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Loop 375 César Chávez Highway (Border High West Extension)

Preliminary Alternatives Assessment Draft Report

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**Prepared for:
Texas Department of Transportation
El Paso District**

**Date:
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1.0 INTRODUCTION

This document details the universe of alternatives and summarizes the recommended concepts for preliminary alternatives for the expansion of Loop 375 César Chávez Highway (Border Highway West Extension) in El Paso, Texas. This assessment is a component of the on-going development of an Environmental Impact Statement (EIS) for the corridor. The proposed project is approximately 13.8 miles and would provide a continuous route beginning at Interstate 10 (I-10) east of State Highway (SH) 20 (Mesa Street) to Sunland Park Drive continuing on United States Highway (US) 85 then connecting to Loop 375 to end at US 54 as proposed by the Texas Department of Transportation (TxDOT) and the Federal Highway Administration (FHWA). The proposed project is part of an alternate route to provide congestion relief for I-10, an east-west facility north of the proposed project. A map of the project location is shown in Exhibit 1.

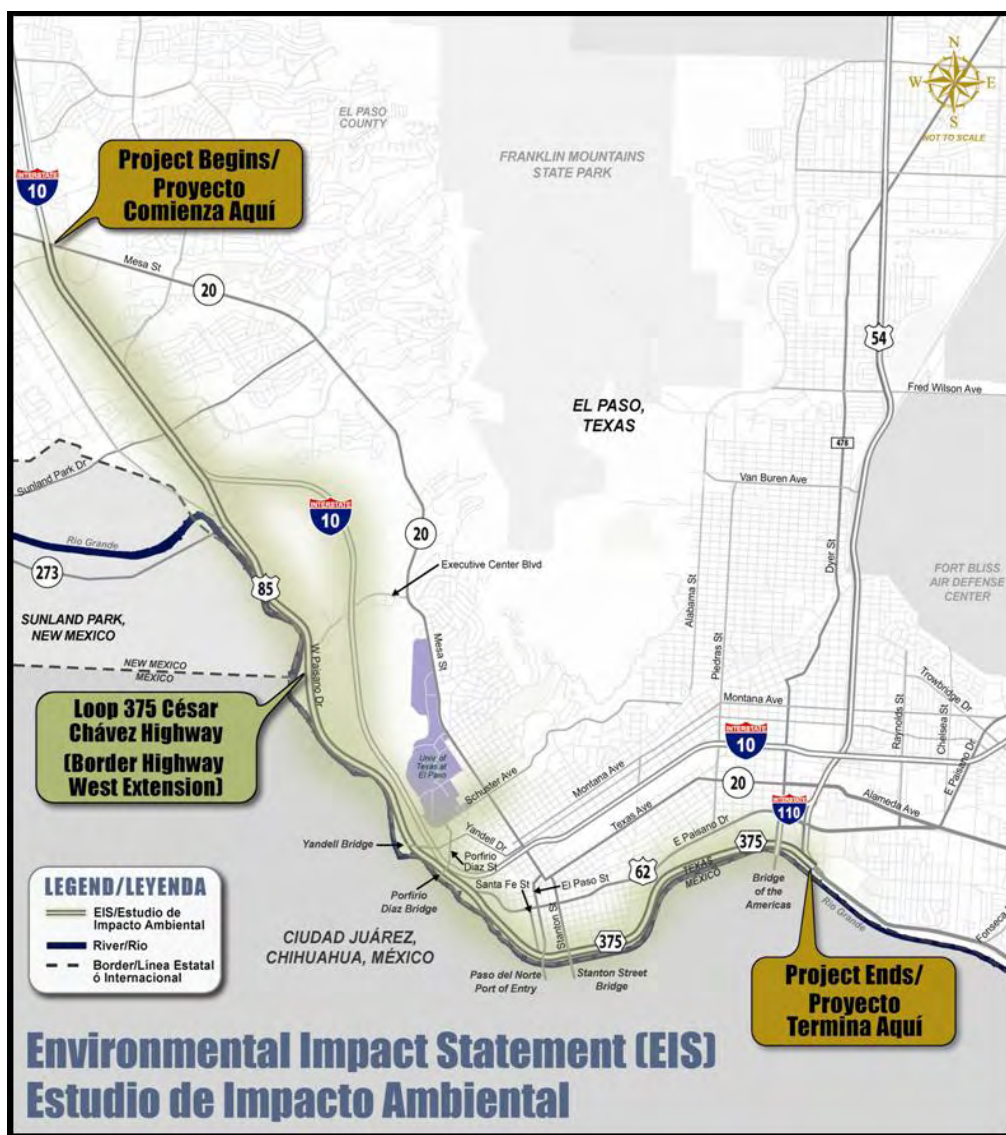


Exhibit 1 – Project Location Map

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2.0 DEVELOPMENT OF UNIVERSE OF ALTERNATIVES

The proposed Border Highway West Extension project is a continuation of several previous studies which recommended various alternatives to complete Loop 375 around the City of El Paso. Loop 375 César Chávez Highway currently ends at Santa Fe Street and extension further west to connect to US 85 is complicated by at-grade railroad tracks. Previous studies looked at alternatives to extend the Border Highway West beyond Santa Fe along new alignment to connect with US 85, which provided a connection to I-10. To accomplish this, alternatives were developed to either pass one level below grade, under the railroad and American Canal or two levels above grade to pass over the Santa Fe and Stanton Street international bridges, as well as the railroad and canal. For this project the development of the universe of alternatives took into account all relevant previous studies and recommendations.

2.1 Previous Studies and Recommendations

Several studies were completed prior to the current environmental study for this project. These documents included: the *1994 Value Engineering (VE) Study Summary Report*, the *I-10 West Corridor Major Investment Study (MIS)*, the *Loop 375 César Chávez (Border Highway West) Extension Route Study*, the *I-10 Southern Relief Route Conceptual Toll Feasibility Study*, and the *I-10 Southern Relief Route Mobility and Funding Study*.

2.1.1 1994 Value Engineering Study Summary Report

A value engineering (VE) study for the extension of Loop 375 was completed on January 28, 1994. This study evaluated revisions to the project typical section, revisions to alignments, profiles, and addition of future facilities to improve traffic flow.

The objectives of the VE study were to determine improvements to the proposed design such as alignment and profile, develop a conceptual plan that takes into consideration Franklin Canal revisions proposed by the International Boundary and Water Commission (IBWC), and minimize right-of-way (ROW) and environmental impacts and mitigation requirements. The VE study evaluated the proposed six lane divided roadway and determined that a four lane typical section would adequately accommodate the projected traffic. The VE study recommended an elevated structure since it would provide the best opportunity to construct the proposed facility. Where ROW conflicts could be avoided, the study recommended a lower profile. The study also recommended that access to the downtown area be provided from the east and west through US 85 (Paisano Drive).

2.1.2 I-10 West Corridor Major Investment Study

The TxDOT El Paso District completed the I-10 West Corridor Major Investment Study (MIS) in 1999. The MIS, begun in 1997, consisted of a 23-mile I-10 West Corridor from the New Mexico state line to US 54. The study also included a portion of US 54 from Loop 375 (Border Highway) north to Trowbridge Drive.

The MIS was a comprehensive, multimodal study to determine the long and short term transportation needs of the I-10 West corridor. Initially, 20 alternatives were developed,

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including a no build alternative. These were analyzed, and based on initial screening criteria; six alternatives were identified for refined development and evaluation. The six alternatives were:

- No Build
- Transportation System Management (TSM)
- I-10 Express Lanes
Two additional general purpose lanes (one in each direction) would be added from the New Mexico state line to Sunland Park Drive. Four express lanes (two in each direction) would be added from Sunland Park Drive to US 54. The express lanes would be available to all I-10 traffic but would be separated from general use lanes.
- Doniphan/Paisano Freeway
This alternative consists of reconstructing Doniphan Drive and Paisano Drive as a continuous freeway. Doniphan Drive would be connected to I-10 at Transmountain Road. Paisano Drive would be connected to the Border Highway. This would complete Loop 375 on El Paso's west side and provide an alternate route to I-10.
- Arterial 1/Tunnel
This alternative would consist of constructing a new east-west roadway from Fred Wilson Road, through the Franklin Mountains (via tunnel), to I-10 and Paisano Drive.
- Localized Improvements.
This alternative consisted of several smaller projects that would improve traffic conditions in localized areas. Mesa Street improvements would add continuous right turn lanes from I-10 to Executive Center and add interchanges at Resler Drive and Sunland Park Drive.

Also included were I-10 frontage roads from Mesa Street to Executive Center Boulevard, the extension of Stanton Street, Bartlett Drive to Southwestern Drive to Northwestern Drive extension, the extension of Schuster Avenue to Paisano Drive, and the widening of Transmountain Road.

The recommended alternative of the MIS included improvements to I-10 and various other roads in the study area as included in the Modified Metropolitan Transportation Plan (MTP), which were based on mobility benefits, potential environmental effects, cost, and public comments. By definition, this recommendation also included no build and TSM alternative improvements. A maximum service transit option was also recommended in conjunction with the roadway improvements.

The Modified MTP alternative would connect Doniphan Drive, Paisano Drive, and the Border Highway; creating a continuous alternate route to I-10, and addressing congestion on I-10, Mesa Street, Transmountain Road, Sunland Park Drive, and Executive Center Boulevard. Transit improvements would include increased bus routes, increased frequency of service, and additional transfer facilities. This alternative not only would provide mobility benefits through the year 2020 but would also retain the flexibility to implement the I-10 express lanes component beyond 2020 if such improvements are warranted. Further, the implementation of I-10 frontage roads was also retained for further consideration.

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2.1.3 Loop 375 César Chávez (Border Highway West) Extension Route Study

A Route Study Report for Loop 375 César Chávez Highway (Border Highway West) Extension was prepared in July, 2005. The project objectives were:

- Enhanced east-west mobility in El Paso;
- Improved projected level of service in the study area;
- Improved regional access;
- Improved safety and reduced incident delay for the traveling public;
- Minimized impacts to the human and natural environment.

Nine alternatives were evaluated in the study and a ranking matrix was used to evaluate the alternatives on the basis of a list of project criteria. These criteria subjects included:

- Project objectives;
- Traffic planning/mobility;
- Engineering design and construction;
- Environmental.

All of the possible combinations were summarized through the use of the ranking matrix to obtain the preferred alternatives. An estimated cost was developed for each alternative to determine the costs of the preferred alternative combinations. The alternatives analysis resulted in the selection of the combination A-C1-E-G as the preferred feasible alternative. The components of this alternative are described as follows.

Alternative A would follow the existing US 85 (Paisano Drive) alignment and would be partially at-grade. There would be a diamond interchange at the relocated and elevated Executive Center Boulevard. The alignment would encroach on the IBWC's American Canal east of ASARCO. The open paved trapezoidal ditch would have to be realigned and replaced with a box culvert.

Alternative C1 follows US 85 and then parallels the existing American Canal on new alignment. The alignment would be elevated from the Schuster Avenue/UTEP area at ASARCO to where Loop 375 turns south and diverges from US 85. A three level diamond interchange would be located at the extended and realigned Schuster Avenue. The existing Paisano Drive would be realigned at grade under the elevated mainlanes. It would serve as a two-lane, two-way access road to adjoining properties. Loop 375, Border Highway West, would be at level 2 and Schuster Avenue would be at level 3.

Alternative E would be elevated its entire length from the BNSF Paisano Rail Yard to east of Park Street. The alignment would be parallel to the American Canal to a point east of the Santa Fe Bridge. It would then follow the existing LP 375 alignment to a point east of Park Street.

Alternative G would be elevated from east of Park Street to just west of the Franklin Canal, where it would return to an at-grade facility and connect to the existing LP 375. A diamond interchange would be added at Coles Street, providing access to the El Paso central business district.

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2.1.4 I-10 Southern Relief Route Conceptual Toll Feasibility Study

In early 2005, the TxDOT El Paso District requested that the Texas Turnpike Authority Division (TTA) conduct a conceptual level toll feasibility study to determine the feasibility of adding barrier separated express toll lanes to the Loop 375 César Chávez Border Highway West Extension project; in this study the corridor is referred to as the I-10 Southern Relief Route. These initial conceptual studies identified conceptual funding gaps for each of the studied segments ranging from \$2.7 million to \$159.8 million and averaging nearly \$50 million. The cost estimates used for this conceptual toll feasibility study were based on planning level estimates for anticipated roadway and bridge improvements. They were not based on layouts with specific locations for pavement edges, bridge limits, retaining walls, interchanges and ramps.

2.1.5 I-10 Southern Relief Route Mobility and Funding Study

One of the more recent studies, the I-10 Southern Relief Route (SRR) Mobility and Funding Study (MFS), was completed in 2006. For clarification the general alignment and limits of Loop 375 César Chávez Border Highway West project fall within the alignment and limits of the I-10 SRR. The objective of the I-10 SRR MFS was to build upon the previous toll feasibility study, focusing on updating the three critical elements: tolled traffic projections, tolling concept diagrams, and project costs.

A desirable conceptual layout was developed for each segment of the project, utilizing the most desirable typical section that could be accommodated and the most desirable access, such as grade-separated ramps, wherever possible. A more economical conceptual layout was developed for those areas where the desirable express toll lane typical section could not be accommodated within the existing ROW or required significant alterations to the existing pavement.

Two-lane, two-way barrier-separated express toll lanes were added to the median for the majority of the I-10 SRR to provide additional capacity to the existing non-tolled lanes. The desirable typical section has barriers separating the toll lanes from the non-tolled lanes. A four-lane two-way elevated express toll lane facility was proposed between the I-10/US 85 interchange and the LP 375/US 54 interchange. All existing lanes would continue to operate as non-tolled facilities.

Based on the study conclusions and results of the related public outreach program, the El Paso MPO Transportation Policy Board (TPB) voted on May 19, 2006 to approve the I-10 SRR as El Paso's priority relief route. With this vote, the TPB took action to:

- Support a regional system of express toll lanes while accommodating and maintaining the existing system of non-tolled lanes;
- Approve the I-10 Southern Relief Route as the priority relief route; and
- Direct TxDOT and the MPO staff to incorporate the I-10 Southern Relief Route segments into the appropriate planning documents.

On July 28, 2006, the TPB rescinded their May 19, 2006 I-10 SRR approval vote based on several ongoing discussions regarding funding priorities for the region. At this meeting they also voted to establish a committee to further study and compare transportation infrastructure improvement alternatives for the region. The committee was charged with assessing the

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various alternatives proposed for the region and to develop a financial plan that would prioritize the various projects. The financial plan was required to be based on the fiscal constraints of the region's funding sources; and provide the most overall benefit to the community.

On August 24, 2007 the TPB approved the El Paso MPO TransBorder Mobility Plan - Financial Plan, which included portions of the Loop 375 César Chávez Border Highway West Extension project. The TPB directed staff to further refine the projects identified in this plan and ultimately include them in the MPO's long-range 2035 TransBorder Metropolitan Transportation Plan (MTP). At this time the MPO is in the process of developing this 2035 TransBorder MTP; all elements of the plan are subject to change as the plan is refined.

2.2 Evaluation of Universe of Alternatives

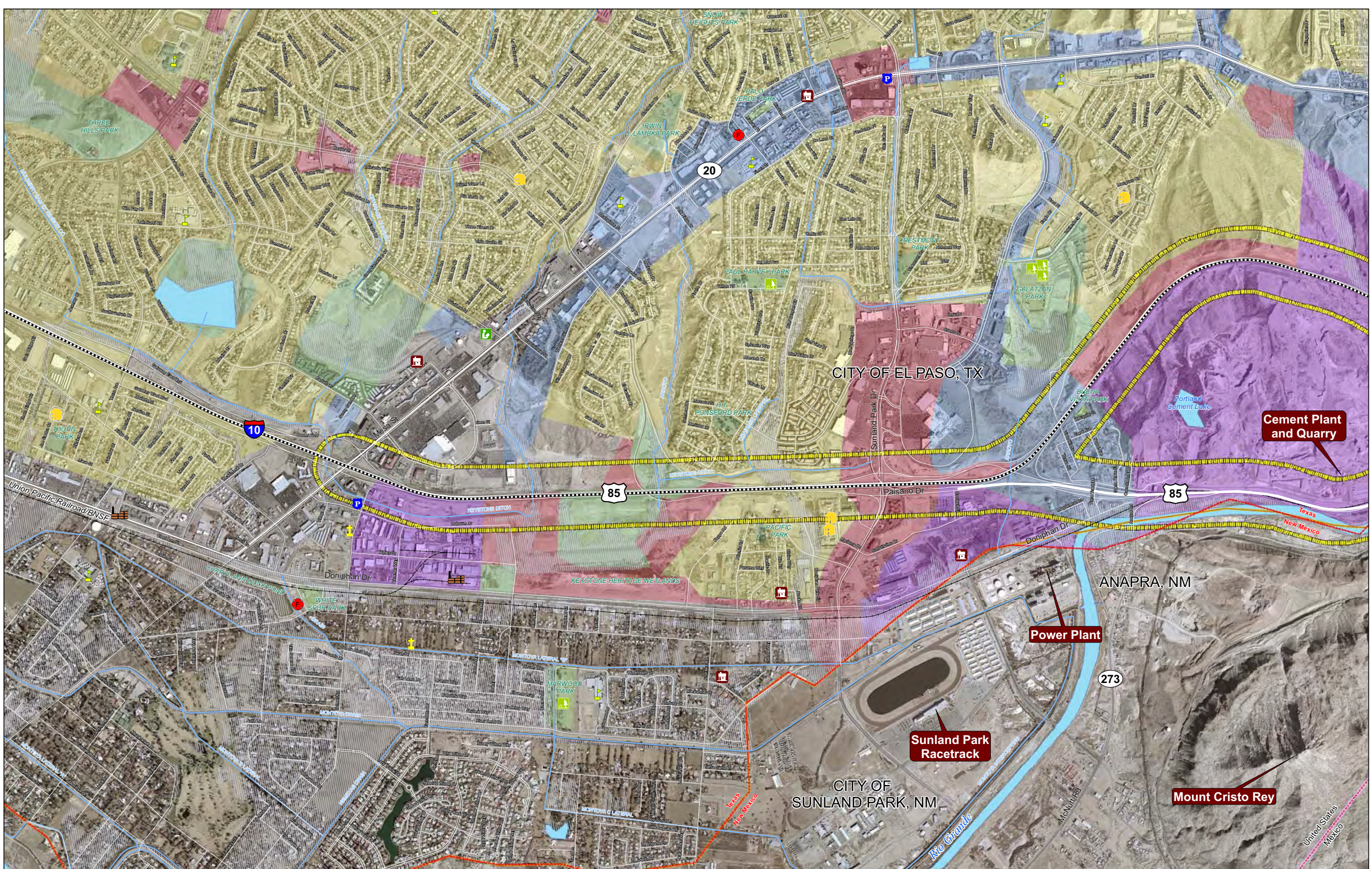
2.2.1 Development of Alternative Concepts

All previous studies recognized a need for Loop 375 to be completed in order to serve as an alternate route to I-10. The alternatives and recommendations from the previous studies were analyzed together with the updated environmental constraints map (shown in Exhibits 2 through 4) to determine current feasibility. In addition, initial coordination meetings were held with participating and cooperating agencies to present study area information to governmental and agency officials, and thus receive feedback on resource mapping, the project coordination plan, schedule, and methodologies to be used in the development and analysis of alternatives.

Information gathered on environmental constraints along with the recommendations from previous studies was used to perform a fatal flaw analysis. Recommendations carried forward were used to generate preliminary concepts to present to the public for input in establishing the preliminary alternatives to be studied further. Alternative modes were analyzed in detail in the I-10 West Corridor MIS. The study team agrees with those recommendations, which included maximizing existing bus transit service and roadway improvements, as the recommended modes to be carried forward. In addition, it is recommended that a No-build alternative and TSM/TDM alternative be carried forward as well.

Since the project area between the US 85/I-10 interchange and US 54 contains significant environmental constraints on both sides of the existing roadways, all of the preliminary concepts follow the existing roadway alignments. The project area is located adjacent to the Rio Grande River to the south and west and steep grades to the north and east. These constraints do not allow for a viable alternative parallel facility along either side of the existing US 85. The preliminary concepts consist of various modifications to the typical sections of the existing roadways in order to add the four additional lanes. A new location portion is proposed to connect the existing Loop 375 to the existing US 85 facility. This new location area is constrained by the Rio Grande River, American Canal and two rail lines.

As a result of the fatal flaw analysis, design concepts carried forward from the recently completed *Southern Relief Route Mobility and Funding Study* were used to develop one of the tolled alternatives. Design concepts from the *Loop 375 César Chávez Highway (Border Highway West) Extension Route Study* were used for development of the non-tolled alternatives. The concept to depress the four new lanes under the international bridges in the Loop 375 Extension Route Study was applied to the I-10 SRR tolled alternative to develop a



Data Source

City of El Paso, TX 2007	FEMA Q3 Flood Data, 2006
Arroyo, Canal, Drain	100-year Floodplain
Library	Texas General Land Office, 2007
City Hall	Water Body
Police Station	Historical District
Community College	Historical Marker
EPIC Ports of Entry	Historical District
Existing Bike Route	Historical Marker
Fire Station	Texas Natural Resource Information System, 2007
Fort Bliss Boundary	Department of Transportation, 2006
Franklin Mountains State Park	Aerial Photography
General Zoning	City of El Paso, 1999
Land Use	Forecast Land Use Classification (2025)
Hazardous Cargo Route	University of Texas, El Paso, 2007
Highway	UTEP Campus Boundary
State Loop	
County	
Municipal Boundary	
International Boundary	
University of Texas at El Paso	

Legend

Constant Study Area (1,500 ft)	Historical Marker	Museum	Water Body	Forecast Land Use - 2025
Interstate Highway	Historic District	Library	Franklin Mountains State Park	Residential District
US Highway	El Paso County Ports of Entry	Hospital	FEMA Floodplain	Commercial
Farm-to-Market	Hazardous Cargo Route	Fire Station	100-year	Industrial
State Highway	Mobile Home Park	Cemetery	100-year	Mixed Use
State Loop	Civic Facility	Church	General Zoning	Parks and Open Space
County	School	Community College	Quarry	Railroad
Municipal Boundary	Public Recreation Facility	City Hall	Special Development	Railroad
International Boundary	Public Housing Development	Arroyo, Canal, Drain, Lateral	Special Residential Revitalization	Yard
University of Texas at El Paso	Potential Brownfield	Existing Bike Route	Union Plaza	Junction
	Police Station	Airport Runway	Fort Bliss Boundary	

Scale

1:7,200

1" = 600'

0 500 1,000 2,000 Feet

0 0.125 0.25 0.5 Miles

Map

EL PASO COUNTY

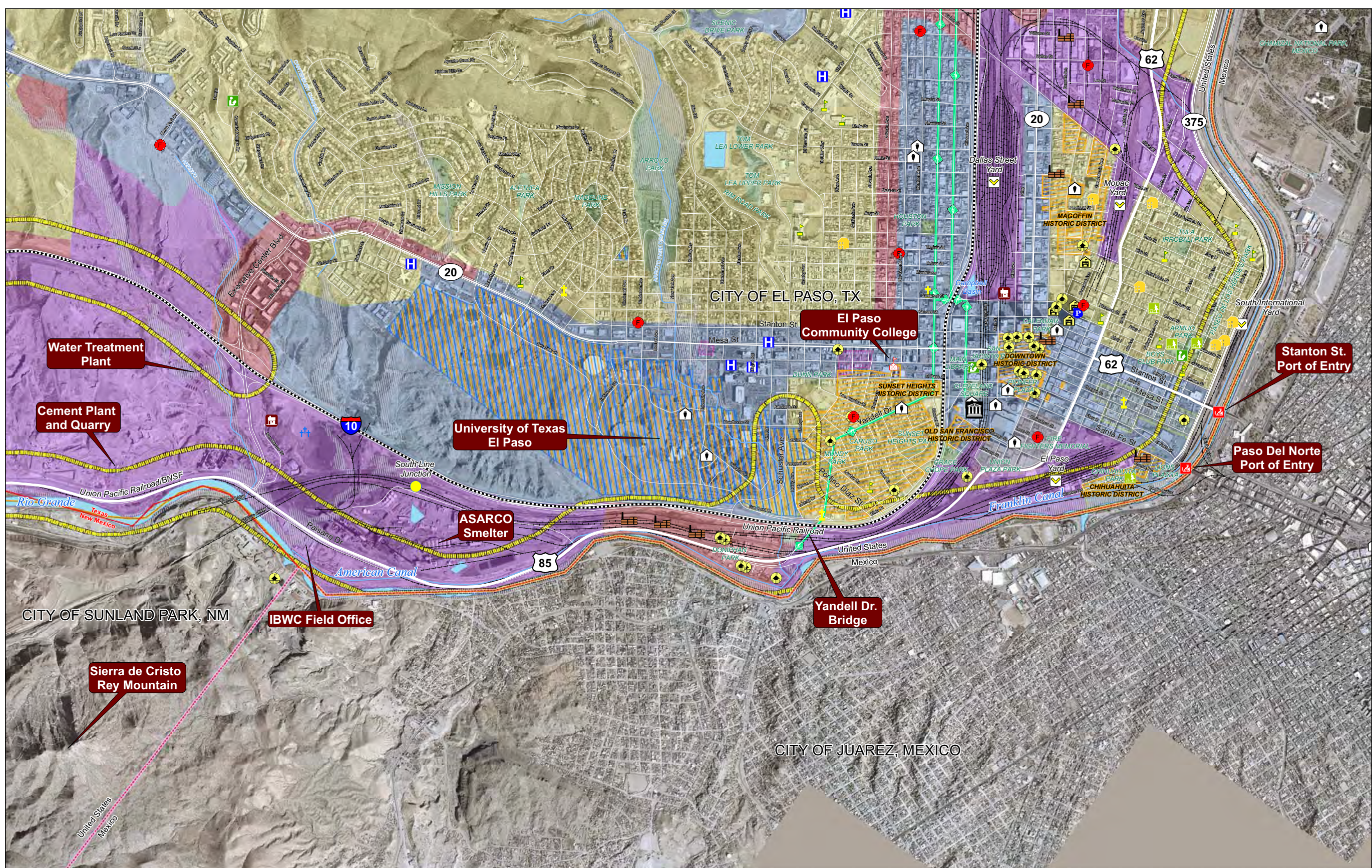
CITY OF EL PASO

Exhibit 2

Loop 375 César Chávez Highway (Border Highway West Extension) Project Constraints Map

October, 2007

THIS PROJECT DOES NOT CROSS INTERNATIONAL BOUNDARIES.



Data Source

City of El Paso, TX, 2007	FEMA Q3 Flood Data, 2006
Arroyo, Canal, Drain	100-year Floodplain
City Hall	Texas General Land Office, 2007
Civil Facility	Water Body
Community College	Texas Historical Commission, 2006
EPC Ports of Entry	Historical District
Existing Bike Route	Historical Marker
Fire Station	Texas Natural Resource Information System, 2007
Fort Bliss Boundary	Shattuck Road, County, City
Franklin Mountains	Department of Transportation, 2006
White Park	Aerial Photography
General Zoning	City of El Paso, 1999
Land Use	Federal Land Use Classification (2020)
Hazardous Cargo	University of Texas, El Paso, 2007
Historic District	UTEP Campus Boundary
School	

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

THIS PROJECT DOES NOT CROSS INTERNATIONAL BOUNDARIES.

Legend

Constraint Study Area (1,500 ft)	Historical Marker	Museum	Water Body	Residential District
Interstate Highway	Historic District	Library	Franklin Mountains State Park	Commercial
US Highway	El Paso County Ports of Entry	Hospital	FEMA Floodplain	Industrial
Farm-to-Market	Hazardous Cargo Route	Fire Station	100-year	Mixed Use
State Highway	Mobile Home Park	Cemetery	General Zoning	Parks and Open Space
State Loop	Civic Facility	Church	Quarry	Railroad
County	School	Community College	Special Development	Yard
Municipal Boundary	Public Recreation Facility	City Hall	Special Residential Revitalization	Junction
International Boundary	Potential Brownfield	Arroyo, Canal, Drain, Lateral	Union Plaza	
University of Texas at El Paso	Police Station	Existing Bike Route	Fort Bliss Boundary	
		Airport Runway		

Scale

1" = 600'

0 500 1,000 2,000 Feet

0 0.125 0.25 0.5 Miles

Map

EL PASO COUNTY

CITY OF EL PASO

United States

Mexico

Exhibit 3

Project Information

Loop 375 César Chávez Highway
(Border Highway West Extension)
Project Constraints Map

Exhibit 3
TxDOT El Paso District
CSJ: 2552-04-027

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