

APPENDIX G AFFECTED ENVIRONMENT TECHNICAL REPORT

BORDER HIGHWAY EAST STUDY

CSJ: 0924-06-090

EL PASO COUNTY, TEXAS

TEXAS DEPARTMENT OF TRANSPORTATION

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

*Ciudad Juarez,
Chihuahua,
Mexico*



Border Highway East

SEPTEMBER 2014



TABLE OF CONTENTS

1
2
3 1.0 INTRODUCTION AND ENVIRONMENTAL SETTING 1
4 2.0 ALTERNATIVES 3
5 3.0 EXISTING ENVIRONMENT 8
6 4.0 AFFECTED ENVIRONMENT 8
7 4.1 Alternative 3 – Alameda Avenue Widening 9
8 4.2 Alternative 5 Mod – North Loop Drive Widening 12
9 4.3 Alternative 22 – Widening of I-10 Mainlanes 15
10 4.4 Alternative 15 – Eastbound I-10 Frontage Roads 15
11 4.5 Alternative 16 – Westbound I-10 Frontage Roads 16
12 4.6 Alternative 9 – Border Highway Extension 17
13 4.7 Alternative 17 – Border Highway Extension 19
14 4.8 Alternative 12 – Border Highway Extension 22
15 4.9 Alternative 13 Mod-Rev – Border Highway Extension..... 25
16 4.10 Alternative I Mod Revised – Old Hueco Tanks Road..... 27
17 4.11 Alternative L – New Socorro Connection 29
18 4.12 Alternative N – FM 1110 Widening..... 32
19 4.13 Alternative F – FM 1110 Realignment..... 32
20 4.14 Alternative P – New I-10 Connection 35
21 4.15 Alternative R Mod – Fabens South Connection 37
22 4.16 Bike & Pedestrian Alternative 1 38
23 4.17 Bike & Pedestrian Alternative 2 – Footbridge Connection..... 39
24 4.18 Bike & Pedestrian Alternative 3 – Rio Grande Border Trails 40
25 4.19 Bike & Pedestrian Alternative 4 – Route 84 Bus Stop Connection..... 41
26 4.20 Bike & Pedestrian Alternative 5 – Manuel F. Aguilera Highway 42
27 5.0 CONCLUSION 43
28

LIST OF TABLES

29
30
31 Table 1: BHE PEL Recommended Alternatives 4
32 Table 2: Alternative 3 Drainage and Irrigation Features 11
33 Table 3: Alternative 5 Mod Drainage and Irrigation Features 14
34 Table 4: Alternative 17 Drainage and Irrigation Features 21
35 Table 5: Alternative 12 Drainage and Irrigation Features 24
36 Table 6: Alternative 13 Mod-Rev Drainage and Irrigation Features 26
37 Table 7: Alternative I Mod-Rev Drainage and Irrigation Features 28
38 Table 8: Alternative L Drainage and Irrigation Features 31
39 Table 9: Alternative F Drainage and Irrigation Features 34
40 Table 10: Alternative P Drainage and Irrigation Features 36
41 Table 11: Alternative R Mod Drainage and Irrigation Features 38
42 Table 12: Bike and Pedestrian Alternative 5 Drainage and Irrigation Features 42
43
44

1
2
3
4
5
6
7
8
9

LIST OF FIGURES

Figure 1: BHE PEL Study Area 2
Figure 2: BHE PEL Recommended Alternatives 7

LIST OF ATTACHMENTS

Attachment A BHE Recommended Alternatives and Environmental Resources
 Maps

1.0 INTRODUCTION AND ENVIRONMENTAL SETTING

The anticipated growth of the City of El Paso and Ciudad Juarez, Mexico, will continue to affect the communities of the Lower Valley by bringing increased economic opportunities, as well as substantial challenges to the existing transportation system. The communities of the Lower Valley include City of Socorro, City of San Elizario, Town of Clint, Fabens, and Tornillo Census Designated Places (CDPs).

Since the late 1980s, the Lower Valley area has transformed from a primarily agricultural area to increasingly commercialized, industrialized, and residential communities. Typical residential communities as well as “colonia” developments have emerged.¹ Overall, the Lower Valley land is changing from primarily agricultural and rural uses to residential, commercial, and industrialized urban uses.

This report describes the affected environment related to the future implementation of the Recommended Alternatives identified as part of this BHE PEL Study. This evaluation of the affected environment will provide the baseline information to be used in further project development.

The BHE PEL study area or “study area” is located within the southwest portion of El Paso County in an area known as the Lower Valley. The northern limit of the study area is Loop 375 (Americas Avenue) between the Zaragoza International Port of Entry (POE) and Interstate 10 (I-10). I-10 is a vital trans-continental trade corridor and the only continuous east-west route through El Paso. The study area extends approximately 20 miles in a southeasterly direction to just south of the Fabens International POE (future Tornillo-Guadalupe International POE). The western limit of the study area is the Rio Grande and the eastern limit is I-10. The study area is approximately 70,654 acres (110 square miles). **Figure 1** shows the boundaries of the study area.

The study area includes the entire area of the City of Socorro, the City of San Elizario, the Town of Clint, the Fabens CDP, the majority of the Tornillo CDP, and a small portion of the City of El Paso. The study area consists of urbanized land uses that include single family residential, commercial, industrial, civic and military, and agricultural land uses. The municipalities and CDPs within the study area are presented in **Figure 1**.

All resource descriptions and data presented in this report are within or immediately adjacent to the study area boundaries.

¹ The term “colonia” refers to residential areas along the Texas-Mexico border that may lack some of the most basic living necessities, such as potable water and sewer systems, electricity, paved roads, and safe and sanitary housing (Texas Secretary of State 2010).

1

Figure 1: BHE PEL Study Area



2
3

2.0 ALTERNATIVES

This section describes the No-Build Alternative and the Recommended Alternatives, which were identified as the result of a three level screening process utilized during the BHE PEL Study. The alternatives are further described in the *BHE PEL Study Alternative Development and Screening Technical Report (Appendix F)*.

No-Build Alternative

The “No Build” Alternative represents the baseline condition in the study area as if no additional improvements are implemented other than those already programmed (fiscally constrained in the *Horizon 2040 Metropolitan Transportation Plan [MTP]*).

The No-Build Alternative provides a baseline to gauge how effective various build alternatives would help accomplish the purpose and need. This alternative is required to be considered in the BHE PEL Study and National Environmental Policy Act (NEPA) analyses.

The No-Build Alternative includes the preservation of the existing transportation network and any programmed transportation improvements that have been identified as fiscally constrained in the MTP. As such, the No-Build Alternative includes all of the short-term operational improvements currently underway and planned within the study area, in addition to all other programmed transportation projects in the region that are contained in the MTP.

Build Alternatives

The alternative screening process consisted of multiple levels of screening blending a varied group of strategies, corridor needs and goals into a set of refined transportation alternatives through an elaborate evaluation process.

The alternative screening methodology included three levels of screening, which began with the Universe of Alternatives. The Universe of Alternatives for the BHE PEL Study was developed utilizing the following precedents and processes:

- Reference and guiding documents, including:
 - *1997 Border Highway Extension Feasibility Study*,
 - 2006 El Paso County Border Highway Extension-East;
 - *Horizon 2040 MTP*;
 - BHE PEL Study precedent documents, such as the travel demand modeling validation for the study area, *BHE PEL Study Purpose and Need Technical Report (Appendix C)*, the *BHE PEL Study Alternative Screening Methodology (ASM)* (included as **Attachment A** in **Appendix F**), and the *BHE PEL Study Environmental Constraints Report (Appendix B)*;
- Input from the Technical Work Group (TWG) and Early Coordination Public Meetings; and
- Follow-up coordination with individual stakeholder groups.

1 Each of the alternatives in the Universe of Alternative was carried through the Level 1
 2 screening analysis and examined with regard to several broad factors, or screening
 3 criteria that were related to the purpose and need of the project. The Level 1 alternative
 4 screening was a fatal flaw analysis used to identify the Preliminary Alternatives, or
 5 resulting alternatives from the Level 1 screening.
 6

7 The Level 2 alternative screening included evaluating the Preliminary Alternatives
 8 against detailed screening criteria, in four categories (engineering, cost, environmental,
 9 and public involvement), qualitatively, to identify those alternatives suitable for further
 10 evaluation. This evaluation used preliminary data, professional judgment, and public
 11 input to screen the alternatives. The Reasonable Alternatives were the result of the
 12 Level 2 screening process.
 13

14 The Level 3 alternative screening included evaluating the Reasonable Alternatives
 15 using screening criteria, in four categories (engineering, cost, environmental, and public
 16 involvement), mostly quantitatively, and in more detail than the Level 2 screening. This
 17 detailed evaluation included defining and quantifying construction costs, traffic benefits,
 18 right-of-way impacts, and environmental impacts. Traffic benefits were assessed
 19 utilizing the 2040 travel demand model to calculate the roadway operations, which were
 20 quantified by level of service (LOS), vehicle hours traveled (VHT), and vehicle miles
 21 traveled (VMT). The Recommended Alternatives were the result of the final Level 3
 22 screening process.
 23

24 Although the alternatives were evaluated individually, there are several alternatives that
 25 were grouped together to create functional corridors that would be implemented as one
 26 project. **Table 1** identifies the Recommended Alternatives grouped into functional
 27 corridors as appropriate. The Recommended Alternatives are illustrated on **Figure 2**.
 28 The *BHE PEL Study Alternative Development and Screening Technical Report*
 29 (**Appendix F**) provides a more detailed description of the alternatives.
 30

31 The Recommended Alternatives include the proposed Border Highway Extension,
 32 which is defined as a new location roadway connecting the Border Highway West via
 33 Loop 375 to the Manuel F. Aguilera Highway (Farm-to-Market 3380 (FM 3380)) near the
 34 Fabens International POE (future Tornillo-Guadalupe International POE).
 35
 36

Table 1: BHE PEL Recommended Alternatives

Alternative	Description
3	Alameda Avenue (State Highway 20 (SH 20)) widening from Loop 375 to Herring Road.
5 Mod	North Loop Drive widening from Horizon Boulevard (FM 1281) to Clint Cutoff Road (FM 1110).
22	I-10 Mainlanes widening from Loop 375 to O.T. Smith Road (FM 1109).
15 and 16 (I-10 Frontage)	Alternative 15 - construction of new eastbound frontage road from Clint Cutoff Road (FM 1110) to O.T. Smith Road.

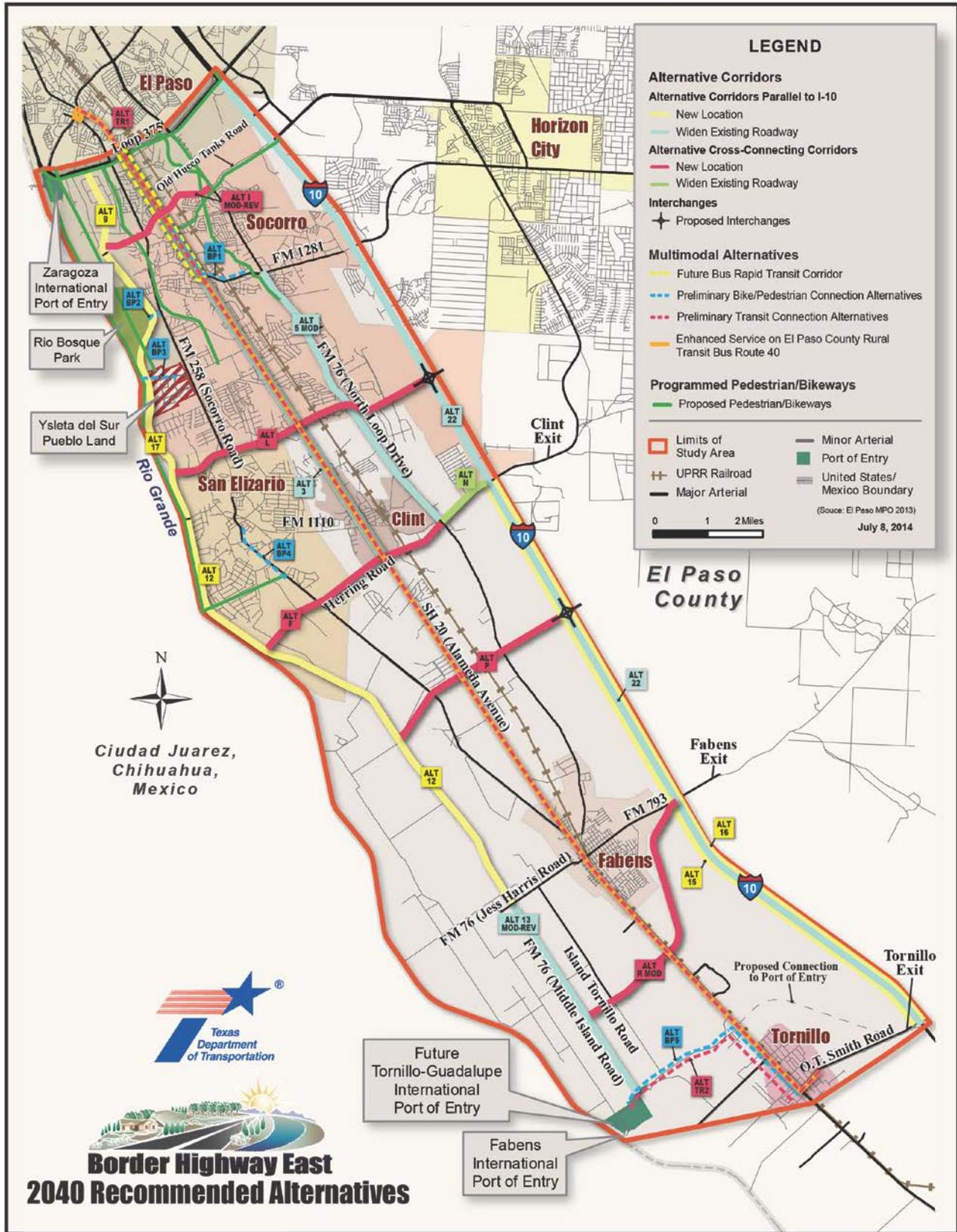
Alternative	Description
Roads)	Alternative 16 - construction of westbound frontage road from Clint Cutoff Road to O.T. Smith Road.
9, 17, 12, and 13 Mod-Rev (Border Highway Extension) ¹	Alternative 9 - construction of Border Highway Extension utilizing existing Pan American Drive at Loop 375.
	Alternative 17 - construction of Border Highway Extension from the terminus of Alternative 9, through Socorro, which would be generally located along the Rio Grande.
	Alternative 12 - construction of Border Highway Extension from terminus of Alternative 17 to Middle Island Road.
	Alternative 13 - Mod-Rev construction of Border Highway Extension from terminus of Alternative 12 utilizing Middle Island Road (FM 76) and terminating at the Manuel F. Aguilera Highway, east of the Fabens International POE (future Tornillo-Guadalupe International POE).
I Mod-Rev	Extension of Old Hueco Tanks Road from North Loop Drive (FM 76) to the proposed Border Highway Extension.
L	New Socorro connection that includes constructing a new location arterial from I-10 to the proposed Border Highway Extension near City of Socorro's southern boundary.
N and F (New FM 1110)	Alternative N includes widening San Elizario Road (FM 1110) from I-10 to North Loop Drive.
	Alternative F includes realigning FM 1110 from North Loop Drive to the proposed Border Highway Extension, utilizing new location, generally following the existing Herring Road.
P	New I-10 connection includes construction of a new location arterial from I-10 to proposed Border Highway Extension between Clint Cutoff Road and Fabens Drive (FM 793).
R Mod	Known as "Fabens South Connection", this alternative includes construction of a new location arterial from I-10 at Fabens Drive to the proposed Border Highway Extension at Middle Island Road (FM 76).
Transit Alternatives²	
TR-1	New bus rapid transit route (BRT) along Alameda Avenue from Loop 375 to Horizon Boulevard. Alternative also includes enhancing the existing El Paso County Rural Transit Route 40 from Loop 375 to O.T. Smith Road in Tornillo.
TR-2	Extension of the current El Paso Rural County Transit Route 40 from Stop 5 at Alameda Avenue at the proposed Manuel F. Aguilera Highway and terminating at the Fabens International POE (future Tornillo-Guadalupe International POE).
Bicycle/Pedestrian Alternatives	
BP-1	Bike/Pedestrian connection from proposed border trails along Old Hueco Tanks Road and Horizon Boulevard to El Paso County Rural Transit stop for Routes 30, 40, and 84.
BP-2	Bike/Pedestrian footbridge connection from Rio Bosque Park across Socorro Road.
BP-3	Bike/Pedestrian connection from proposed border trails along the Rio Grande to Socorro Road.
BP-4	Bike/Pedestrian connection from proposed bike trail to El Paso County Rural Transit Route 84 Bus Stop 5 along Socorro Road.

Alternative	Description
BP-5	Bike/Pedestrian connection from the Fabens International POE (future Tornillo-Guadalupe International POE) to El Paso County Rural Transit Route 40 Stop 5 along the Manuel F. Aguilera Highway.

- 1 Notes: 1. It was determined that the Border Highway Extension could be constructed in two phases, with the first
 2 phase located between Loop 375 and FM 1110. The second phase, would be located in the most rural part
 3 of the study area, would extend from FM 1110 to FM 3380, near the Fabens International POE) (future
 4 Tornillo-Guadalupe International POE).
 5 2. Although the transit alternatives are recommended for future, further study, minimal environmental
 6 impacts were determined during the BHE PEL. This report will not address those environmental impacts.
 7

1

Figure 2: BHE PEL Recommended Alternatives



2

3.0 EXISTING ENVIRONMENT

The *BHE PEL Study Environmental Constraints Report (Appendix B)* was prepared for the Study to document the existing infrastructure and environmental constraints within the study area. The study area was defined during the early stages of preparation of the *BHE PEL Study Environmental Constraints Report (Appendix B)* in 2011 in coordination with Texas Department of Transportation's (TxDOT) Environmental Affairs Division (ENV). The study area is previously described in **Section 1.0**.

In order to identify the environmental and infrastructure constraints associated with the study area, information was collected through database searches, imagery analyses, Google Maps (<http://maps.google.com>), desktop geographic information system (GIS) analyses, and limited field reconnaissance of the study area. The field reconnaissance consisted of windshield surveys performed in January and May 2006, September 2010, and June 2013. Data collected during the preparation of the constraints report identified infrastructure elements, socio-economic demographics, land use, natural resources, cultural resources, hazardous materials, traffic noise, and air quality.

Data collection has continued since the preparation of the initial constraints report in 2013. Information received from various entities during the technical work group meetings, public meetings, and stakeholder meetings were incorporated into the *BHE PEL Study Environmental Constraints Report (Appendix B)*.

4.0 AFFECTED ENVIRONMENT

Through the alternative screening process, each Reasonable Alternative was developed to a level of detail to define the corridor's general location and basic right-of-way (ROW) requirements. The level of alternative development was sufficient to allow for a qualitative and quantitative evaluation of a range of criteria and measures that were based on the study goals. This process is discussed in detail in the *BHE PEL Study Alternative Development and Screening Technical Report (Appendix F)*. A corridor width for each alternative was determined and environmental resources, within the corridor of each alternative, were identified and each resource was assigned a rating. The methodology utilized to assign a rating for each resource is detailed in the *BHE PEL Study Alternative Development and Screening Technical Report (Appendix F)*. The environmental resources located within the study area were researched and documented in the *BHE PEL Study Environmental Constraints Report (Appendix B)*. Additionally, stakeholder, agency, and tribal/sovereign nation coordination was conducted throughout the BHE PEL Study, as documented in the *BHE PEL Study Agency Coordination Technical Report (Appendix D)*, which was also utilized to determine the resources within the study area.

At this time, it is not possible to determine specific impacts based on design due to the conceptual nature of the alternatives. Therefore, all of the environmental resources and issues within each corridor that received a negative rating are considered potentially impacted. However, the actual detailed design of the alternative may not impact each

1 environmental resource identified within the corridor. Negative ratings were assigned
2 based on a designated range of thresholds, typically of a quantity, to assess the
3 potential level of impact. It should be noted that although a resource may be identified
4 in this report, the potential impact or proximity to the resource may not be considered
5 critical. Further analysis for potential impacts would be required by future study teams
6 once a project was proposed for development during the project-specific design phase.
7

8 The environmental resources and issues evaluated for each alternative consisted of:
9

- 10 • Community Resources
- 11 • Socio-Economic and Environmental Justice²
- 12 • Cultural Resources³
- 13 • Ysleta del Sur Pueblo (YDSP) Sovereign Nation/Tigua Land
- 14 • Park Land
- 15 • Water Resources
- 16 • Drainage Features
- 17 • Floodplains
- 18 • Biological Resources
- 19 • Agricultural Resources
- 20 • Hazardous Materials
- 21 • Air Quality
- 22 • Traffic Noise

23
24 The following sections discuss the alignment of each of the Recommended Alternatives
25 and identify the affected environmental resources for each. Affected resources are
26 those that have received a negative rating in the alternative evaluation matrices.
27 Environmental resources that received a neutral rating are not considered impacted and
28 are not included in the description of affected resources for the alternative. In addition
29 to these environmental resources, the affects to border access and security were also
30 considered since some of the alternatives are adjacent to the U.S./Mexico International
31 Border.
32

33 **4.1 Alternative 3 – Alameda Avenue Widening**

34

35 Alternative 3 would include widening Alameda Avenue between Loop 375 and Herring
36 Road. Currently, Alameda Avenue is a four-lane, urban principal arterial with shoulders.
37 Alameda Avenue traverses south from Loop 375 crossing S. Moon Road, through the
38 City of Socorro, intersects Horizon Boulevard (FM 1281), Vineyard Road, and

² For the socioeconomic analysis, the U.S. Census Bureau (USCB) 2010 Census and 2008-2012 American Community Survey (ACS) data were used to analyze the census block groups and census blocks contained either wholly or partially within the corridor of each Recommended Alternative. The average percentage of the minority population for the study area is 84.2 percent. The average percentage of the Limited English Proficiency (LEP) population for the study area is 40.9 percent. These averages were used to determine whether a high LEP or minority population would be within or adjacent to the Recommended Alternative.

³ Cultural resources include archeological and non-archeological historic resources.

1 Passmore Road, passes through Clint where it intersects S. San Elizario Road (FM
2 1110) , and terminates at Herring Road.

3
4 Alternative 3 proposes to improve the roadway's level of service (LOS) by construction
5 of one additional travel lane in each direction, while maintaining the existing traffic
6 control and access characteristics. Alternative 3 is approximately 8.8 miles long and
7 improves connectivity through its intersections with Horizon Boulevard and S. San
8 Elizario Road. The ROW width is approximately 122 feet and would encompass
9 approximately 129 acres (including existing ROW). See **Map Sheets 1 through 4 of 7**
10 **(Attachment A)** to view the corridor location.

11
12 Potentially affected environmental resources and issues associated with the widening of
13 Alameda Avenue between Loop 375 and Herring Road are identified below, followed by
14 a more detailed description.

- 15
- 16 • Community Resources
- 17 • Socio-Economic and Environmental Justice
- 18 • Cultural Resources
- 19 • Tigua Land
- 20 • Drainage Features
- 21 • Floodplains
- 22 • Biological Resources
- 23 • Agricultural Resources
- 24 • Hazardous Materials
- 25 • Air Quality
- 26 • Traffic Noise
- 27

28 Community Resources

29 Various schools and places of worship are adjacent to Alternative 3 and various
30 designated neighborhoods are located adjacent to the northern corridor section. These
31 areas may potentially be impacted by Alternative 3. The PEL process takes into
32 consideration community needs and stakeholder input; however, more detailed design
33 approaches and solutions would be determined during the NEPA and design phase at a
34 project-level.

35

36 Socio-Economic and Environmental Justice

37 The U.S. Census Bureau (USCB) 2010 data shows that the percentages for both the
38 minority and Limited English Proficiency (LEP) populations are greater than the study
39 area average (84.2 and 40.9 percent, respectively); therefore, it can be concluded that
40 the high minority and LEP populations would be within or adjacent to Alternative 3.

41

42 Cultural Resources

43 The alternative would cross through the Tigua Trust Land Buffer and Tigua Trust Land.
44 The corridor overlaps a National Register of Historic Places (NRHP)-listed El Paso
45 County Water Improvement District No. 1 (EPCWID1) system canal and also overlaps

1 the NRHP-listed Franklin Canal. Alternative 3 would pass by the NRHP-eligible Pena
2 House near the intersection of Alameda Avenue and Horizon Boulevard.

3
4 Adverse impacts to EPCWID1 may generally be avoided by spanning irrigation features
5 rather than placing piers within or upon irrigation structures and by avoiding any impact
6 to the function of the EPCWID1 system, as described below in *Drainage Irrigation*
7 *Features*.

8 Tigua Land

9
10 The alternative would cross 19 Ysleta del Sur Pueblo (YDSP) sovereign nation (Tigua)
11 Trust Land parcels.

12
13 During coordination with the YDSP sovereign nation, conducted throughout the BHE
14 PEL Study, the Tiguas mentioned the possibility of “land swapping” if a project were to
15 require additional ROW from the YDSP. Planning-level decisions regarding agreements
16 or mitigation strategies include activities and concepts that may be adopted or
17 incorporated during the project-specific NEPA process. Coordination with the YDSP
18 sovereign nation is documented in the *BHE PEL Study Agency Coordination Technical*
19 *Report (Appendix D)*.

20 Drainage Features

21
22 There are 12 drainage features located within the corridor of Alternative 3. These
23 features and the linear feet of each corridor’s potential impact are listed in **Table 2**.

24
25 **Table 2: Alternative 3 Drainage and Irrigation Features**

Drainage Feature	Length of Impact (linear feet)
Bovee Lateral	3
Clint Lateral	174
Clint Spur Drain	149
Daugherty Lateral	128
Franklin Canal ¹	9,474
Gardon Lateral	6
Green Lateral	190
Juan De Herrera Branch Canal	122
Mesa Drain Interceptor	122
Middle Drain	133
Salatral Lateral	175
Wadlington Lateral	148

26 Note: 1. Alternative 3 would cross the Franklin Canal twice, the
27 estimated length of the impact includes both crossings.

28
29 It is anticipated that those features that are perpendicular to Alternative 3 would be
30 crossed using bridges or culverts. It is not known at this time how the drainage features
31 horizontal to the alternative would be modified.

1 Floodplains

2 Alternative 3 would impact 0.1 acre within the 100-year floodplain, which is less than
3 one percent of the total area of the corridor.

4
5 Biological Resources

6 The existing mapped Ecological Mapping Systems of Texas (ESMT) habitats located
7 within the corridor are Row crops, Trans-Pecos: Desert Wash Grassland, Trans-Pecos:
8 Riparian Barren, Trans-Pecos: Riparian Shrubland, and Urban Low Intensity. The
9 habitat threshold requiring additional coordination with Texas Parks and Wildlife
10 Department (TPWD) per the 2013 Memorandum of Understanding (MOU) would be
11 exceeded. Per available Texas Natural Diversity Database (TXNDD) data, the
12 alternative is within the mapped range of the Pecos River Muskrat. Drainage features
13 within this alternative would be impacted which may provide suitable habitat for the
14 species.

15
16 Agricultural Resources

17 Alternative 3 would impact 5 acres of agricultural land, which is less than 10 percent of
18 the total area of the corridor.

19
20 Hazardous Materials

21 There are six mapped leaking petroleum storage tanks (LPST) sites, three petroleum
22 storage tank (PST) sites, and two Resource Conservation and Recovery Act (RCRA)
23 Generator (RCRAG) sites adjacent to corridor.

24
25 Air Quality

26 The proposed alternative would consist of widening the existing roadway, which would
27 relieve traffic congestion and improve air quality; however, the proposed alternative is
28 partially located within the PM₁₀ nonattainment area. In addition, the alternative is
29 adjacent to an intermodal freight distribution center.

30
31 Traffic Noise

32 Several facilities and neighborhoods are located adjacent to the corridor for the
33 proposed alternative. There are 333 residential parcels within the cities of Socorro and
34 El Paso, 2 schools (Socorro High School and Socorro Ernesto Serna Elementary), 5
35 churches (Templo Pagiél, The Body of Christ, LaLuz Del Mundo, Iglesia Dios con
36 Nosotros, Iglesia Eben Ezer Para Niños), and 2 daycares (Golden Child and Escontrias
37 Early Childhood).

38
39 **4.2 Alternative 5 Mod – North Loop Drive Widening**

40
41 Alternative 5 Mod would include widening North Loop Drive (FM 76) from Horizon
42 Boulevard to Clint Cutoff Road (FM 1110). Currently, North Loop Drive is a two-lane,
43 rural major arterial with shoulders. North Loop Drive traverses south from Loop 375
44 intersecting with Old Hueco Tanks Road, N. Moon Road, and Horizon Boulevard in the
45 City of Socorro, where it terminates at Clint Cutoff Road.

46

1 Alternative 5 Mod proposes to improve LOS by construction of one additional travel lane
2 in each direction, while maintaining the existing traffic control and access
3 characteristics. Alternative 5 Mod is approximately 5.6 miles long. The ROW width is
4 approximately 122 feet and would encompass approximately 83 acres (including
5 existing ROW). See **Map Sheets 2 through 4 of 7 (Attachment A)** to view the corridor
6 location.

7
8 Potentially affected environmental resources and issues associated with the widening of
9 North Loop Drive are listed below, followed by a more detailed description.

- 10
11
- Community Resources
 - Socio-Economic and Environmental Justice
 - Cultural Resources
 - Drainage Features
 - Floodplains
 - Biological Resources
 - Agricultural Resources
 - Hazardous Materials
 - Traffic Noise
- 19

20
21 Community Resources

22 Places of worship are adjacent to the corridor of Alternative 5 Mod and may potentially
23 be impacted by the proposed alternative. The PEL process takes into consideration
24 community needs and stakeholder input; however, more detailed design approaches
25 and solutions would be determined during the NEPA and design phase at a project-
26 level.

27
28 Socio-Economic and Environmental Justice

29 The USCB data shows that the percentages for both the minority and LEP populations
30 are greater than the study area average (84.2 and 40.9 percent, respectively); therefore,
31 it can be concluded that high minority and LEP populations would be within or adjacent
32 to Alternative 5 Mod.

33
34 Cultural Resources

35 The corridor overlaps NRHP-listed EPCWID1 system canals.

36
37 Adverse impacts to EPCWID1 may generally be avoided by spanning irrigation features
38 rather than placing piers within or upon irrigation structures and by avoiding any impact
39 to the function of the EPCWID1 system, as described below in *Drainage Features*.

40
41 Drainage Features

42 There are six drainage features located within the corridor of the proposed alternative.
43 These features and the linear feet of each within the corridor are listed in **Table 3**.

44

Table 3: Alternative 5 Mod Drainage and Irrigation Features

Drainage Feature	Length of Impact (linear feet)
Daugherty Lateral	157
Mesa Drain	124
Y-197 Lateral	158
Y-251 Lateral	116
Y-303 Lateral	13
Ysleta Lateral	8,110

It is anticipated that those features that are perpendicular to the alternative would be crossed using bridges or culverts. It is not known at this time how the drainage features horizontal to the alternative would be modified.

Floodplains

Alternative 5 Mod would impact approximately 21 acres located within the 100-year floodplain, which is more than 20 percent of the total area of the corridor.

Biological Resources

The existing mapped EMST habitats located within the corridor are Row crops, Trans-Pecos: Desert Wash Grassland, Trans-Pecos: Riparian Shrubland, and Urban Low Intensity. The habitat threshold requiring additional coordination with TPWD per the 2013 MOU would be exceeded. Per available TXNDD data, Alternative 5 Mod is within the mapped range of the Pecos River Muskrat and sand prickly-pear. This alternative would potentially impact drainage features and agricultural land, which may provide suitable habitat for these species.

Agricultural Resources

Alternative 5 Mod would impact approximately 25 acres of agricultural land, which is less than 50 percent of the total area of the corridor.

Hazardous Materials

There is one mapped leaking petroleum storage tank (LPST) site adjacent to the corridor.

Traffic Noise

Several facilities and neighborhoods are located adjacent to Alternative 5 Mod, which include 107 residential parcels within and between the cities of Socorro and Clint, 3 churches (Church of Jesus Christ of Latter-Day Saints, Templo Aposento Alto, and Iglesia de Jesucristo Testigo) and one park (Joe Carrasco Park).

4.3 Alternative 22 – Widening of I-10 Mainlanes

Alternative 22 would include widening I-10 from Loop 375 to O.T. Smith Road (FM 1109) in Tornillo.

Alternative 22 proposes to improve LOS by constructing one additional travel lane in each direction, while maintaining the existing traffic control and access characteristics. Alternative 22 is approximately 21.7 miles long. The ROW width is approximately 322 feet and would encompass approximately 292 acres (it is estimated that no additional ROW would be required). See **Map Sheets 1 through 7 of 7 (Attachment A)** to view the corridor location.

Potentially affected environmental resources and issues associated with the widening of I-10 Mainlanes from Loop 375 to O.T. Smith Road are below, followed by a more detailed description.

- Water Resources
- Floodplains
- Air Quality
- Traffic Noise

Water Resources

Although there are no NWI mapped features within the Alternative 22 corridor, aerial imagery analysis indicates some arroyos are present within the corridor.

Floodplains

Alternative 22 would impact approximately 5 acres located within the 100-year floodplain, which is less than 20 percent of the total area of the corridor.

Air Quality

The proposed alternative would consist of widening the existing roadway, which would relieve traffic congestion and improve air quality; however, the proposed alternative is partially located within the PM₁₀ nonattainment area. In addition, the proposed improvements for the alternative are likely to increase truck traffic.

Traffic Noise

There are eight residential parcels within the City of Socorro that are adjacent to Alternative 22.

4.4 Alternative 15 – Eastbound I-10 Frontage Roads

Alternative 15 would be the construction of a two-lane, eastbound frontage road along I-10. This alternative proposes to extend the existing I-10 eastbound frontage roads from their terminus at FM 1110 to O.T. Smith Road in Tornillo. This alternative is approximately 12.7 miles long. The ROW width is approximately 91 feet and would encompass approximately 140 acres (it is estimated that no additional ROW would be

1 required). See **Map Sheet 4** through **7** of **7 (Attachment A)** to view the corridor
2 location. It is recommended that Alternative 15 be constructed with Alternative 16 (I-10
3 westbound frontage roads) to provide directional frontage roads on both sides of I-10.

4
5 Potentially affected environmental resources associated with the construction of the
6 eastbound frontage road from FM 1110 to O.T. Smith Road are below, followed by a
7 more detailed description.

- 8
9
- 10 • Water Resources
 - 11 • Floodplains
 - 12 • Biological Resources
 - 13 • Agricultural Resources

14 Water Resources

15 Although there no NWI mapped features within the Alternative 15 corridor, aerial
16 imagery analysis indicates some arroyos are present within the corridor.

17
18 Floodplains

19 Alternative 15 would impact approximately 12 acres within the 100-year floodplain,
20 which is less than 20 percent of the total area of the corridor.

21
22 Biological Resources

23 The existing mapped EMST habitats located within the corridor are the Trans-Pecos:
24 Desert Deep Sand and Dune Grassland, Trans-Pecos: Desert Deep Sand and Dune
25 Shrubland, Trans-Pecos: Desert Wash Barren, Trans-Pecos: Desert Wash Shrubland,
26 Trans-Pecos: Sand Dune, Urban High Intensity, and Urban Low intensity. The habitat
27 threshold requiring additional coordination with TPWD per the 2013 MOU would be
28 exceeded. Alternative 15 would be a new roadway located within existing TxDOT ROW,
29 and per available TXNDD data, would be entirely within native habitat of the sand
30 prickly-pear. Impacts to native habitat would occur.

31
32 Agricultural Resources

33 Alternative 15 would impact approximately 72 acres of land zoned as agricultural, which
34 is more than 50 percent of the total area of the corridor. The agricultural land, based on
35 current zoning data, is located within the existing I-10 ROW. Additional investigation
36 would be needed to determine if this is considered agriculture land or TxDOT ROW.

37
38 **4.5 Alternative 16 – Westbound I-10 Frontage Roads**

39
40 Alternative 16 would be the construction of a two-lane westbound frontage road along I-
41 10. This alternative proposes to extend the existing I-10 westbound frontage roads from
42 their terminus at FM 1110 to O.T. Smith Road in Tornillo. This alternative is
43 approximately 12.7 miles long. The ROW width is approximately 91 feet and the
44 alternative corridor would encompass approximately 140 acres (it is estimated that no
45 additional ROW would be required). See **Map Sheet 4** through **7** of **7 (Attachment A)**
46 to view the corridor location. It is recommended that Alternative 16 be constructed with

1 Alternative 15 (I-10 eastbound frontage roads) to provide directional frontage roads on
2 both sides of I-10.

3
4 Potentially affected environmental resources associated with the construction of a
5 westbound frontage road from FM 1110 to O.T. Smith Road are below, followed by a
6 more detailed description.

- 7
8
 - 9 • Water Resources
 - 10 • Floodplains
 - 11 • Biological Resources
 - 12 • Agricultural Resources

13 Water Resources

14 Although there no NWI mapped features within the Alternative 16 corridor, aerial
15 imagery analysis indicates some arroyos are present within the corridor.

16
17 Floodplains

18 Less than 20 percent (12 acres) of corridor (140 acres) is located within the 100-year
19 floodplain.

20
21 Biological Resources

22 The existing mapped ESMT habitats located within the corridor are Trans-Pecos: Desert
23 Deep Sand and Dune Grassland, Trans-Pecos: Desert Deep Sand and Dune
24 Shrubland, Trans-Pecos: Desert Wash Barren, Trans-Pecos: Desert Wash Shrubland,
25 Trans-Pecos: Sand Dune, and Urban Low Intensity. The habitat threshold requiring
26 additional coordination with TPWD per the 2013 MOU would be exceeded. The
27 alternative would be a new roadway located within existing TxDOT ROW, and per
28 available TXNDD data, is entirely within native habitat of the sand prickly-pear. Impacts
29 to native habitat would occur.

30
31 Agricultural Resources

32 Alternative 16 would impact approximately 72 acres of land zoned as agricultural, which
33 is more than 50 percent of the total area of the corridor. The current alignment of
34 Alternative 16 impacts agricultural land adjacent to the I-10 roadway. Additional
35 investigation would be needed to determine if this is actually agriculture land or TxDOT
36 ROW.

37
38 **4.6 Alternative 9 – Border Highway Extension**

39
40 Alternative 9 is the beginning of the Border Highway Extension starting at Loop 375 and
41 traversing generally south along Pan American Road, terminating north of the Rio
42 Bosque Wetlands Park. The alternative is a proposed four-lane facility, which would
43 include widening Pan American Road from Loop 375 to Southside Road and include a
44 portion of roadway on new location south of Southside Road. Alternative 9 would
45 generally parallel the Franklin Drain. Alternative 9 is approximately 1.76 miles long. The
46 ROW width is approximately 286 feet and would encompass approximately 61 acres.

1 See **Map Sheet 1 of 7 (Attachment A)** to view the corridor location. It is recommended
2 that Alternatives 9, 17, and 12 be constructed as one project, to create the northern
3 section of the Border Highway Extension.

4
5 Potentially affected environmental resources and issues associated with the Border
6 Highway Extension utilizing Pan American Road, from Loop 375 to Socorro Road are
7 below and a description follows.

- 8
9
- 10 • Socio-Economic and Environmental Justice
 - 11 • Cultural Resources
 - 12 • Tigua Land
 - 13 • Floodplains
 - 14 • Biological Resources
 - 15 • Hazardous Materials
 - 16 • Air Quality

17 *Socio-Economic and Environmental Justice*

18 The USCB data shows that the percentages for both the minority and LEP populations
19 are greater than the study area average (84.2 and 40.9 percent respectively); therefore,
20 it can be concluded that the high minority and LEP populations would be within or
21 adjacent to Alternative 9.

22
23 *Cultural Resources*

24 Alternative 9 crosses Tigua Ceremonial Land and Tigua Trust Land. The alternative
25 also crosses NRHP-listed canals of the EPCWID1.

26
27 Adverse impacts to EPCWID1 may generally be avoided by spanning irrigation features
28 rather than placing piers within or upon irrigation structures and by avoiding any impact
29 to the function of the EPCWID1 system.

30
31 *Tigua Land*

32 The alternative crosses 11 Tigua Trust Land parcels and 7 Tigua Ceremonial Land
33 parcels.

34
35 During coordination with the YDSP sovereign nation, conducted throughout the BHE
36 PEL Study, the Tiguas mentioned the possibility of “land swapping” if a project were to
37 require additional ROW from the YDSP. Planning-level decisions regarding agreements
38 or mitigation strategies include activities and concepts that may be adopted or
39 incorporated during the project-specific NEPA process. Coordination with the YDSP
40 sovereign nation is documented in the *BHE PEL Study Agency Coordination Technical*
41 *Report (Appendix D)*.

42
43 *Floodplains*

44 Alternative 9 would impact approximately 7-acres within the 100-year floodplain, which
45 is less than 20 percent of the total area of the corridor.

46

1 Biological Resources

2 The existing mapped ESMT habitats located within the corridor are Trans-Pecos: Desert
3 Wash Grassland, Trans-Pecos: Riparian Shrubland, and Urban Low Intensity. The
4 habitat threshold requiring additional coordination with TPWD for habitat per the 2013
5 MOU would be exceeded. Per available TXNDD data, the alternative is within the
6 mapped range of the Pecos River Muskrat. Alternative 9 may potentially impact
7 drainage features, which may provide suitable habitat for the species.

8
9 Hazardous Materials

10 There is one mapped industrial and hazardous waste (IHW) site, six RCRA sites, and
11 one LPST site adjacent to the corridor.

12
13 Air Quality

14 The proposed alternative would consist of widening the existing roadway which would
15 relieve traffic congestion and improve air quality; however, the proposed alternative is
16 partially located within the PM₁₀ nonattainment area. In addition, the proposed
17 improvements for the alternative provides a nearby connection to a POE which would
18 likely increase truck traffic.

19
20 **4.7 Alternative 17 – Border Highway Extension**

21
22 Alternative 17 is a continuation of the Border Highway Extension, beginning north of the
23 Rio Bosque Wetlands Park (terminus of Alternative 9) and continuing southwest where
24 it terminates along the Rio Grande in San Elizario at the San Elizario Wasteway No. 1.
25 Alternative 17 would be a new location four-lane roadway and is approximately 5.3
26 miles long. It crosses Ysleta del Sur Pueblo lands before reconnecting with Alternative
27 12 just west of the San Elizario Historical District. The ROW width is approximately 286
28 feet and the alternative corridor would encompass approximately 184 acres. See **Map**
29 **Sheets 1 through 3 of 7 (Attachment A)** to view the corridor location. It is
30 recommended that Alternatives 9, 17, and 12 be constructed as one project, to create
31 the northern section of the Border Highway Extension.

32
33 Potentially affected environmental resources and issues associated with Border
34 Highway Extension along Rio Grande through the City of Socorro are below and a
35 description follows.

- 36
37
- 38 • Community Resources
 - 39 • Socio-Economic and Environmental Justice
 - 40 • Cultural Resources
 - 41 • Tigua Land
 - 42 • Park Land
 - 43 • Water Resources
 - 44 • Drainage Features
 - 45 • Floodplains
 - 46 • Biological Resources
 - Agricultural Resources

- 1 • Traffic Noise
- 2 • Border Access and Security

3 4 Community Resources

5 No potential impact to the neighborhood character within the corridor is anticipated;
6 however, the corridor bisects Tigua property. The PEL process takes into consideration
7 community needs and stakeholder input; however, more detailed design approaches
8 and solutions would be determined during the NEPA and design phase of project
9 development.

10 11 Socio-Economic and Environmental Justice

12 The USCB data shows that the percentages for both the minority and LEP populations
13 are greater than the study area average (84.2 and 40.9 percent respectively); therefore,
14 it can be concluded that the high minority and LEP populations would be within or
15 adjacent to the corridor.

16 17 Cultural Resources

18 The alternative crosses Ysleta de Sur Pueblo Land, Tigua Ceremonial Land and Tigua
19 Trust Land. The alternative crosses NRHP-listed canals of EPCWID1 and crosses the
20 edge of the site of Tienda de Carbajal, a Recorded Texas Historic Landmark that is
21 potentially NRHP eligible.

22
23 Adverse impacts to EPCWID1 may generally be avoided by spanning irrigation features
24 rather than placing piers within or upon irrigation structures and by avoiding any impact
25 to the function of the EPCWID1 system, as described below in *Drainage Features*.

26 27 Tigua Land

28 The alternative crosses 7 Tigua Property parcels, 48 Tigua Trust Land parcels, and 86
29 Tigua Ceremonial Land parcels.

30
31 During coordination with the YDSP sovereign nation, conducted throughout the BHE
32 PEL Study, the Tiguas mentioned the possibility of “land swapping” if a project were to
33 require additional ROW from the YDSP. Planning-level decisions regarding agreements
34 or mitigation strategies include activities and concepts that may be adopted or
35 incorporated during the project-specific NEPA process. Coordination with the YDSP
36 sovereign nation is documented in the *BHE PEL Study Agency Coordination Technical*
37 *Report (Appendix D)*.

38 39 Park Land

40 While the Border Highway Extension is not anticipated to directly affect the Rio Bosque
41 Wetlands Park, this portion of the proposed roadway would be adjacent to the park.
42 During the BHE PEL Study, coordination with the Rio Bosque Wetlands Park and
43 stakeholders was conducted throughout the study. On July 16, 2014, the Study Team
44 gave a presentation on the BHE PEL Study to the Rio Bosque Partners meeting held at
45 the University of Texas at El Paso. The presentation explained that the long range
46 planning study is funded, while the proposed recommended alternatives are not. The

1 Rio Bosque Partners were specifically interested in the proposed Border Highway
 2 Extension due to its proximity to the park and potential connection to Loop 375 at Pan
 3 American Drive. The Study Team also explained that multi-modal alternatives,
 4 including bicycle and pedestrian paths (Alternative BP-2), are included in the
 5 Recommended Alternatives.
 6

7 The Study Team answered questions posed by the Rio Bosque Partners regarding
 8 project cost, access, and mitigation. TxDOT explained that because the BHE PEL Study
 9 proposed recommendations are not funded, the implementation of most of these
 10 improvements would not be in the immediate future. It is not anticipated that the
 11 proposed Border Highway Extension would affect the current park’s planned access
 12 improvement project. The Study Team stated that it is TxDOT’s procedure to maintain
 13 or improve access when implementing roadway improvements. The Study Team
 14 explained that one of the main purposes of the BHE PEL Study was to document public
 15 issues and concerns so that the information is available for future studies. Mitigation
 16 due to environmental impacts to the Rio Bosque Park and park access considerations
 17 will be considered in the future once the project progresses into the next phase of
 18 project development. This coordination is documented in the *BHE PEL Study Agency*
 19 *Coordination Technical Report (Appendix D)*.
 20

21 Water Resources

22 Alternative 17 would impact more than 0.50 acres of NWI mapped features, located
 23 within the corridor. One lake feature is crossed (approximately 16 acres).
 24

25 Drainage Features

26 There are three drainage features located within the corridor of the proposed
 27 alternative. These features and the linear feet of each within the corridor are listed in
 28 **Table 4**.
 29
 30

Table 4: Alternative 17 Drainage and Irrigation Features

Drainage Feature	Length of Impact (linear feet)
Riverside Canal ¹	976
Riverside Intercepting Drain	13,526
San Elizario Lateral	152

Note: 1. Alternative 17 would cross this drainage feature three times, the estimated length of the impact includes all crossings.

31 Potential impacts to the Riverside Intercepting Drain located within the corridor may
 32 occur. It is anticipated those features that are perpendicular to the alternative would be
 33 crossed using bridges or culverts. It is not known at this time how the drainage features
 34 horizontal to the alternative may be modified.
 35
 36
 37
 38

Floodplains

Alternative 17 would impact approximately 97 acres within the 100-year floodplain, which is more than 20 percent of the total area of the corridor.

Biological Resources

The existing mapped ESMT habitats located within the corridor are Row Crops, Trans-Pecos: Desert Wash Grassland, and Trans-Pecos: Riparian Shrubland. The habitat threshold requiring additional coordination with TPWD for habitat per the 2013 MOU would be exceeded. The alternative is a new location, and per available TXNDD data, the entire corridor is located within native habitat of the sand prickly-pear. Impacts to native habitat would occur.

Agricultural Resources

Alternative 17 would impact approximately 46 acres of agricultural land, which is less than 50 percent of the total area of the corridor.

Traffic Noise

There are 31 residential parcels within the cities of Socorro and El Paso and one park (Rio Bosque Park and Wetland Preserve) adjacent to the corridor of the proposed alternative.

Border Security

Existing points of access to the Rio Grande and maintenance roads adjacent to the U.S./Mexico International Border would need to be maintained to allow access for the International Boundary and Water Commission (IBWC) and U.S. Customs and Border Patrol.

4.8 Alternative 12 – Border Highway Extension

Alternative 12 is a continuation of the Border Highway Extension, beginning in San Elizario at the San Elizario Wasteway No. 1 (terminus of Alternative 17) and continuing generally south where it terminates at Middle Island Road (FM 76) (beginning of Alternative 13 Mod-Rev). Alternative 12 is a proposed four-lane facility and is approximately 9.6 miles long. This alternative crosses or parallels several drains and laterals. The ROW width is approximately 286 feet and would encompass approximately 325 acres. See **Map Sheets 3 through 6 of 7 (Attachment A)** to view the corridor location. It is recommended that Alternatives 9, 17, and 12 are constructed as one project, to create the northern section of the Border Highway Extension.

Potentially affected environmental resources and issues associated with the Border Highway Extension from the City of San Elizario (terminus of Alternative 12) to FM 76 (beginning of Alternative 13 Mod-Rev) are below and a description follows.

- Socio-Economic and Environmental Justice
- Cultural Resources
- Tigua Land

- 1 • Drainage Features
- 2 • Biological Resources
- 3 • Agricultural Resources
- 4 • Traffic Noise
- 5 • Border Access and Security

6 7 Socio-Economic and Environmental Justice

8 The USCB data shows that the percentages for both the minority and LEP populations
9 are greater than the study area average (84.2 and 40.9 percent respectively); therefore,
10 it can be concluded that the high minority and LEP populations would be within or
11 adjacent to Alternative 12.

12
13 During the public outreach effort made during the BHE PEL Study, individual
14 coordination was held with the Adults and Youth United Development Association
15 (AYUDA)⁴ to address their concerns to the residential area located along the Rio
16 Grande in San Elizario that would be potentially impacted by the proposed Border
17 Highway Extension. At the final public meeting, held in July 2014, the residents in this
18 area expressed concern regarding impacts to their property (potential relocation and
19 ROW acquisition) from the proposed Border Highway Extension. It was explained to
20 these concerned residents that TxDOT would not be purchasing any ROW for the BHE
21 PEL Study Recommended Alternatives, which include the Border Highway
22 Extension. In general, once funding is identified for any of the recommended
23 alternatives, the alternative will be further developed into a project and refined for
24 additional study during the NEPA process. After the project is environmentally cleared,
25 TxDOT would be able to proceed with the ROW acquisition or relocation process as
26 needed. Acquisition and relocation assistance would be in accordance with the TxDOT
27 Right-of-Way Acquisition and Relocation Assistance Program. Consistent with the
28 USDOT policy, as mandated by the *Uniform Relocation Assistance and Real Properties*
29 *Acquisitions Act* (URARPA), amended in 1987, TxDOT would provide relocation
30 resources (including any applicable special provisions or programs) to all displaced
31 persons without discrimination. The available structures must also be open to persons
32 regardless of race, color, religion, or nationality and be within the financial means of
33 those individuals affected. All property owners from whom property may be needed are
34 entitled to receive just compensation for their land and property. Just compensation is
35 based upon the fair market value of the property. TxDOT, through its Relocation
36 Assistance Program, also provides payment and services to aid in movement to a new
37 location.

38
⁴ AYUDA is an association with the purpose to help improve the lives of El Paso county's low-income individuals and families living in non-incorporated areas known as: "*colonias*". *Colonia* in Spanish means "community" or "neighborhood". Specifically, a *colonia* is a residential area along the Texas-Mexico border that may lack some of the most basic living necessities, such as clean water, sewer systems, electricity, paved roads and safe and sanitary housing (<http://www.ayuda-elpaso.org/about.html>).

1 Cultural Resources

2 The alternative crosses NRHP-listed canals of EPCWID1 as well as Tigua Ceremonial
3 Land and the Tigua Ceremonial Land Buffer.

4
5 Adverse impacts to EPCWID1 may generally be avoided by spanning irrigation features
6 rather than placing piers within or upon irrigation structures and by avoiding any impact
7 to the function of the EPCWID1 system, as described below in *Drainage Features*.

8
9 Tigua Land

10 The alternative crosses 227 Tigua Ceremonial Land parcels.

11
12 During coordination with the YDSP sovereign nation, conducted throughout the BHE
13 PEL Study, the Tiguas mentioned the possibility of “land swapping” if a project were to
14 require additional ROW from the YDSP. Planning-level decisions regarding agreements
15 or mitigation strategies include activities and concepts that may be adopted or
16 incorporated during the project-specific NEPA process. Coordination with the YDSP
17 sovereign nation is documented in the *BHE PEL Study Agency Coordination Technical*
18 *Report (Appendix D)*.

19
20 Drainage Features

21 There are eight drainage features located within the corridor of the proposed alternative.
22 These features and the linear feet of each within the corridor are listed in **Table 5**.

23
24 **Table 5: Alternative 12 Drainage and Irrigation Features**

Drainage Feature	Length of Impact (linear feet)
San Elizario Lateral	287
Riverside Canal ¹	13,347
Riverside Intercepting Drain	14,849
River Drain	5,135
Lee Moor Intercepting Drain	10,494
Island Main Later	310
Hansen Lateral	681
I-F Feeder Intercepting Drain	33

25 Note: 1. Alternative 12 would cross this drainage feature twice, the
26 estimated length of the impact includes both crossings.

27
28 Potential impacts to a section of Riverside Intercepting Drain and Riverside Canal may
29 occur within the corridor.

30
31 It is anticipated that those features that are perpendicular to the alternative would be
32 crossed using bridges or culverts. It is not known at this time how the drainage features
33 horizontal to the alternative may be modified.

1 Biological Resources

2 The existing mapped ESMT habitats located within the corridor are Orchard, Row
3 Crops, Trans-Pecos: Desert Wash Grassland, Trans-Pecos: Riparian Barren, Trans-
4 Pecos: Riparian Shrubland, Trans-Pecos: Riparian Woodland, and Urban Low Intensity.
5 The habitat threshold requiring additional coordination with TPWD for habitat per 2013
6 MOU would be exceeded. Per available TXNDD data, the alternative is within the
7 mapped range of the Pecos River Muskrat. Alternative 12 may potentially impact
8 drainage features, which may provide suitable habitat for the species.

9

10 Agricultural Resources

11 Alternative 12 would impact approximately 197 acres of agricultural land, which is more
12 than 50 percent of the total area of the corridor.

13

14 During the BHE PEL Study, individual stakeholder meetings, facilitated by the Texas
15 A&M AgriLife Extension Service Office – Extension Agent, were held with the local
16 farmers to address their concerns regarding alternatives for the proposed Border
17 Highway Extension that would traverse through agricultural land and potentially divide
18 parcels, as documented in the *BHE PEL Study Agency Coordination Technical Report*
19 (**Appendix D**). Regional farmers and landowners expressed concern about the
20 proposed Border Highway Extension bisecting single-owner parcels and destroying the
21 agricultural integrity of the southwestern portion of the study area.

22

23 Traffic Noise

24 There are 84 residential parcels within the city of San Elizario and between the City of
25 San Elizario and the Town of Fabens that are adjacent to Alternative 12.

26

27 Border Security

28 Existing points of access to the Rio Grande and maintenance roads adjacent to the
29 U.S./Mexico International Border would need to be maintained to allow access for the
30 International Boundary and Water Commission (IBWC) and U.S. Customs and Border
31 Patrol.

32

33 **4.9 Alternative 13 Mod-Rev – Border Highway Extension**

34

35 Alternative 13 Mod-Rev is a continuation of the Border Highway Extension, beginning at
36 FM 76 near the Town of Fabens (terminus of Alternative 12) and continuing south
37 where it terminates at the Manuel F. Aguilera Highway near the Fabens International
38 POE (future Tornillo-Guadalupe International POE). Alternative 13 Mod-Rev is a
39 proposed four-lane facility and is approximately 4.3 miles long. The ROW width is
40 approximately 286 feet and would encompass approximately 151 acres. See **Map**
41 **Sheets 6 through 7 of 7 (Attachment A)** to view the corridor location. It is
42 recommended that the northern portion of the Border Highway Extension be
43 constructed first (Alternatives 9, 17, and 12), this southern portion should be
44 constructed as traffic demand warrants in the future.

45

1 Potentially affected environmental resources and issues associated with the Border
 2 Highway Extension from FM 76 near the Town of Fabens (terminus of Alternative 12) to
 3 the Manuel F. Aguilera Highway are below and a description follows.

- 4
- 5 • Drainage Features
- 6 • Floodplains
- 7 • Biological Resources
- 8 • Agricultural Resources
- 9 • Traffic Noise

10

11 Drainage Features

12 There are two drainage features located within the corridor of the proposed alternative.
 13 These features and the linear feet of each within the corridor are listed in **Table 6**.

14

15 **Table 6: Alternative 13 Mod-Rev Drainage and Irrigation Features**

Drainage Feature	Length of Impact (linear feet)
Fabens Drain	286
Island Farmers Drain	2,630

16

17 Floodplains

18 Alternative 13 Mod-Rev would impact approximately 26 acres within the 100-year
 19 floodplain, which is less than 20 percent of the total area of the corridor.

20

21 Biological Resources

22 The existing mapped ESMT habitat located within the corridor is Loamy Bottomland
 23 (Desert Shrub). The habitat threshold requiring additional coordination with TPWD for
 24 habitat per 2013 MOU would be exceeded. Per available TXNDD data, the alternative is
 25 within the mapped range of the sand prickly-pear. Alternative 13 may potentially impact
 26 drainage features, which may provide suitable habitat for the species.

27

28 Agricultural Resources

29 Alternative 13 Mod-Rev would impact approximately 127 acres of agricultural land,
 30 which is more than 50 percent of the total area of the corridor.

31

32 During the BHE PEL Study, individual stakeholder meetings, facilitated by the Texas
 33 A&M AgriLife Extension Service Office – Extension Agent, were held with the local
 34 farmers to address their concerns regarding alternatives for the proposed Border
 35 Highway Extension that would traverse through agricultural land and potentially divide
 36 parcels, as documented in the *BHE PEL Study Agency Coordination Technical Report*
 37 (**Appendix D**). Regional farmers and landowners expressed concern about the
 38 proposed Border Highway Extension bisecting single-owner parcels and destroying the
 39 agricultural integrity of the southwestern portion of the study area.

1 Traffic Noise

2 There are two residential parcels near the Town of Fabens adjacent to Alternative 13
3 Mod-Rev.

4
5 **4.10 Alternative I Mod Revised – Old Hueco Tanks Road**

6
7 Alternative I Mod-Rev is a proposed two-lane roadway that would extend Old Hueco
8 Tanks Road from North Loop Drive to the proposed Border Highway Extension. The
9 sections of this extension between North Loop Drive and Alameda Avenue and between
10 Loya Road and Southside Drive are new location roadways. The middle section of this
11 extension, between Alameda Avenue and Loya Road, would include widening the
12 existing Winn Road and Nevarez Road. The ROW width is approximately 80 feet and
13 would encompass approximately 24 acres. Alt I Mod-Rev is approximately 2.4 miles
14 long. See **Map Sheet 1 of 7 (Attachment A)** to view the corridor location.

15
16 Potentially affected environmental resources and issues associated with the Old Hueco
17 Tanks Road extension are below, followed by a more detailed description.

- 18
19
- Community Resources
 - Socio-Economic and Environmental Justice
 - Cultural Resources
 - Tigua Land
 - Drainage Features
 - Floodplains
 - Biological Resources
 - Agricultural Resources
 - Hazardous Materials
 - Traffic Noise
- 28

29
30 Community Resources

31 The Vista del Prado #1 and Sunshine designated neighborhoods are adjacent to the
32 corridor of the proposed alternative. The Valley South Subdivision and these areas may
33 potentially be impacted by Alternative I Mod Revised. The PEL process takes into
34 consideration community needs and stakeholder input; however, more detailed design
35 approaches and solutions would be determined during the NEPA and design phase of
36 project development.

37
38 Socio-Economic and Environmental Justice

39 The USCB data shows that the percentages for both the minority and LEP populations
40 are greater than the study area average (84.2 and 40.9 percent, respectively); therefore,
41 it can be concluded that the high minority and LEP populations would be within or
42 adjacent to Alternative I Mod Revised.

43
44 Cultural Resources

45 The alternative crosses the Socorro Mission Historic District, the Mission Trail Historic
46 District, canals of NRHP-listed EPCWID1; and the El Camino Real de Tierra Adentro

1 National Historic Trail. It is also adjacent to three archaeological sites; two of which are
 2 eligible and one potentially eligible for the National Register. On the east end, the
 3 alternative crosses one Tigua Ceremonial Land parcel.

4
 5 Adverse impacts to EPCWID1 may generally be avoided by spanning irrigation features
 6 rather than placing piers within or upon irrigation structures and by avoiding any impact
 7 to the function of the EPCWID1 system, as described below in *Drainage Features*.

8
 9 Coordination was conducted between TxDOT El Paso District, FHWA, TxDOT ENV,
 10 and the National Park Service (NPS) during the BHE PEL Study to discuss the El
 11 Camino Real de Tierra Adentro National Historic Trail, which is located within the study
 12 area along Socorro Road. The NPS shared their goal to preserve and develop the El
 13 Camino Real de Tierra Adentro National Historic Trail in written correspondence
 14 documented in the *BHE PEL Study Agency Coordination Technical Report (Appendix*
 15 *D)*. TxDOT and FHWA have documented their intent to consider a bike and pedestrian
 16 national historic trail segment (as requested by the NPS) during the next phase of
 17 project development in the *BHE PEL Study Environmental Constraints Report*
 18 *(Appendix B)*.

19
 20 *Tigua Land*

21 The alternative crosses one Tigua Ceremonial Land parcel.

22
 23 During coordination with the YDSP sovereign nation, conducted throughout the BHE
 24 PEL Study, the Tiguas mentioned the possibility of “land swapping” if a project were to
 25 require additional ROW from the YDSP. Planning-level decisions regarding agreements
 26 or mitigation strategies include activities and concepts that may be adopted or
 27 incorporated during the project-specific NEPA process. Coordination with the YDSP
 28 sovereign nation is documented in the *BHE PEL Study Agency Coordination Technical*
 29 *Report (Appendix D)*.

30
 31 *Drainage Features*

32 There are seven drainage features located within the corridor of the proposed
 33 alternative. These features and the linear feet of each within the corridor are listed in
 34 **Table 7**.

35
 36 **Table 7: Alternative I Mod-Rev Drainage and Irrigation Features**

Drainage Feature	Length of Impact (linear feet)
South Side Feeder Lateral	89
Socorro Lateral	101
Juan de Herrera Branch Canal	105
Juan de Herrera Main Lateral	80
Franklin Drain	86
Franklin Canal	80
Middle Drain	87

1 It is anticipated that those features that are perpendicular to the alternative would be
2 crossed using bridges or culverts. It is not known at this time how the drainage features
3 horizontal to the alternative may be modified.

4 5 Floodplains

6 Alternative I Mod-Rev would impact approximately 3 acres within the 100-year
7 floodplain, which is less than 20 percent of the total area of the corridor.

8 9 Biological Resources

10 The existing mapped ESMT habitats located within the corridor are, Row Crops, Trans-
11 Pecos: Desert Wash Grassland, Trans-Pecos: Riparian Barren, Trans-Pecos: Riparian
12 Shrubland, and Urban Low Intensity. The habitat threshold requiring additional
13 coordination with TPWD for habitat per the 2013 MOU would be exceeded. The corridor
14 is primarily a new location, and per available TXNDD data, is within the mapped range
15 of the Pecos River Muskrat. Potential habitat is present within the corridor.

16 17 Agricultural Resources

18 Alternative I Mod-Rev would impact approximately 8 acres of agricultural land, which is
19 more than 10 percent of the total area of the corridor.

20 21 Hazardous Materials

22 One Municipal Solid Waste Landfill (MSWLF) site and one PST site are mapped
23 adjacent to corridor. These sites could potentially impact construction within the
24 corridor.

25 26 Traffic Noise

27 There are 117 residential parcels between the cities of Socorro and El Paso that are
28 adjacent to the corridor of the proposed alternative.

29 30 **4.11 Alternative L – New Socorro Connection**

31
32 Alternative L is a proposed new location roadway originating at I-10, approximately
33 2 miles north of FM 1110, and generally following the southern City of Socorro limits to
34 the proposed Border Highway Extension. This new location roadway would create a
35 new link to I-10, North Loop Drive, Alameda Avenue, Socorro Road and the proposed
36 Border Highway Extension. Alternative L is approximately 5.0 miles in length. The
37 ROW width is approximately 168 feet and would encompass approximately 102 acres.
38 Alternative L would cross the Franklin Canal and other laterals, as well as include a
39 grade-separated crossing of the Union Pacific Railroad (UPRR). See **Map Sheet 3 of 7**
40 **(Attachment A)** to view the corridor location.

41
42 Potentially affected environmental resources and issues associated with the new
43 location arterial from I-10 to the proposed Border Highway Extension near the southern
44 City of Socorro limits are below, followed by a more detailed description.

- 45
46 • Community Resources

- 1 • Socio-Economic and Environmental Justice
- 2 • Cultural Resources
- 3 • Tigua Land
- 4 • Water Resources
- 5 • Drainage Features
- 6 • Biological Resources
- 7 • Agricultural Resources
- 8 • Traffic Noise

9

10 Community Resources

11 The corridor of the proposed alternative intersects the Mission Trail Historic District.
12 This area may potentially be impacted by the proposed alternative. The PEL process
13 takes into consideration community needs and stakeholder input; however, more
14 detailed design approaches and solutions would be determined during the NEPA and
15 design phase of project development.

16

17 Socio-Economic and Environmental Justice

18 The USCB data shows that the percentages for both the minority and LEP populations
19 are greater than the study area average (84.2 and 40.9 percent respectively); therefore,
20 it can be concluded that the high minority and LEP populations would be within or
21 adjacent to Alternative L.

22

23 Cultural Resources

24 The alternative would use land within the Mission Trail Historic District and crosses the
25 El Camino Real de Tierra Adentro National Historic Trail. The alternative crosses canals
26 of NRHP-listed EPCWID1, and crosses Tigua Ceremonial Land.

27

28 Adverse impacts to EPCWID1 may generally be avoided by spanning irrigation features
29 rather than placing piers within or upon irrigation structures and by avoiding any impact
30 to the function of the EPCWID1 system, as described below in *Drainage Features*.

31

32 Coordination was conducted between TxDOT El Paso District, FHWA, TxDOT ENV,
33 and the National Park Service (NPS) during the BHE PEL Study to discuss the El
34 Camino Real de Tierra Adentro National Historic Trail, which is located within the study
35 area along Socorro Road. The NPS shared their goal to preserve and develop the El
36 Camino Real de Tierra Adentro National Historic Trail in written correspondence
37 documented in the *BHE PEL Study Agency Coordination Technical Report (Appendix*
38 **D)**. TxDOT and FHWA have documented their intent to consider a bike and pedestrian
39 national historic trail segment (as requested by the NPS) during the next phase of
40 project development in the *BHE PEL Study Environmental Constraints Report*
41 **(Appendix B)**.

42

43 Tigua Land

44 The alternative crosses 11 Tigua Ceremonial Land parcels.

45

1 During coordination with the YDSP sovereign nation, conducted throughout the BHE
 2 PEL Study, the Tiguas mentioned the possibility of “land swapping” if a project were to
 3 require additional ROW from the YDSP. Planning-level decisions regarding agreements
 4 or mitigation strategies include activities and concepts that may be adopted or
 5 incorporated during the project-specific NEPA process. Coordination with the YDSP
 6 sovereign nation is documented in the *BHE PEL Study Agency Coordination Technical*
 7 *Report (Appendix D)*.

8 Water Resources

9 Alternative L would impact more than 0.50 acres of NWI mapped features, located
 10 within the total corridor area of 102 acres. Alternative L would cross one freshwater
 11 pond (1.5 acres).
 12

13 Drainage Features

14 There are 11 drainage features located within the corridor of the proposed alternative.
 15 These features and the linear feet of each within the corridor are listed **Table 8**.
 16
 17
 18

Table 8: Alternative L Drainage and Irrigation Features

Drainage Feature	Length of Impact (linear feet)
Clint Lateral	294
Dolan Drain	176
Franklin Canal	175
Mesa Drain	182
Mesa Spur Drain	169
Middle Drain	169
River Drain	181
Rodriquena Lateral	176
Salatral Lateral	202
San Elizario Lateral	195
Ysleta Lateral	201

19
 20 It is anticipated that those features that are perpendicular to the alternative would be
 21 crossed using bridges or culverts. It is not known at this time how the drainage features
 22 horizontal to the alternative may be modified.
 23

24 Biological Resources

25 The existing mapped ESMT habitats located within the corridor are Row Crops, Trans-
 26 Pecos: Desert Deep Sand and Dune Grassland, Trans-Pecos: Desert Wash Grassland,
 27 Trans-Pecos: Riparian Barren, Trans-Pecos: Riparian Shrubland, Trans-Pecos: Sand
 28 Dune, and Urban Low Intensity. The habitat threshold requiring additional coordination
 29 with TPWD for habitat per the 2013 MOU would be exceeded. The alternative is
 30 primarily a new location, and per available TXNDD data, the corridor is within the
 31 mapped range of Pecos River Muskrat. Alternative L may impact drainage features,
 32 which may provide suitable habitat for the species.

1
2 Agricultural Resources
3 Alternative L would impact approximately 58 acres of agricultural land, which is more
4 than 50 percent of the total area of the corridor.

5
6 Traffic Noise
7 There are 61 residential parcels within the cities of Socorro and San Elizario that are
8 adjacent to the Alternative L.

9 10 **4.12 Alternative N – FM 1110 Widening**

11
12 Alternative N would consist of the widening and realignment of FM 1110 between I-10
13 and North Loop Drive. Alternative N is approximately 1.2 miles long. The ROW width is
14 approximately 122 feet and would encompass approximately 9 acres (including existing
15 ROW). See **Map Sheet 4 of 7 (Attachment A)** to view the corridor location. It is
16 recommended that Alternative N and F be constructed as one project since the
17 components for these alternatives represents the realigned FM 1110.

18
19 Potentially affected environmental resources associated with realignment and widening
20 from FM 1110 between I-10 and North Loop Drive are below, followed by a more
21 detailed description.

- 22
23
 - Community Resources
 - Socioeconomic and Environmental Justice
 - Agricultural Resources

24 25 26 27 Community Resources

28 No potential impact to the neighborhood character within the corridor is anticipated;
29 however, the corridor is near the San Lorenzo cemetery and may potentially impact this
30 site. The PEL process takes into consideration community needs and stakeholder
31 input; however, more detailed design approaches and solutions would be determined
32 during the NEPA and design phase of project development.

33 34 Socio-Economic and Environmental Justice

35 The USCB data shows that the percentage for the LEP population is greater than the
36 study area average of 40.9 percent; therefore, it can be concluded that the high LEP
37 population would be within or adjacent to Alternative N.

38 39 Agricultural Resources

40 Alternative N would impact approximately 2.5 acres of agricultural land, which is more
41 than 10 percent of the total area of the corridor.

42 43 **4.13 Alternative F – FM 1110 Realignment**

44
45 Alternative F would include the realignment of FM 1110 between North Loop Drive and
46 the proposed Border Highway Extension, utilizing the existing Herring Road. Alternative

1 F is approximately 4.0 miles long and would cross the Franklin Canal. The ROW width
2 is approximately 122 feet and would encompass approximately 79 acres. See **Map**
3 **Sheet 4 of 7 (Attachment A)** to view the corridor location. It is recommended that
4 Alternatives N and F are constructed as one project because these alternatives
5 represent the new FM 1110 alignment.
6

7 Potentially affected environmental resources and issues associated with the
8 realignment of FM 1110 between N. Loop Drive and the proposed Border Highway
9 Extension are below, followed by a more detailed description.
10

- 11 • Community Resources
- 12 • Socio-Economic and Environmental Justice
- 13 • Cultural Resources
- 14 • Tigua Land
- 15 • Drainage Features
- 16 • Floodplains
- 17 • Biological Resources
- 18 • Agricultural Resources
- 19 • Traffic Noise

20 21 Community Resources

22 Various schools are near the corridor and may potentially be impacted by Alternative F;
23 however, no impact to designated neighborhoods is anticipated. The PEL process
24 takes into consideration community needs and stakeholder input; however, more
25 detailed design approaches and solutions would be determined during the NEPA and
26 design phase of project development.
27

28 Socio-Economic and Environmental Justice

29 The USCB data shows that the percentages for the minority population is greater than
30 the study area average of 84.2 percent; therefore, it can be concluded that the high
31 minority population would be within or adjacent to Alternative F.
32

33 Cultural Resources

34 The alternative crossed NRHP-listed canals of EPCWID1, the NRHP-listed Franklin
35 Canal, and Tigua Ceremonial Land.
36

37 Adverse impacts to EPCWID1 may generally be avoided by spanning irrigation features
38 rather than placing piers within or upon irrigation structures and by avoiding any impact
39 to the function of the EPCWID1 system, as described below in *Drainage Features*.
40

41 Tigua Land

42 The alternative crosses six Tigua Ceremonial Land parcels.
43

44 During coordination with the YDSP sovereign nation, conducted throughout the BHE
45 PEL Study, the Tiguas mentioned the possibility of “land swapping” if a project were to
46 require additional ROW from the YDSP. Planning-level decisions regarding agreements

1 or mitigation strategies include activities and concepts that may be adopted or
 2 incorporated during the project-specific NEPA process. Coordination with the YDSP
 3 sovereign nation is documented in the *BHE PEL Study Agency Coordination Technical*
 4 *Report (Appendix D)*.

6 Drainage Features

7 There are nine drainage features located within the corridor of the proposed alternative.
 8 These features and the linear feet of each within the corridor are listed in **Table 9**.

10 **Table 9: Alternative F Drainage and Irrigation Features**

Drainage Feature	Length of Impact (linear feet)
Unnamed Drain	122
Clint Lateral	178
Franklin Canal	122
Green Lateral	1,982
Mesa Drain	242
Middle Drain ¹	122
River Drain	122
River Spur Drain	134
Salatral Lateral	185

11 Note: 1. Alternative F would cross this drainage feature twice, the
 12 estimated length of the impact includes both crossings.

13
 14 Potential impacts to Green Lateral exist within the corridor. It is anticipated those
 15 features that are perpendicular to the alternative would be crossed using bridges or
 16 culverts. It is not known at this time how the drainage features horizontal to the
 17 alternative may be modified.

19 Floodplains

20 Alternative F would impact approximately 4.14 acres within the 100-year floodplain,
 21 which is less than 20 percent of the total area of the corridor.

23 Biological Resources

24 The existing mapped ESMT habitats located within the corridor are Row Crops, Trans-
 25 Pecos: Desert Wash Grassland, Trans-Pecos: Riparian Barren, Trans-Pecos: Riparian
 26 Shrubland, and Urban Low Intensity. The habitat threshold requiring additional
 27 coordination with TPWD for habitat per the 2013 MOU would be exceeded. The corridor
 28 is an existing roadway and a new location. Per available TXNDD data, the corridor is
 29 within the mapped range of the Pecos River Muskrat and the sand prickly pear with
 30 minimal habitat present within the corridor. Impacts to agricultural habitat within the
 31 corridor would occur.

1 Agricultural Resources

2 Alternative F would impact approximately 44 acres of agricultural land, which is more
3 than 50 percent of the total area of the corridor.

4

5 Traffic Noise

6 There are eight residential parcels within the cities of San Elizario and Clint and two
7 schools (San Elizario Lorenzo G. Loya Primary and San Elizario Sambrano Elementary)
8 adjacent to the corridor of the proposed alternative.

9

10 **4.14 Alternative P – New I-10 Connection**

11

12 Alternative P is a proposed new location, four-lane roadway beginning at I-10 and
13 terminating at the proposed Border Highway Extension. The proposed roadway would
14 begin at I-10 and traverse west, crossing North Loop Drive, the UPRR, Alameda
15 Avenue, Socorro, and eventually connecting to the proposed Border Highway
16 Extension. Alternative P would provide new access to I-10, North Loop Drive, Alameda
17 Avenue, and Socorro Road, providing improved access to farming communities
18 between San Elizario and Fabens. Alternative P is approximately 4.5 miles in length
19 and would cross the Franklin Canal and other laterals, include a grade-separated
20 crossing of the UPRR, and include a new interchange with I-10. The ROW width is
21 approximately 138 feet and would encompass approximately 65 acres. See **Map Sheet**
22 **4 of 7 (Attachment A)** to view the corridor location.

23

24 Potentially affected environmental resources associated with the new location arterial
25 from I-10 to the proposed Border Highway Extension mid-way between Clint Cutoff
26 Road and Fabens Drive are below, followed by a more detailed description.

27

- 28 • Cultural Resources
- 29 • Tigua Land
- 30 • Drainage Features
- 31 • Floodplains
- 32 • Biological Resources
- 33 • Agricultural Resources

34

35 Cultural Resources

36 The alternative crosses the individually listed Franklin Canal as well as structures of
37 NRHP-listed EPCWID1. The alternative overlaps Tigua Ceremonial Land.

38

39 Adverse impacts to EPCWID1 may generally be avoided by spanning irrigation features
40 rather than placing piers within or upon irrigation structures and by avoiding any impact
41 to the function of the EPCWID1 system, as described below in *Drainage Features*.

42

43 Tigua Land

44 The alternative crosses 11 Tigua Ceremonial Land parcels.

45

1 During coordination with the YDSP sovereign nation, conducted throughout the BHE
 2 PEL Study, the Tiguas mentioned the possibility of “land swapping” if a project were to
 3 require additional ROW from the YDSP. Planning-level decisions regarding agreements
 4 or mitigation strategies include activities and concepts that may be adopted or
 5 incorporated during the project-specific NEPA process. Coordination with the YDSP
 6 sovereign nation is documented in the *BHE PEL Study Agency Coordination Technical*
 7 *Report (Appendix D)*.

8 Drainage Features

9 There are eight drainage features located within the corridor of the proposed alternative.
 10 These features and the linear feet of each within the corridor are listed in **Table 10**.

11 **Table 10: Alternative P Drainage and Irrigation Features**

Drainage Feature	Length of Impact (linear feet)
Clint Extension	145
Clint Lateral	1,003
Franklin Canal	139
Mesa Drain	138
Middle Drain	139
River Drain	139
Riverside Intercepting Drain	138
Salatral Lateral	138

12
 13
 14
 15 It is anticipated that those features that are perpendicular to the alternative would be
 16 crossed using bridges or culverts. It is not known at this time how the drainage features
 17 horizontal to the alternative may be modified.

18 Floodplains

19 Alternative P would impact approximately 3 acres within the 100-year floodplain, which
 20 is less than 20 percent of the total area of the corridor.

21 Biological Resources

22
 23 The existing mapped ESMT habitats located within the corridor are Orchard, Row
 24 Crops, Trans-Pecos: Desert Deep Sand and Dune Grassland, Trans-Pecos: Desert
 25 Wash Grassland, Trans-Pecos: Riparian Shrubland, and Urban Low Intensity. The
 26 habitat threshold requiring additional coordination with TPWD for habitat per the 2013
 27 MOU would be exceeded. The corridor is a new location, and per available TXNDD
 28 data, is within the mapped range of the Pecos River Muskrat and sand prickly-pear. The
 29 habitat of the muskrat is minimal. Potential habitat for the prickly-pear is present within
 30 the corridor.

31 Agricultural Resources

32
 33 Alternative P would impact approximately 51 acres of agricultural land, which is more
 34 than 50 percent of the total area of the corridor.
 35

4.15 Alternative R Mod – Fabens South Connection

Alternative R Mod is a proposed new location, four-lane roadway beginning at I-10 and terminating at Middle Island Road (the proposed Border Highway Extension). Alternative R Mod would begin at I-10 at FM 793 and traverse southwest, intersect Alameda Avenue and Island Tornillo Road, and cross the UPRR. Alternative R Mod is approximately 5.2 miles in length. The ROW width is approximately 138 feet and would encompass approximately 82 acres. See **Map Sheet 6 of 7 (Attachment A)** to view the corridor location.

Potentially affected environmental resources and issues associated with the new location arterial from I-10 at FM 793 to the proposed Border Highway Extension are below, followed by a more detailed description.

- Cultural Resources
- Water Resources
- Drainage Features
- Floodplains
- Biological Resources
- Agricultural Resources
- Hazardous Materials

Cultural Resources

The alternative crosses canals and drainage components of NRHP-listed EPCWID1.

Adverse impacts to EPCWID1 may generally be avoided by spanning irrigation features rather than placing piers within or upon irrigation structures and by avoiding any impact to the function of the EPCWID1 system, as described below in *Drainage Features*.

Water Resources

Per NWI data, there are no impacts to NWI mapped features within the alternative. Aerial imagery analysis indicates that some arroyos are present within the corridor.

Drainage Features

There are eight drainage features located within the corridor of the proposed alternative. These features and the linear feet of each within the corridor are listed in **Table 11**.

1

Table 11: Alternative R Mod Drainage and Irrigation Features

Drainage Feature	Length of Impact (linear feet)
Unnamed lateral	142
Alamo Alto Drain	138
Arroyo	202
Fabens Drain	138
Fabens Waste Channel	162
Hansen Lateral	138
Tornillo Canal	139
Tornillo Intercepting #2 Drain	138

2

3 It is anticipated that those features that are perpendicular to the alternative would be
 4 crossed using bridges or culverts. It is not known at this time how the drainage features
 5 horizontal to the alternative may be modified.

6

7 Floodplains

8 Alternative R-Mod would impact approximately 3 acres within the 100-year floodplain,
 9 which is less than 20 percent of the total area of the corridor.

10

11 Biological Resources

12 The existing mapped ESMT habitats located within the corridor are Orchard, Row
 13 Crops, Trans-Pecos: Desert Deep Sand and Dune Grassland, Trans-Pecos: Trans-
 14 Pecos: Desert Deep Sand and Dune Shrubland, Trans-Pecos: Desert Wash Barren,
 15 Trans-Pecos: Desert Wash Grassland, Trans-Pecos: Riparian Shrubland, Trans-Pecos:
 16 Sand Dune, and Urban Low Intensity. The habitat threshold requiring additional
 17 coordination with TPWD for habitat per the 2013 MOU would be exceeded. The corridor
 18 is primarily a new location, and per available TXNDD data, is within the mapped range
 19 of the sand prickly-pear. Potential habitat is present within the corridor.

20

21 Agricultural Resources

22 Alternative R-Mod would impact approximately 73 acres of agricultural land, which is
 23 more than 50 percent of the total area of the corridor.

24

25 Hazardous Materials

26 One MSWLF site is mapped adjacent to corridor and one PST site is within the corridor.
 27 These sites could potentially impact construction within the corridor.

28

29 **4.16 Bike & Pedestrian Alternative 1**

30

31 Alternative BP-1 proposes to provide a bicycle/pedestrian connection from proposed
 32 Border Trails along Old Hueco Tanks Road and Horizon Boulevard to El Paso Rural
 33 County Transit stop for Routes 30, 40, and 84, terminating at North Loop Drive. See
 34 **Map Sheets 1 and 2 of 7 (Attachment A)** to view the corridor location.

35

1 Potentially affected environmental resources associated with the bike/pedestrian
2 connection from the proposed border trails along Old Hueco Tanks Road and Horizon
3 Boulevard to El Paso Rural County Transit are below and a description follows.

- 4
- 5 • Cultural Resources
- 6

7 Cultural Resources

8 The alternative crosses a NRHP-listed EPCWD1 canal and passes by the NRHP-
9 eligible Pena House near the intersection of Alameda Avenue and Horizon Boulevard.

10

11 Adverse impacts to EPCWID1 may generally be avoided by spanning irrigation features
12 rather than placing piers within or upon irrigation structures and by avoiding any impact
13 to the function of the EPCWID1 system.

14

15 **4.17 Bike & Pedestrian Alternative 2 – Footbridge Connection**

16

17 Alternative BP-2 proposes to provide a bicycle/pedestrian footbridge connection to Rio
18 Bosque Park from a parking lot across the Riverside Canal from the park. The parking
19 lot would be accessed from Socorro Road. See **Map Sheet 2 of 7 (Attachment A)** to
20 view the corridor location.

21

22 Potentially affected environmental resources associated with the bike/pedestrian
23 footbridge connection form Rio Bosque Wetlands Park across Socorro Road are below
24 and a description follows.

- 25
- 26 • Cultural Resources
- 27 • Tigua Land
- 28 • Biological Resources
- 29

30 Cultural Resources

31 The alternative crosses Tigua Ceremonial Land and canals of NRHP-listed EPCWID1.
32 The alternative intersects the Mission Trail Historic District and the El Camino Real de
33 Tierra Adentro National Historic Trail.

34

35 Adverse impacts to EPCWID1 may generally be avoided by spanning irrigation features
36 rather than placing piers within or upon irrigation structures and by avoiding any impact
37 to the function of the EPCWID1 system.

38

39 Coordination was conducted between TxDOT El Paso District, FHWA, TxDOT ENV,
40 and the National Park Service (NPS) during the BHE PEL Study to discuss the El
41 Camino Real de Tierra Adentro National Historic Trail, which is located within the study
42 area along Socorro Road. The NPS shared their goal to preserve and develop the El
43 Camino Real de Tierra Adentro National Historic Trail in written correspondence
44 documented in the *BHE PEL Study Agency Coordination Technical Report (Appendix*
45 **D)**. TxDOT and FHWA have documented their intent to consider a bike and pedestrian
46 national historic trail segment (as requested by the NPS) during the next phase of

1 project development in the *BHE PEL Study Environmental Constraints Report*
2 (**Appendix B**).

3 4 Tigua Land

5 The alternative crosses two Tigua Ceremonial Land parcels.

6
7 During coordination with the YDSP sovereign nation, conducted throughout the BHE
8 PEL Study, the Tiguas mentioned the possibility of “land swapping” if a project were to
9 require additional ROW from the YDSP. Planning-level decisions regarding agreements
10 or mitigation strategies include activities and concepts that may be adopted or
11 incorporated during the project-specific NEPA process. Coordination with the YDSP
12 sovereign nation is documented in the *BHE PEL Study Agency Coordination Technical*
13 *Report (Appendix D)*.

14 15 Biological Resources

16 The habitat threshold requiring additional coordination with TPWD for habitat per the
17 2013 MOU would be exceeded. The alternative is a new location, and per available
18 TXNDD data, is within the mapped range of Pecos River Muskrat. Impacts within the
19 corridor would be minimal.

20 21 **4.18 Bike & Pedestrian Alternative 3 – Rio Grande Border Trails**

22
23 Alternative BP-3 would provide a bicycle/pedestrian connection from proposed border
24 trails along the Rio Grande to Socorro Road for improved access to the Socorro
25 Entertainment Center. See **Map Sheet 2 of 7 (Attachment A)** to view the corridor
26 location.

27
28 Potentially affected environmental resources associated with the bike/pedestrian
29 connection from the proposed border trails to Socorro Road are below and a description
30 follows.

- 31
32
- 33 • Cultural Resources
 - 34 • Tigua Land
 - 35 • Biological Resources
 - 36 • Agricultural Resources

37 Cultural Resources

38 The alternative crosses through Ysleta del Sur Pueblo land and the NRHP-listed
39 drainage components of EPCWID1.

40
41 Adverse impacts to EPCWID1 may generally be avoided by spanning irrigation features
42 rather than placing piers within or upon irrigation structures and by avoiding any impact
43 to the function of the EPCWID1 system.

1 Tigua Land

2 The alternative crosses 17 Tigua Property parcels, 17 Tigua Trust Land parcels, and 17
3 Tigua Ceremonial Land parcels.

4
5 During coordination with the YDSP sovereign nation, conducted throughout the BHE
6 PEL Study, the Tiguas mentioned the possibility of “land swapping” if a project were to
7 require additional ROW from the YDSP. Planning-level decisions regarding agreements
8 or mitigation strategies include activities and concepts that may be adopted or
9 incorporated during the project-specific NEPA process. Coordination with the YDSP
10 sovereign nation is documented in the *BHE PEL Study Agency Coordination Technical*
11 *Report (Appendix D)*.

12
13 Biological Resources

14 The habitat threshold requiring additional coordination with TPWD for habitat per MOU
15 would be exceeded. The alternative is a new location, and per available TXNDD data, is
16 within the mapped range of the Pecos River Muskrat. Impacts within the corridor would
17 be minimal.

18
19 Agricultural Resources

20 Alternative BP-3 would impact approximately 0.5 acres of agricultural land, which is
21 more than 10 percent of the total area of the corridor.

22
23 **4.19 Bike & Pedestrian Alternative 4 – Route 84 Bus Stop Connection**

24
25 Alternative BP-4 proposes to provide an additional bicycle/pedestrian connection from
26 proposed bike trail in San Elizario to the current El Paso County Rural Transit Route 84
27 Bus Stop 5 along Socorro Road. See **Map Sheet 3 of 7 (Attachment A)** to view the
28 corridor location.

29
30 A potentially affected environmental resource associated with the bike/pedestrian
31 connection from the proposed bike trail to Route 84 Bus Stop 5 along Socorro Road is
32 below, followed by a description.

- 33
34
 - Cultural Resources

35
36 Cultural Resources

37 The alternative is adjacent to the NRHP-listed San Elizario Historic District and to
38 Presidio Chapel of San Elizario. The alternative would cross drains of the NRHP-listed
39 EPCWID1.

40
41 Adverse impacts to EPCWID1 may generally be avoided by spanning irrigation features
42 rather than placing piers within or upon irrigation structures and by avoiding any impact
43 to the function of the EPCWID1 system.

44
45

4.20 Bike & Pedestrian Alternative 5 – Manuel F. Aguilera Highway

Alternative BP-5 proposes to provide an additional bicycle/pedestrian connection from the future Tornillo-Guadalupe International POE to the current El Paso County Rural Transit Route 40 Stop 5 along the Manuel F. Aguilera Highway. See **Map Sheet 7 of 7 (Attachment A)** to view the corridor location.

Potentially affected environmental resources associated with the bike/pedestrian connection from the Fabens International POE (future Tornillo-Guadalupe International POE) to Route 40 Stop 5 along the Manuel F. Aguilera Highway are below, followed by a description.

- Cultural Resources
- Drainage Features
- Floodplains
- Agricultural Resources

Cultural Resources

The alternative crosses the NRHP-listed canals of EPCWID1.

Adverse impacts to EPCWID1 may generally be avoided by spanning irrigation features rather than placing piers within or upon irrigation structures and by avoiding any impact to the function of the EPCWID1 system, as described below in *Drainage Features*.

Drainage Features

There are seven drainage features located within the corridor of the proposed alternative. These features and the linear feet of each within the corridor are listed in **Table 12**.

Table 12: Bike and Pedestrian Alternative 5 Drainage and Irrigation Features

Drainage Feature	Length of Impact (linear feet)
Alamo Alto Drain ¹	41
Upper Tornillo Drain ¹	46
Tornillo Intercepting #2 Drain ¹	57
Tornillo Canal ¹	59
Fabens Waste Channel ¹	57
unnamed lateral ¹	36
Island Drain ¹	41

Note: 1. Alternative BP-5 would cross this drainage feature twice, the estimated length of the impact includes both crossings.

It is anticipated that those features that are perpendicular to the alternative would be crossed using bridges or culverts. It is not known at this time how the drainage features horizontal to the alternative may be modified.

1 Floodplains

2 Alternative BP-5 would impact approximately 0.28 acres within the 100-year floodplain,
3 which is .less than 20 percent of the total area of the corridor.

4
5 Agricultural Resources

6 Alternative BP-5 would impact approximately 3.4 acres of agricultural land, which is
7 more than 10 percent of the total area of the corridor.

8

9 **5.0 CONCLUSION**

10

11 This inventory and preliminary evaluation of the potentially affected social, economic,
12 and natural environment in the study area will provide the baseline information to be
13 used in further project development efforts and environmental studies during the NEPA
14 phase. The affected resources described in this report were examined at the planning
15 level of analysis using information that was reasonably attainable; extensive
16 stakeholder, agency, and tribal/sovereign nation coordination, and public involvement.
17 Documentation on stakeholder, agency, and tribal/sovereign nation coordination,
18 including the four Technical Work Group meetings is included in the *BHE PEL Study*
19 *Agency Coordination Technical Report (Appendix D)*. The public involvement efforts
20 and documentation of all comments received is included in the *BHE PEL Study Public*
21 *Involvement (Appendix E)*. All environmental resources described in this report will be
22 re-examined at a project-specific level of analysis during any future studies.

23

24 The information provided in this report about the affected environmental resources is
25 based on a broad, planning-level analysis of the study area. This document should
26 serve as a starting point for more detailed, project-level environmental analyses.

Attachment A

BHE Affected Environment – Environmental Resources Maps

Ciudad Juarez,
Chihuahua,
Mexico

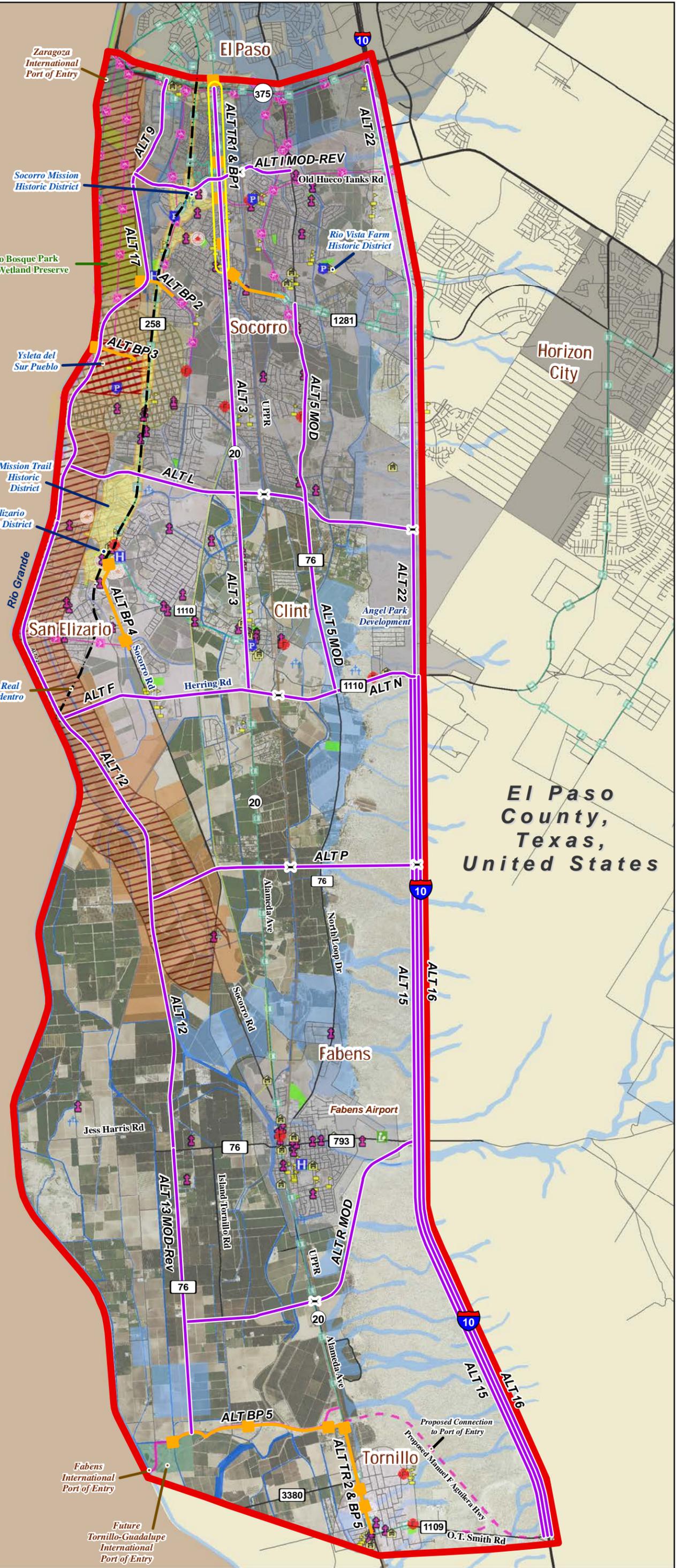
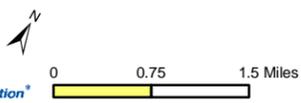
El Paso
County,
Texas,
United States

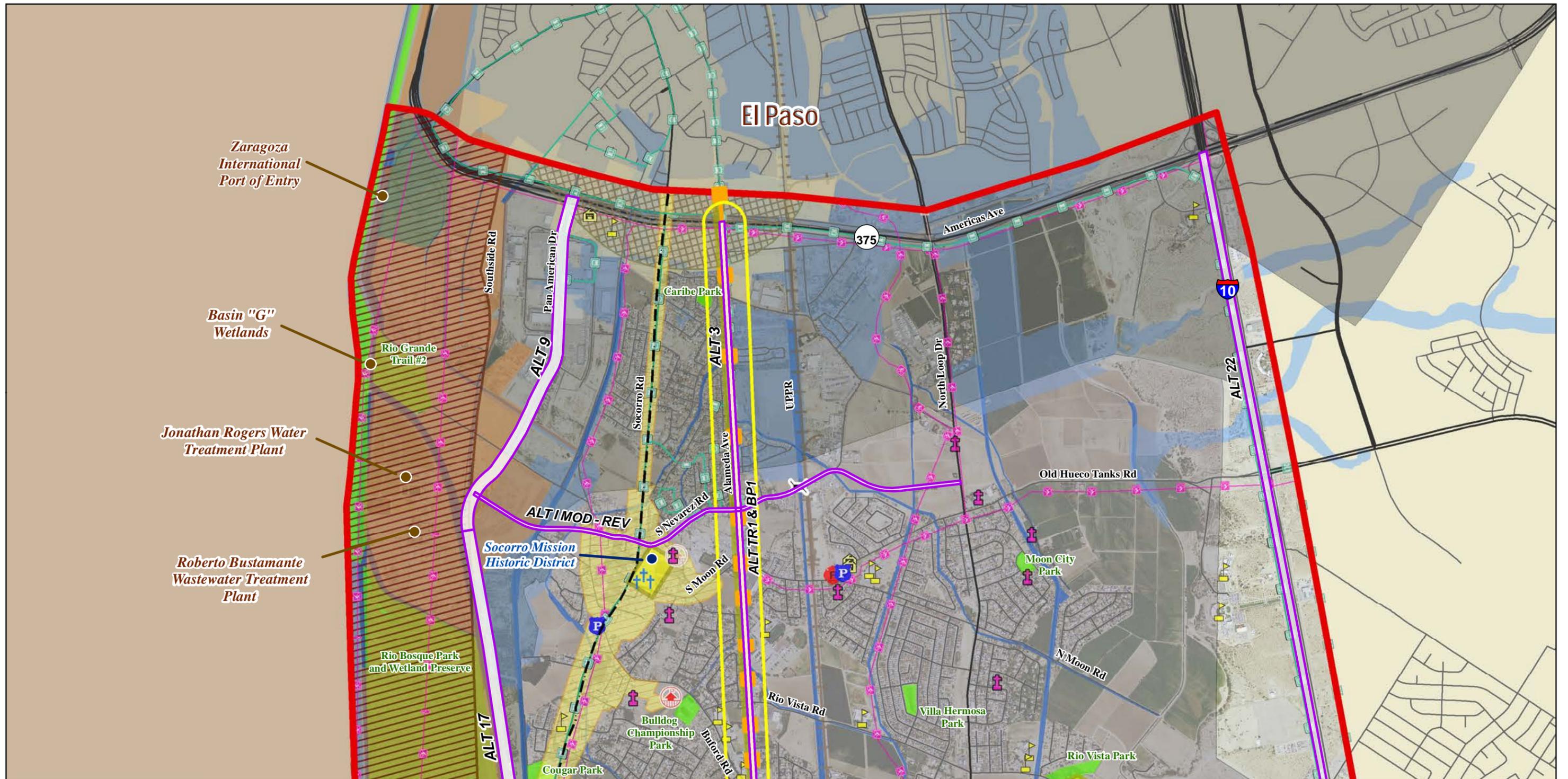
**BHE Recommended Alternatives
and
Environmental Resources**



LEGEND

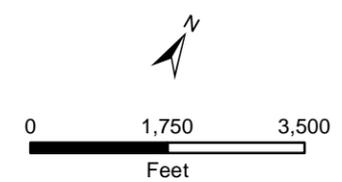
- | | | | |
|--|----------------------------------|--|--|
| | BHE Study Area | | Bus Route (Existing) |
| | Major Arterial | | Bike Route (Existing) |
| | Minor Arterial | | Bike Route (Proposed) |
| | Roadway Alternative | | Future Bus Rapid Transit Corridor |
| | Non-Roadway Alternative | | Schools |
| | UPRR | | Place of Worship |
| | Fabens Airport | | Fire |
| | Cemetery | | Police |
| | Historical Marker | | Mission Trail Historic District |
| | National Register Property | | Ysleta del Sur Pueblo (Tigua) Property |
| | Hospital | | Tigua Trust Land |
| | Library | | Tigua Trust Land Buffer |
| | Civic Facility | | Tigua Ceremonial Land |
| | 100-Year Floodplain | | Tigua Ceremonial Land Buffer |
| | Canals/Laterals/Drains | | Port of Entry |
| | Parks | | Potential Grade Separations |
| | El Camino Real de Tierra Adentro | | NRHP District |





LEGEND

BHE Study Area	Fabens Airport	Bus Route (Existing)	Police	Port of Entry
Major Arterial	Cemetery	Bike Route (Existing)	Mission Trail Historic District	Park
Minor Arterial	Historical Marker	Bike Route (Proposed)	Yselta del Sur Pueblo (Tigua) Property	Potential Grade Separations
Roadway Alternative	National Register Property	Future Bus Rapid Transit Corridor	Tigua Trust Land	NRHP District
Non-Roadway Alternative	Hospital	Schools	Tigua Trust Land Buffer	Canals/Laterals/Drains
El Camino Real de Tierra Adentro	Library	Place of Worship	Tigua Ceremonial Land	100-Year Floodplain
UPRR	Civic Facility	Fire	Tigua Ceremonial Land Buffer	

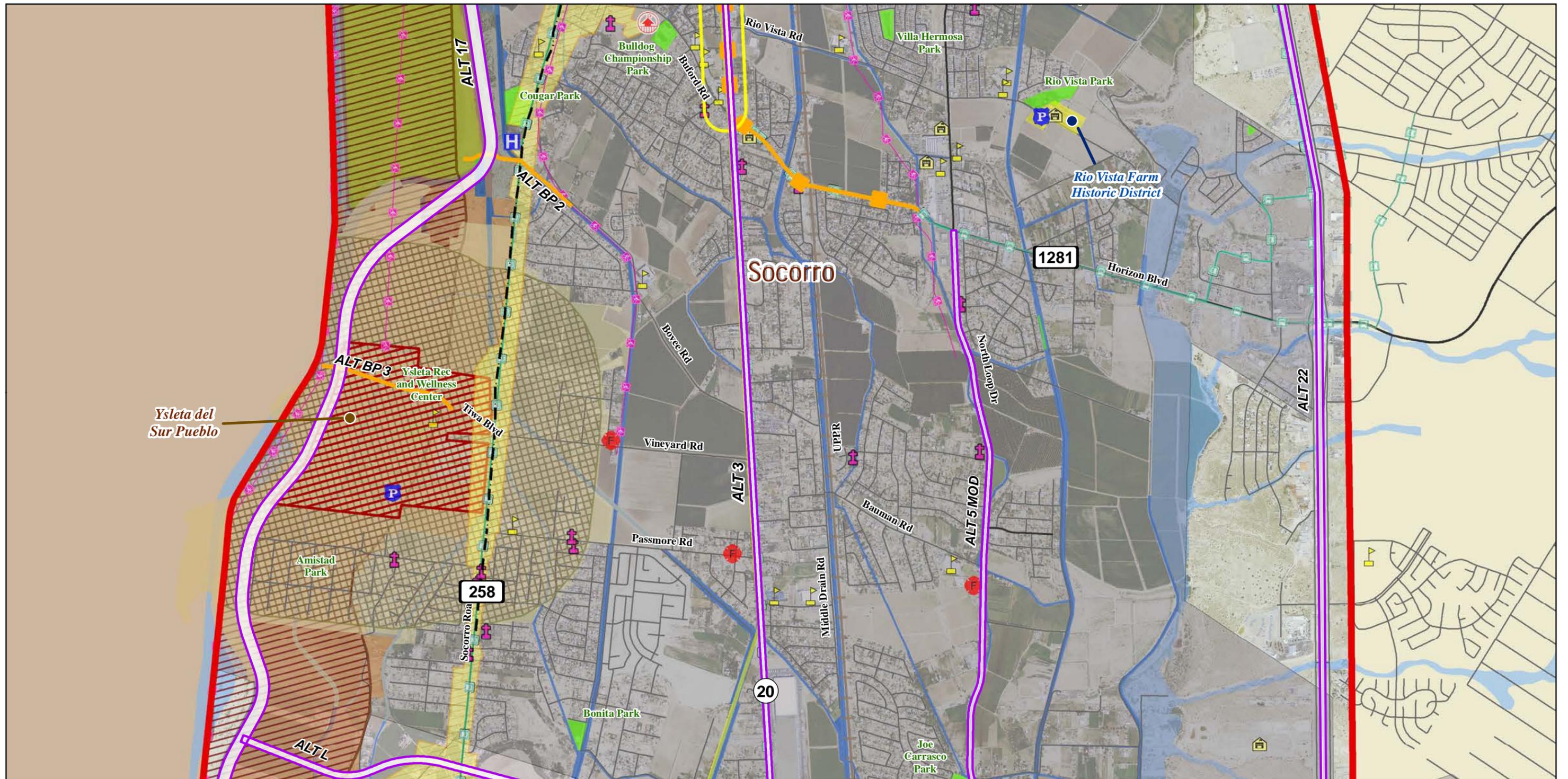


BHE Recommended Alternatives and Environmental Resources

Sheet 1 of 7

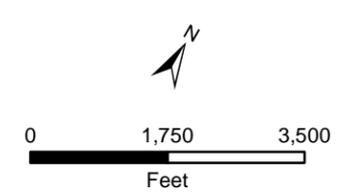
El Paso County, Texas





LEGEND

- | | | | | |
|----------------------------------|----------------------------|-----------------------------------|--|-----------------------------|
| BHE Study Area | Fabens Airport | Bus Route (Existing) | Police | Port of Entry |
| Major Arterial | Cemetery | Bike Route (Existing) | Mission Trail Historic District | Park |
| Minor Arterial | Historical Marker | Bike Route (Proposed) | Ysleta del Sur Pueblo (Tigua) Property | Potential Grade Separations |
| Roadway Alternative | National Register Property | Future Bus Rapid Transit Corridor | Tigua Trust Land | NRHP District |
| Non-Roadway Alternative | Hospital | Schools | Tigua Trust Land Buffer | Canals/Laterals/Drains |
| El Camino Real de Tierra Adentro | Library | Place of Worship | Tigua Ceremonial Land | 100-Year Floodplain |
| UPRR | Civic Facility | Fire | Tigua Ceremonial Land Buffer | |

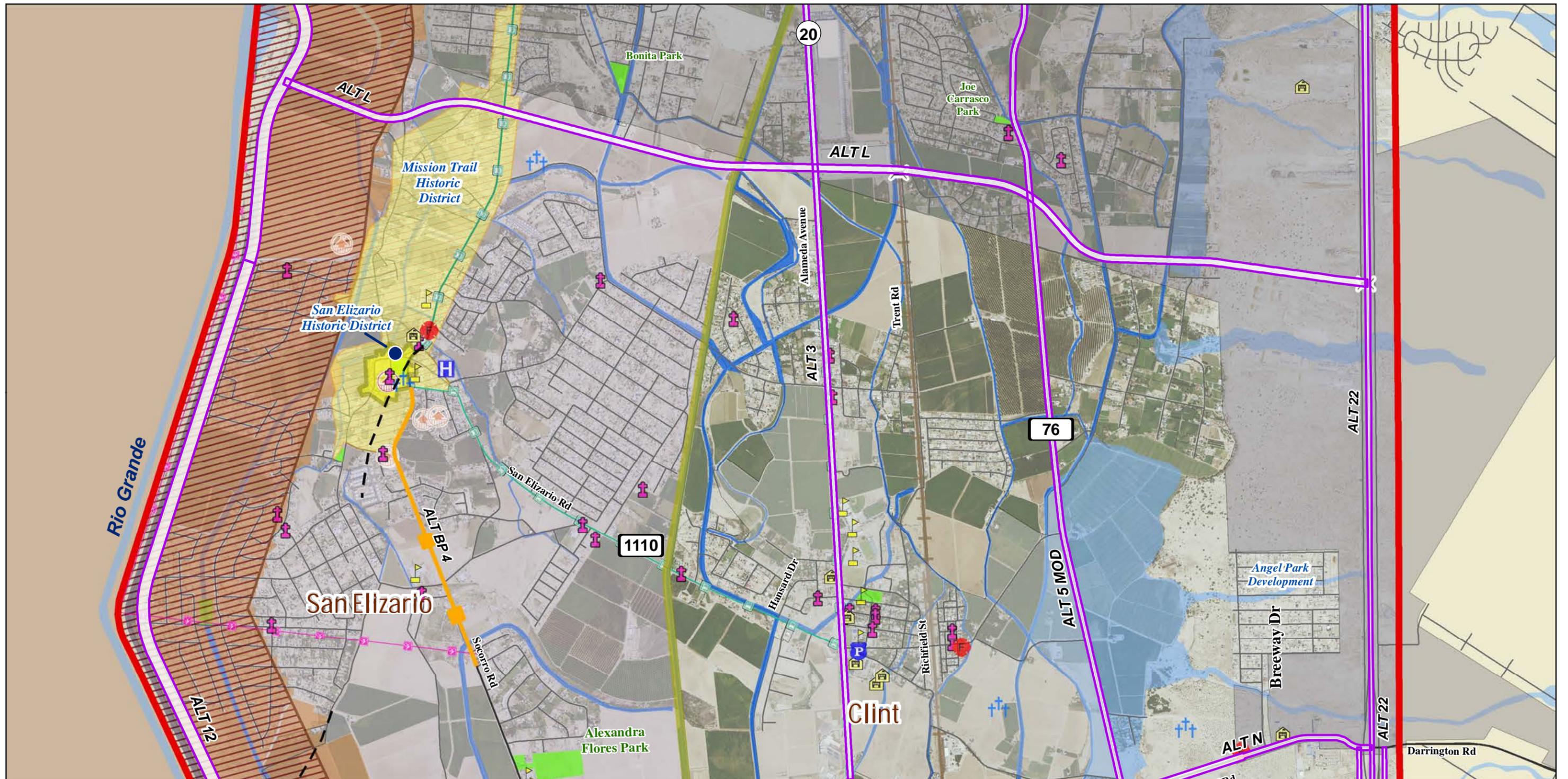


BHE Recommended Alternatives and Environmental Resources

Sheet 2 of 7

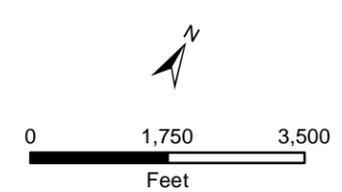
El Paso County, Texas





LEGEND

- | | | | | |
|----------------------------------|----------------------------|-----------------------------------|--|-----------------------------|
| BHE Study Area | Fabens Airport | Bus Route (Existing) | Police | Port of Entry |
| Major Arterial | Cemetery | Bike Route (Existing) | Mission Trail Historic District | Park |
| Minor Arterial | Historical Marker | Bike Route (Proposed) | Yselta del Sur Pueblo (Tigua) Property | Potential Grade Separations |
| Roadway Alternative | National Register Property | Future Bus Rapid Transit Corridor | Tigua Trust Land | NRHP District |
| Non-Roadway Alternative | Hospital | Schools | Tigua Trust Land Buffer | Canals/Laterals/Drains |
| El Camino Real de Tierra Adentro | Library | Place of Worship | Tigua Ceremonial Land | 100-Year Floodplain |
| UPRR | Civic Facility | Fire | Tigua Ceremonial Land Buffer | |

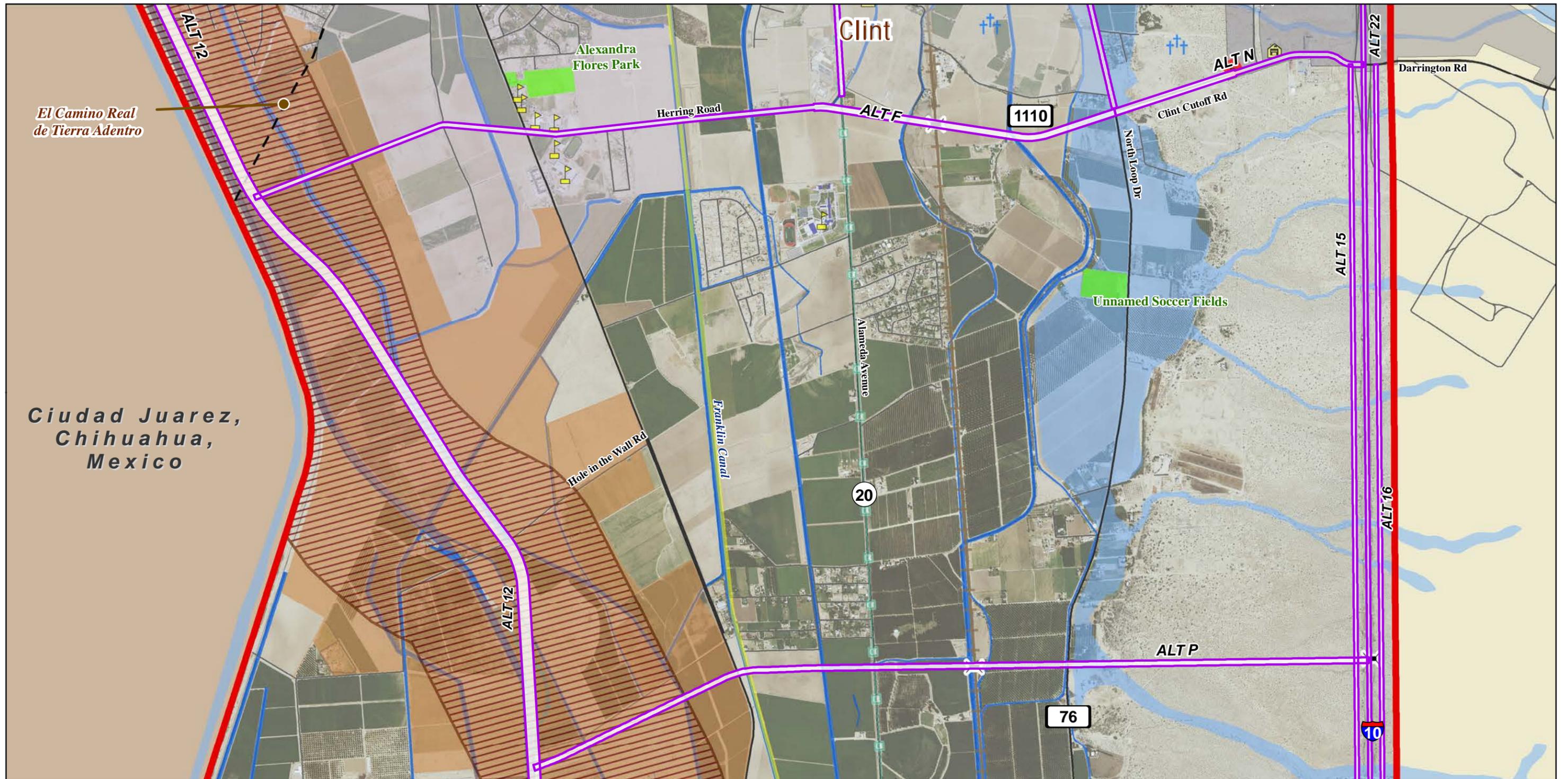


BHE Recommended Alternatives and Environmental Resources

Sheet 3 of 7

El Paso County, Texas





LEGEND

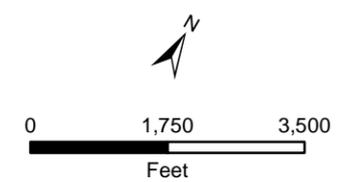
- BHE Study Area
- Major Arterial
- Minor Arterial
- Roadway Alternative
- Non-Roadway Alternative
- El Camino Real de Tierra Adentro
- UPRR

- Fabens Airport
- Cemetery
- Historical Marker
- National Register Property
- Hospital
- Library
- Civic Facility

- Bus Route (Existing)
- Bike Route (Existing)
- Bike Route (Proposed)
- Future Bus Rapid Transit Corridor
- Schools
- Place of Worship
- Fire

- Police
- Mission Trail Historic District
- Yselta del Sur Pueblo (Tigua) Property
- Tigua Trust Land
- Tigua Trust Land Buffer
- Tigua Ceremonial Land
- Tigua Ceremonial Land Buffer

- Port of Entry
- Park
- Potential Grade Separations
- NRHP District
- Canals/Laterals/Drains
- 100-Year Floodplain

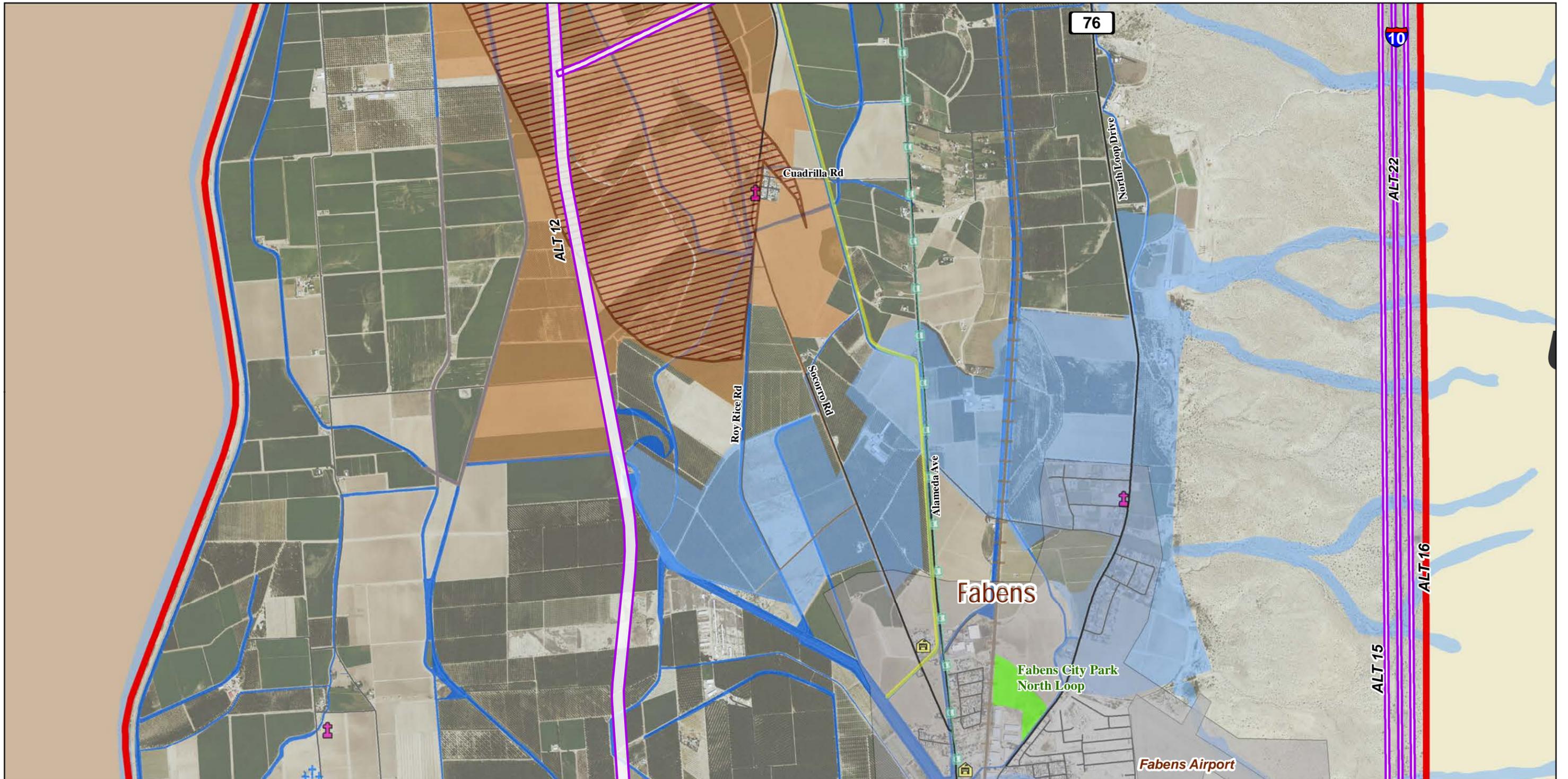


BHE Recommended Alternatives and Environmental Resources

Sheet 4 of 7

El Paso County, Texas





LEGEND

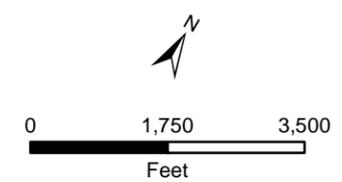
- BHE Study Area
- Major Arterial
- Minor Arterial
- Roadway Alternative
- Non-Roadway Alternative
- El Camino Real de Tierra Adentro
- UPRR

- Fabens Airport
- Cemetery
- Historical Marker
- National Register Property
- Hospital
- Library
- Civic Facility

- Bus Route (Existing)
- Bike Route (Existing)
- Bike Route (Proposed)
- Future Bus Rapid Transit Corridor
- Schools
- Place of Worship
- Fire

- Police
- Mission Trail Historic District
- Yselta del Sur Pueblo (Tigua) Property
- Tigua Trust Land
- Tigua Trust Land Buffer
- Tigua Ceremonial Land
- Tigua Ceremonial Land Buffer

- Port of Entry
- Park
- Potential Grade Separations
- NRHP District
- Canals/Laterals/Drains
- 100-Year Floodplain

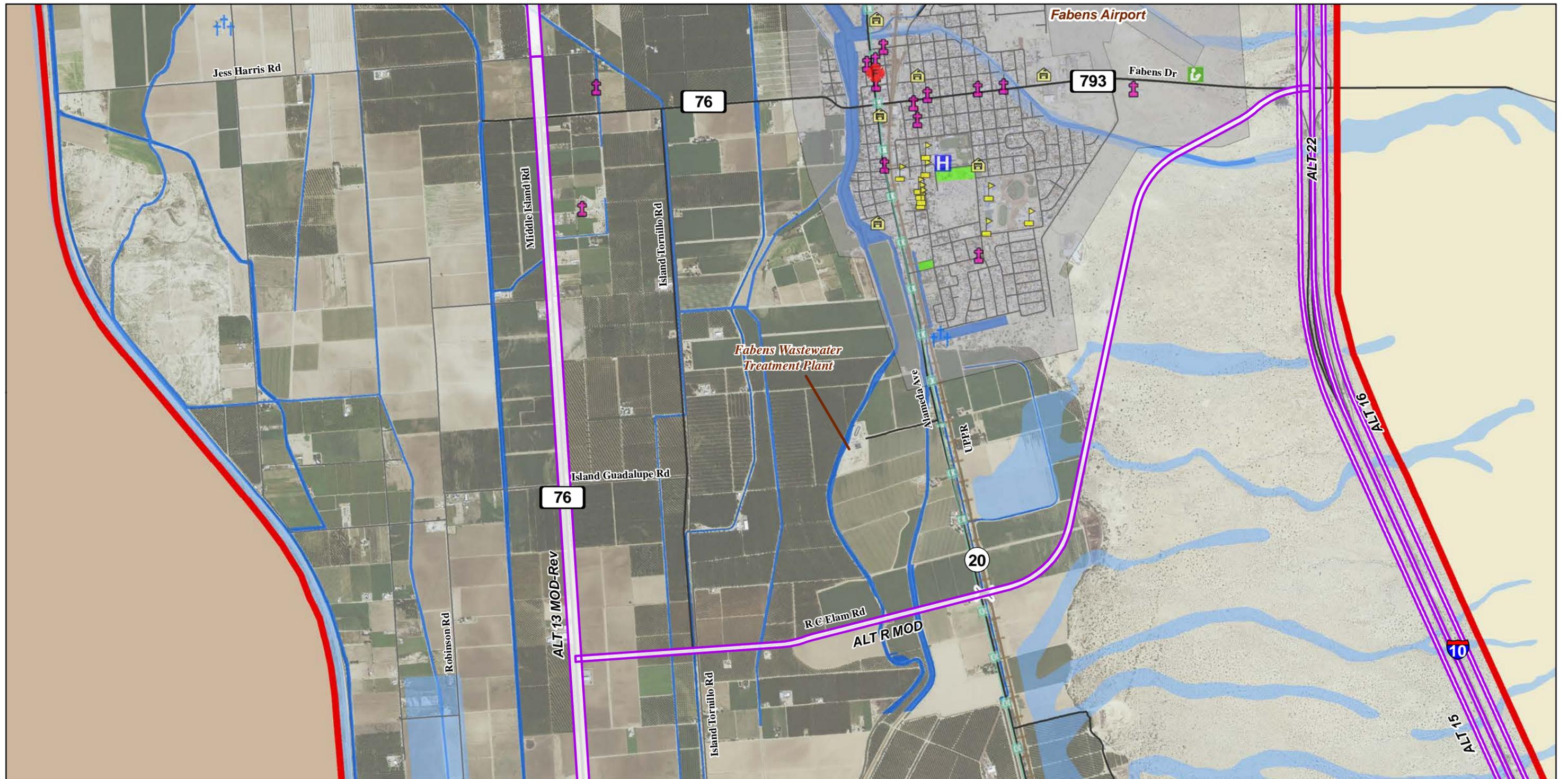


BHE Recommended Alternatives and Environmental Resources

Sheet 5 of 7

El Paso County, Texas





LEGEND

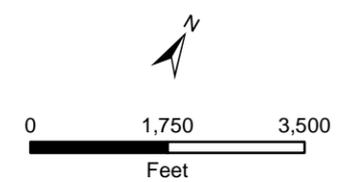
- BHE Study Area
- Major Arterial
- Minor Arterial
- Roadway Alternative
- Non-Roadway Alternative
- El Camino Real de Tierra Adentro
- UPRR

- Fabens Airport
- Cemetery
- Historical Marker
- National Register Property
- Hospital
- Library
- Civic Facility

- Bus Route (Existing)
- Bike Route (Existing)
- Bike Route (Proposed)
- Future Bus Rapid Transit Corridor
- Schools
- Place of Worship
- Fire

- Police
- Mission Trail Historic District
- Yselta del Sur Pueblo (Tigua) Property
- Tigua Trust Land
- Tigua Trust Land Buffer
- Tigua Ceremonial Land
- Tigua Ceremonial Land Buffer

- Port of Entry
- Park
- Potential Grade Separations
- NRHP District
- Canals/Laterals/Drains
- 100-Year Floodplain

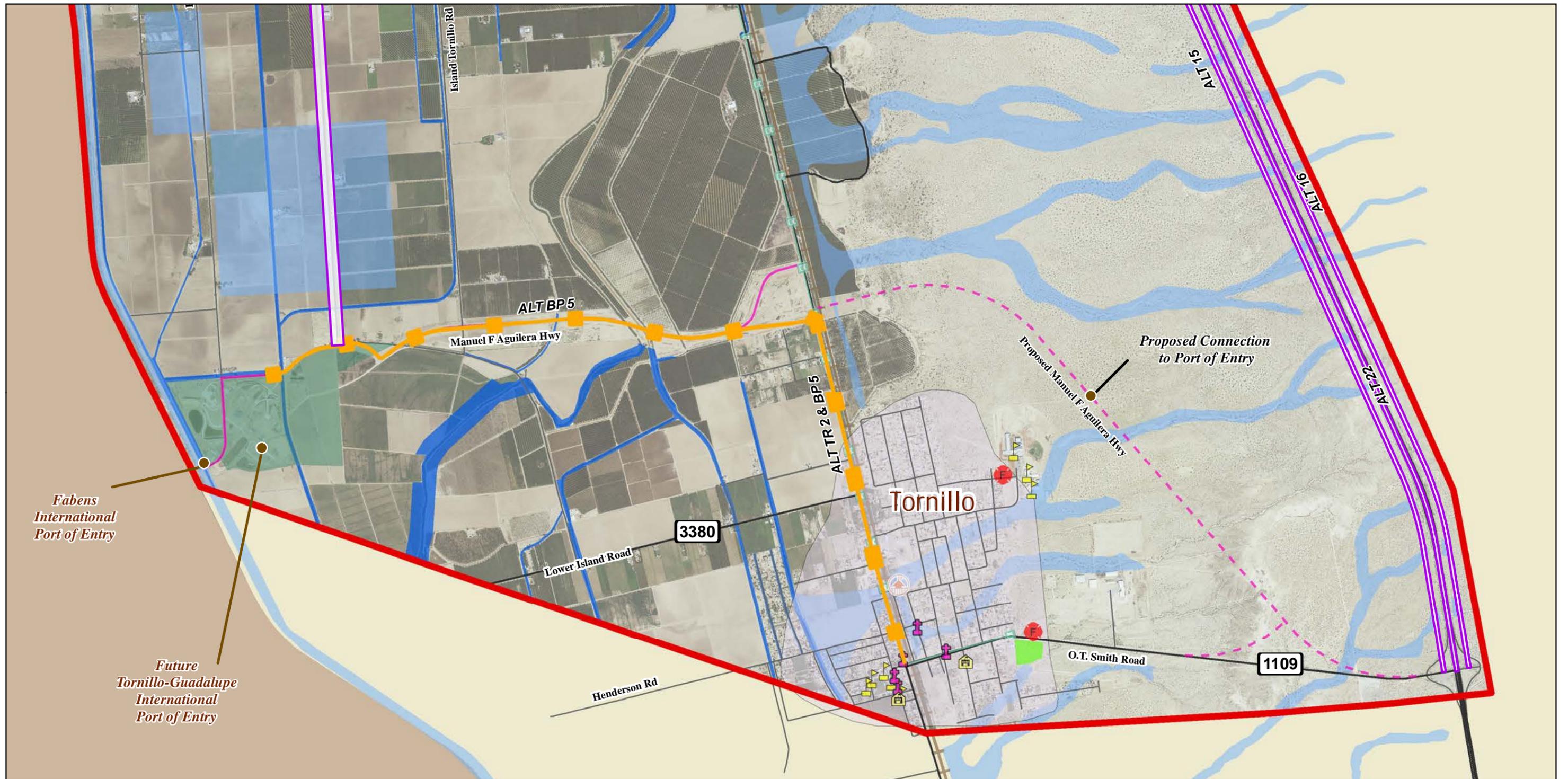


BHE Recommended Alternatives and Environmental Resources

Sheet 6 of 7

El Paso County, Texas





LEGEND

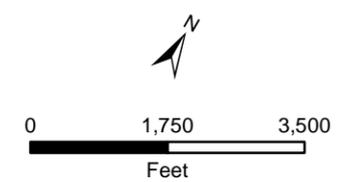
- BHE Study Area
- Major Arterial
- Minor Arterial
- Roadway Alternative
- Non-Roadway Alternative
- El Camino Real de Tierra Adentro
- UPRR

- Fabens Airport
- Cemetery
- Historical Marker
- National Register Property
- Hospital
- Library
- Civic Facility

- Bus Route (Existing)
- Bike Route (Existing)
- Bike Route (Proposed)
- Future Bus Rapid Transit Corridor
- Schools
- Place of Worship
- Fire

- Police
- Mission Trail Historic District
- Yselta del Sur Pueblo (Tigua) Property
- Tigua Trust Land
- Tigua Trust Land Buffer
- Tigua Ceremonial Land
- Tigua Ceremonial Land Buffer

- Port of Entry
- Park
- Potential Grade Separations
- NRHP District
- Canals/Laterals/Drains
- 100-Year Floodplain



BHE Recommended Alternatives and Environmental Resources

Sheet 7 of 7

El Paso County, Texas

