4\4.6_Water_Resources.mxd Date Saved: 8/29/2012

	Interstate		Study Area
	US Highway		Wetland
	State Highway		Water
	State Loop		Drainage Pond
	International Boundary		CEMEX
	Reasonable Alternative		ASARCO
	Railroad		Railroad Yard
	Alternative Boundary		University of Texas El Paso
			Historic District



This project does not cross international boundaries.

Wetlands: USFWS National Wetland Inventory, 2012
Waters: USGS topo maps, HNTB, 2012
Alternatives, Ponds: Hallf & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP: City of El Paso parcel data
Parks: City of El Paso, 1999
Historic Districts: Texas Historic Sites Atlas - THC

Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

Exhibit 4-6

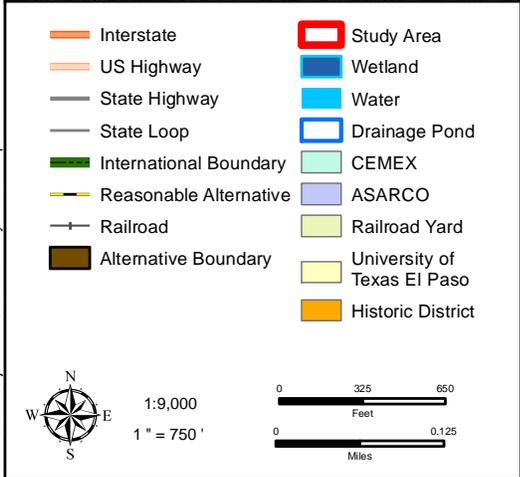
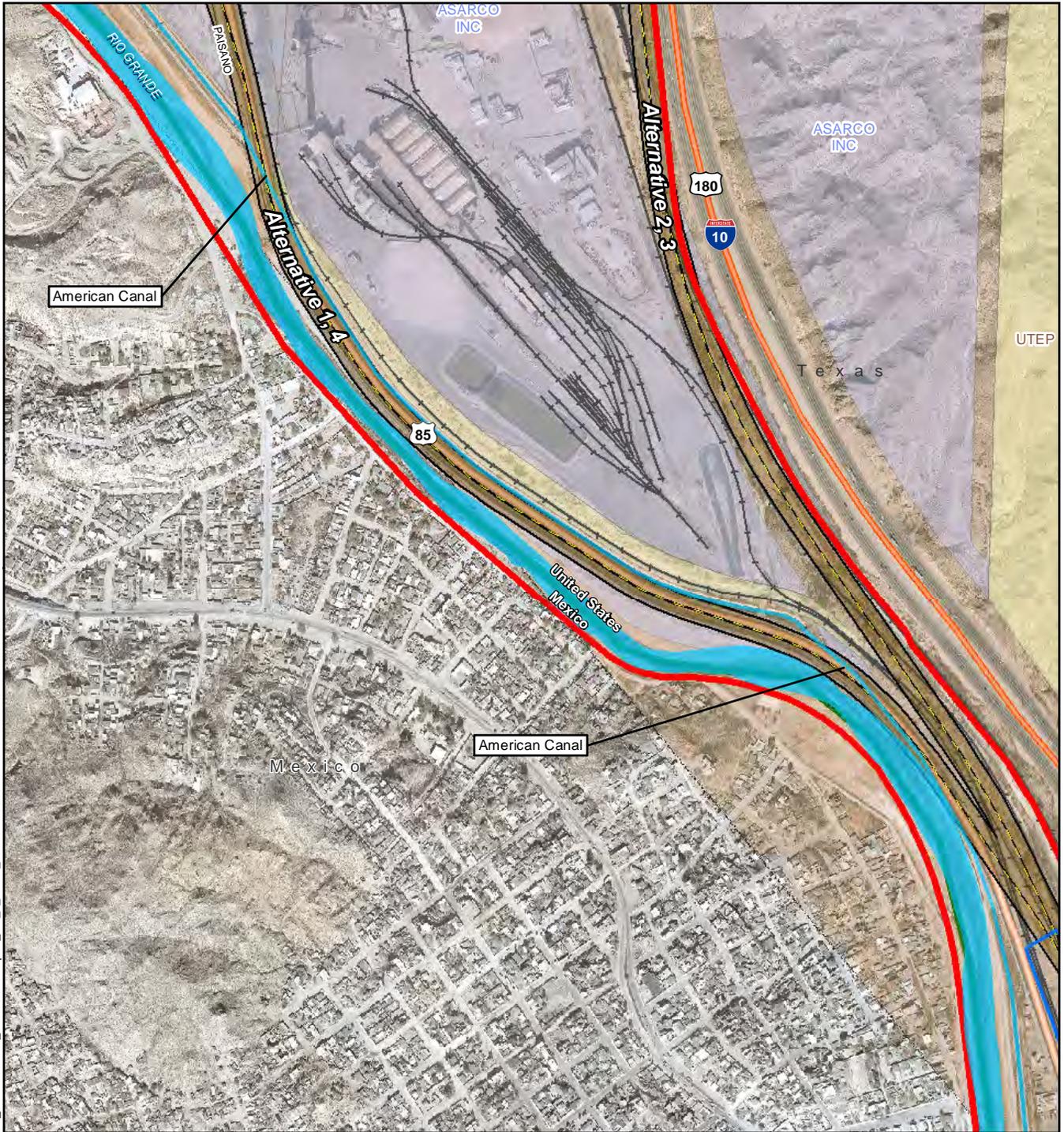
Water Resources within Reasonable Alternatives

Page 2 of 7

El Paso County, Texas
 CSJ: 2552-04-027
 August, 2012

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Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

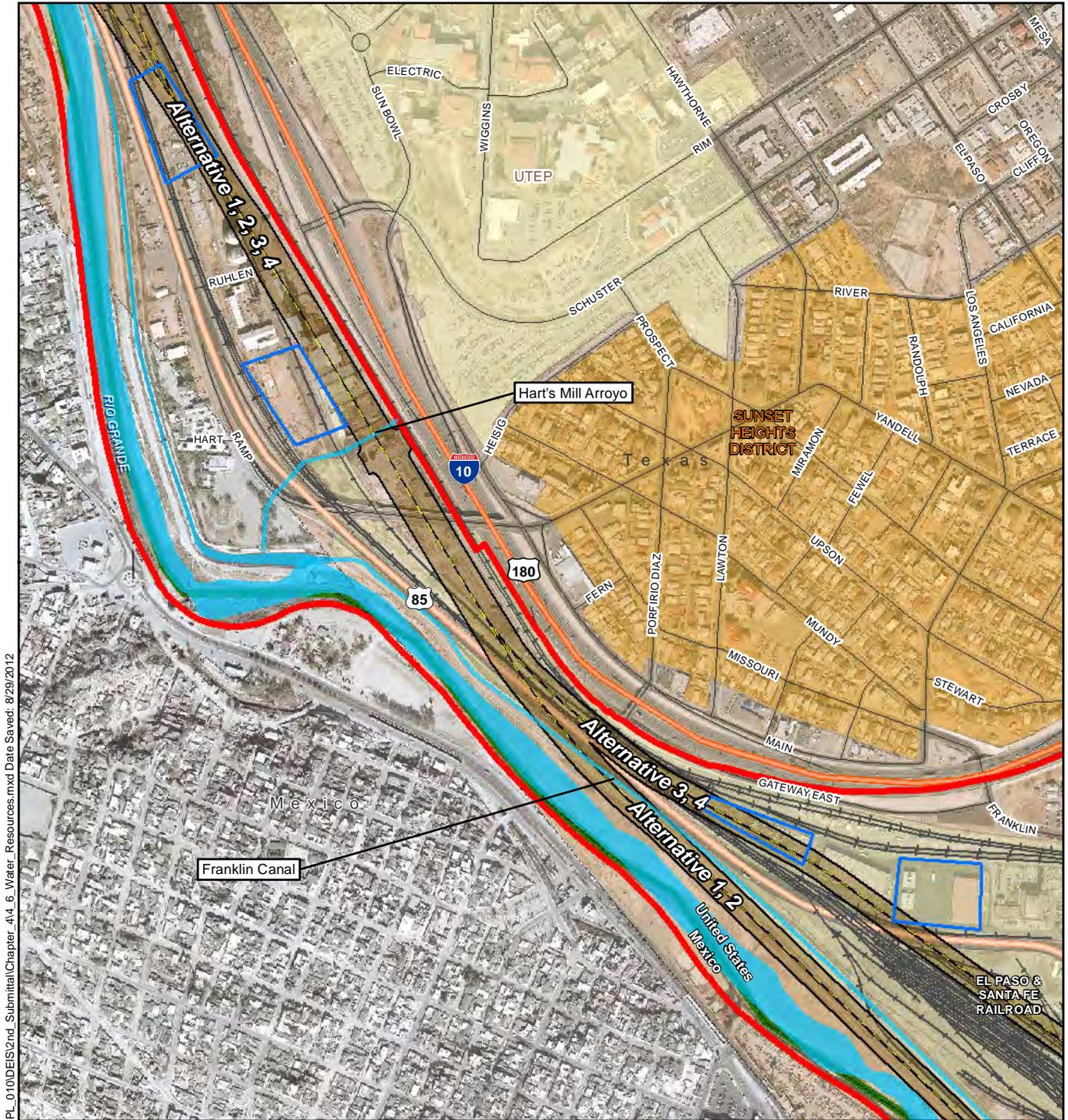
Exhibit 4-6

Water Resources within Reasonable Alternatives

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El Paso County, Texas
 CSJ: 2552-04-027
 August, 2012

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	Interstate		Study Area
	US Highway		Wetland
	State Highway		Water
	State Loop		Drainage Pond
	International Boundary		CEMEX
	Reasonable Alternative		ASARCO
	Railroad		Railroad Yard
	Alternative Boundary		University of Texas El Paso
			Historic District

This project does not cross international boundaries.

Wetlands: USFWS National Wetland Inventory, 2012
Waters: USGS topo maps, HNTB, 2012
Alternatives, Ponds: Hallf & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP: City of El Paso parcel data
Parks: City of El Paso, 1999
Historic Districts: Texas Historic Sites Atlas - THC

Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

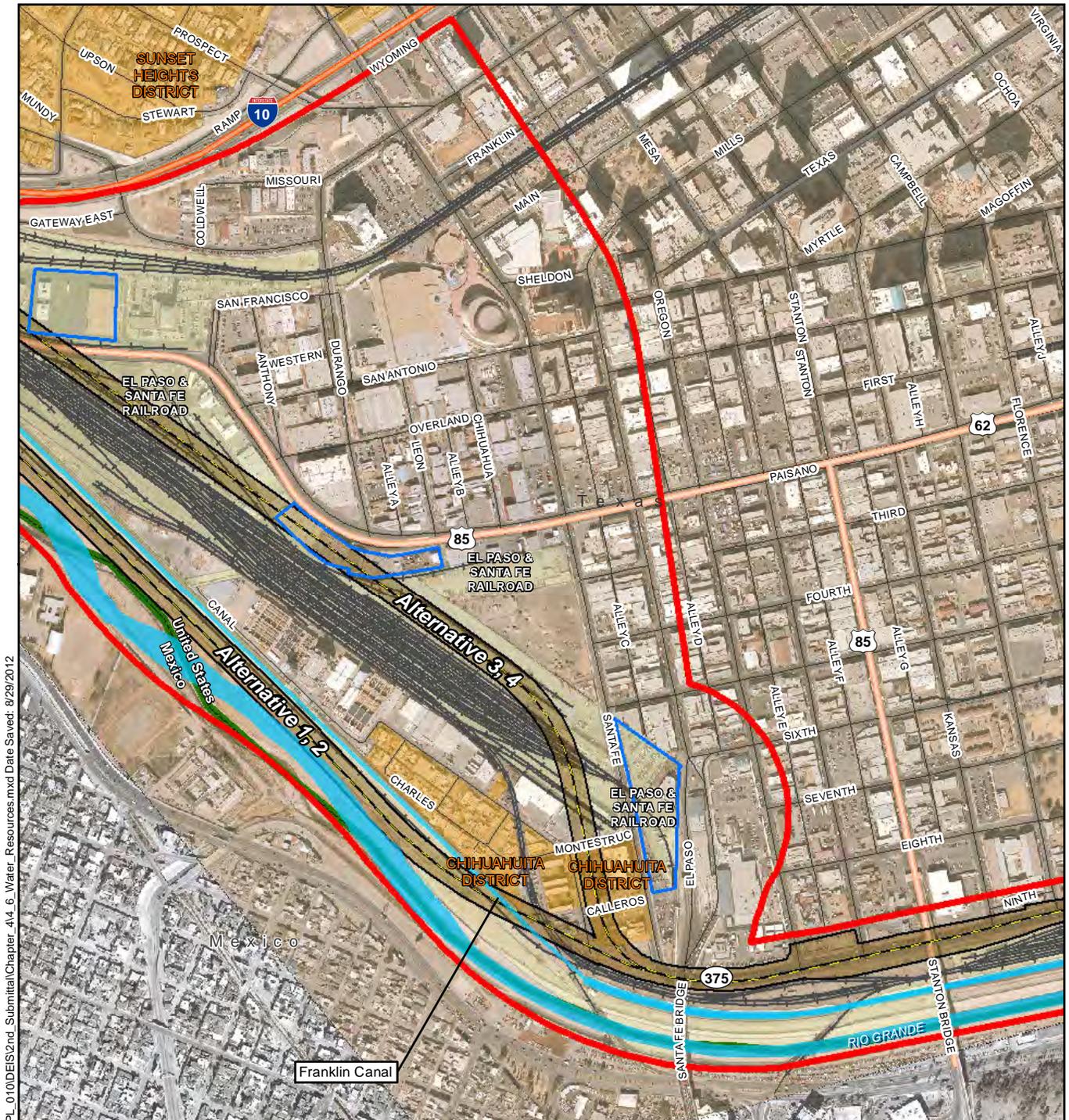
Exhibit 4-6

Water Resources within Reasonable Alternatives

Page 4 of 7

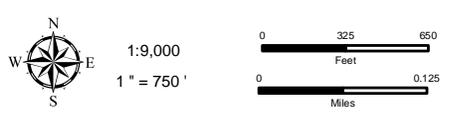
El Paso County, Texas
 CSJ: 2552-04-027
 August, 2012

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- | | |
|------------------------|-----------------------------|
| Interstate | Study Area |
| US Highway | Wetland |
| State Highway | Water |
| State Loop | Drainage Pond |
| International Boundary | CEMEX |
| Reasonable Alternative | ASARCO |
| Railroad | Railroad Yard |
| Alternative Boundary | University of Texas El Paso |
| | Historic District |



This project does not cross international boundaries.

Wetlands: USFWS National Wetland Inventory, 2012
Waters: USGS topo maps, HNTB, 2012
Alternatives, Ponds: Hallf & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP: City of El Paso parcel data
Parks: City of El Paso, 1999
Historic Districts: Texas Historic Sites Atlas - THC



Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 84

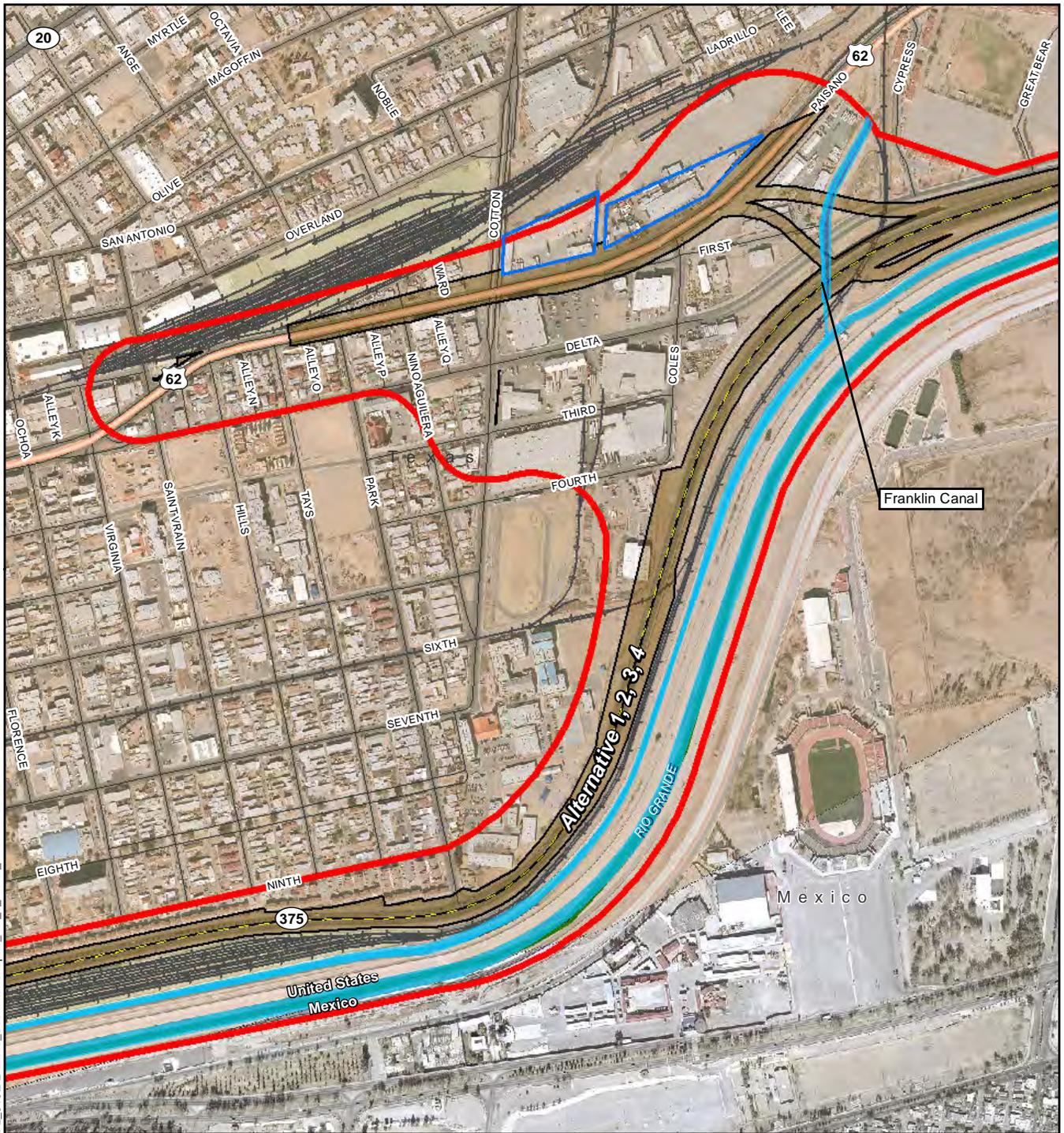
Exhibit 4-6 Water Resources within Reasonable Alternatives

Page 5 of 7

El Paso County, Texas
 CSJ: 2552-04-027
 August, 2012

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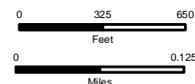
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- | | |
|------------------------|-----------------------------|
| Interstate | Study Area |
| US Highway | Wetland |
| State Highway | Water |
| State Loop | Drainage Pond |
| International Boundary | CEMEX |
| Reasonable Alternative | ASARCO |
| Railroad | Railroad Yard |
| Alternative Boundary | University of Texas El Paso |
| | Historic District |



1:9,000
1" = 750'



This project does not cross international boundaries.

Wetlands: USFWS National Wetland Inventory, 2012
Waters: USGS topo maps, HNTB, 2012
Alternatives, Ponds: Hallf & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP: City of El Paso parcel data
Parks: City of El Paso, 1999
Historic Districts: Texas Historic Sites Atlas - THC



Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

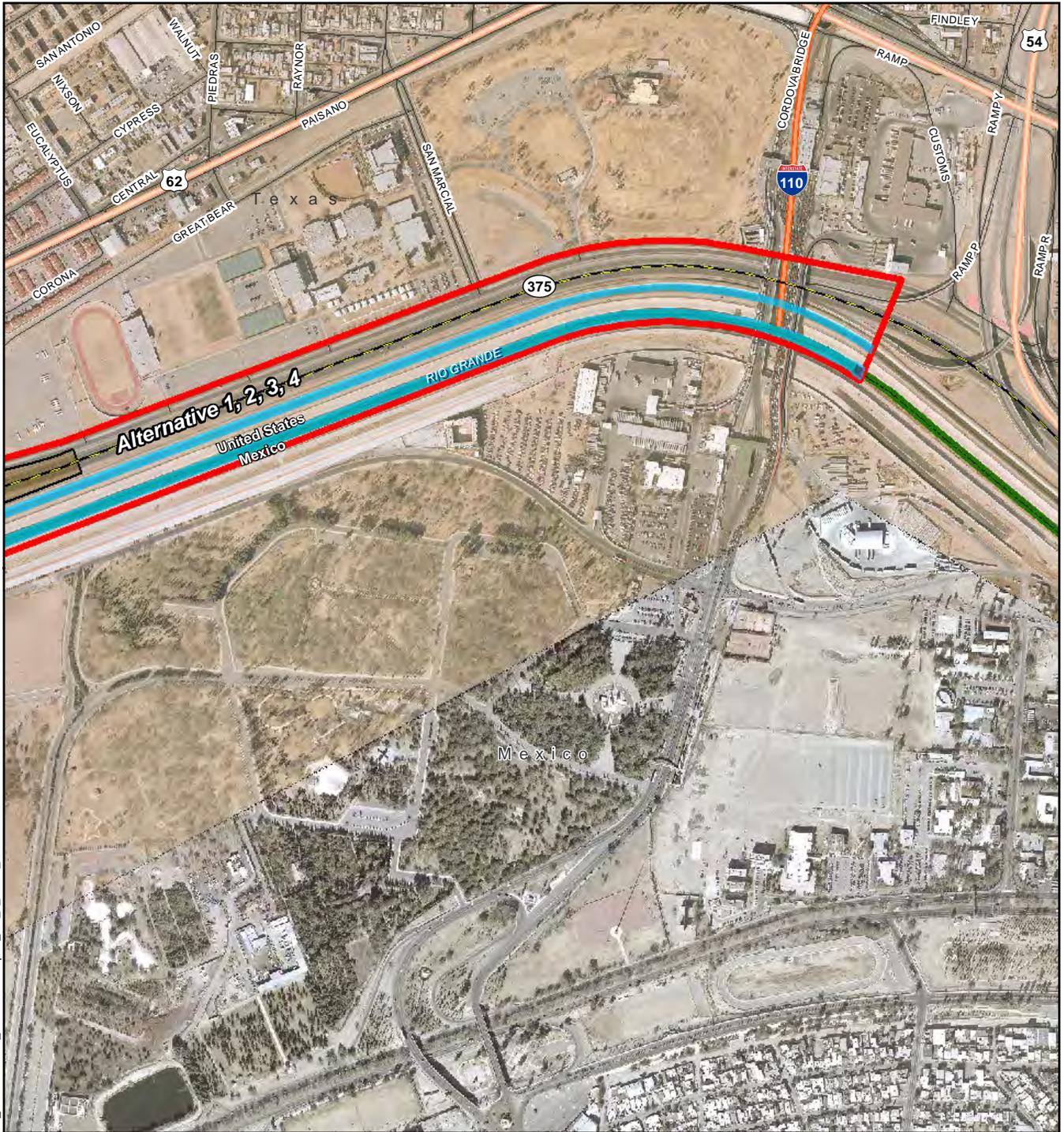
Exhibit 4-6 Water Resources within Reasonable Alternatives

Page 6 of 7

El Paso County, Texas
 CSJ: 2552-04-027
 August, 2012

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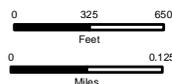
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- | | |
|------------------------|-----------------------------|
| Interstate | Study Area |
| US Highway | Wetland |
| State Highway | Water |
| State Loop | Drainage Pond |
| International Boundary | CEMEX |
| Reasonable Alternative | ASARCO |
| Railroad | Railroad Yard |
| Alternative Boundary | University of Texas El Paso |
| | Historic District |



1:10,000
1" = 833'



This project does not cross international boundaries.

Wetlands: USFWS National Wetland Inventory, 2012
Waters: USGS topo maps, HNTB, 2012
Alternatives, Ponds: Hallf & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP: City of El Paso parcel data
Parks: City of El Paso, 1999
Historic Districts: Texas Historic Sites Atlas - THC



Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

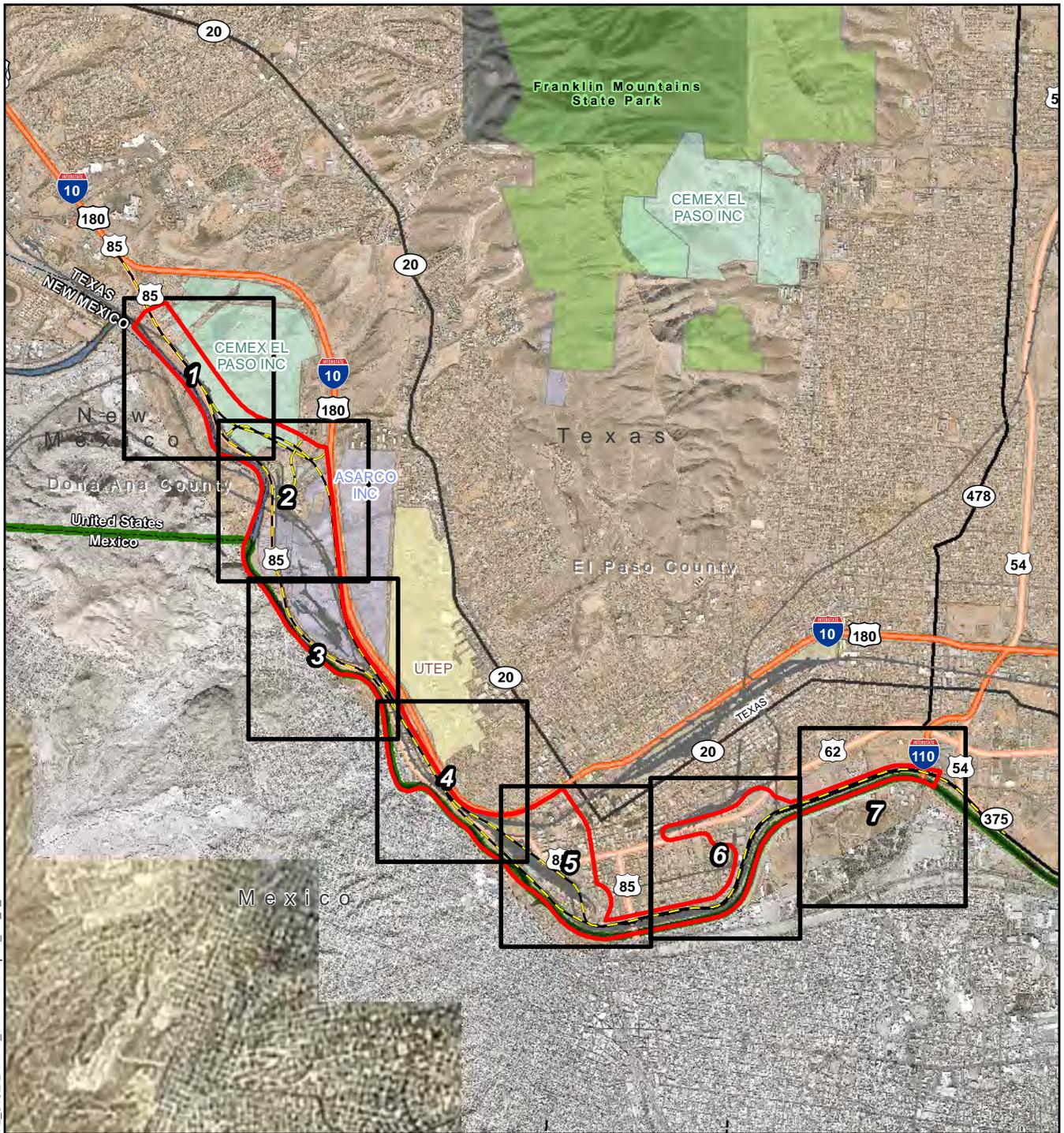
Exhibit 4-6 Water Resources within Reasonable Alternatives

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El Paso County, Texas
 CSJ: 2552-04-027
 August, 2012

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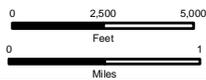
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- | | |
|------------------------|-------------------------------|
| Interstate | Study Area |
| US Highway | Rio Grande |
| State Highway | CEMEX |
| Reasonable Alternative | ASARCO |
| Railroad | Railroad Yard |
| International Boundary | University of Texas El Paso |
| | Franklin Mountains State Park |



1:63,360
1" = 5,280'



Alternatives, Ponds: Halff & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP:
City of El Paso parcel data
Parks: City of El Paso, 1999
Historic District: Texas Historic Commission Atlas



Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

Exhibit 4-7 Vegetation Communities Within Reasonable Alternatives

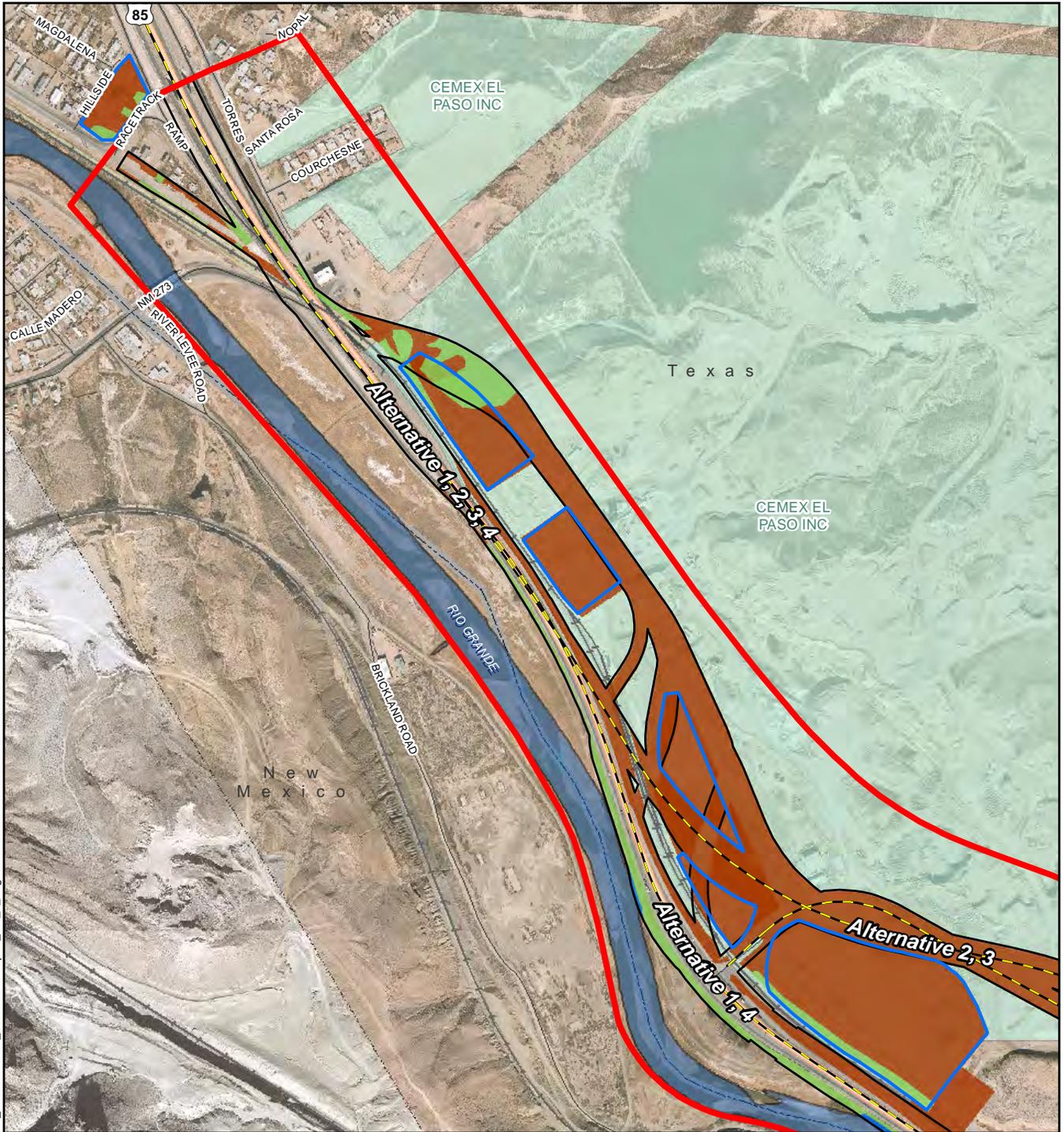
Index

El Paso County, Texas

CSJ: 2552-04-027
August, 2012

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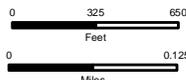
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- | | |
|------------------------|-----------------------------|
| Interstate | Bare Ground |
| US Highway | Ripairain |
| State Highway | Shrub |
| State Loop | Rio Grande |
| International Boundary | CEMEX |
| Reasonable Alternative | ASARCO |
| Railroad | Railroad Yard |
| Alternative Boundary | University of Texas El Paso |
| Study Area | Historic District |
| Drainage Pond | |



1:9,000
1" = 750'



Sources
Vegetation: HNTB, 2012 (aerial interpretation)
Alternatives, Ponds: Half & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP:
 City of El Paso parcel data
Parks: City of El Paso, 1999
Historic Districts: Texas Historic Sites Atlas - THC



Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

Exhibit 4-7 Vegetation Communities Within Reasonable Alternatives

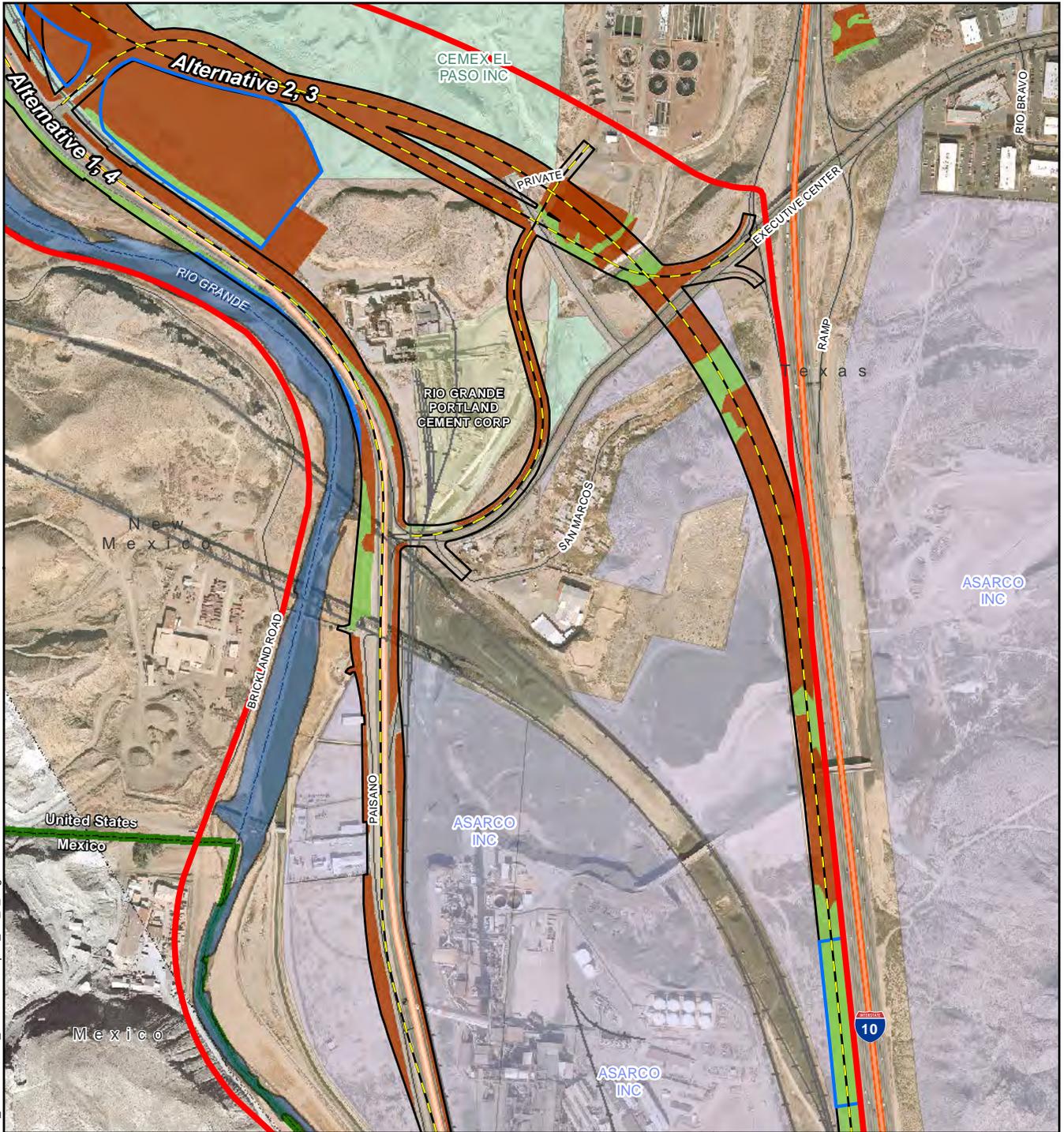
Page 1 of 7

El Paso County, Texas

CSJ: 2552-04-027
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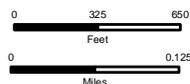
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- | | | | |
|--|------------------------|--|-----------------------------|
| | Interstate | | Bare Ground |
| | US Highway | | Riparian |
| | State Highway | | Shrub |
| | State Loop | | Rio Grande |
| | International Boundary | | CEMEX |
| | Reasonable Alternative | | ASARCO |
| | Railroad | | Railroad Yard |
| | Alternative Boundary | | University of Texas El Paso |
| | Study Area | | Historic District |
| | Drainage Pond | | |



1:9,000
1" = 750'



Sources
 Vegetation: HNTB, 2012 (aerial interpretation)
 Alternatives, Ponds: Half & Assoc., 2012
 Study Area: HNTB, 2012
 CEMEX, ASARCO, Rail Yards, UTEP:
 City of El Paso parcel data
 Parks: City of El Paso, 1999
 Historic Districts: Texas Historic Sites Atlas - THC



Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

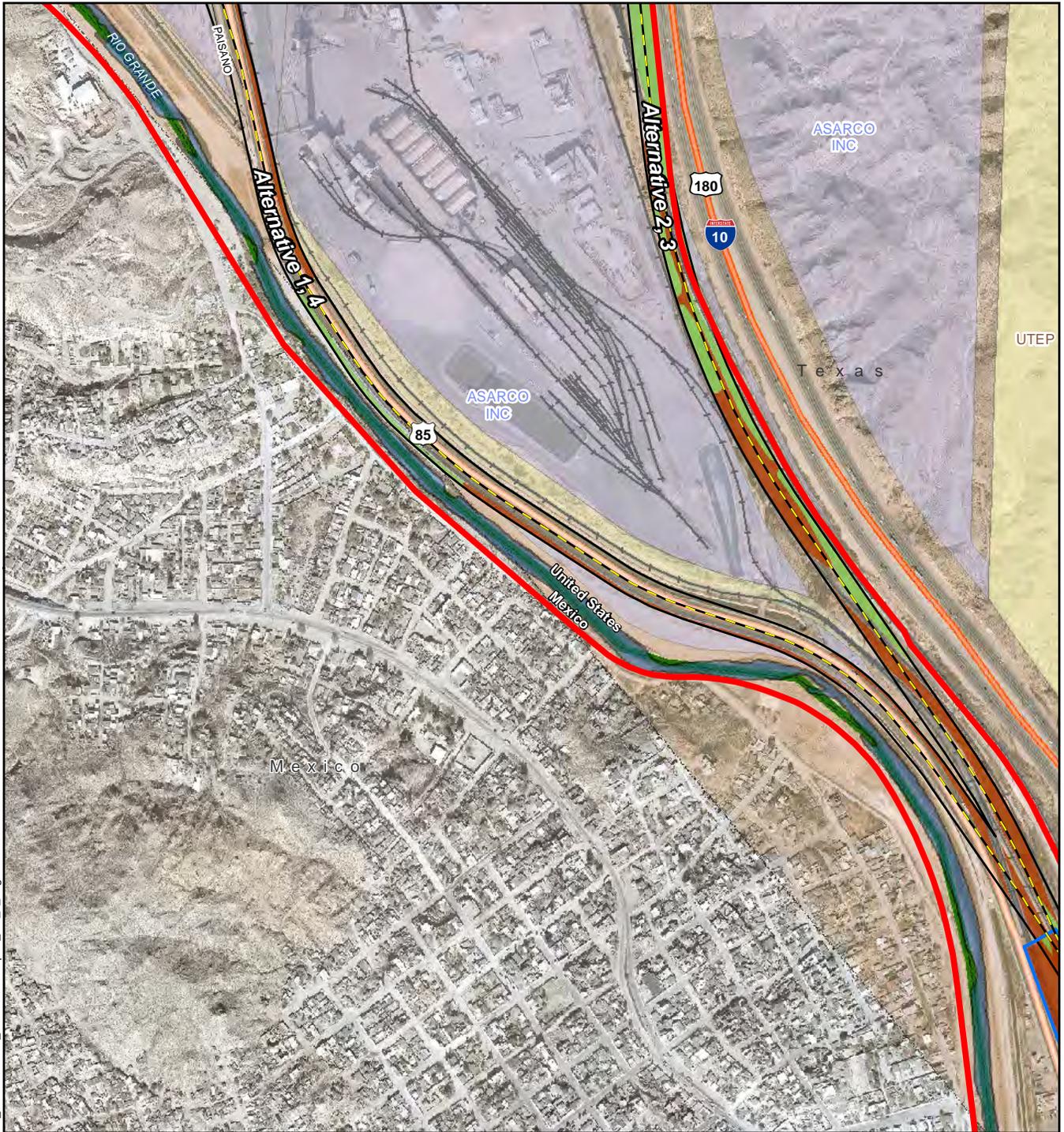
Exhibit 4-7 Vegetation Communities Within Reasonable Alternatives

Page 2 of 7

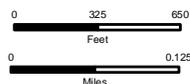
El Paso County, Texas
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- | | |
|------------------------|-----------------------------|
| Interstate | Bare Ground |
| US Highway | Ripairain |
| State Highway | Shrub |
| State Loop | Rio Grande |
| International Boundary | CEMEX |
| Reasonable Alternative | ASARCO |
| Railroad | Railroad Yard |
| Alternative Boundary | University of Texas El Paso |
| Study Area | Historic District |
| Drainage Pond | |



This project does not cross international boundaries.

Sources
 Vegetation: HNTB, 2012 (aerial interpretation)
 Alternatives, Ponds: Halff & Assoc., 2012
 Study Area: HNTB, 2012
 CEMEX, ASARCO, Rail Yards, UTEP:
 City of El Paso parcel data
 Parks: City of El Paso, 1999
 Historic Districts: Texas Historic Sites Atlas - THC



Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

Exhibit 4-7 Vegetation Communities Within Reasonable Alternatives

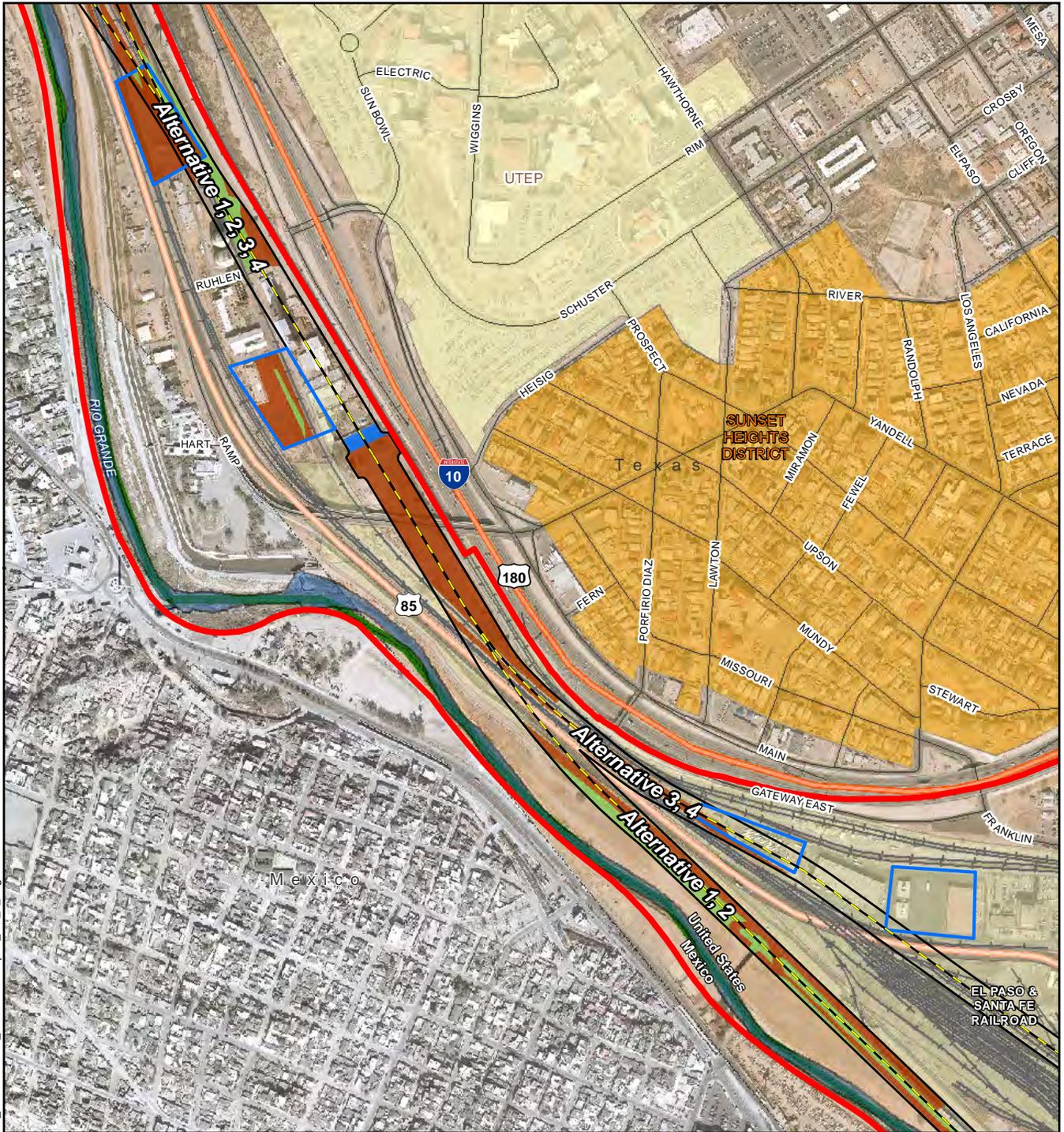
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El Paso County, Texas

CSJ: 2552-04-027
August, 2012

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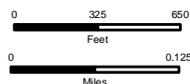
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- | | |
|------------------------|-----------------------------|
| Interstate | Bare Ground |
| US Highway | Ripairain |
| State Highway | Shrub |
| State Loop | Rio Grande |
| International Boundary | CEMEX |
| Reasonable Alternative | ASARCO |
| Railroad | Railroad Yard |
| Alternative Boundary | University of Texas El Paso |
| Study Area | Historic District |
| Drainage Pond | |



1:9,000
1" = 750'



This project does not cross international boundaries.

Sources
 Vegetation: HNTB, 2012 (aerial interpretation)
 Alternatives, Ponds: Half & Assoc., 2012
 Study Area: HNTB, 2012
 CEMEX, ASARCO, Rail Yards, UTEP:
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 Parks: City of El Paso, 1999
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Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

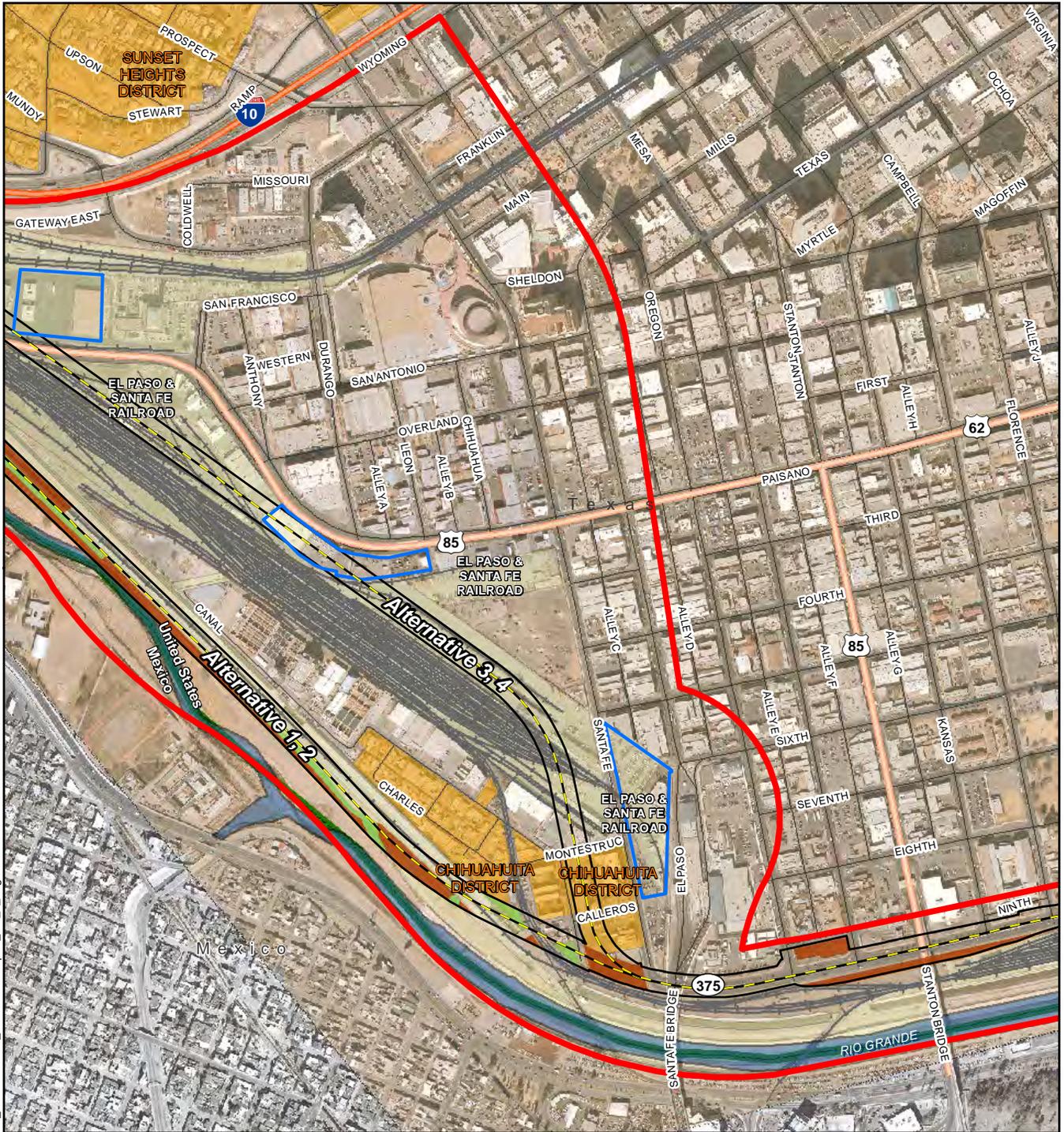
Exhibit 4-7 Vegetation Communities Within Reasonable Alternatives

Page 4 of 7

El Paso County, Texas
 CSJ: 2552-04-027
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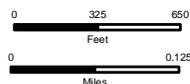
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- | | |
|------------------------|-----------------------------|
| Interstate | Bare Ground |
| US Highway | Ripairain |
| State Highway | Shrub |
| State Loop | Rio Grande |
| International Boundary | CEMEX |
| Reasonable Alternative | ASARCO |
| Railroad | Railroad Yard |
| Alternative Boundary | University of Texas El Paso |
| Study Area | Historic District |
| Drainage Pond | |



1:9,000
1" = 750'



This project does not cross international boundaries.

Sources
 Vegetation: HNTB, 2012 (aerial interpretation)
 Alternatives, Ponds: Half & Assoc., 2012
 Study Area: HNTB, 2012
 CEMEX, ASARCO, Rail Yards, UTEP:
 City of El Paso parcel data
 Parks: City of El Paso, 1999
 Historic Districts: Texas Historic Sites Atlas - THC



Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

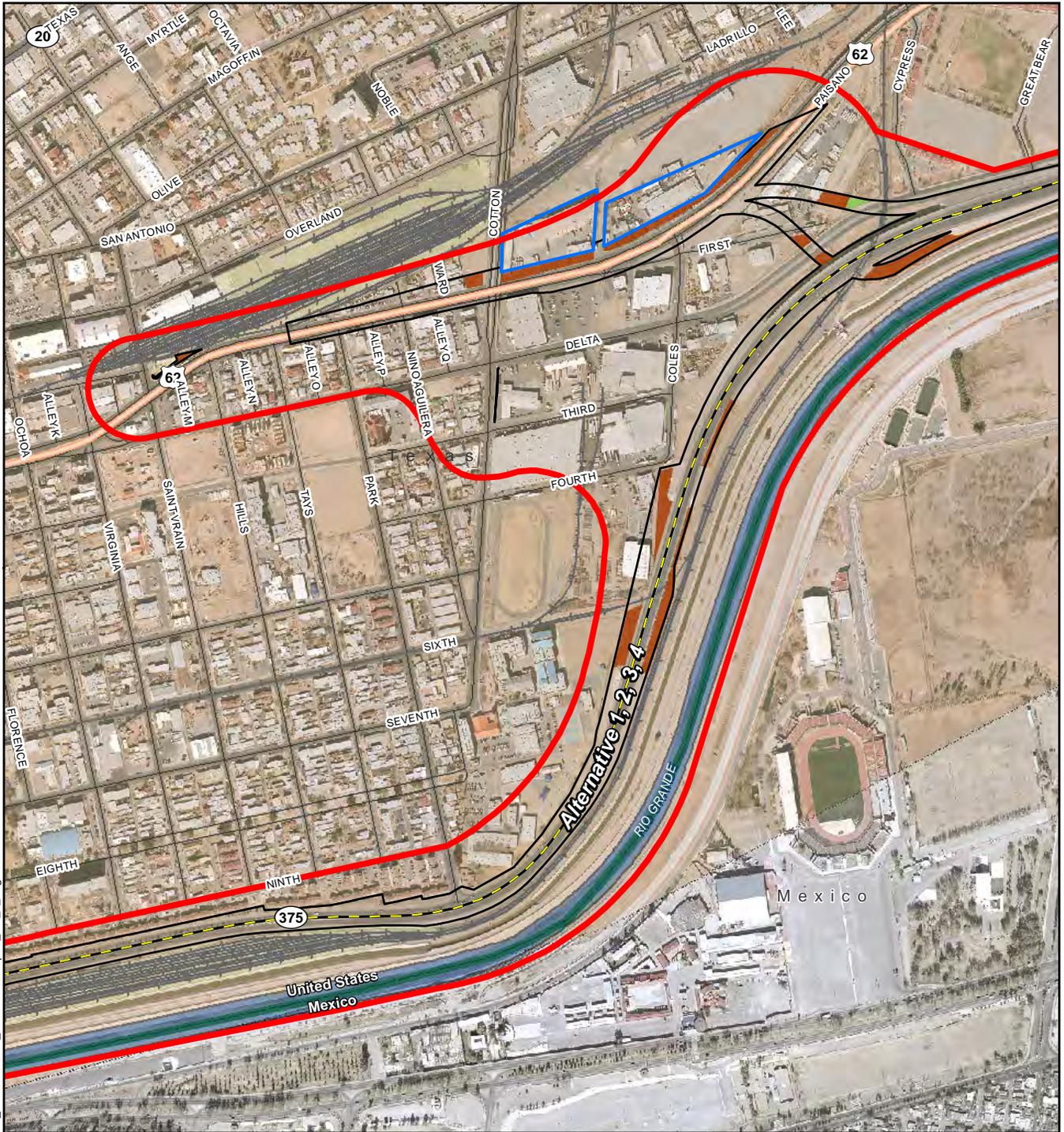
Exhibit 4-7 Vegetation Communities Within Reasonable Alternatives

Page 5 of 7

El Paso County, Texas
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- | | |
|------------------------|-----------------------------|
| Interstate | Bare Ground |
| US Highway | Riparian |
| State Highway | Shrub |
| State Loop | Rio Grande |
| International Boundary | CEMEX |
| Reasonable Alternative | ASARCO |
| Railroad | Railroad Yard |
| Alternative Boundary | University of Texas El Paso |
| Study Area | Historic District |
| Drainage Pond | |



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Sources
 Vegetation: HNTB, 2012 (aerial interpretation)
 Alternatives, Ponds: Half & Assoc., 2012
 Study Area: HNTB, 2012
 CEMEX, ASARCO, Rail Yards, UTEP:
 City of El Paso parcel data
 Parks: City of El Paso, 1999
 Historic Districts: Texas Historic Sites Atlas - THC



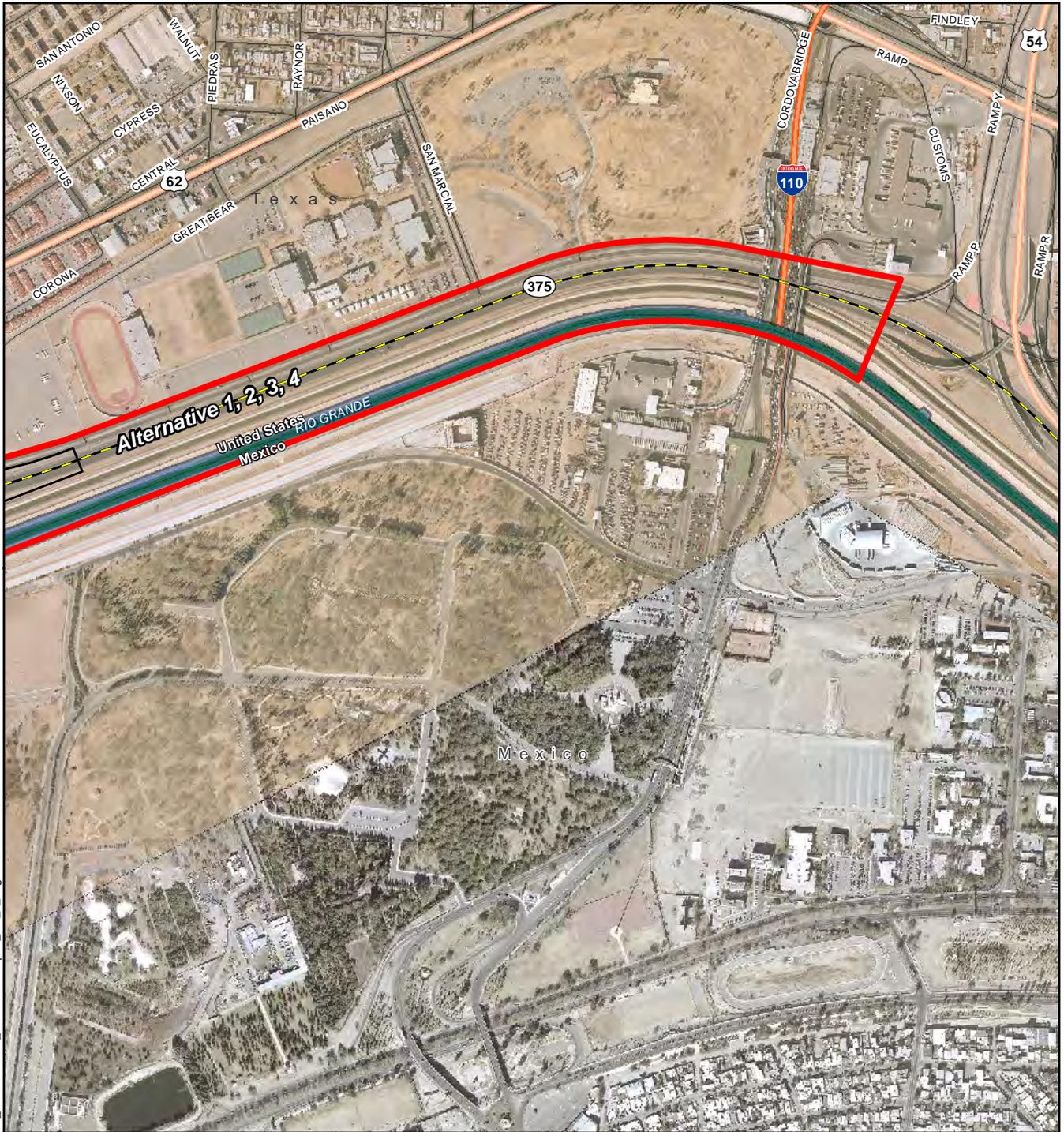
Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

Exhibit 4-7 Vegetation Communities Within Reasonable Alternatives

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- | | |
|------------------------|-----------------------------|
| Interstate | Bare Ground |
| US Highway | Ripairain |
| State Highway | Shrub |
| State Loop | Rio Grande |
| International Boundary | CEMEX |
| Reasonable Alternative | ASARCO |
| Railroad | Railroad Yard |
| Alternative Boundary | University of Texas El Paso |
| Study Area | Historic District |
| Drainage Pond | |



1:10,000
1" = 833'



Sources
Vegetation: HNTB, 2012 (aerial interpretation)
Alternatives, Ponds: Halff & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP:
 City of El Paso parcel data
Parks: City of El Paso, 1999
Historic Districts: Texas Historic Sites Atlas - THC



Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

Exhibit 4-7 Vegetation Communities Within Reasonable Alternatives

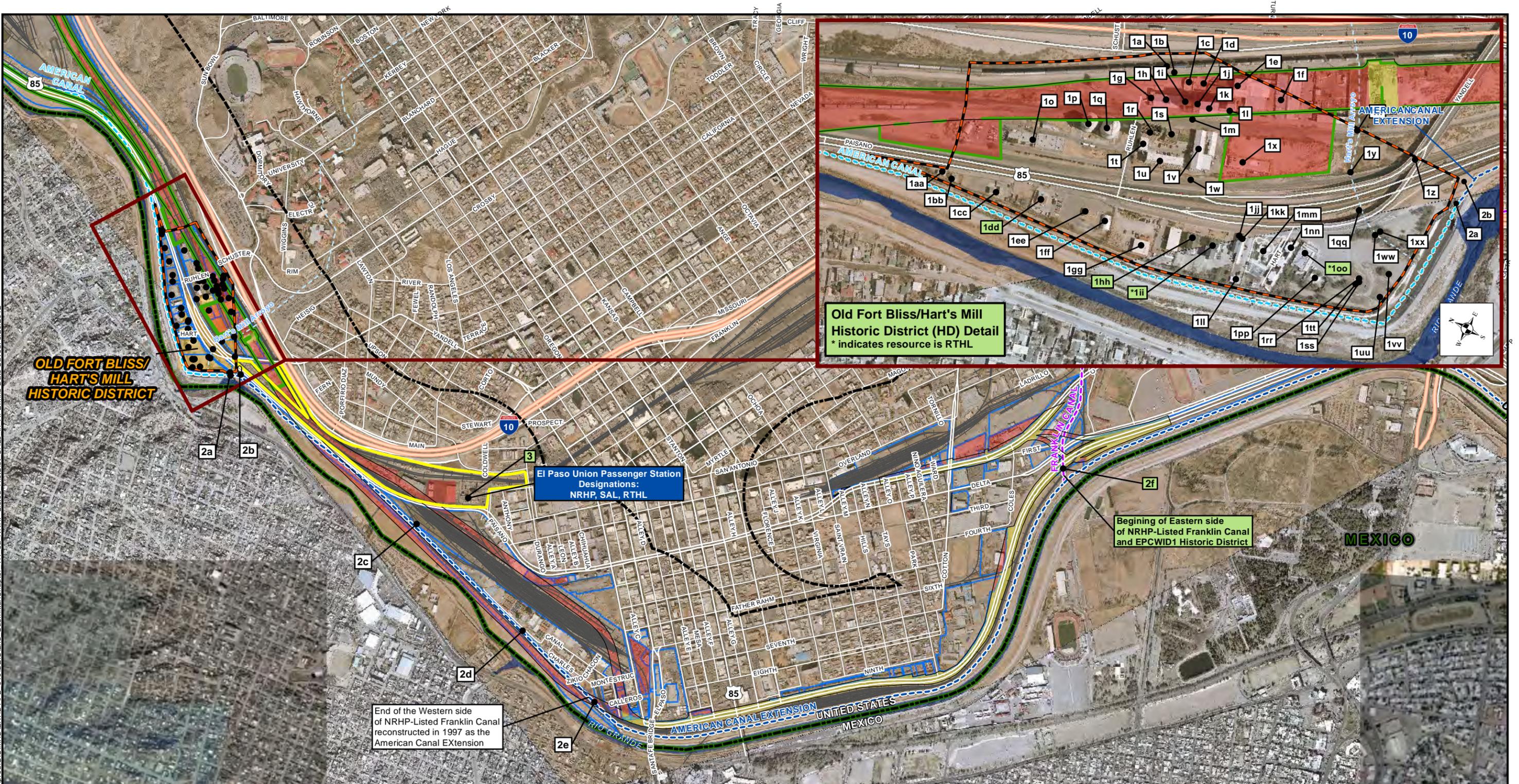
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El Paso County, Texas

CSJ: 2552-04-027
August, 2012

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**OLD FORT BLISS/
HART'S MILL
HISTORIC DISTRICT**

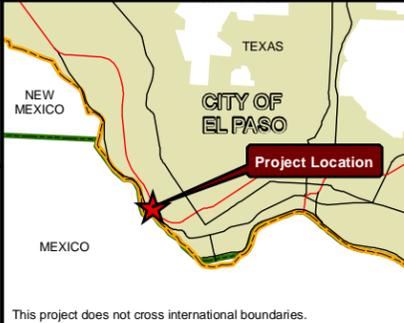
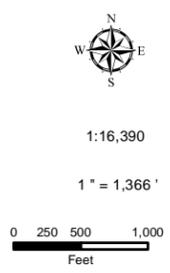
**Old Fort Bliss/Hart's Mill
Historic District (HD) Detail**
* indicates resource is RTHL

**El Paso Union Passenger Station
Designations:
NRHP, SAL, RTHL**

**Beginning of Eastern side
of NRHP-Listed Franklin Canal
and EPCWID1 Historic District**

**End of the Western side
of NRHP-Listed Franklin Canal
reconstructed in 1997 as the
American Canal Extension**

- | | | |
|---|--------------------------|---|
| ● 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 | ▭ El Paso Union Station Parcel |



Texas Department of Transportation

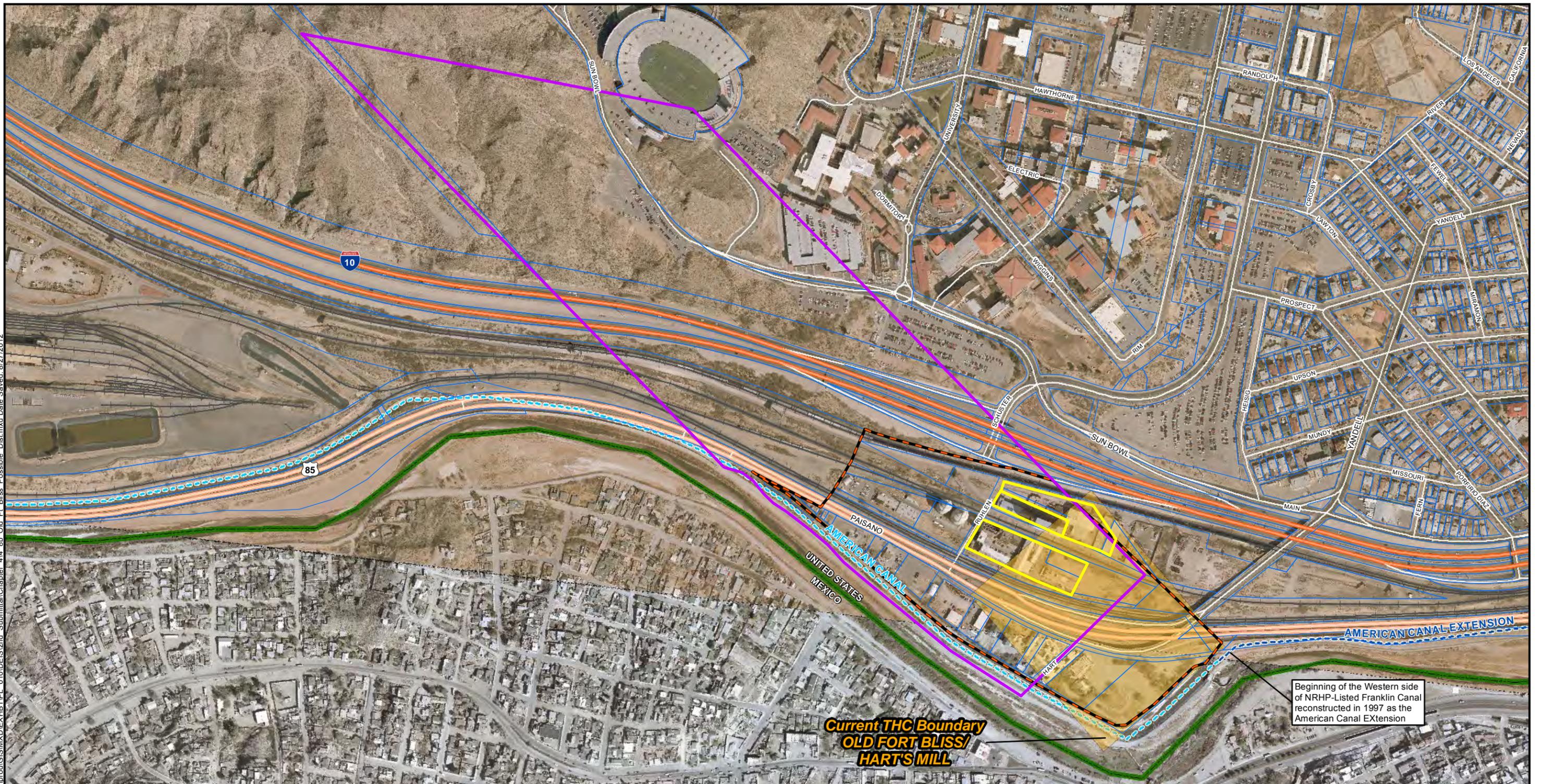
Loop 375 Border Highway West Extension Project
From Racetrack Drive to US 54

Exhibit 4-8a
NRHP-Listed Resources/Historic Districts and SALs in the APE

El Paso County, Texas - August, 2012
CSJ: 2552-04-027

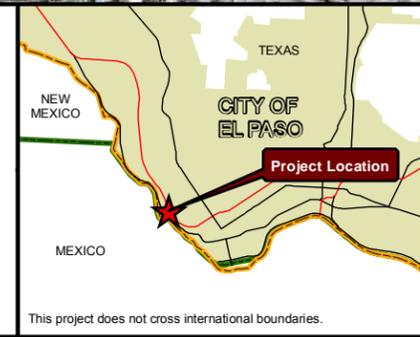
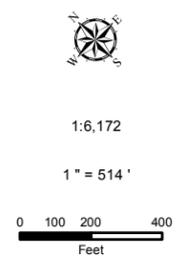
DISCLAIMER: This map was generated by HNTB Corporation using GIS (Geographic Information Systems) software. No claims are made to the accuracy or completeness of the information shown herein nor to its suitability for a particular use. The scale and location of all mapped data are approximate.

Path: \\Ausw00\jps4\2065 Border Hwy West\Techprod\GIS\IMXD\EXHBT\PL_010\DE\IS\2nd Submittal\Chapter 4-1 8b Old Ft Bliss Possible Dist.mxd Date Saved: 8/27/2012



- International Boundary
- American Canal
- American Canal Extension
- Railroad
- State Boundary
- Parcel
- Old Fort Bliss - 1889
"Official Map of the City of El Paso." 1889.
- Old Fort Bliss Lots
as shown on 1927 Globe survey
- Texas Historic Commission
NRHP Historic District
- Recommended Revised Boundary
for the NRHP-listed Old Fort
Bliss/Hart's Mill Historic District

Sources:
 Old Fort Bliss 1889: "Official Map of the City of El Paso." 1889.
 J.C. Hilzinger. Map No. 89619.
 Courtesy of Texas General Land Office, Austin.
 Waterway: City of El Paso, 2012
 Railroads: City of El Paso, 2005
 Parcels: City of El Paso, 2012
 Aerials: TxDOT, 2009

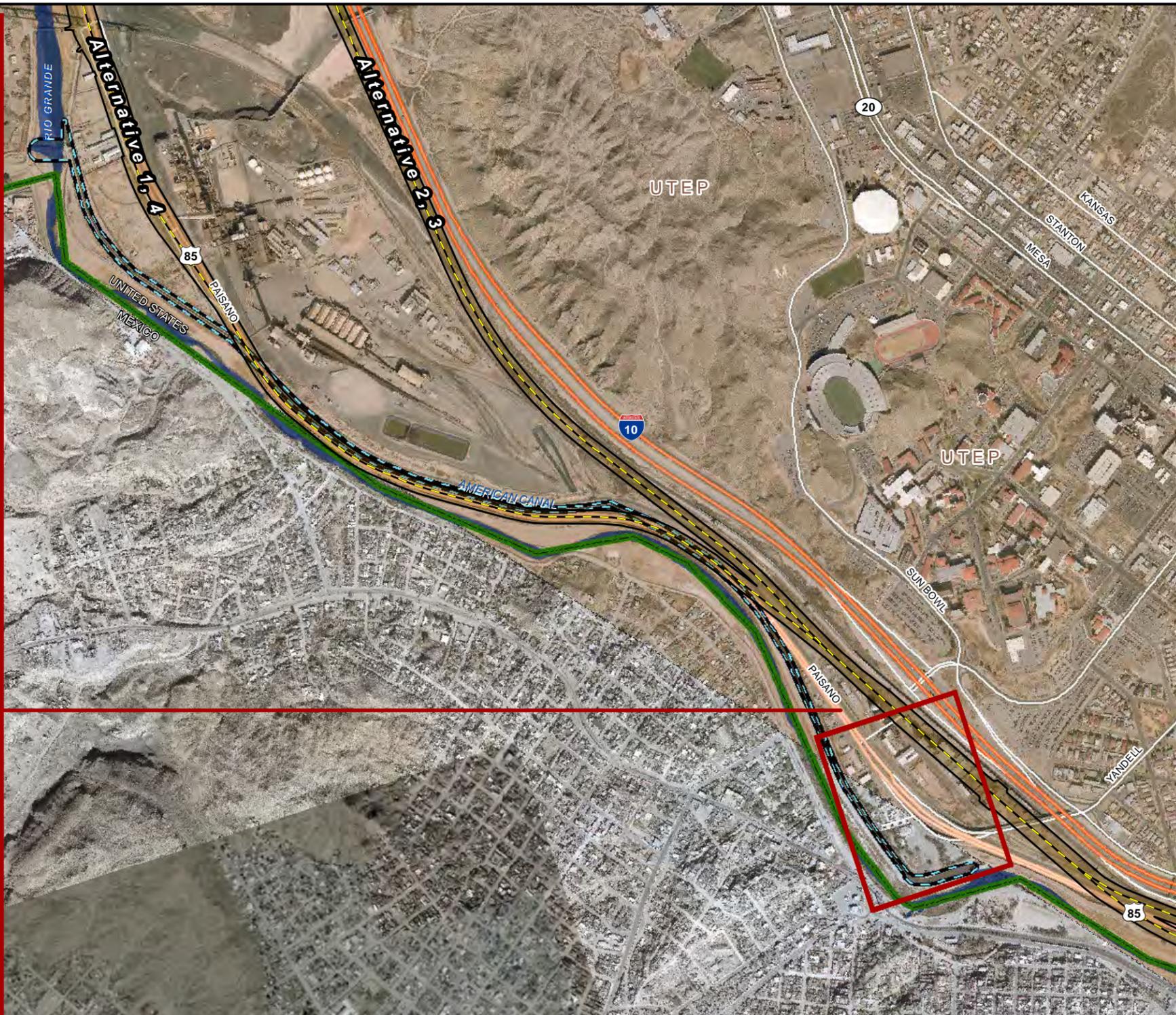
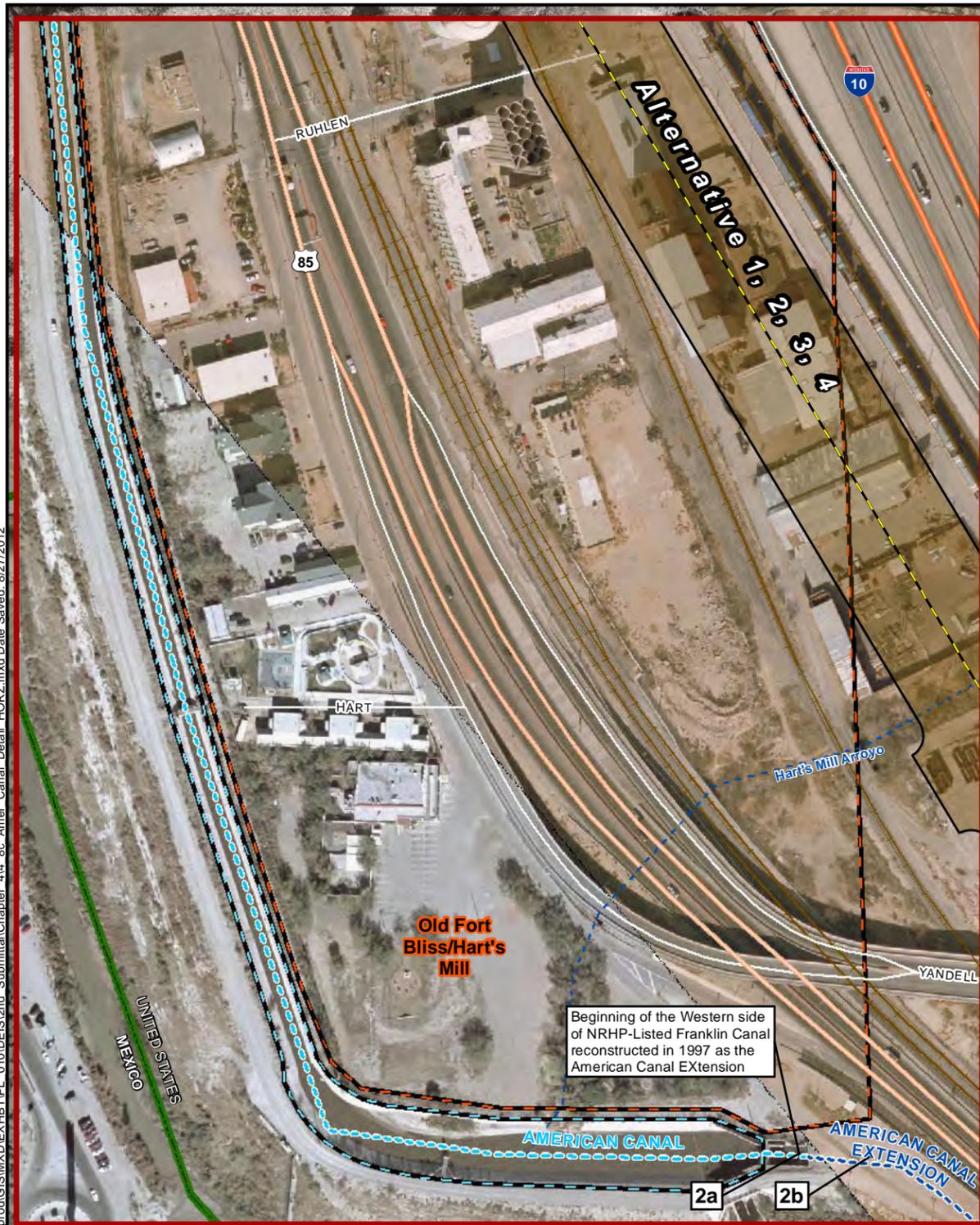


**Loop 375 Border Highway
 West Extension Project**
 From Racetrack Drive to US 54
Exhibit 4-8b
 Old Fort Bliss/Hart's Mill Boundary Study

El Paso County, Texas - August, 2012
 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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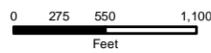


- | | | | |
|---|---|-------|------------------------|
| # | Historic-age Resource | █ | Alternative Boundary |
| ▭ | American Canal | ▬ | Reasonable Alternative |
| ▭ | Recommended NRHP-Eligible Historic District | ▬ | International Boundary |
| ▭ | Recommended Revised Boundary for the NRHP-listed Old Fort Bliss/Hart's Mill Historic District | - - - | Hart's Mill Arroyo |
| | | ▬ | Interstate |
| | | ▬ | US Highway |
| | | ▬ | State Highway |



1:13,200

1" = 1,100'



This project does not cross international boundaries.



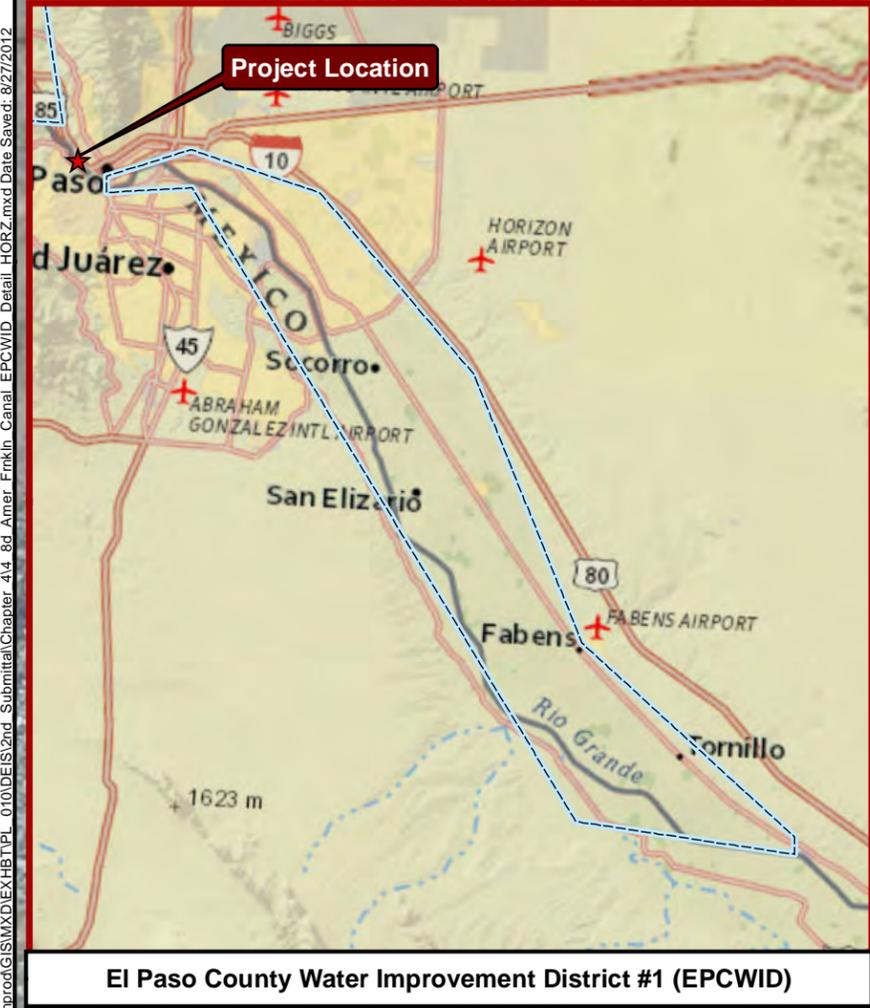
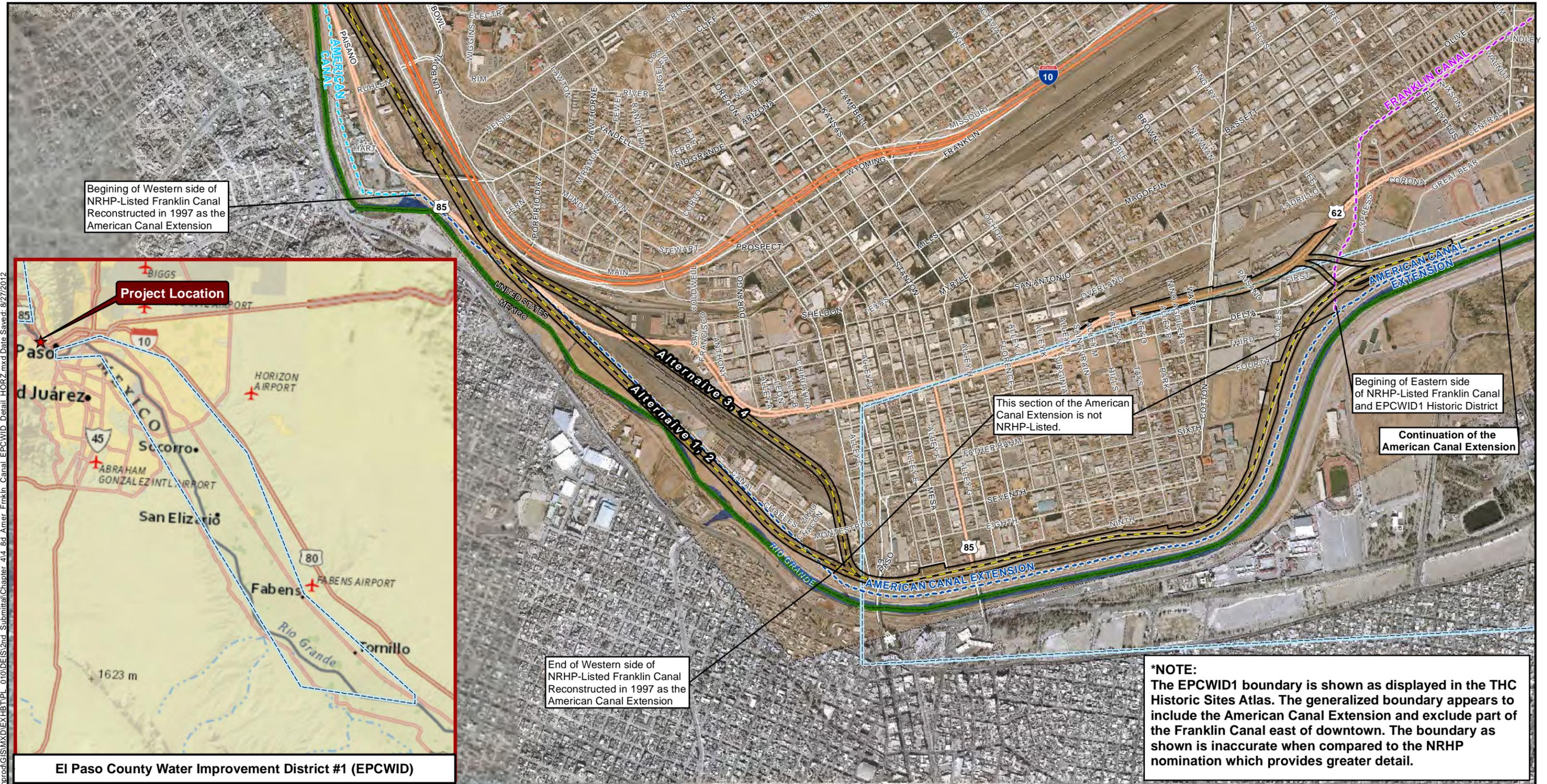
Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

Exhibit 4-8c American Canal Detail

El Paso County, Texas - August, 2012
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.

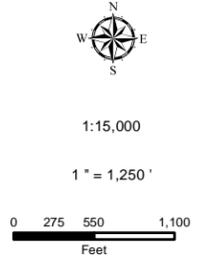


***NOTE:**
The EPCWID1 boundary is shown as displayed in the THC Historic Sites Atlas. The generalized boundary appears to include the American Canal Extension and exclude part of the Franklin Canal east of downtown. The boundary as shown is inaccurate when compared to the NRHP nomination which provides greater detail.

*NOTE:
Generalized boundary of El Paso County Water Improvement District shown as mapped on Texas Historic Sites Atlas. This boundary is not accurate in this area.

- EPCWID1 - THC Historic Sites Atlas Boundary
- Alternative Boundary
- Reasonable Alternative
- American Canal
- American Canal Extension
- Franklin Canal
- International Boundary

Data Sources:
Aerials: TxDOT, 2006, 2009
BHW Project: Half and Assoc., 2012
Irrigation District: Texas Historic Sites Atlas, 2012

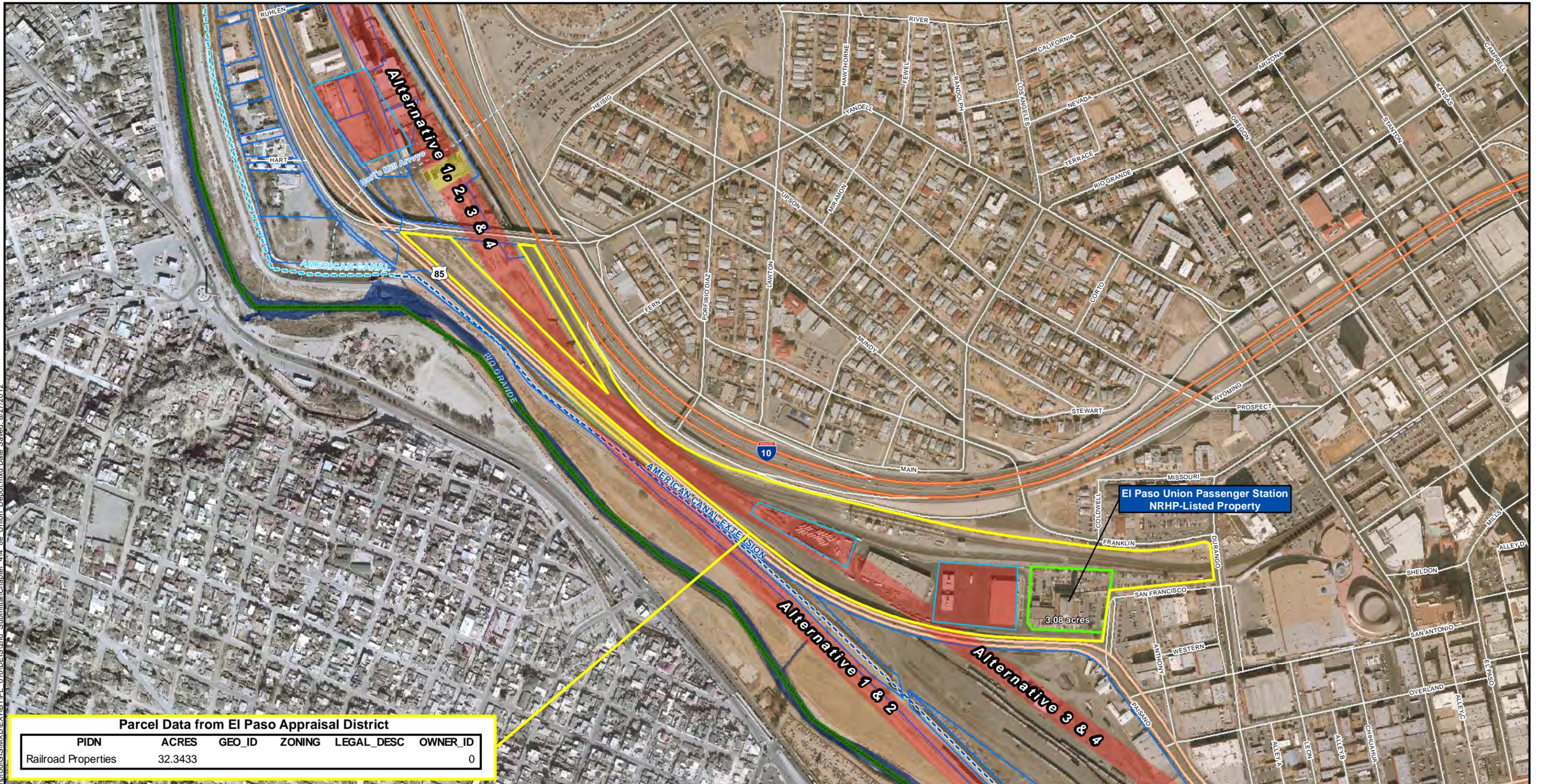


**Loop 375 Border Highway
West Extension Project**
From Racetrack Drive to US 54
Exhibit 4-8d
Franklin Canal and EPCWID1 Detail

El Paso County, Texas - August, 2012
CSJ: 2552-04-027

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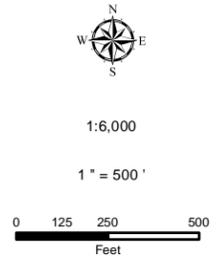
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Parcel Data from El Paso Appraisal District

PIDN	ACRES	GEO_ID	ZONING	LEGAL_DESC	OWNER_ID
Railroad Properties	32.3433				0

- Subject Parcel
- PONDS for Alternatives 1-4
- El Paso Union Passenger Station Interpreted NRHP Boundary
- Parcels within APE
- Existing Right-of-Way
- Proposed Right-of-Way
- Rio Grande
- dtl_international_bndry
- Other Waterway
- American Canal
- American Canal Extension

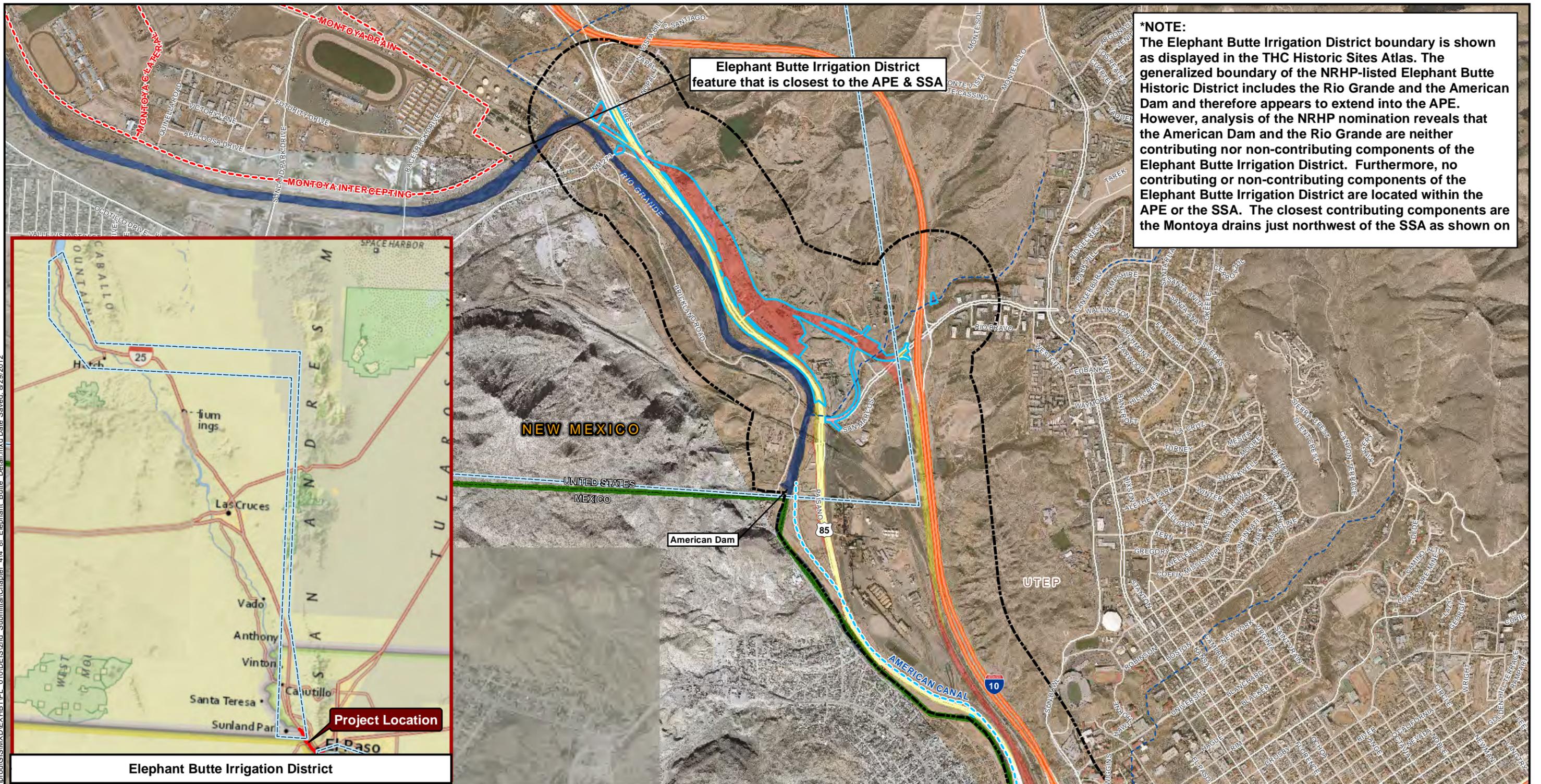


Loop 375 Border Highway West Extension Project
 From Racetrack Drive to US 54
Exhibit 4-8e
 El Paso Union Passenger Station - 700 San Francisco NRHP-Listed Property Subject Parcel Detail

El Paso County, Texas - August, 2012
 CSJ: 2552-04-027

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Path: \\A:\sw00\jobs\42085 Border Hwy West\Techprod\GIS\MXD\EXHBTPL_010\DEIS\2nd Submittal\Chapter 4-4 8f Elephant Butte_Detail.mxd Date Saved: 8/29/2012



***NOTE:**
 The Elephant Butte Irrigation District boundary is shown as displayed in the THC Historic Sites Atlas. The generalized boundary of the NRHP-listed Elephant Butte Historic District includes the Rio Grande and the American Dam and therefore appears to extend into the APE. However, analysis of the NRHP nomination reveals that the American Dam and the Rio Grande are neither contributing nor non-contributing components of the Elephant Butte Irrigation District. Furthermore, no contributing or non-contributing components of the Elephant Butte Irrigation District are located within the APE or the SSA. The closest contributing components are the Montoya drains just northwest of the SSA as shown on

Elephant Butte Irrigation District feature that is closest to the APE & SSA

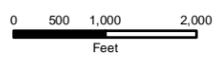
American Dam

Elephant Butte Irrigation District

- Interstate
- - - Elephant Butte Irrigation District Features
- - - Other Waterway
- - - American Canal
- International Boundary
- Survey Study Area
- APE Segment 1
- Existing Right-of-Way
- Proposed Right-of-Way



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

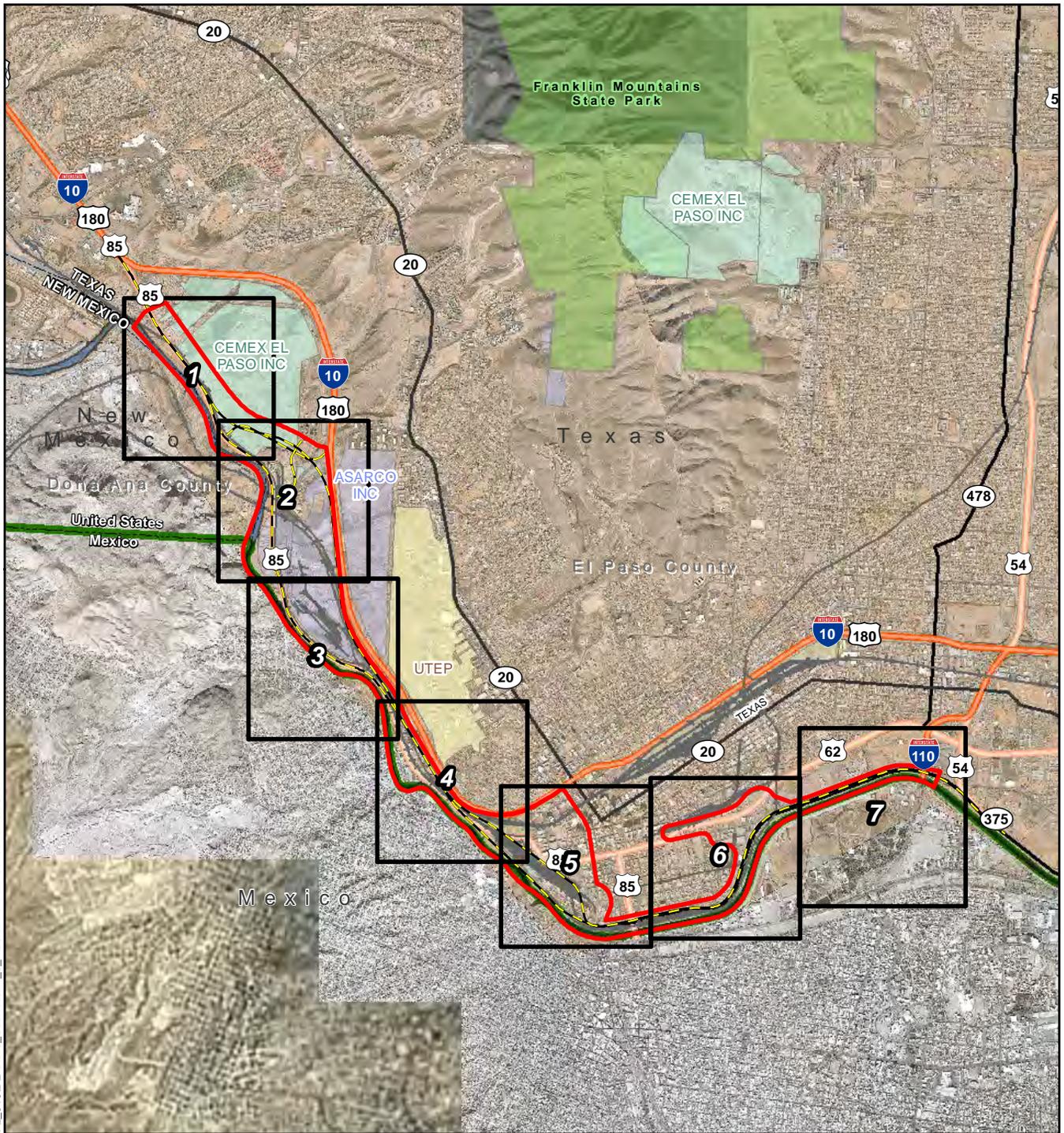


Loop 375 Border Highway West Extension Project
 From Racetrack Drive to US 54
Exhibit 4-8f
 Elephant Butte Irrigation District Boundary Study

El Paso County, Texas - August, 2012
 CSJ: 2552-04-027

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- Interstate
- US Highway
- State Highway
- Reasonable Alternative
- Railroad
- International Boundary
- Study Area
- Rio Grande
- CEMEX
- ASARCO
- Railroad Yard
- University of Texas El Paso
- Franklin Mountains State Park



Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

Exhibit 4-9 Hazardous Materials Within Reasonable Alternatives

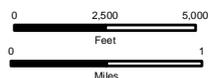
Index

El Paso County, Texas

CSJ: 2552-04-027
September, 2012



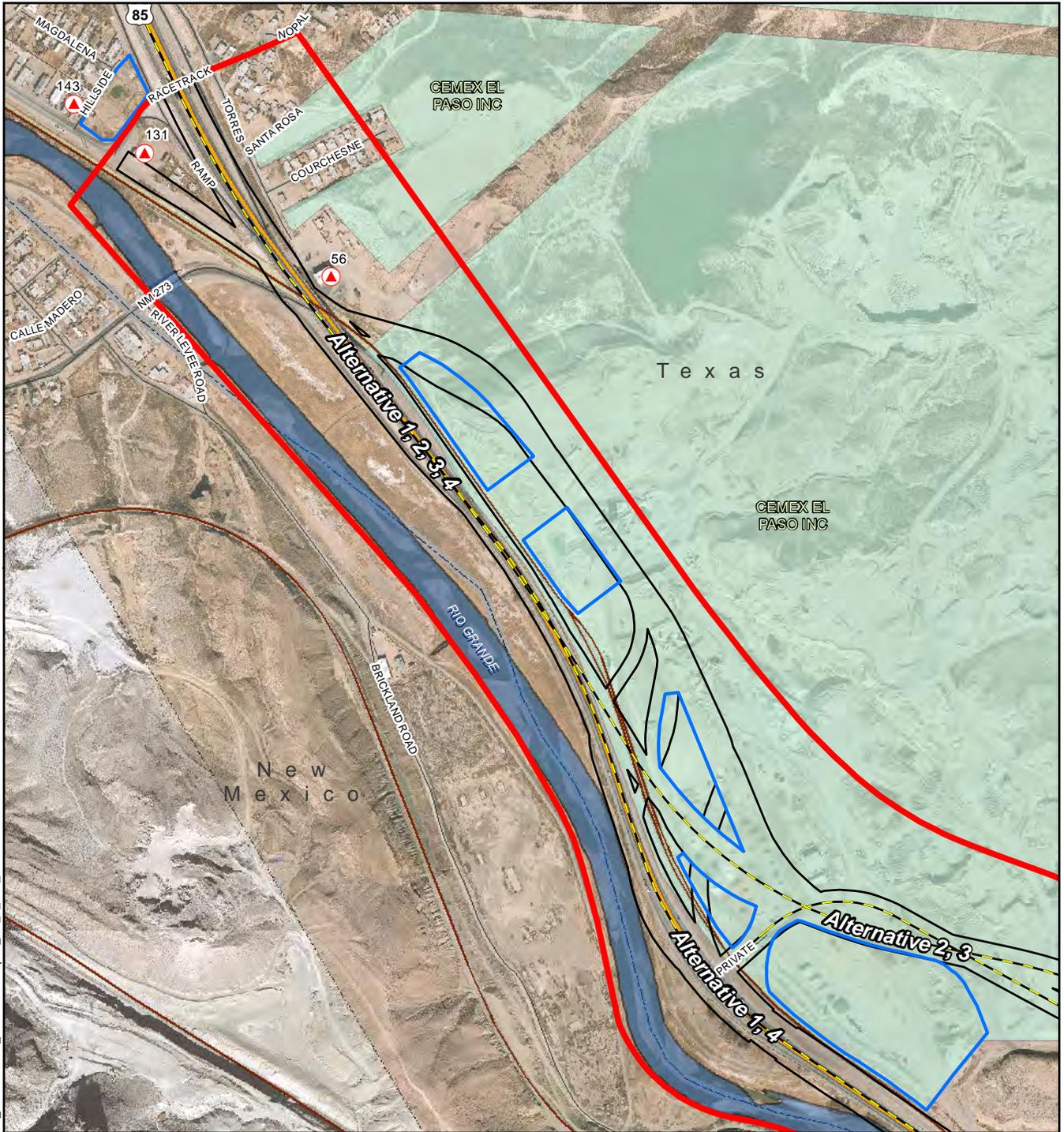
1:63,360
1" = 5,280'



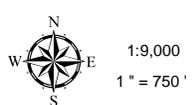
Alternatives, Ponds: Halff & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP:
City of El Paso parcel data
Parks: City of El Paso, 1999
Historic District: Texas Historic Commission Atlas

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- Hazardous Materials Site
- Interstate
- US Highway
- State Highway
- State Loop
- Reasonable Alternative
- International Boundary
- Study Area
- Alternative Boundary
- Drainage Pond
- Rio Grande
- CEMEX
- ASARCO
- Railroad Yard
- University of Texas El Paso
- Historic District



Sources
Hazardous Materials: Banks Environmental Data, 2011
Alternatives, Ponds: Hallif & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP: City of El Paso parcel data
Historic Districts: Texas Historic Sites Atlas - THC



Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

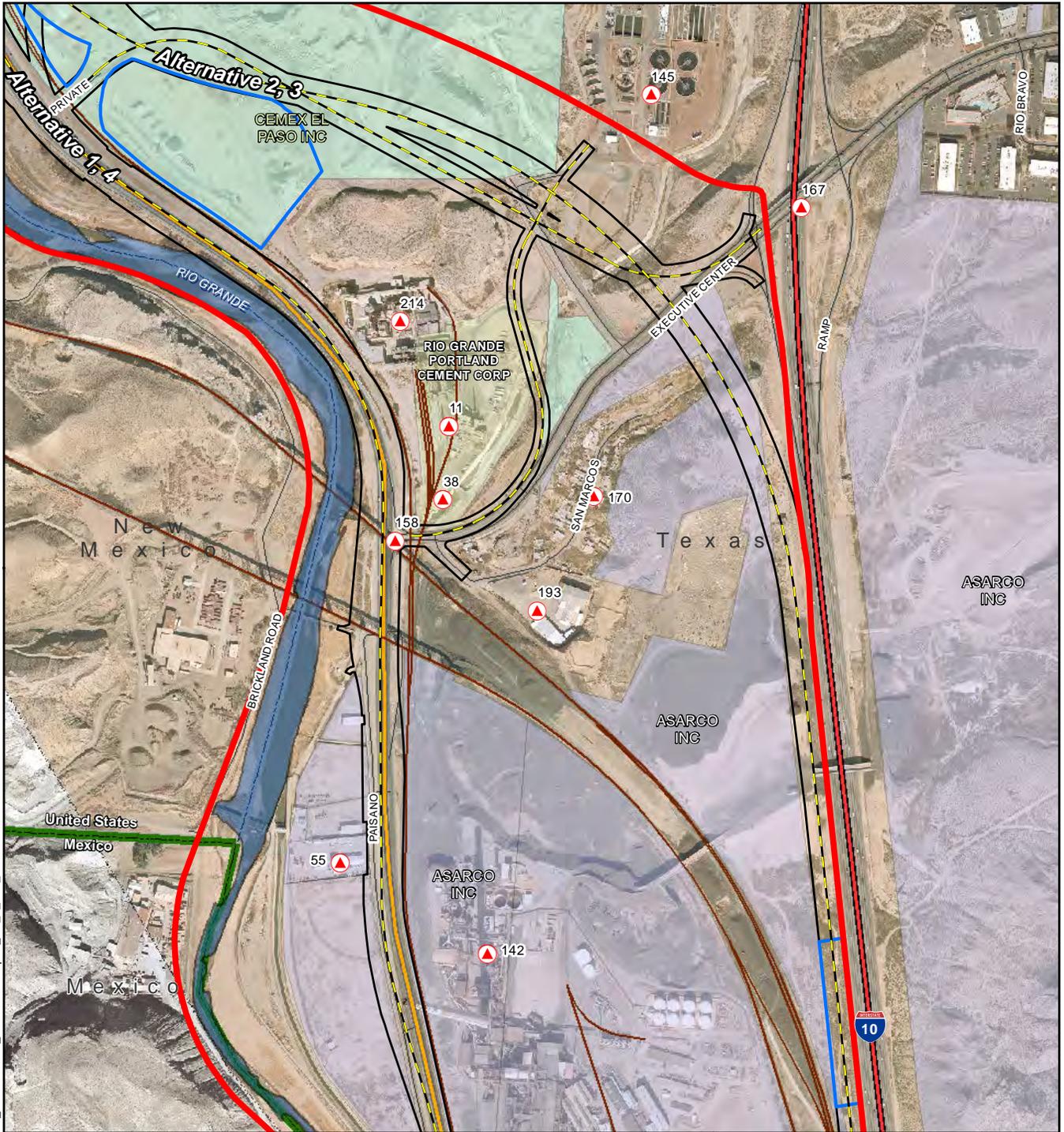
Exhibit 4-9 Hazardous Materials Within Reasonable Alternatives

Page 1 of 7

El Paso County, Texas
 CSJ: 2552-04-027
 July, 2012

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- | | | | |
|--|--------------------------|--|-----------------------------|
| | Hazardous Materials Site | | Drainage Pond |
| | Interstate | | Rio Grande |
| | US Highway | | CEMEX |
| | State Highway | | ASARCO |
| | State Loop | | Railroad Yard |
| | Reasonable Alternative | | University of Texas El Paso |
| | International Boundary | | Historic District |
| | Study Area | | |
| | Alternative Boundary | | |



1:9,000
1" = 750'



Sources

Hazardous Materials: Banks Environmental Data, 2011
Alternatives, Ponds: Half & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP: City of El Paso parcel data
Historic Districts: Texas Historic Sites Atlas - THC



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

Exhibit 4-9
Hazardous Materials Within Reasonable Alternatives

Page 2 of 7

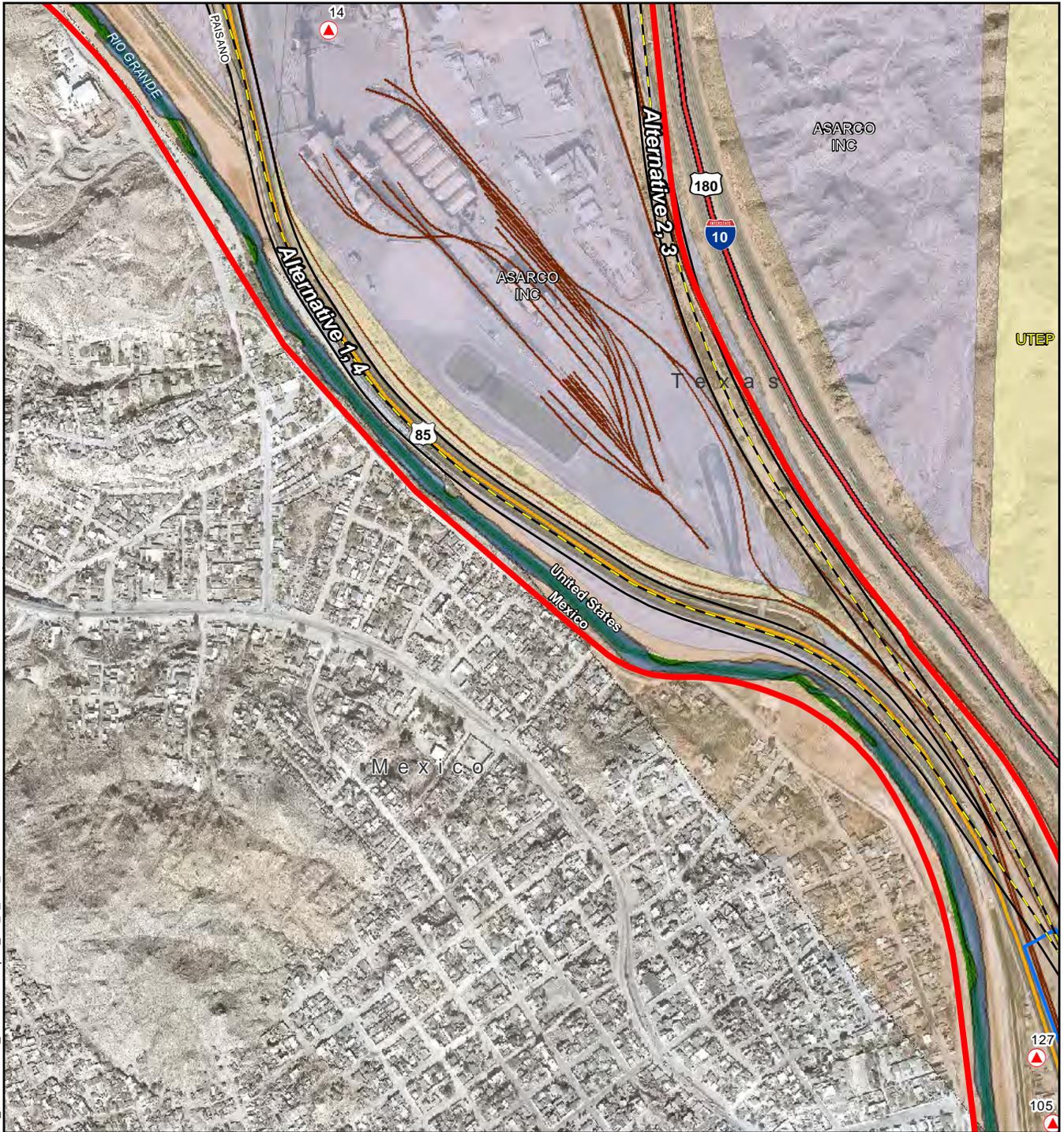
El Paso County, Texas

CSJ: 2552-04-027

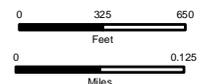
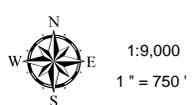
July, 2012

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- | | |
|--------------------------|-----------------------------|
| Hazardous Materials Site | Drainage Pond |
| Interstate | Rio Grande |
| US Highway | CEMEX |
| State Highway | ASARCO |
| State Loop | Railroad Yard |
| Reasonable Alternative | University of Texas El Paso |
| International Boundary | Historic District |
| Study Area | |
| Alternative Boundary | |



Sources
Hazardous Materials: Banks Environmental Data, 2011
Alternatives, Ponds: Hallif & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP: City of El Paso parcel data
Historic Districts: Texas Historic Sites Atlas - THC



Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

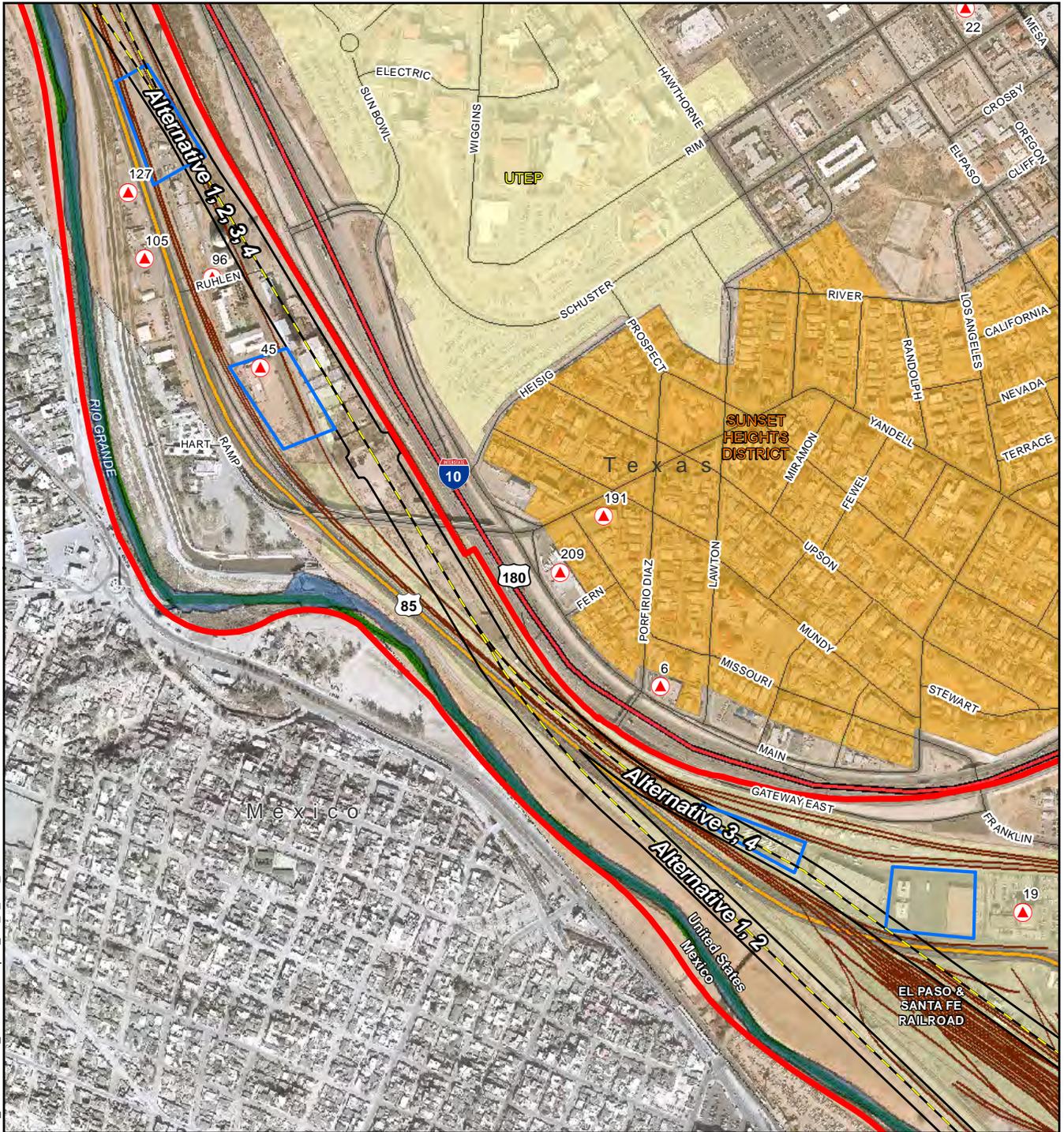
Exhibit 4-9 Hazardous Materials Within Reasonable Alternatives

Page 3 of 7

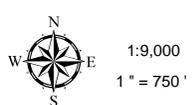
El Paso County, Texas
 CSJ: 2552-04-027
 July, 2012

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- | | |
|--------------------------|-----------------------------|
| Hazardous Materials Site | Drainage Pond |
| Interstate | Rio Grande |
| US Highway | CEMEX |
| State Highway | ASARCO |
| State Loop | Railroad Yard |
| Reasonable Alternative | University of Texas El Paso |
| International Boundary | Historic District |
| Study Area | |
| Alternative Boundary | |



Sources
Hazardous Materials: Banks Environmental Data, 2011
Alternatives, Ponds: Hallf & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP: City of El Paso parcel data
Historic Districts: Texas Historic Sites Atlas - THC



Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

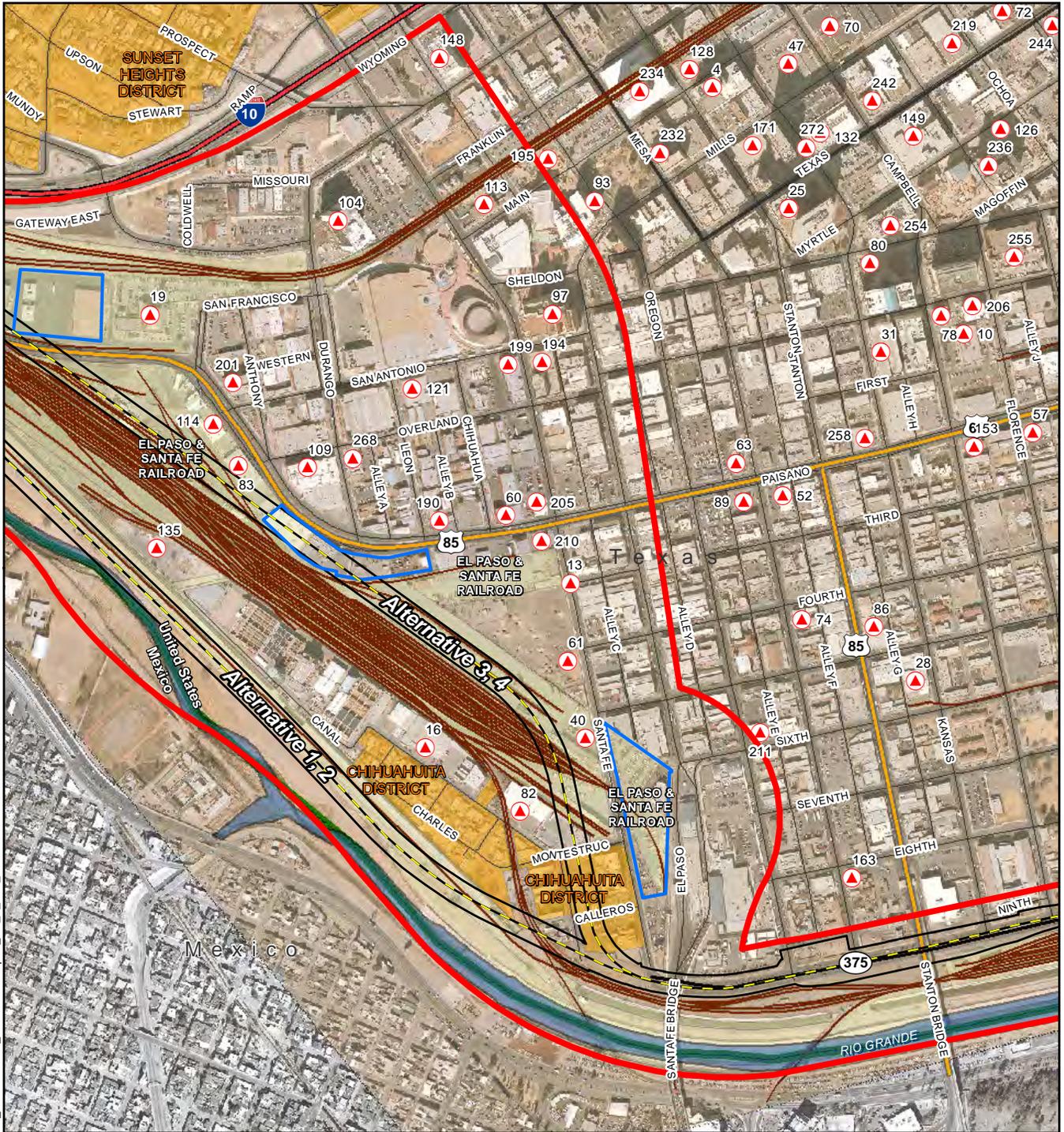
Exhibit 4-9 Hazardous Materials Within Reasonable Alternatives

Page 4 of 7

El Paso County, Texas
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 July, 2012

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- ▲ Hazardous Materials Site
- Drainage Pond
- Interstate
- Rio Grande
- US Highway
- CEMEX
- State Highway
- ASARCO
- State Loop
- Railroad Yard
- Reasonable Alternative
- International Boundary
- University of Texas El Paso
- Study Area
- Historic District
- Alternative Boundary



Sources
Hazardous Materials: Banks Environmental Data, 2011
Alternatives, Ponds: Hallif & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP: City of El Paso parcel data
Historic Districts: Texas Historic Sites Atlas - THC



Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

Exhibit 4-9 Hazardous Materials Within Reasonable Alternatives

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El Paso County, Texas
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 July, 2012

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- Hazardous Materials Site
- Interstate
- US Highway
- State Highway
- State Loop
- Reasonable Alternative
- International Boundary
- Study Area
- Alternative Boundary
- Drainage Pond
- Rio Grande
- CEMEX
- ASARCO
- Railroad Yard
- University of Texas El Paso
- Historic District



Sources
Hazardous Materials: Banks Environmental Data, 2011
Alternatives, Ponds: Hallif & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP: City of El Paso parcel data
Historic Districts: Texas Historic Sites Atlas - THC



Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

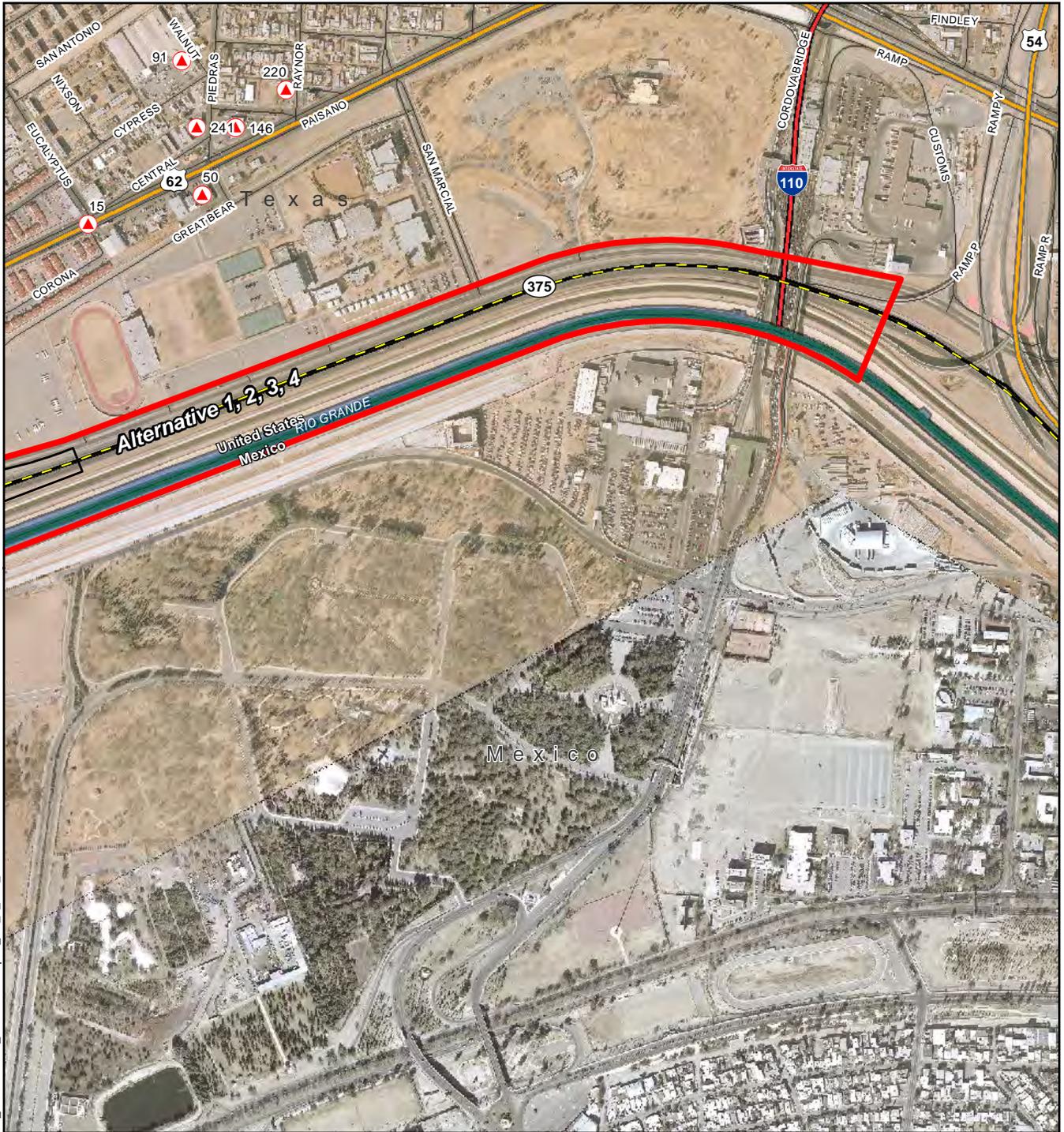
Exhibit 4-9 Hazardous Materials Within Reasonable Alternatives

Page 6 of 7

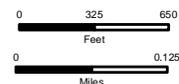
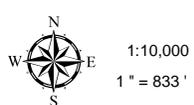
El Paso County, Texas
 CSJ: 2552-04-027
 July, 2012

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- | | |
|--------------------------|-----------------------------|
| Hazardous Materials Site | Drainage Pond |
| Interstate | Rio Grande |
| US Highway | CEMEX |
| State Highway | ASARCO |
| State Loop | Railroad Yard |
| Reasonable Alternative | University of Texas El Paso |
| International Boundary | Historic District |
| Study Area | |
| Alternative Boundary | |



Sources
Hazardous Materials: Banks Environmental Data, 2011
Alternatives, Ponds: Hallif & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP: City of El Paso parcel data
Historic Districts: Texas Historic Sites Atlas - THC



Loop 375 Border Highway West Extension Project

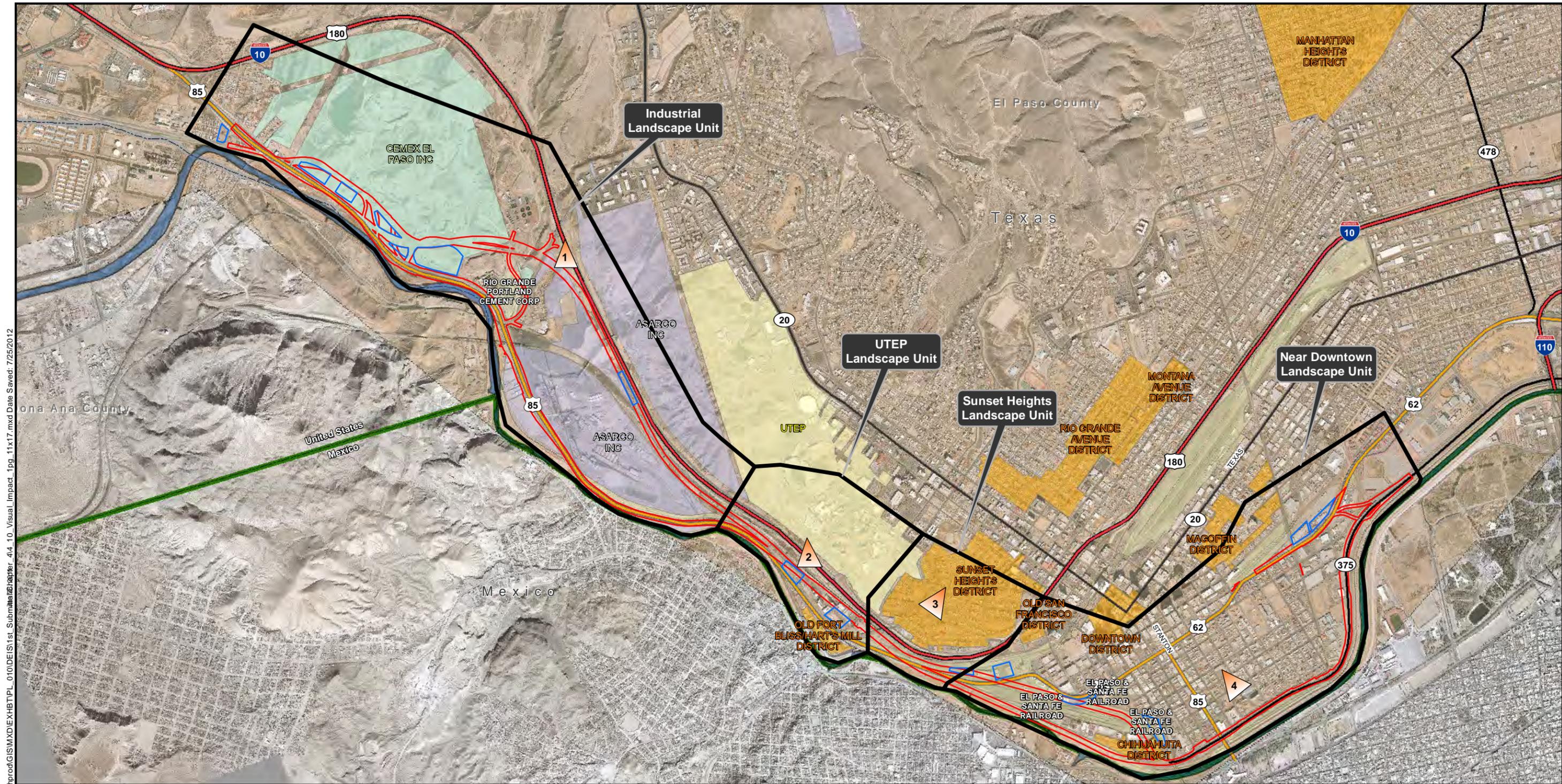
From Racetrack Drive to US 54

Exhibit 4-9 Hazardous Materials Within Reasonable Alternatives

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El Paso County, Texas
 CSJ: 2552-04-027
 July, 2012

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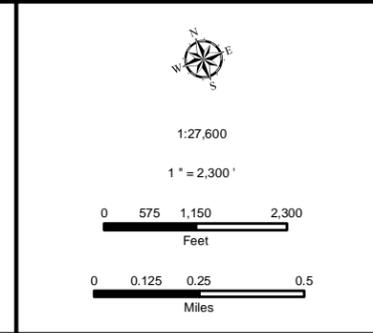


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Data Source

Municipal Boundaries: City of El Paso data, 2010
Alternatives, Ponds: Half & Assoc., 2012
Study Area: HNTB, 2012
CEMEX, ASARCO, Rail Yards, UTEP: City of El Paso parcel data
Parks: City of El Paso, 1999
Historic Districts: Texas Historic Sites Atlas - THC

Legend	
	Landscape Unit Key View
	Landscape Unit Area
	Drainage Pond
	Alternative Boundary
	International Boundary
	CEMEX
	ASARCO
	Railroad Yard
	University of Texas El Paso
	Historic District
	Interstate
	US Highway
	State Highway
	State Loop



Loop 375 Border Highway West Extension Project

From Racetrack Drive to US 54

Exhibit 4-10

Proposed Visual Impact Assessment Locations

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

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