Texas Department of Transportation

MEMORANDUM

TO: Mimi Horn
Environmental Coordinator
El Paso District

DATE: November 27, 2012

FROM: Melissa Neeley
Project Delivery Section Director
Environmental Affairs Division

SUBJECT: State Categorical Exclusion
El Paso County
CSJ: 0924-06-446

El Paso Streetcars: On Oregon Street and Stanton Street

ENV staff reviewed the categorical exclusion document submitted to ENV on November 9, 2012 and concur that the subject project is classified as a State Categorical Exclusion.

Internal review under the programmatic agreement for archeology and historic structures has been completed. Texas Parks and Wildlife Department coordination was completed on September 17, 2012. No additional coordination was required. Copies of the internal review memos and letters are filed in the ECOS database.

We are in receipt of the summary regarding the public meetings that were conducted in July 2012.

According to the environmental document, no Section 404 permit is needed.

ENV approval for the Letter of Authority is conditioned upon the project being consistent with and contained in the El Paso MPO conforming transportation plan and TIP.

You may now proceed with the next stage of project development.

Non-FHWA Categorical Exclusion

El Paso Streetcar

Limits: On Oregon Street and Stanton Street

El Paso County

CSJ: 0924-06-446

Prepared by
Texas Department of Transportation

September 2012
Revised October 2012
Revised November 2012

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Proposed Action

The Texas Department of Transportation (TxDOT) proposes to construct a modern streetcar route in the City of El Paso, El Paso County, Texas. The proposed action consists of a two-mile long corridor with two loops making up a total of 5.6 miles of single track beginning near the Downtown Business District and the International Bridges on South Stanton Street and South El Paso Street, traveling north through downtown, to the University of Texas at El Paso (UTEP) area, the Cincinnati Entertainment District, and Kern Place. The proposed action has logical termini and independent utility, as the project would be able to function on its own without additional construction of an adjoining project. The logical termini are defined by the study area limits. **Appendix A** contains the following exhibits: a project location map depicting the project limits (**Exhibit 1)**, a United States Geological Survey (USGS) topographic map of the study area (**Exhibit 2)**, and an aerial photograph (**Exhibit 3**). Representative photos of the project area are provided in **Appendix B** and supplemental information, including the location of the project in El Paso's Metropolitan Transportation Plan (MTP); the letter of concurrence from the Texas Historical Commission (THC); and U.S. Fish and Wildlife Service (USFWS) and Texas Parks and Wildlife Department (TPWD) threatened and endangered species lists for El Paso County, is provided in **Appendix C**.

Existing Facility
Currently there is no existing streetcar system in El Paso; however, the proposed streetcar project would run on the following existing roadways: North Stanton Street, Glory Road/East Baltimore Drive, North Oregon Street, East Franklin Avenue, North/South Kansas Street, East/West Father Rahm Avenue, and North/South Santa Fe Street. Please see **Appendix A, Exhibit 4** for existing typical sections.

Within the project limits, the above roadways are oriented as follows:

North Stanton Street is oriented north-south. The entire right-of-way (ROW) width ranges from 70 to 78 feet and the street ROW width ranges from 42 to 60 feet. At the north end of the project area, just south of McKelligon Drive, North Stanton Street is a bidirectional street with one travel lane in each direction and widens to two travel lanes in each direction at Cliff Drive. At the south end of the project, between East Franklin Avenue and Montana Avenue, North Stanton Street becomes one-way northbound with three travel lanes. Lane widths for most of Stanton Street typically range between 10 and 12 feet, except between East Baltimore Drive and Coffin Avenue, where each travel lane is 22 feet wide. Parking lanes exist on both sides of the street in

various sections and are between eight and 10 feet wide, and sidewalks range from six to 18 feet on either side of the roadway.

Glory Road/East Baltimore Drive is oriented east-west and has one travel lane in each direction varying between 10 and 13 feet wide, two 10-foot wide parking lanes, and eight- to 15-foot wide sidewalks on either side of the roadway. The road ROW width ranges from 40 to 46 feet.

North Oregon Street is oriented north-south. The entire ROW width ranges from 60 to 70 feet, and the roadway width ranges from 44 to 54 feet. It consists of one travel lane in each direction, between 10 and 12 feet wide, except at the Interstate 10 (I-10) overpass, where the travel lanes are 19.5 feet wide with an 11-foot wide center turn lane. The turn lane becomes a 10-foot wide flush painted median between East Cliff Drive and East Franklin Street, and there is a 12-foot wide transit and bicycle only lane on either side of the street at that section, along with a 10-foot wide parking lane on either side. In addition, between Glory Road and Cliff Drive, there is a 12-foot wide transit and bicycle only lane in each direction instead of a parking lane. Sidewalks range from five to 13 feet wide.

East Franklin Avenue is oriented east-west. The entire ROW width is 70 feet, and the road width ranges from 44 to 50 feet. Between Santa Fe Street and North Oregon Street, East Franklin is a two-way street with 14-foot wide travel lanes. East of North Oregon Street all travel lanes are one-way eastbound. Between North Oregon Street and North Mesa Street, there are two 14-foot wide travel lanes. Between North Mesa Street and North Kansas Street, there are three travel lanes: two are 11 feet wide, and one is 12 feet wide. There are eight- to 16-foot wide parking lanes and 10-foot wide sidewalks on both sides of the street.

Kansas Street is oriented north-south and all travel lanes are one-way southbound. The entire ROW width is 70 feet and the road ROW width ranges from 42 to 50 feet. There are typically three travel lanes between 10 and 12 feet wide, except between East Main Street and East Mills Avenue, where there are four 10.5-foot wide travel lanes. A right turn lane and left turn lane appear just north of the intersection with Texas Avenue. There are eight- to nine-foot wide parking lanes and sidewalks of varying widths along either side of Kansas Street.

West Father Rahm Avenue is oriented east-west and consists of a two-lane, bidirectional roadway with a 14-foot wide eastbound travel lane and a 12-foot wide westbound travel lane. The entire ROW width is 70 feet, and the roadway width is 50 feet. There is parking on either side of the roadway: 16-foot wide front-angle parking on the north side and eight-foot wide parallel parking on the south side. There are also 10-foot wide sidewalks on either side.

Santa Fe Street is oriented north-south and consists of a bidirectional roadway with 10-foot travel lanes. The entire ROW width is 70 feet, and the roadway ROW width ranges from 50 to 52 feet. Between West Father Rahm Avenue and West San Antonio Avenue, there is a 12-foot wide median, and between West San Antonio Avenue and East Franklin Street, there is a southbound right turn lane. The sidewalks on either side of this roadway are between nine and 10 feet wide.

Proposed Facility

The proposed action would install streetcar tracks within existing road ROW and include a maintenance facility on a 0.64-acre site currently owned by the City of El Paso. Proposed typical sections are included in **Appendix A, Exhibit 4.**

The proposed action consists of installing streetcar tracks on the following streets: North Stanton Street, North Oregon Street, Glory Road/East Baltimore Drive, East Franklin Avenue, North/South Kansas Street, East/West Father Rahm Avenue, and North/South Santa Fe Street. The streetcar would operate in a one-way loop along North Stanton Street and North Oregon Street from East Baltimore Drive to East Franklin Avenue. An additional one-way loop is planned in downtown El Paso along Santa Fe Street, Father Rahm Avenue, South Kansas Street, and East Franklin Avenue. The streetcar tracks would be placed within the outside travel lanes of the existing road ROW, and the streetcar would share these travel lanes with general automobile traffic. Catenary wires would be anchored on the side of the roadway closest to the streetcar, within the ROW, unless otherwise specified. Stops would be located on the sidewalk. Where there is an existing parking lane adjacent to the outside travel lane, the sidewalk would be extended to reach the travel lane, to provide a platform for passengers. Each extension would replace an existing parking spot.

On North Stanton Street between East Franklin Street and East Baltimore Drive, the proposed typical section consists of streetcar tracks in the right-most northbound travel lane, adjacent to the eight-foot wide parking lane on the east side of the roadway. The travel lane currently varies from 10 to 12 feet wide in this section, and the lanes would need restriping to assure a lane width of at least 11 feet for the streetcar. Where the lanes are 12 feet wide, no restriping would occur. At the I-10 overpass, the streetcar is proposed to run within a 19-foot wide travel lane, northbound, on the east side of the roadway. Between East Baltimore Drive and Coffin Avenue, the current configuration of North Stanton Street is two travel lanes in each direction, each 22 feet wide. The road would be restriped to create two 15-foot wide travel lanes, one in each direction, and a 14-foot wide center turning lane. The streetcar would run in the travel lanes, and stops would use the existing parking lane as discussed above.

The streetcar's northern terminus would be at McKelligon Drive. On North Stanton Street between Coffin Avenue and McKelligon Drive, the streetcar route would run in the existing lanes, one track in each direction. In this section, because the roadway is narrow, the catenary wires would be anchored on both sides of the roadway and stretch across the roadway via spanwire instead of being anchored only on one side.

The streetcar would then continue southbound on North Stanton Street. At the intersection of North Stanton Street and East Baltimore Drive, the streetcar route would turn right (westbound) onto East Baltimore Drive. The lane widths would remain unchanged. The streetcar would run in the westbound travel lane adjacent to the parking lane on the north side of the street. One stop is proposed on East Baltimore Drive.

At the intersection of Glory Road and North Oregon Street, the streetcar route would turn left (southbound) onto North Oregon Street. On North Oregon Street between Glory Road and the I-10 overpass, the streetcar would run in the existing southbound 12-foot wide travel lane dedicated to transit and bicycle use only, adjacent to the west sidewalk. Between I-10 and East Franklin Avenue, the proposed typical section consists of a 16-foot wide southbound lane, adjacent to the parking lane on the western side of the street, for the streetcar tracks. At the I-10 overpass, the streetcar would run within an 11-foot wide southbound transit-only lane adjacent to the sidewalk, thus requiring the current 19.5-foot-wide lane to be restriped, creating another southbound through lane to the east of the transit-only lane.

At the intersection of North Oregon Street and East Franklin Avenue, the streetcar route would turn left (eastbound) onto East Franklin Avenue. On East Franklin Avenue between North Oregon Street and North Kansas Street, the streetcar would run in the existing 11-foot travel lane on the south side of the street, adjacent to the existing eight-foot wide parking lane. No lane widths would change.

At the intersection of East Franklin Avenue and North Kansas Street, the streetcar route would turn right (southbound) onto North Kansas Street, which is one-way southbound. Between East Franklin Avenue and East Mills Avenue, the streetcar would run in the existing 12-foot travel lane on the west side of the road, adjacent to the parking lane. Between East Mills Avenue and Texas Avenue, North Kansas Street would be restriped to allow for an 11-foot wide lane for the streetcar, which would run in the right-most travel lane adjacent to the right turn lane. The turn lane would be reduced to a width of nine and a half feet and remain otherwise unaffected. The left-turn lane would be reduced to a width of nine and a half feet. Between Texas Avenue and East Father Rahm Avenue, the streetcar tracks would use the existing travel lane width. All lane width reductions will be coordinated with the Downtown Circulator, which uses Kansas Street and requires a lane width of 11 feet.

At the intersection of South Kansas Street and East Father Rahm Avenue, the streetcar route would turn right (westbound) onto East Father Rahm Avenue. East Father Rahm Avenue would require no restriping, as the streetcar would run within the 12-foot travel lane. Automobile traffic would share the roadway. The span wires on East Father Rahm Avenue would be anchored on both sides of the roadway instead of using cantilever poles, as the roadway is narrow enough to accommodate that configuration.

At the intersection of West Father Rahm Avenue and South Santa Fe Street, the streetcar route would turn right (northbound) onto South Santa Fe Street. For the length of Santa Fe Street, the streetcar route would run in the easternmost travel lane, adjacent to the sidewalk. On Santa Fe Street, minimal restriping would occur to increase the streetcar's travel lane to a width of 11 feet. Restriping would reduce the center turn lane between West Father Rahm Avenue and West San Antonio Avenue from 12 feet to 11 feet, and reduce the southbound right turn lane between West San Antonio Avenue and West Main Drive to a width of nine feet.

At the intersection of North Santa Fe Street and East Franklin Avenue, the streetcar route would turn right (eastbound) onto East Franklin Avenue. In the section of East Franklin Avenue between North Santa Fe Street and North Oregon Street, the streetcar would run in a new 11-foot-wide transit-only lane, requiring the removal of a parking lane and reducing the current 14-foot-wide through lane to 11 feet.

Throughout the entire length of the proposed streetcar route alignment, stops with potential shelters would be placed three to four blocks apart. Proposed stop locations are provided in **Appendix A, Exhibit 3**.

The proposed maintenance and storage facility would be located at the corner of Santa Fe Street and West 4th Avenue, on the western side of Santa Fe Street. Currently, the 0.64-acre site is a parking lot adjacent to Sun Metro's Downtown Transfer Center at 601 South Santa Fe Street. The proposed facility would require no ROW acquisition.

Project Funding/Transportation Planning

As of July 13, 2012, the estimated construction cost for the proposed action is $90,000,000 and the funding is anticipated to be provided entirely through the State of Texas. The anticipated letting date is May of 2013 and the expected completion date is autumn 2015. Funding for the construction phase has not been formally identified, thus the project does not appear as a "funded" project in the El Paso Metropolitan Planning Organization's 2013-2016 Transportation Improvement Program (TIP). The project is expected to be added to Appendix D in a future amendment to the 2013-2016 TIP. Appendix D includes regionally significant projects that have a high expectation of being funded in the near future.

Need and Purpose

This project is needed to improve circulation and accessibility in downtown El Paso between the intersection of North Stanton Street and McKelligon Drive, and the intersection of South Kansas Street and East 7th Avenue. The proposed action would add a new transportation option, a streetcar, to the existing roadway and bus facilities and enhance pedestrian mobility throughout downtown El Paso. The streetcar is included in *Plan El Paso*, the comprehensive plan for the City of El Paso, and was studied by TxDOT in an initial streetcar feasibility study that showed both market potential and technical viability for a new streetcar route between downtown El Paso and UTEP. According to the community concerns summarized in *Plan El Paso*, the over-arching transportation theme connecting almost all input was to expand and increase personal mobility choices and options. Residents and stakeholders emphasized the desire to have greater access to convenient and safe walking, bicycling, and transit opportunities. The streetcar is expected to improve accessibility for pedestrians who cross the border for short trips, encourage economic development in the study area, and provide shuttle service for special events. It will be particularly useful to pedestrians who need access to supermarkets and other shopping.

According to its ~~"G~~uidelines Emphasizing Bicycle and Pedestrian Accommodations" (March 23, 2011), TxDOT is committed to proactively plan, design and construct facilities to safely accommodate bicyclists and pedestrians on appropriate facilities. The proposed action would improve the area for pedestrians, especially the area between North Stanton and North Oregon Streets. A safety improvement for bicyclists is included on North Oregon Street. On North Oregon Street, sharrows (indicating a shared-use lane) currently exist in the outside travel lane, which is the lane the streetcar will use. This configuration is hazardous to bicyclists. The project proposes to move the southbound sharrows to the inside travel lane, thus ensuring bicyclists would safely travel in the lane adjacent to the streetcar instead of sharing the lane with it.

The purpose of the proposed action is to meet current and future pedestrian circulation demands in downtown El Paso between the Downtown Business District/International Bridges and the Kern Place/Cincinnati Avenue Entertainment District and UTEP, as well as be consistent with local plans. According to *Plan El Paso*, residents have expressed frustration that El Paso's growth continues sprawling outward while many developed areas are vacant, underused, or otherwise exhibit disinvestment. They expressed that revitalizing downtown should be a priority over new fringe growth. In addition, according to *Plan El Paso*, a streetcar route would be a critical element of ~~"r~~e-investing in downtown first." As such, it is anticipated that the proposed action would assist the city in achieving the priorities as expressed in the comprehensive plan by encouraging economic development in downtown El Paso while also meeting the project need to improve circulation and accessibility.

Alternatives

Two alternatives were considered, No Build and Build.

No Build
A No Build Alternative would consist of no modifications to the existing roadways and no streetcar implementation. Future pedestrian circulation needs would not be met by the current configuration. The No Build Alternative, though more cost efficient, would not meet the proposed project's need and purpose.

Build
The proposed Build Alternative would install streetcar tracks within existing ROW and include a maintenance facility on a 0.64-acre site currently owned by the City of El Paso. Proposed typical sections are included as **Exhibit 4** in **Appendix A.**

Right-of-Way

No additional ROW is needed for this project. The proposed streetcar project would be constructed within the existing ROW of the above-referenced streets (**Exhibit 1**), which range from 60 to 78 feet in width (**Exhibit 4**). In addition, a maintenance facility would be constructed on a 0.64-acre site currently owned by the City of El Paso.

Several utilities exist within the existing ROW in the project area, including telephone cables, storm and sewer lines, and gas lines, some of which could require relocation due to the construction of the proposed action. All of the affected utilities would be adjusted or relocated prior to construction. The adjustments and relocations of any utilities would be handled so that no substantial interruptions would occur. Plans for relocating any utilities would be provided by the appropriate utility company.

There would be some permanent easements, ten to 20 feet wide, on a strip of land along the maintenance and storage facility belonging to the El Paso Electric Company. Overhead Contact System (OCS) poles would be located along this strip of land, which is at the southwest boundary of the existing Downtown Transfer Center, for maintenance and storage tracks. The approximate size of the easements would be 0.21 acres or 9,000 square feet.

Surrounding Area

Topography is generally level to gently sloping, and the project limits are typically confined to an urban commercial setting. The proposed action is located within the Rio Grande-Fort Quitman Watershed and contains no creek crossings. Adjacent vegetative communities have been previously disturbed and much native vegetation has been replaced with ornamental trees and other vegetation consistent with urban landscaping efforts.

Land Use

Land use adjacent to the proposed action is a mix of commercial, municipal, institutional, residential, and industrial. The proposed action would not directly affect current or future land use.

Public Facilities

Public facilities located within or immediately adjacent to the study area included in **Table 1** below:

Table 1: Public Facilities within the Study Area

Public Facility	Location
University Church	Immediately adjacent to the proposed action at North Stanton St and Gregory Ave
Mesita Elementary School	Immediately adjacent to the proposed action at North Stanton St and Kern Dr
Fire Station	Immediately adjacent to the proposed action at North Stanton St and East Robinson Ave
Sacred Heart Church	Immediately adjacent to the proposed action at Father Rahm Ave and South Oregon Street
Church of Christ Anthony	0.1 mile east of South Santa Fe Street and West 3rd Ave
Del Centro Baptist Church	0.1 mile southeast of East Father Rahm Ave and South Kansas St
Aoy Elementary School	0.1 mile south of East Father Rahm Ave and South Kansas St
Telles Academy	0.1 mile east of South Kansas St and East Paisano Dr
Fire & Police Stations	0.1 mile east of South Kansas St and Overland Ave

Table 1: Public Facilities within the Study Area (Continued)

Public Facility	Location
Immaculate Conception Church	0.1 mile northeast of North Kansas St and East San Antonio Ave
Church of St Clement and St Clement's School	0.1 mile northeast of North Kansas St and Montana Ave
Old B'nai Zion Synagogue	0.1 mile southwest of North Oregon St and West Rio Grande Ave
Fire Station	0.15 mile west of South Santa Fe St and West Overland Ave
Second Baptist Church	0.25 mile east of South Kansas St and East Paisano Dr
Fire Station	0.25 mile west of North Oregon St and West Nevada Ave

The proposed action would improve access to these public facilities from the surrounding community by providing additional transportation options and would not negatively affect any emergency public services in the performance of their various duties and responses to the many residences within the project area.

Soils

According to the *Soil Survey of El Paso County, Texas* provided by the U.S. Department of Agriculture's Natural Resource Conservation Service, the predominant soil type found within the proposed action area is Made Land, Gilla and Delnorte-Canutio Association. Made Land, Gilla soils are classified as fine sandy loam, silt loam, and gravelly sandy loam that have well drainage/shrink swell potential, rare flooding, no ponding, and high water capacity. Delnorte-Canutio Association soils are described as very gravelly loam with well drainage/shrink swell potential, no flooding or ponding, and very low water capacity.

Specific Areas of Environmental Concern

The following section discusses specific areas of environmental concern related to implementation of the proposed action.

Socioeconomic Resources

The proposed action would require no additional ROW. The proposed action would include the addition of several stops and potential shelters, in-street tracks, and a maintenance facility within existing City of El Paso property at the Downtown Transfer Center. Access to adjacent businesses, residence, and other land uses would be maintained. The proposed action would affect existing travel patterns, as the lanes in which the tracks would be installed would continue to function as automobile travel lanes. The streetcar would operate in mixed traffic. The exception is on Oregon Street, where the streetcar would use the existing transit lane.

There are no anticipated direct impacts to economic, environmental, and social attributes of the study area resulting from the proposed action. The proposed action would be constructed within an existing transportation facility and therefore not cause the isolation of any businesses, residences, or communities, and it would not bisect any communities. The proposed action would allow pedestrians to more easily and safely travel to locations between the International Bridges and Kern Place and the shopping and entertainment districts.

Community Impacts

Community cohesion is a term that refers to an aggregate quality of a residential area. Cohesion is a social attribute that indicates a sense of community, common responsibility, and social interaction within a limited geographic area. There are many businesses and institutions within the vicinity of the project. There would be no permanent negative effects from the proposed action on these businesses. There could be a potential for temporary impacts from construction, including temporary road closures, detours, construction noise, and construction dust. The proposed action would not require the acquisition of additional ROW. The proposed action would not adversely impact adjacent property values. No adverse impacts to any neighborhoods, communities, or other social units would be anticipated as a result of the proposed project.

Environmental Justice

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires agencies to make achieving environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations.

FHWA has identified three fundamental principles of environmental justice:

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

Disproportionately high and adverse human health or environmental effects are those that:

(1) are predominately borne by a population that is a minority, low income, or both, or
(2) will be suffered by the minority and/or low-income population and are appreciably more severe or greater in magnitude than the adverse effects that will be suffered by the non-minority and/or non-low-income population.

According to the U.S. Bureau of Census (2010), minority populations are those groups that include Black or African Americans, American Indians or Alaska Natives, Asians, Native Hawaiians or other Pacific Islanders, Hispanic or Latinos, and other races.

Low-income populations are those populations whose household income is at or below the annually issued US Department of Health and Human Services (HHS) poverty guidelines. The 2012 HHS poverty guideline for a family of four is $23,050 per year.

Table 2 shows the total population, number of households, median household income, percentage of Spanish speakers, and percentage of minorities in those census tracts, block groups, and blocks intersected by the project and within a half-mile buffer.

Table 2: Minority and Low-Income Populations

Area*	Total Pop. 2000	Households	Median Household Income	Speak Spanish (%)	White (%)	Other (%)	Persons of Hispanic or Latino Origin (%)
CT 14	2,172	947	$16,827	74.6			
CT 14, BG 2	1,516	743	$16,466		68.3	26	73.2
BK 2004	0				0	0	0.0
CT 15.01	5,001	2,212	$39,091	52.2			
CT 15.01, BG 3	1,147	448	$37,188		88.0	12.1	59.9
BK 3022	50				78	22	64
BK 3024	28				92.9	7.1	50.0
BK 3025	48				95.8	4.2	54.2
BK 3026	39				97.4	2.6	71.8
CT 15.01, BG 4	1,411	559	$36,300		86	14	60.2
BK 4011	31				96.8	3.2	48.4
BK 4012	53				81.1	18.8	62.3
BK 4013	36				77.8	22.2	88.9
BK 4014	42				92.9	7.2	54.8
BK 4015	44				75	25	84.1
BK 4016	10				100	0	40.0
BK 4017	295				69.5	30.5	87.1
BK 4018	15				20	80	86.7
BK 4019	32				100	0	84.4
BK 4020	0				0	0	0.0
BK 4021	23				91.3	8.6	73.9
BK 4022	36				88.9	11.1	86.1
BK 4023	44				79.5	20.4	70.5
BK 4024	51				78.4	21.6	60.8
BK 4025	16				81.3	18.8	25.0
BK 4026	26				84.6	15.3	30.8
BK 4027	56				96.4	3.6	35.7
BK 4028	62				98.4	1.6	58.1
BK 4029	41				100	0	41.5
BK 4030	15				100	0	40.0

Table 2: Minority and Low-Income Populations (Continued)

Area*	Total Pop. 2000	Households	Median Household Income	Speak Spanish (%)	White (%)	Other (%)	Persons of Hispanic or Latino Origin (%)
BK 4031	39				100	0	43.6
CT 15.02	2,848	1,132	$46,707	54.1			
CT 15.02, BG 1	808	357	$59,028		85.9	14	46.4
BK 1005	41				85.4	14.6	36.6
BK 1006	48				87.5	12.5	33.3
BK 1007	26				100	0	50
BK 1008	39				89.7	10.3	41
BK 1009	43				67.4	32.5	83.7
BK 1010	10				100	0	100
BK 1011	12				91.7	8.3	50
BK 1012	8				87.5	12.5	25
BK 1013	24				66.7	33.3	50
BK 1014	0				0	0	0
BK 1015	19				73.7	26.3	68.4
BK 1016	15				60	40	53.3
BK 1021	1				100	0	0
BK 1022	20				90	10	60
BK 1023	0				0	0	0
BK 1024	21				85.7	14.3	38.1
BK 1025	5				20	80	80
BK 1026	0				0	0	0
BK 1027	0				0	0	0
BK 1028	45				73.3	26.6	95.6
BK 1029	23				100	0	73.9
BK 1030	16				68.8	31.3	50
BK 1031	17				100	0	52.9
BK 1032	22				95.5	4.5	50
BK 1033	25				68	32	56
BK 1035	14				85.7	14.2	14.3
BK 1036	14				85.7	14.3	21.4
BK 1037	15				93.3	6.7	53.3
BK 1038	0				0	0	0
BK 1039	0				0	0	0
BK 1040	0				0	0	0

Table 2: Minority and Low-Income Populations (Continued)

Area*	Total Pop. 2000	Households	Median Household Income	Speak Spanish (%)	White (%)	Other (%)	Persons of Hispanic or Latino Origin (%)
BK 1041	0				0	0	0
CT 15.02, BG 2	482	52	$12,981		68.3	31.6	57.9
BK 2000	127				42.5	57.4	54.3
BK 2001	173				94.8	5.3	81.5
CT 15.02, BG 3	623	249	$75,589		88.1	11.8	52.8
BK 3007	2				100	0	100
BK 3008	16				87.5	12.5	56.3
BK 3009	0				0	0	0
BK 3010	20				95	5	25
BK 3011	12				58.3	41.7	91.7
BK 3012	0				0	0	0
BK 3013	0				0	0	0
BK 3014	0				0	0	0
BK 3015	34				94.1	5.9	67.6
BK 3016	17				100	0	70.6
BK 3017	45				75.6	24.4	68.9
BK 3018	20				75	25	45
BK 3019	8				75	25	12.5
BK 3020	28				92.9	7.2	64.3
BK 3027	20				100	0	25
BK 3028	36				86.1	13.9	75
BK 3029	7				100	0	42.9
BK 3030	21				85.7	14.3	47.6
BK 3031	29				48.3	51.7	79.3
BK 3032	0				0	0	0
BK 3033	0				0	0	0
BK 3034	2				0	100	0
BK 3035	2				100	0	0
BK 3036	22				77.3	22.7	63.6
BK 3037	40				90	10	90
CT 15.02, BG 4	935	468	$28,654		79.7	20.4	54.4
BK 4004	20				95	5	35
BK 4005	13				92.3	7.7	53.8
BK 4006	16				81.3	18.8	62.5

Table 2: Minority and Low-Income Populations (Continued)

Area*	Total Pop. 2000	Households	Median Household Income	Speak Spanish (%)	White (%)	Other (%)	Persons of Hispanic or Latino Origin (%)
BK 4007	14				100	0	7.1
BK 4008	15				100	0	66.7
BK 4009	0				0	0	0
BK 4010	0				0	0	0
BK 4011	21				85.7	14.3	90.5
BK 4012	6				100	0	33.3
BK 4013	17				76.5	23.5	35.3
BK 4014	30				80	20	70
BK 4015	15				100	0	13.3
BK 4019	32				96.9	3.1	40.6
BK 4020	25				84	16	68
BK 4022	14				100	0	35.7
BK 4023	19				89.5	10.5	73.7
BK 4024	20				85	15	50
BK 4025	21				61.9	38.1	90.5
BK 4026	34				70.6	29.5	82.4
BK 4027	92				94.6	5.5	31.5
BK 4028	58				81	18.9	62.1
BK 4029	0				0	0	0
BK 4030	0				0	0	0
BK 4031	0				0	0	0
BK 4032	6				100	0	0
BK 4033	0				0	0	0
BK 4034	68				66.2	33.8	70.6
BK 4035	142				52.1	47.9	59.9
BK 4036	78				69.2	30.8	80.8
BK 4037	0				0	0	0
CT 16	5,249	2,057	$18,111	78.1			
CT 16, BG 1	707	277	$19,792		86.6	13.4	89
BK 1000	27				100	0	88.9
BK 1001	68				75	25	91.2
BK 1002	39				87.2	12.8	94.9
BK 1003	9				100	0	55.6
BK 1004	0				0	0	0

Table 2: Minority and Low-Income Populations (Continued)

Area*	Total Pop. 2000	Households	Median Household Income	Speak Spanish (%)	White (%)	Other (%)	Persons of Hispanic or Latino Origin (%)
BK 1005	50				88	12	94
BK 1006	4				0	100	100
BK 1007	61				86.9	13.1	91.8
BK 1008	46				78.3	21.7	67.4
BK 1009	42				92.9	7.2	95.2
BK 1010	35				94.3	5.8	94.3
BK 1011	52				94.2	5.8	82.7
BK 1012	29				100	0	100
BK 1013	34				82.4	17.6	67.6
BK 1014	53				94.3	5.7	92.5
BK 1015	53				88.7	11.3	90.6
BK 1016	5				100	0	60
BK 1017	27				100	0	100
BK 1018	73				69.9	30.1	93.2
CT 16, BG 2	768	329	$9,571		81.4	18.6	85.9
BK 2000	53				90.6	9.4	94.3
BK 2001	54				77.8	22.2	74.1
BK 2002	25				88	12	32
BK 2003	58				67.2	32.7	75.9
BK 2004	85				85.9	14.2	75.3
BK 2005	65				72.3	27.6	89.2
BK 2006	106				75.5	24.5	89.6
BK 2007	0				0	0	0
BK 2008	0				0	0	0
BK 2009	9				100	0	100
BK 2010	0				0	0	0
BK 2011	0				0	0	0
BK 2012	58				93.1	6.9	79.3
BK 2013	28				89.3	10.7	96.4
BK 2014	72				81.9	18.1	100
BK 2015	56				73.2	26.9	94.6
BK 2016	31				90.3	9.7	83.9
BK 2017	68				85.3	14.7	100
BK 2018	0				0	0	0

Table 2: Minority and Low-Income Populations (Continued)

Area*	Total Pop. 2000	Households	Median Household Income	Speak Spanish (%)	White (%)	Other (%)	Persons of Hispanic or Latino Origin (%)
BK 2019	0				0	0	0
BK 2020	0				0	0	0
CT 16, BG 3	1,460	577	$21,833		75.1	24.9	81.4
BK 3000	177				74.6	25.4	61
BK 3001	80				55	45.2	66.3
BK 3002	18				100	0	94.4
BK 3003	46				100	0	69.6
BK 3004	103				65	34.9	71.8
BK 3005	47				76.6	23.3	78.7
BK 3006	124				69.4	30.6	91.9
BK 3007	23				100	0	100
BK 3008	166				72.9	27.1	91
BK 3009	132				81.8	18.3	90.2
BK 3010	69				78.3	21.7	85.5
BK 3011	137				63.5	36.5	83.9
BK 3012	257				87.9	12.1	81.3
BK 3013	81				60.5	39.5	95.1
CT 16, BG 5	1,720	691	$16,815		82.1	18	84.9
BK 5000	0				0	0	0
BK 5001	1				0	100	100
BK 5002	0				0	0	0
BK 5003	0				0	0	0
BK 5004	212				84.9	15.1	89.6
BK 5005	50				94	6	82
BK 5006	69				72.5	27.5	72.5
BK 5007	39				76.9	23.1	71.8
BK 5019	172				80.8	19.1	90.1
BK 5020	60				81.7	18.3	86.7
BK 5021	0				0	0	0
BK 5022	115				73	26.9	70.4
BK 5023	0				0	0	0
BK 5024	224				77.2	22.7	78.1
BK 5025	0				0	0	0
CT 17	1,797	348	$13,125	74.6			

Table 2: Minority and Low-Income Populations (Continued)

Area*	Total Pop. 2000	Households	Median Household Income	Speak Spanish (%)	White (%)	Other (%)	Persons of Hispanic or Latino Origin (%)
CT 17, BG 1	206	73	$20,688		66.5	33.6	92.7
BK 1001	7				85.7	14.3	100
BK 1002	0				0	0	0
BK 1003	0				0	0	0
BK 1004	53				54.7	45.3	98.1
BK 1005	0				0	0	0
BK 1006	0				0	0	0
BK 1007	0				0	0	0
BK 1008	0				0	0	0
BK 1009	0				0	0	0
BK 1010	15				93.3	6.7	80
BK 1013	0				0	0	0
BK 1014	0				0	0	0
BK 1015	0				0	0	0
BK 1016	0				0	0	0
BK 1017	0				0	0	0
BK 1018	0				0	0	0
BK 1019	0				0	0	0
BK 1020	0				0	0	0
BK 1021	0				0	0	0
BK 1022	6				83.3	16.7	16.7
BK 1023	0				0	0	0
BK 1024	0				0	0	0
BK 1025	0				0	0	0
BK 1026	0				0	0	0
BK 1027	0				0	0	0
BK 1028	0				0	0	0
BK 1029	0				0	0	0
BK 1030	0				0	0	0
BK 1031	1				0	100	0
BK 1032	0				0	0	0
BK 1033	0				0	0	0
BK 1034	0				0	0	0
CT 17, BG 2	77	31	$10,208		88.3	11.7	97.4

Table 2: Minority and Low-Income Populations (Continued)

Area*	Total Pop. 2000	Households	Median Household Income	Speak Spanish (%)	White (%)	Other (%)	Persons of Hispanic or Latino Origin (%)
BK 2000	0				0	0	0
BK 2001	0				0	0	0
BK 2002	0				0	0	0
BK 2003	0				0	0	0
BK 2004	0				0	0	0
BK 2005	0				0	0	0
BK 2006	0				0	0	0
BK 2007	0				0	0	0
BK 2008	0				0	0	0
BK 2009	0				0	0	0
BK 2010	0				0	0	0
BK 2011	1				100	0	0
BK 2012	0				0	0	0
BK 2013	0				0	0	0
BK 2014	4				100	0	100
BK 2015	68				86.8	13.2	98.5
BK 2016	4				100	0	100
BK 2017	0				0	0	0
BK 2018	0				0	0	0
BK 2019	0				0	0	0
BK 2020	0				0	0	0
CT 17, BG 3	963	23	$15,893		96.4	3.6	87.6
BK 3000	61				96.7	3.3	95.1
BK 3001	1				100	0	0
BK 3002	0				0	0	0
BK 3003	893				96.6	3.3	87.3
BK 3004	0				0	0	0
BK 3005	1				100	0	100
BK 3006	0				0	0	0
BK 3007	0				0	0	0
BK 3008	0				0	0	0
BK 3009	0				0	0	0
BK 3010	0				0	0	0
BK 3011	0				0	0	0

Table 2: Minority and Low-Income Populations (Continued)

Area*	Total Pop. 2000	Households	Median Household Income	Speak Spanish (%)	White (%)	Other (%)	Persons of Hispanic or Latino Origin (%)
BK 3012	0				0	0	0
BK 3013	0				0	0	0
BK 3014	0				0	0	0
BK 3015	0				0	0	0
BK 3016	0				0	0	0
BK 3017	0				0	0	0
BK 3018	0				0	0	0
BK 3019	4				100	0	50
BK 3020	0				0	0	0
BK 3021	3				0	100	100
BK 3022	0				0	0	0
CT 17, BG 4	490	162	$13,162		81	19	94.3
BK 4000	4				0	100	0
BK 4001	0				0	0	0
BK 4002	0				0	0	0
BK 4003	0				0	0	0
BK 4004	33				97	3	93.9
BK 4005	74				82.4	17.6	83.8
BK 4006	6				83.3	16.7	50
BK 4007	86				88.4	11.7	100
BK 4008	22				90.9	9.1	100
BK 4009	0				0	0	0
BK 4010	0				0	0	0
BK 4011	0				0	0	0
BK 4012	0				0	0	0
BK 4013	82				75.6	24.4	97.6
BK 4014	75				76	24	96
BK 4015	2				100	0	100
BK 4016	99				75.8	24.2	98
BK 4017	0				0	0	0
BK 4018	6				100	0	100
BK 4019	1				100	0	100
BK 4020	0				0	0	0
CT 17, BG 5	61	49	$5,991		90.2	9.9	62.3

Table 2: Minority and Low-Income Populations (Continued)

Area*	Total Pop. 2000	Households	Median Household Income	Speak Spanish (%)	White (%)	Other (%)	Persons of Hispanic or Latino Origin (%)
BK 5000	9				100	0	55.6
BK 5001	0				0	0	0
BK 5002	35				91.4	8.6	54.3
BK 5003	0				0	0	0
BK 5004	0				0	0	0
BK 5005	0				0	0	0
BK 5006	0				0	0	0
BK 5007	0				0	0	0
BK 5008	0				0	0	0
BK 5009	0				0	0	0
BK 5010	0				0	0	0
BK 5011	0				0	0	0
BK 5012	0				0	0	0
BK 5013	0				0	0	0
BK 5014	0				0	0	0
BK 5015	0				0	0	0
BK 5016	0				0	0	0
BK 5017	4				100	0	50
BK 5018	1				0	100	100
BK 5019	12				83.3	16.6	91.7
BK 5020	0				0	0	0
BK 5021	0				0	0	0
CT 18	1,521	508	$10,833	89.9			
CT 18, BG 1	836	248	$13,250		68.4	31.6	96.5
BK 1000	0				0	0	0
BK 1001	11				72.7	27.3	100
BK 1002	36				86.1	13.9	100
BK 1003	81				80.2	19.8	100
BK 1004	123				56.1	43.8	100
BK 1005	56				73.2	26.7	100
BK 1006	14				85.7	14.3	100
BK 1007	51				52.9	47	98
BK 1008	47				55.3	44.7	85.1
BK 1009	0				0	0	0

Table 2: Minority and Low-Income Populations (Continued)

Area*	Total Pop. 2000	Households	Median Household Income	Speak Spanish (%)	White (%)	Other (%)	Persons of Hispanic or Latino Origin (%)
BK 1011	70				91.4	8.6	97.1
BK 1012	59				71.2	28.9	88.1
BK 1013	29				79.3	20.7	100
BK 1014	0				0	0	0
BK 1015	0				0	0	0
BK 1016	141				78.7	21.3	97.9
BK 1017	16				81.3	18.8	100
BK 1018	10				100	0	100
BK 1019	2				0	100	100
BK 1020	0				0	0	0
BK 1021	0				0	0	0
BK 1022	0				0	0	0
BK 1023	0				0	0	0
BK 1024	0				0	0	0
BK 1025	0				0	0	0
BK 1026	50				14	86	100
BK 1027	40				57.5	42.5	77.5
CT 18, BG 2	685	249	$9,659		75.9	24.1	96.6
BK 2000	7				85.7	14.3	100
BK 2001	0				0	0	0
BK 2002	47				78.7	21.2	87.2
BK 2003	11				100	0	100
BK 2004	11				9.1	90.9	100
BK 2005	0				0	0	0
BK 2006	0				0	0	0
BK 2007	0				0	0	0
BK 2008	0				0	0	0
BK 2009	29				86.2	13.7	89.7
BK 2010	66				86.4	13.6	98.5
BK 2011	127				78	22	100
BK 2012	9				88.9	11.1	44.4
BK 2013	53				81.1	18.9	98.1
BK 2014	30				73.3	26.6	100
BK 2015	81				60.5	39.6	100

Table 2: Minority and Low-Income Populations (Continued)

Area*	Total Pop. 2000	Households	Median Household Income	Speak Spanish (%)	White (%)	Other (%)	Persons of Hispanic or Latino Origin (%)
BK 2016	66				74.2	25.8	100
BK 2017	4				100	0	100
BK 2018	144				75.7	24.3	95.1
BK 2019	0				0	0	0
CT 19	3,400	1,023	$9,007	89.6			
CT 19, BG 1	954	319	$11,536		81.7	18.3	97.4
BK 1000	83				91.6	8.4	98.8
BK 1001	101				89.1	11	97
BK 1002	56				85.7	14.3	100
BK 1003	85				77.6	22.3	91.8
BK 1004	0				0	0	0
BK 1005	0				0	0	0
BK 1006	55				81.8	18.2	100
BK 1007	85				78.8	21.2	100
BK 1008	26				100	0	100
BK 1009	208				79.3	20.7	96.6
BK 1010	54				94.4	5.6	100
BK 1011	136				66.2	33.8	96.3
BK 1012	0				0	0	0
BK 1013	31				90.3	9.7	93.5
BK 1014	25				72	28	100
BK 1015	9				100	0	100
CT 19, BG 2	438	120	$9,583		75.8	24.1	98.9
BK 2000	36				66.7	33.4	100
BK 2001	67				88.1	12	100
BK 2002	0				0	0	0
BK 2003	2				100	0	100
BK 2004	0				0	0	0
BK 2005	1				100	0	100
BK 2006	0				0	0	0
BK 2007	0				0	0	0
BK 2008	36				88.9	11.1	100
BK 2009	14				100	0	100
BK 2010	139				77	23	98.6

Table 2: Minority and Low-Income Populations (Continued)

Area*	Total Pop. 2000	Households	Median Household Income	Speak Spanish (%)	White (%)	Other (%)	Persons of Hispanic or Latino Origin (%)
BK 2011	143				65	35	97.9
CT 19, BG 3	456	123	$13,295		84.4	15.5	98.9
BK 3000	6				100	0	100
BK 3001	0				0	0	0
BK 3002	111				88.3	11.7	100
BK 3003	0				0	0	0
BK 3004	0				0	0	0
BK 3005	209				85.6	14.3	97.6
BK 3006	130				78.5	21.5	100
CT 19, BG 4	909	306	$6,521		76.5	23.6	96.9
BK 4000	559				76.9	23	96.6
BK 4001	32				71.9	28.1	100
BK 4002	60				78.3	21.7	93.3
BK 4003	60				98.3	1.7	100
BK 4004	37				73	27	97.3
BK 4005	2				100	0	100
BK 4006	0				0	0	0
BK 4007	0				0	0	0
BK 4008	53				62.3	37.7	96.2
CT 19, BG 5	643	165	$7,768		79.3	20.8	96.3
BK 5000	78				69.2	30.8	100
BK 5001	64				84.4	15.6	95.3
BK 5002	49				83.7	16.3	83.7
BK 5003	0				0	0	0
BK 5004	0				0	0	0
BK 5005	71				88.7	11.3	98.6
BK 5006	60				73.3	26.7	98.3
BK 5007	0				0	0	0
BK 5008	0				0	0	0
BK 5009	0				0	0	0
BK 5010	81				96.3	3.7	100
BK 5011	46				76.1	23.9	80.4
BK 5012	151				80.8	19.2	100
BK 5013	31				54.8	45.2	100

Table 2: Minority and Low-Income Populations (Continued)

Area*	Total Pop. 2000	Households	Median Household Income	Speak Spanish (%)	White (%)	Other (%)	Persons of Hispanic or Latino Origin (%)
BK 5014	0				0	0	0
BK 5015	0				0	0	0
BK 5016	0				0	0	0
BK 5017	0				0	0	0
BK 5018	0				0	0	0
BK 5019	11				18.2	81.8	81.8
BK 5020	0				0	0	0
BK 5021	1				0	100	100
CT 20	3,141	1,004	$10,880	90.4			
CT 20, BG 2	904	367	$7,149		76	24	96.7
BK 2006	196				72.4	27.6	99.5
CT 21	3,129	1,135	$8,490	86.9			
CT 21, BG 2	995	335	$11,285		79.1	20.9	95.2
BK 2000	0				0	0	0
BK 2001	0				0	0	0
BK 2002	0				0	0	0
BK 2003	0				0	0	0
CT 22.01	3,611	1,223	$18,764	75.8			
CT 22.01, BG 1	2,241	785	$22,218		78.3	5.3	76.7
BK 1024	192				66.1	33.9	88.5
CT 22.02	5,453	1,884	$15,526	86.1			
CT 22.02, BG 2	1,053	324	$18,712		73.3	26.6	93.7
BK 2005	25				80	20	68
BK 2006	42				88.1	11.9	100
BK 2007	78				69.2	30.8	100
BK 2008	72				79.2	20.9	94.4
BK 2009	49				65.3	34.7	83.7
BK 2010	116				82.8	17.2	97.4
BK 2014	75				84	16	92
BK 2015	72				45.8	54.1	93.1
CT 22.02, BG 3	964	336	$16,200		80.4	19.6	95.9
BK 3003	61				57.4	42.6	100
BK 3004	87				64.4	35.6	89.7

Table 2: Minority and Low-Income Populations (Continued)

Area*	Total Pop. 2000	Households	Median Household Income	Speak Spanish (%)	White (%)	Other (%)	Persons of Hispanic or Latino Origin (%)
BK 3005	4				75	25	100
BK 3006	50				82	18	94
BK 3013	99				85.9	14.1	99
BK 3014	38				92.1	7.9	84.2
CT 22.02, BG 4	826	336	$12,042		77.8	22.1	84.4
BK 4012	69				65.2	34.7	82.6
BK 4013	0				0	0	0

Source: US Census Bureau, *Census 2000*, accessed July 15, 2012 (*Census 2010* data not available at the block level).
Note: This table is based on U.S. Census Bureau figures that, due to rounding, may total slightly more or less than 100 percent. People who identify their origin as Hispanic or Latino may be of any race. Thus, the percent Hispanic or Latino should not be added to the race as percentage of population categories.
* CT = Census Tract; BG = Block Group; BK = Block

In the project area, of a total of 438 blocks, 168 blocks are not populated and 196 blocks have five or fewer people. In terms of race, a total of 14 blocks are over 50 percent minority and in terms of ethnicity, 145 blocks, or 33 percent of all blocks in the project area, are over 85 percent Hispanic or Latino. Of the 29 block groups within the study area, 24 have median household incomes below the 2012 HHS poverty guideline. This represents approximately 83 percent of the entire study area.

Limited English Proficiency

Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency (LEP), requires federal agencies to examine the services they provide, identify any need for services to LEP populations, and develop and implement a system to provide those services so that LEP persons can have meaningful access to them. Failure to ensure that LEP persons can effectively participate in or benefit from federally assisted programs and activities may violate the prohibition under Title VI of the Civil Rights Restoration Act of 1987 and Title VI regulations.

Languages spoken by LEP households in the area of the project include Spanish, Indo-European, Yiddish, Russian, Serbo-Croatian, Persian, Indic, Asian and Pacific Island, Native North American, Hungarian, Arabic, Hebrew, and African. That these languages are spoken in these households as the primary language does not necessarily preclude English from being spoken in these households.

Potential language barriers associated with ethnic and minority populations were analyzed to determine whether there are persons with LEP near the study area. The study area in El Paso, Texas is represented by Census Tracts 14, 15.01, 15.02, 16, 17, 18, 19, 20, 21, 22.01, and 22.02

(**Table 3**). On average, within these census tracts, 28 percent of residents speak English "Less than Well" which is considered LEP.

Table 3: LEP Populations

CT	Speak a Language Other than English (%)	Speak English less than "well" (%)
14	80.4	12.8
15.01	58.1	11.0
15.02	59.6	8.9
16	81.9	23.4
17	75.5	15.4
18	89.9	49.8
19	91.0	42.0
20	91.4	40.0
21	87.7	45.6
22.01	76.1	26.6
22.02	86.6	34.6

Source: U.S. Census Bureau. *Census 2000*, accessed July 15, 2012 (*Census 2010* data not available at the block level).

Based on a windshield survey conducted on July 17, 2012, numerous non-English language billboards or signs were observed in the study area. Public meetings were conducted on July 17 and July 19, 2012, and all attendees were offered the opportunity to provide oral and written comments concerning the proposed action. Reasonable arrangements (such as special communication interpreters or accommodation needs) were provided and will continue to be provided to ensure all persons had meaningful access to the programs, services, and information provided. Therefore, the requirements of Executive Order 13166 would be satisfied.

Although the study area contains a high percentage of EJ populations, including minority and low-income populations, there would be no adverse effects to these populations as a result of the proposed action. The project would not result in any residential or commercial displacements or result in any impairment of community cohesion. Moreover, the proposed action would benefit all populations in the surrounding community by providing an alternative transportation option between the International Bridges area and the Kern Place/Cincinnati Street Entertainment and UTEP. Therefore, no environmental justice population would be disproportionately impacted, and the requirements of EO 12898 on environmental justice are satisfied.

Section 4(f) Resources

The proposed action would not require the use of, nor substantially impair the purposes of any publicly owned land from a public park, recreational area, wildlife, and waterfowl refuge lands or historic sites of national, state, or local significance as determined by federal, state, or local officials having jurisdiction thereof; therefore, a Section 4(f) evaluation would not be required.

Cultural Resources

Cultural Resources are structures, buildings, archaeological sites, districts (a collection of related structures, buildings, and /or archaeological sites), cemeteries, and objects. Both federal and state laws require consideration of cultural resources during project planning. At the federal level, NEPA and the National Historic Preservation Act (NHPA) of 1966, among others, apply to transportation projects such as this one. In addition, state laws such as the Antiquities Code of Texas apply to these projects. Compliance with these laws often requires consultation with the Texas Historical Commission/Texas State Historic Preservation Officer and/or federally-recognized tribes to determine the project's effects on cultural resources. Review and coordination of this project followed approved procedures for compliance with federal, state and local laws.

Evaluation of cultural resources for this project will proceed in accordance with the First Amended Programmatic Agreement (PA) among the Federal Highway Administration, the Texas Department of Transportation, the Texas State Historic Preservation Officer, and the Advisory Council on Historic Preservation. This PA outlines TxDOT's procedures for evaluating project effects and for completing associated consultation on behalf of FHWA in compliance with Section 106 of the NHPA. In addition, cultural resources will be evaluated in accordance with TxDOT's Memorandum of Understanding (MOU) with the Texas Historical Commission (43 TAC 2.24), which specifies TxDOT's procedures for compliance with the Antiquities Code of Texas. The MOU describes procedures that are consistent with the process detailed in the PA.

Historic Properties

The Texas Historic Sites Atlas (THSA) was consulted to determine if any National Register of Historic Places (NRHP)-listed or previously documented buildings, districts, structures, objects, state historic markers or locally designated sites or historic districts lie within or near the study area. There are several NRHP-listed or previously documented buildings, districts, structures, objects, and sites that lie within or near the study area. There are also Recorded Texas Historic Landmarks (RTHL) and State Markers in the proposed project area. In addition, available maps of the local historic districts were reviewed as well as other information about the history of the districts.

A determination by ENV Historians that project activities would have no adverse effect to historic properties located within the project APE is dependent on the following components:

- Evidence of efforts to identify and evaluate historic properties located within a proposed action area of potential effects;
- Documentation that project planners and engineers considered project effects on properties listed or eligible for listing in the National Register of Historic Places and; through appropriate consultation sought ways to avoid, minimize or mitigate any adverse effects on historic properties;

- Findings of determination of effects to historic properties, with the appropriate documentation showing that Section 106 consultation is completed.

The review of the THSA has indicated that 106 historically significant resources have been previously documented within the APE, which was determined to be the proposed ROW **(Table 4)**. No site visit has been conducted and the total number of historic-age resources (built prior to 1968), as well as the number of NRHP eligible resources is undetermined. The historic resources in the project area are varied including residential, institutional and commercial buildings. These include the districts and individual properties.

Table 4: Previously Documented Historic Properties near or within the APE

Resources	Location	Designation	Comments
NATIONAL REGISTER			
Sunset Heights NR Historic District	Bounded by Heisig Ave., River Ave., N. El Paso and I-10	National Register	513 Properties
Old San Francisco Historic District	Missouri Street between 325-527	National Register	16 Properties
Rio Grande Avenue Historic District	Roughly bounded by Rio Grande, Nevada, Kansas, and Campbell Sts.	National Register	452 Properties
El Paso County Water Improvement District No. 1	Starting at the jct. of US 80 and US 85, along TX 20 to Alamo Alto	National Register	104 Properties
Franklin Canal	Roughly, S of the Texas and Pacific--Southern Pacific RR tracks from western El Paso to Fabens	National Register	2 Properties
Plaza Theatre	125 Pioneer Plaza	National Register	1 Property
White House Department Store and Hotel McCoy	109 Pioneer Plaza	National Register	1 Property
Hotel Cortez	300 N. Mesa St.	National Register	1 Property
U.S. Post Office	219 Mills Ave.	National Register	1 Property
El Paso Electric Company Building, Martin Building	215 N. Stanton St.	National Register	1 Property
Plaza Hotel	Oregon and Mills Sts.	National Register	1 Property
Roberts-Banner Building	215 N. Mesa St.	National Register	1 Property

Table 4: Previously Documented Historic Properties near or within the APE (Continued)

Resources	Location	Designation	Comments
Newberry, J. J., Company	201--205 N. Stanton St.	National Register	1 Property
Bassett, O. T., Tower	301 Texas Ave.	National Register	1 Property
First National Building, First National Mortgage	109 N. Oregon St.	National Register	1 Property
Hills, W. S., Commercial Structure	215--219 San Antonio Ave.	National Register	1 Property
NATIONAL REGISTER			
Abdou Building	115 N. Mesa St.	National Register	1 Property
Popular Department Store	102 N. Mesa St.	National Register	1 Property
Mexican Consulate	612 E. San Antonio St.	National Register	1 Property
El Paso US Courthouse	511 W. San Antonio Ave.	National Register	1 Property
Caples, Richard, Building	300 E. San Antonio Ave.	National Register	1 Property
State National Bank	114 E. San Antonio Ave.	National Register	1 Property
Silver Dollar Cafe	1021 S. Mesa	National Register	1 Property
Henry C. Trost House	1013 W. Yandell	National Register	1 Property in Sunset Heights, not in gray area
NATIONAL REGISTER AND RTHL			
Singer Sewing Company	211 Texas St.	National Register/RTHL	1 Property
Women's Club	1400 N. Mesa	National Register/RTHL	1 Property
Old Bnai Zion Synagogue	906 N. El Paso St.	National Register/RTHL	1 Property
Old Main, UTEP	Circle Road, University of Texas at El Paso Campus, El Paso	RTHL	1 Property
El Paso & Southwestern Railroad Locomotive Number One	400 W San Antonio Ave., UTEP	Subject/RTHL	1 Property
Burges House	603 W. Yandell	RTHL	1 Property in gray area
Hotel Cortez	310 N. Mesa	RTHL	
El Paso and Southwestern Railroad Building	416 N. Stanton St	RTHL	1 Property
El Paso Union Depot	700 San Francisco	RTHL	1 Property
Mills Building	303 N. Oregon St.	RTHL	1 Property

Table 4: Previously Documented Historic Properties near or within the APE (Continued)

Resources	Location	Designation	Comments
Martin Building	215 N. Stanton	RTHL	1 Property
Wallace Apartments	Yandell and Randolph Streets (east wall facing Randolph)	RTHL	1 Property, not in gray
SUBJECT MARKERS			
San Jacinto Plaza	on Oregon Ave.; in San Jacinto Plaza	Subject	
University of Texas at El Paso	University at Hawthorne Avenue, El Paso	Subject Marker	
Early El Paso Water Systems	1505 Los Angeles Dr.	Subject Marker	
Temple Mount Sinai	North Mesa	Subject	
El Paso Lodge No. 130 A. F. & A. M.	S. Oregon and E. San Antonio	Subject	
El Paso's First Catholic Church		Subject	
El Paso	Pioneer Plaza, Mills Ave. at El Paso St.	Subject	
El Paso County, C.S.A.	northeast San Jacinto Plaza; corner of Mesa and Main, downtown El Paso	Subject	Civil War
Camino Real (The King's Highway)	corner of Mills and Oregon; southwest corner of San Jacinto Plaza; downtown El Paso	1936 Centennial Marker (gray granite)	These markers are now historic
John Wesley Hardin	Concordia Cemetery, Colpa exit of IH-10, bounded by Stevens, Yandell, and Crockett streets	Subject	
First Meeting of the Presidents	Wyoming Ave. and I 10	Subject	
Sun Bowl	Stanton, Missouri	Subject Marker	
Site of the First Church Building in El Paso	southwest corner, Texas and Stanton Streets, El Paso	Subject Marker	
Four Men Shot Dead	southwest corner of South El Paso and West San Antonio, El Paso	Subject Marker	
Stage Station	corner of Overland and El Paso Streets (on south El Paso), El Paso	Subject Marker	1936 Centennial Marker (gray granite) These Markers are Historic
Bataan Memorial Trainway	500 San Francisco Ave., El Paso	Subject Marker	

Table 4: Previously Documented Historic Properties near or within the APE (Continued)

Resources	Location	Designation	Comments
Chihuahuita	910 South Santa Fe St	Subject Marker	
LOCAL HISTORIC DISTRICTS			
Downtown Historic District		Local Designation	
Union Plaza		Local Designation	
South Downtown		Local Designation	
Chihuahuita Historic District		Local Designation	
North Downtown		Local Designation	
NEIGHBORHOOD SURVEYS			
Faith Tabernacle			
El Paso Guidance Center	1503 North Kansas	Survey	
Poe, A.B. House (Zork Annex	906 North El Paso	Survey	
1301 North Oregon	1501 North Mesa	Survey	
Martin-Coyne Apartment Building	1509 North Mesa	Survey	
Amen Wardy Decorator (Zach T. White Residence	1301 North Oregon	Survey	
823 North Oregon	1217 North Mesa Street	Survey	
1112 North Oregon Street	1201 North Mesa	Survey	
Church of St. Patrick	823 North Oregon	Survey	
1011 North Mesa	1112 North Oregon Street	Survey	
1007 North Campbell Street (rear)	200 Arizona Avenue	Survey	
St. Clement's Episcopal Church	1011 North Mesa	Survey	
1205 El Paso	1007 North Campbell Street (rear)	Survey	
810 North Campbell Street	810 North Campbell Street	Survey	
1205 El Paso	1205 El Paso	Survey	
117 West Yandell Drive	117 West Yandell Drive	Survey	
614 West Yandell Street	614 West Yandell Street	Survey	
628 West Yandell Drive	628 West Yandell Drive	Survey	
607 West Yandell Street	607 West Yandell Street	Survey	
501 West Los Angeles	501 West Los Angeles	Survey	
117 West Yandell Drive	117 West Yandell Drive	Survey	
614 West Yandell Street	614 West Yandell Street	Survey	
628 West Yandell Drive	628 West Yandell Drive	Survey	

Table 4: Previously Documented Historic Properties near or within the APE (Continued)

Resources	Location	Designation	Comments
607 West Yandell Street	607 West Yandell Street	Survey	
501 West Los Angeles	501 West Los Angeles	Survey	
718 West Prospect	718 West Prospect	Survey	
525 West Corto	301West Missouri	Survey	
Jesus and Mary Convent (Senator J.J. Mundy Residence)	718 West Prospect	Survey	
Scottish Rite Temple	525 West Corto	Survey	
Hotel Linden	1401 West Yandell Street	Survey	
Brazos Building	301 West Missouri	Survey	
ABC Building	504 North Oregon	Survey	
Kress Building	514 North Mesa	Survey	
El Paso International Building	300 East Franklin Street (416 North Stanton)	Survey	
Broadway Men's Shop	100 East Mills	Survey	
Grand Hotel	125 North Stanton	Survey	
111 South El Paso Street	100 East San Antonio	Survey	
Columbia Furniture	101 1/2 South El Paso Street	Survey	
Royal Building	111 South El Paso Street	Survey	
Labor Temple	214 1/2 - 216 East Overland	Survey	
Esinsky Block	212 East Overland	Survey	
Martinez Grocery	223 South Oregon	Survey	
305-315 South El Paso Street	210-212 South El Paso Street	Survey	
Rio Bravo Piece Goods Store	300 West Overland	Survey	
401-403 South El Paso Street	305-315 South El Paso Street	Survey	
Cisneros Hardware	324 South El Paso Street	Survey	
Sacred Heart School	401-403 South El Paso Street	Survey	
523-525 South El Paso Street	523-525 South El Paso Street	Survey	
600 South Oregon Street	600 South Oregon Street	Survey	
614 South Mesa	614 South Mesa	Survey	

Source: THSA; City of El Paso

Pursuant to Stipulation VI ―Undertakings with the Potential to Affect Historic Resources of the First Amended Programmatic Agreement Regarding the Implementation of Transportation Undertakings (PA-TU) between the Federal Highway Administration (FHWA), the Texas State Historic Preservation Officer (SHPO), the Advisory Council on Historic Preservation, and TxDOT and the Memorandum of Understanding (MOU), TxDOT Historians have determined that the proposed action will have no effect on historic properties and that the proposed

undertaking would have no reasonably foreseeable adverse effects that may occur later in time, be farther removed in distance, or be cumulative. The THC concurred on August 13, 2012 that this project poses no effect to historic properties. A copy of their concurrence letter is provided in **Appendix C**.

Archaeological Resources

A review of the Texas Archaeological Sites Atlas (TASA) indicates that there are eight previously recorded archaeological sites within the APE of the proposed action, and an additional seven sites are within 1,000 m of the study area, as depicted in **Table 5** below. Four previous archaeological surveys have been conducted within 1,000 meters of the study area (**Table 6**). These include one aerial survey of three separate locations to the north and west of the study area, and three that included monitoring. This study found that the project area had been extensively disturbed, precluding the possibility of it containing any intact archaeological deposits. Consultation with federally-recognized Native American tribes with a demonstrated historic interest in the area was not required for this project. Additional coordination is being conducted for the project through the NEPA public involvement process. No objections or expressions of concern were received from other contacted parties, including the City of El Paso Preservation Officer. Based on the archaeological study, no further investigation is warranted. See **Appendix C** for a copy of the THC's concurrence letter dated October 5, 2012.

In the event that unanticipated archaeological deposits are encountered during construction, work in the immediate area will cease, and TxDOT archaeological staff will be contacted to initiate post-review discovery procedures.

Table 5: Previously Recorded Archaeological Sites within 1 km of the APE

Trinomial	Recorder/Date	Site Name/Type	Distance to Project Area	NRHP Recommendations	Comments
41EP37	Hume (THC) / 1971	Old Fort Bliss, Hart's Mill	1,000 m	Listed on the NRHP 1972	National Historic Landmark
41EP293	R. W. Ralph / 1975	Magoffin House	690 m	Listed on the NRHP 1976	National Historic Landmark
41EP497	Unknown	Unknown	620 m	Unknown	None
41EP552	Unknown	Unknown	Within study area	Unknown	None
41EP553	J. Campbell / 1999	Jacque's Bar Site	Within study area	No further work	None
41EP554	J. Campbell / 1990	Jacque's Bar Site	Within study area	No further work	None

Table 5: Previously Recorded Archaeological Sites within 1 km of the APE (Continued)

Trinomial	Recorder/Date	Site Name/Type	Distance to Project Area	NRHP Recommendations	Comments
41EP556	Unknown	Unknown	Within study area	No further work	None
41EP557	Unknown	Unknown	210 m	Unknown	Unknown
41EP558	Unknown	El Paso High School	210 m	Listed on the NRHP 1980	National Historic Landmark
41EP557	J. Campbell / 1999	El Paso Union Depot	120 m	Listed on the NRHP	National Historic Landmark
41EP2369	KPL / 1983	El Paso Acequia Site	Within study area	No further work	None
41EP2460	Staski / 1984	Cortez Parking Lot	Within study area	No further work	None
41EP5490	R. Walter / 2001	AT&T 1948 Communication Cable	Within study area	No further work	None
41EP5767	Gibbs / 2006	Unknown	Within study area	No further work	None
41EP6782	J. Lindemuth / 2011	Old Fort Bliss Farmstead	980 m	No further work	None

Source: TASA 2012

Table 6: Archaeological Surveys within 1 km of the APE

Project Type	Investigating Firm/Date	Survey ID / Texas Antiquities Permit Number	Government Agency	Distance to Project Area
Areal Survey	TRC / 2006	11790 / 3971	EPWU	Three surveys (adjacent to northern end to approximately 890 m west)
Monitoring	TRC / 2006	13886 / 4155	EPWU	Study area cuts through survey
Monitoring	Harris Env. / 2010	18482 / Unknown	International Boundary and Water Commission	Four small surveys (from within study area to 550 meters west)
Monitoring	TRC / 2006	18840 / 3348	TxDOT	Within study area

Source: TASA 2012

Water Resources

Section 404 of the Clean Water Act: Waters of the U.S.
This project would not result in the placement of temporary or permanent dredge or fill material into potentially jurisdictional waters of the U.S., including wetlands or other special aquatic sites. An analysis of FEMA maps revealed potentially jurisdictional waters of the U.S. consisting of the Crazy Cat Arroyo. However, the proposed project would be constructed within existing roadway ROW, so impacts to the potentially jurisdictional waters of the U.S. would not be anticipated.

Section 401 of the Clean Water Act: Water Quality Certification
This project would not require a USACE Section 404 Permit; therefore, Section 401 Certification would not be required.

Executive Order 11990, Wetlands
The proposed action would not result in any permanent or temporary impacts to waters of the U.S. Executive Order 11990 on wetlands does not apply because no wetlands would be impacted.

Rivers and Harbors Act of 1899: Section 9/General Bridge Act of 1946
This project does not involve work in or over a navigable water of the U.S.; therefore, Section 9 of the Rivers and Harbors Act does not apply.

Rivers and Harbors Act of 1899: Section 10
This project does not involve work in or over a navigable water of the U.S.; therefore, Section 10 of the Rivers and Harbors Act does not apply.

Section 303(d) of the Clean Water Act
The proposed action is not within five miles upstream of a threatened or impaired water body according to the 2010 303(d) list (TCEQ, 2010). One impaired water body, Rio Grande below Riverside Diversion Dam, Segment 2307 on the 2010 303(d) list (TCEQ, 2008), is within five miles of the proposed action; however, the project is not upstream and this water body would not directly receive drainage from the proposed action.

Section 402 of the Clean Water Act: Texas Pollutant Discharge Elimination System, Construction General Permit
This project would include five or more acres of earth disturbance. TxDOT would comply with TCEQ's Texas Pollutant Discharge Elimination System (TPDES) Construction General Permit (CGP). A Storm Water Pollution Prevention Plan (SW3P) would be implemented, and a construction site notice would be posted on the construction site. A Notice of Intent (NOI) would be required.

Section 402 of the Clean Water Act: Texas Pollutant Discharge Elimination System, Municipal Separate Storm Sewer System (MS4)
The project is located within the boundaries of the Phase I (City of El Paso) Municipal Separate Storm Sewer System (MS4) and would comply with the applicable MS4 requirements.

Floodplains
The project is located within the Federal Emergency Management Administration (FEMA) designated 100-year floodplain. The hydraulic design for this project would be in accordance with current FHWA and TxDOT design policies. The facility would permit the conveyance of the 100-year flood, inundation of the roadway being acceptable, without causing significant damage to the facility, stream, or other property. The proposed action would not increase the base flood elevation to a level that would violate applicable floodplain ordinances. Coordination with the local Floodplain Administrator would be required.

Wild and Scenic Rivers
The project will not impact any present, proposed, or potential unit of the National Wild and Scenic River System.

International Boundary and Water Commission
This project would not be located within the floodplain of the Rio Grande; therefore, coordination with the International Boundary Water Commission (IBWC) would not be required.

Noise/Vibration

Potential and vibration impacts from the project were assessed based on the methodology described in the U.S. Federal Transit Administration (FTA) guidance manual ―Transit Noise and Vibration Impact Assessment" (FTA-VA-90-1003-06, May 2006).

Noise and vibration sensitive land use along the project corridor was identified based on project mapping, aerial photography, and visual surveys. Areas adjacent to the project alignment include a mix of residential and commercial land uses. A full report of existing and future noise and vibration conditions is available in the TxDOT El Paso District project files.

Noise
Noise from a rail transit system is analyzed in terms of a ―source-path-receiver" framework. The ―source" generates noise levels which depend on the type of source, such as rolling noise from the interaction of steel wheels and rails, and its operating characteristics. The ―receiver" is the noise-sensitive land use (e.g., residence) exposed to noise from the source. In between the source and the receiver is the ―path" where the noise is reduced by distance, intervening buildings and topography. Environmental noise impacts are assessed at the receiver.

Noise is typically defined as unwanted or undesirable sound, where sound is characterized by small air pressure fluctuations above and below the atmospheric pressure. The basic parameters

of environmental noise that affect human subjective response are (1) intensity or level, (2) frequency content and (3) variation with time. The first parameter is determined by how greatly the sound pressure fluctuates above and below the atmospheric pressure, and is expressed on a compressed scale in units of decibels. By using this scale, the range of normally encountered sound can be expressed by values between 0 and 120 decibels. On a relative basis, a three-decibel change in sound level generally represents a barely noticeable change outside the laboratory, whereas a 10-decibel change in sound level would typically be perceived as a doubling (or halving) in the loudness of a sound.

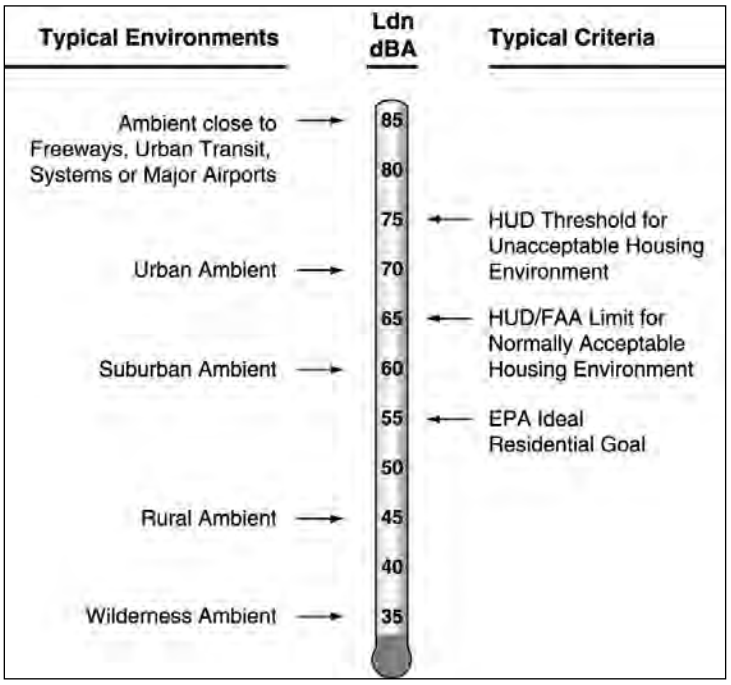
The frequency content of noise is related to the tone or pitch of the sound, and is expressed based on the rate of the air pressure fluctuation in terms of cycles per second (called Hertz and abbreviated as Hz). The human ear can detect a wide range of frequencies from about 20 Hz to 17,000 Hz. However, because the sensitivity of human hearing varies with frequency, the –A-weighting system" is commonly used when measuring environmental noise to provide a single number descriptor that correlates with human subjective response. Sound levels measured using this weighting system are called "A-weighted" sound levels, and are expressed in decibel notation as "dBA." The A-weighted sound level is widely accepted by acousticians as a proper unit for describing environmental noise.

Because environmental noise fluctuates from moment to moment, it is common practice to condense all of this information into a single number, called the –equivalent" sound level (Leq). Leq can be thought of as the steady sound level that represents the same sound energy as the varying sound levels over a specified time period (typically one hour or 24 hours). Often the Leq values over a 24-hour period are used to calculate cumulative noise exposure in terms of the Day-Night Sound Level (Ldn). Ldn is the A-weighted Leq for a 24-hour period with an added 10-decibel penalty imposed on noise that occurs during the nighttime hours (between 10 P.M. and 7 A.M.). Many surveys have shown that Ldn is well correlated with human annoyance, and therefore this descriptor is widely used for environmental noise impact assessment.

Figure 1 provides examples of typical noise environments and criteria in terms of Ldn. While the extremes of Ldn are shown to range from 35 dBA in a wilderness environment to 85 dBA in noisy urban environments, Ldn is generally found to range between 55 dBA and 75 dBA in most communities. As shown in **Figure 1**, this spans the range between an –ideal" residential environment and the threshold for an unacceptable residential environment according to some U.S. Federal agencies criteria.

Environmental noise can also be viewed on a statistical basis using percentile sound levels, Ln, which refer to the sound level exceeded "n" percent of the time. For example, the sound level exceeded 90 percent of the time, denoted as L90, is often taken to represent the "background" noise in a community. Similarly, the sound level exceeded 33 percent of the time (L33) is often used to approximate the Leq in the absence of loud, intermittent sources such as aircraft and trains.

Figure 1: Examples of Typical Outdoor Noise Exposure



Source: Harris Miller Miller & Hanson Inc., 2012

Noise Impact Criteria

Noise impact criteria are founded on well-documented research on community reaction to noise and are based on change in noise exposure using a sliding scale. Lower levels of noise are allowed in areas where existing noise levels are relatively low since the introduction of a new noise source can be more perceptible under these conditions. Although higher levels of noise are allowed in neighborhoods with high levels of existing noise, smaller increases in total noise exposure are allowed with increasing levels of existing noise. Noise impact criteria are grouped by noise-sensitive land uses into the following three categories:

- **Category 1:** Tracts of land where quiet is an essential element in their intended purpose. This category includes lands set aside for serenity and quiet, and such land uses as outdoor amphitheaters and concert pavilions, as well as National Historic Landmarks with significant outdoor use. Also included are recording studios and concert halls.
- **Category 2:** Residences and buildings where people normally sleep. This category includes homes, hospitals, and hotels where a nighttime sensitivity is assumed to be of utmost importance.
- **Category 3:** Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, theaters, and churches where it is important to avoid interference with such activities as speech, meditation and concentration on reading material. Places for meditation or study associated with cemeteries, monuments, museums, campgrounds, and recreational facilities can also be considered to be in this category. Certain historical sites and parks are also included.

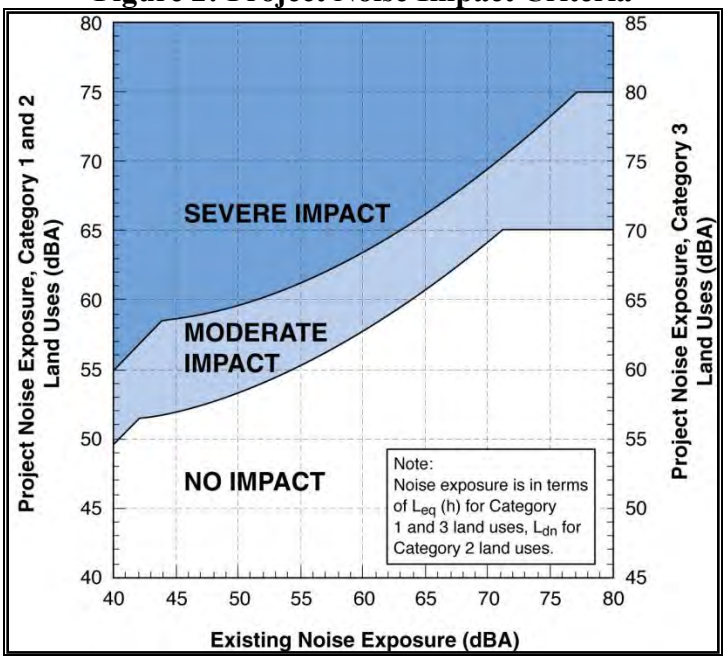
- Ldn is used to characterize noise exposure for residential areas (Category 2). For other noise-sensitive land uses, such as museums and schools (Categories 1 and 3), the maximum 1-hour Leq during the facility's operating period is used. There are two levels of impact included in the FTA criteria, as summarized below:
- **Severe Impact:** Project-generated noise in the severe impact range can be expected to cause a significant percentage of people to be highly annoyed by the new noise and represents the most compelling need for mitigation. Noise mitigation will normally be specified for severe impact areas unless there are truly extenuating circumstances that prevent it.
- **Moderate Impact:** In this range of noise impact, the change in the cumulative noise level is noticeable to most people but may not be sufficient to cause strong, adverse reactions from the community. In this transitional area, other project-specific factors must be considered to determine the magnitude of the impact and the need for mitigation. These factors include the existing noise level, the predicted level of increase over existing noise levels, the types and numbers of noise-sensitive land uses affected, the noise sensitivity of the properties, the effectiveness of the mitigation measures, community views and the cost of mitigating noise to more acceptable levels.

Historically significant sites fall into noise-sensitive categories according to their land use activities. Sites where outdoor interpretation is important fall into Category 1. Buildings in commercial or industrial areas that are significant because they represent a particular style of architecture or are prime examples of work of a historically significant designer are not intrinsically noise-sensitive. They may be protected under other legislation (Section 4(f) of the DOT Act and Section 106 of the NHPA), but do not fall into any of the land use categories associated with noise-sensitivity.

The noise impact criteria are shown in graphical form in **Figure 2**. Along the horizontal axis of the graph is the existing noise exposure and the vertical axis shows the additional noise exposure from the project that would cause either moderate or severe impact. The future noise exposure would be the combination of the existing noise exposure and the additional noise exposure caused by the project.

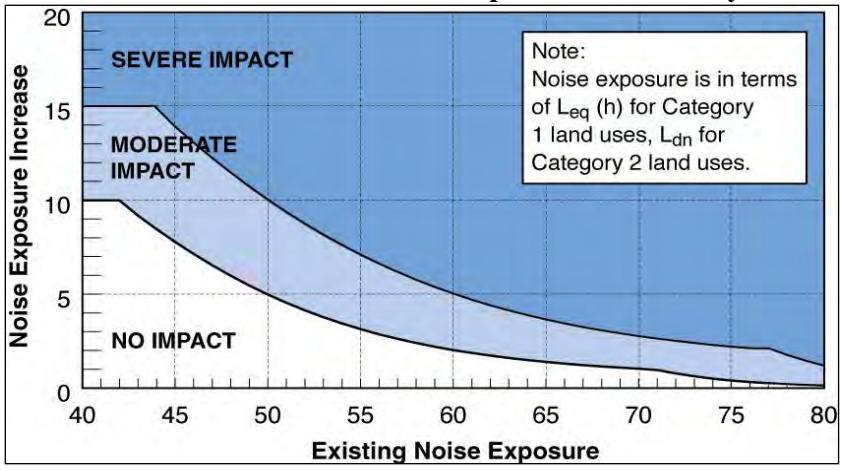
Figure 3 shows the noise impact criteria for Category 1 and 2 land uses in terms of the allowable increase in the cumulative noise exposure. Along the horizontal axis of the graph is the existing noise exposure and the vertical axis shows the noise exposure increase due to the project that would cause either moderate or severe impact. The noise exposure increase is the difference between the future noise exposure and the existing noise exposure.

Figure 2: Project Noise Impact Criteria



Source: FTA, 2006

Figure 3: Increase in Cumulative Noise Exposure Allowed by FTA Criteria



Source: FTA, 2006

Construction Noise Criteria

Construction noise criteria are based on the guidelines provided in the FTA guidance manual. These criteria, summarized in **Table 7** below, are based on land use and time of day and are given in terms of Leq for an eight-hour duration.

Table 7: Construction Noise Criteria

Land Use	Noise Limit, 8-Hour Leq (dBA)	
	Daytime	Nighttime
Residential	80	70
Commercial	85	85
Industrial	90	90

Source: FTA, 2006

Existing Noise Conditions

Existing ambient noise levels were determined at selected sites in the study area during the period from July 31, 2012 through August 3, 2012 (**Table 8**). The measurement program included both long-term (LT, 24-hour) and short-term (ST, 1-hour) monitoring of the A-weighted sound level at representative noise-sensitive locations. Five sites, designated as LT-1 through LT-5, were selected for long-term monitoring and 6 sites, designated as ST-1 through ST-6, were selected for short-term monitoring.

At the LT measurement sites, unattended portable, automatic noise monitors were used to continuously sample the A-weighted sound level (with slow response), over a 24-hour period. The noise measurement equipment included Bruel & Kjaer model 2250 noise monitors. The noise monitors gathered hourly results, including the maximum sound level (Lmax), Leq, and the statistical percentile sound levels (Ln, denoting the sound level exceeded n-percent of the time). Ldn was subsequently computed from the hourly Leq data. At the ST sites, an attended noise monitor was used to obtain the equivalent, A-weighted sound level for one-minute intervals over the one-hour measurement period. The one-minute Leq data were then combined to obtain the hourly Leq for the period.

The noise measurement equipment described above conforms to American National Standards Institute (ANSI) Standard S1.4 for Type 1 (Precision) sound level meters. Calibrations, traceable to the U.S. National Institute of Standards and Technology (NIST) were carried out in the field before and after each set of measurements using acoustical calibrators. In all cases, the measurement microphone was protected by a windscreen and supported on a tripod at a height of four to six feet above the ground. Furthermore, the microphone was positioned to characterize the exposure of the site to the dominant noise sources in the area. For example, microphones were located at the approximate setback lines of the receptors from adjacent roads or rail lines, and were positioned to avoid acoustic shielding by landscaping, fences, or other obstructions.

Table 8: Summary of Existing Ambient Noise Measurement Results

Measurement Location Description	Start of Measurement		Meas. Duration (hrs)	Ambient Noise Exposure	
	Date	Time		Ldn[1]	Leq[2]
University of Texas at El Paso Miner Village Dormitories	7/31/2012	3:00 PM	24	58	50
Ronald McDonald House, 300 East California Avenue	7/31/2012	4:00 PM	24	66	60
Office of Dr. Suresh J. Antony, M.D., 1205 North Oregon Street	7/31/2012	5:00 PM	24	63[3]	59
The Fairmont Condominiums, 1800 North Stanton Street	8/1/2012	4:00 PM	24	69	65
Office of Dr. Jorge Villarreal, M.D. (F.A.C.O.G.), 3100 North Stanton Street	8/1/2012	5:00 PM	24	62	58
Cleveland Square Park, El Paso Museum of History	8/2/2012	10:00 AM	1	61	63
Aztec Calendar Park, Intersection of Kansas Street and Myrtle Avenue	8/2/2012	1:20 PM	1	64	66
Abraham Chavez Theatre, Santa Fe Street	8/2/2012	3:08 PM	1	63	65
KTSM TV Studio, 801 North Oregon Street	8/2/2012	5:30 PM	1	68	70
Intersection of South Mesa Street and Father Rahm Avenue	8/3/2012	7:38 AM	1	61	63
Sun Metro Park and Ride, Intersection of Santa Fe Street and West 4th Avenue	8/3/2012	8:53 AM	1	67	69

Source: Harris Miller Miller & Hanson Inc., 2012

Noise Impact Assessment

A total of 161 noise impacts were predicted with severe noise impact projected at a total of 59 receptors. The severe noise impacts include 55 residences, the Gardner Hotel on Franklin Avenue, the El Paso Public Library on Franklin Avenue, Cleveland Square Park on Franklin Avenue, and Aztec Calendar Park on Kansas Street. Moderate noise impact is projected at a total of 101 receptors. The moderate noise impacts include 95 residences, the Town House Hotel on North Stanton Street, the Heart & Vascular Partners and the Davita Mission Hills Dialysis medical offices on North Stanton Street, the El Paso Science Museum on Santa Fe Street, the El Paso Museum of History on Franklin Avenue, and the Spanish Assemblies of God church on Father Rahm Avenue.

Noise Mitigation Measures

The majority of the noise impacts are caused by potential wheel squeal from streetcars traveling through curves in the alignment. Wheel squeal from rail vehicles is a highly variable phenomenon. It is common for rail transit vehicles to generate wheel squeal when traveling through track curves that have a radius less than 400 feet. The impacts are generally limited to noise-sensitive receptors located less than approximately 400 feet from curves.

The proposed mitigation approach to eliminate potential noise impacts from curve squeal is to install track lubrication systems at curves that cause wheel squeal. With the elimination of wheel squeal, only nine moderate noise impacts would remain, including one hotel at the corner of North Stanton Street and Franklin Avenue and one multi-family residential building containing eight residences on Santa Fe Street near the intersection of Father Rahm Avenue. The residual moderate impact at the hotel could be eliminated with the installation of specialized noise-reducing switch components in place of standard components at the turnout at the intersection of North Stanton Street and Franklin Avenue.

The residual noise impact at the multi-family building on Santa Fe Street is caused partly by special trackwork, but is mainly due to the projected noise from the proposed maintenance and storage facility nearby. The use of a special frog in place of a standard frog at the turnout to the facility would not reduce the noise level enough to eliminate impact. The projected noise from the facility would need to be reduced to eliminate the impact, either with the installation of a noise barrier of sufficient length and height to break the line-of-sight between the noise activity and adjacent residential building or by sound insulation improvements to the maintenance building. The exact form of noise mitigation at the proposed maintenance and storage facility would be determined prior to final design of the project.

With incorporation of the above mitigation measures into the project, no noise impacts would be expected as a result of this project.

Vibration

Vibration from a rail transit system is analyzed in terms of a ~~"s~~ource-path-receiver" framework. The ~~"s~~ource" is the train rolling on the tracks which generates vibration energy transmitted through the supporting structure under the tracks and into the ground. Once the vibration gets into the ground, it propagates through the various soil and rock strata, the ~~"p~~ath", to the foundations of nearby buildings, the ~~"r~~eceivers". Ground-borne vibrations generally decrease with distance depending on the local geological conditions. A ~~"r~~eceiver" is a vibration-sensitive building (e.g., residence, hospital, or school) where the vibrations may cause perceptible shaking of the floors, walls and ceilings and a rumbling sound inside rooms. Not all receivers have the same vibration-sensitivity. Consequently, vibration criteria are established for the various types of receivers.

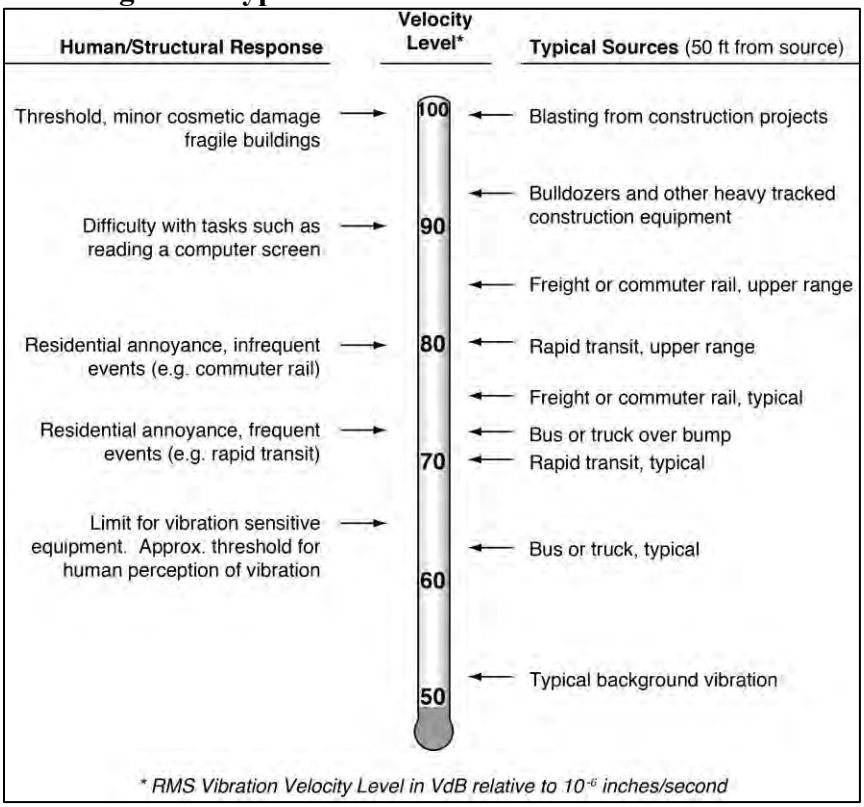
Ground-borne vibration (GBV) is the oscillatory motion of the ground about some equilibrium position that can be described in terms of displacement, velocity or acceleration. Because sensitivity to vibration typically corresponds to the amplitude of vibration velocity within the low-frequency range of most concern for environmental vibration (roughly five to 100 Hz), velocity is the preferred measure for evaluating ground-borne vibration from rail projects.

The most common measure used to quantify vibration amplitude is the peak particle velocity (PPV), defined as the maximum instantaneous peak of the vibratory motion. PPV is typically used in monitoring blasting and other types of construction-generated vibration, since it is related to the stresses experienced by building components. Although PPV is appropriate for evaluating building damage, it is less suitable for evaluating human response, which is better related to the average vibration amplitude. Thus, ground-borne vibration from trains is usually characterized in

terms of the "smoothed" root mean square (rms) vibration velocity level, in decibels (VdB), with a reference quantity of one micro-inch per second. VdB is used in place of dB to avoid confusing vibration decibels with sound decibels.

Figure 4 illustrates typical ground-borne vibration levels for common sources as well as criteria for human and structural response to ground-borne vibration. As shown, the range of interest is from approximately 50 to 100 VdB, from imperceptible background vibration to the threshold of damage. Although the approximate threshold of human perception to vibration is 65 VdB, annoyance is usually not significant unless the vibration exceeds 70 VdB.

Figure 4. Typical Ground-Borne Vibration Levels



Source: FTA, 2006

Ground-borne noise (GBN) is produced when ground-borne vibration propagates into a room and radiates noise from the motion of the surfaces. The vibration of the walls and floors may cause perceptible vibration, rattling of items such as windows or dishes on shelves or a rumble noise. The rumble is the noise radiated from the motion of the room surfaces. Airborne noise often masks ground-borne noise for at-grade and elevated rail systems, and is usually a greater issue for subway operations where airborne noise is not a factor and for buildings that have highly sensitive interior spaces that are well insulated from exterior noise. However, airborne noise does not always mask ground-borne noise due to differences in the frequency content between the airborne and ground-borne noise and is therefore assessed at all noise-sensitive buildings.

While the potential annoyance of ground-borne noise can be evaluated using the A-weighted sound level, there are potential problems in using this metric to characterize low-frequency ground-borne noise. Humans do not hear all sounds equally and low-frequency sounds can be perceived to be louder than broadband sounds that have the same A-weighted level. This is accounted for by setting impact criteria limits lower for ground-borne noise than would be the case for broadband noise. As presented in the following section, there are separate noise criteria for potential impact from airborne noise versus ground-borne noise.

Vibration Impact Criteria

Vibration-sensitive land uses are grouped into three categories. Since ground-borne vibration does not typically annoy people who are outdoors, vibration impact is only assessed inside buildings. In addition to the potential for human annoyance, vibration impact is also assessed for certain equipment that is sensitive to vibration.

- **Vibration Category 1 – High Sensitivity:** Included in this category are buildings where vibration would interfere with operations. Vibration levels may be well below those associated with human annoyance. These buildings include vibration-sensitive research and manufacturing facilities, hospitals with sensitive equipment and university research operations. The sensitivity to vibration is dependent on the specific equipment present. Some examples of sensitive equipment include electron-scanning microscopes, magnetic resonance imaging scanners and lithographic equipment.
- **Vibration Category 2 – Residential:** Residences and buildings where people normally sleep. This category includes homes, hospitals, and hotels.
- **Vibration Category 3 – Institutional:** This category includes buildings with primarily daytime and/or evening use. This category includes schools, libraries and churches.

The vibration impact criteria are based on land use and operational frequency, as shown in **Table 9**. There are some buildings, such as concert halls, recording studios and theaters that can be very sensitive to vibration but do not fit into any of the three categories listed in **Table 9**. Due to the sensitivity of these buildings, they usually warrant special attention during the assessment of a project. **Table 10** gives criteria for acceptable levels of ground-borne vibration for various types of special buildings.

It should be noted that **Table 9** and **Table 10** include separate criteria for ground-borne noise; the "rumble" that can be radiated from the motion of room surfaces in buildings due to ground-borne vibration. Although expressed in dBA, which emphasizes the more audible middle and high frequencies, the criteria are set significantly lower than for airborne noise to account for the annoying low-frequency character of ground-borne noise.

Table 9: Ground-Borne Vibration and Ground-Borne Noise Impact Criteria

Land Use Category	Ground-Borne Vibration Impact Levels (VdB re 1 micro-inch /sec)			Ground-Borne Noise Impact Levels (dB re 20 micro Pascals)		
	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]
Category 1: Buildings where vibrations would interfere with interior operations.	65 VdB[4]	65 VdB[4]	65 VdB[4]	N/A[4]	N/A[4]	N/A[4]
Category 2: Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB	35 dBA	38 dBA	43 dBA
Category 3: Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB	40 dBA	43 dBA	48 dBA

[1] "Frequent Events" is defined as more than 70 vibration events of the same source per day. Most rapid transit projects fall into this category.
[2] ~~–O~~ccasional Events" is defined as between 30 and 70 vibration events of the same source per day. Most commuter trunk lines have this many operations.
[3] "Infrequent Events" is defined as fewer than 30 vibration events of the same kind per day. This category includes most commuter rail branch lines.
[4] This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the HVAC systems and stiffened floors.
[5] Vibration-sensitive equipment is generally not sensitive to ground-borne noise.
Source: FTA, 2006

Table 10: Ground-Borne Vibration and Ground-Borne Noise Impact Criteria for Special Buildings

Land Use Category	GBV Impact Levels (VdB re: 1 micro-inch /sec)		GBN Impact Levels (dB re: 20 micro Pascals)	
	Frequent Events[1]	Occasional or Infrequent Events[2]	Frequent Events[1]	Occasional or Infrequent Events[2]
Concert Halls	65 VdB	65 VdB	25 dBA	25 dBA
TV Studios	65 VdB	65 VdB	25 dBA	25 dBA
Recording Studios	65 VdB	65 VdB	25 dBA	25 dBA
Auditoriums	72 VdB	80 VdB	30 dBA	38 dBA
Theaters	72 VdB	80 VdB	35 dBA	43 dBA

[1] "Frequent Events" is defined as more than 70 vibration events of the same source per day. Most rapid transit projects fall into this category.
[2] "Occasional or Infrequent Events" is defined as fewer than 70 vibration events per day. This category includes most commuter rail systems.
[3] If the building will rarely be occupied when the trains are operating, there is no need to consider impact. As an example, consider locating a commuter rail line next to a concert hall. If no commuter trains will operate after 7 pm, it should be rare that the trains interfere with the use of the hall.
Source: FTA, 2006

Construction Vibration Criteria

In addition to ground-borne vibration criteria for humans in residential, institutional and special buildings and vibration-sensitive equipment, there are ground-borne vibration criteria for potential damage to structures. The limits of vibration that structures can withstand are substantially higher than those for humans and for sensitive equipment. **Table 11** presents

criteria from the FTA guidance manual for assessing the potential for vibration damage to structures based on the type of building construction. As shown in the table, these criteria are given in terms of rms vibration levels in VdB referenced to one micro-inch per second as well as in terms of peak-particle velocity in inches per second. A crest factor of four, representing a difference of 12 decibels between peak and rms, is assumed in this table. It should be noted that these criteria are more conservative than other standards such as the U.S. Bureau of Mines frequency-dependent vibration criterion which is equivalent to approximately 114 VdB at 40 Hz and above.

Table 11: Construction Vibration Damage Criteria

Building Category	PPV (in/sec)	Approximate Lv [1]
I. Reinforced-concrete, steel or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

[1] RMS velocity in VdB re: 1 micro-inch/second.
Source: FTA, 2006

Existing Vibration Conditions

The majority of the project alignment does not contain any significant sources of existing vibration. The existing vibration conditions are dominated by roadway traffic. However, rubber-tired vehicles typically do not create significant vibration levels unless there are uneven sections of roadways, such as cracks in pavement or expansion joints on bridges.

There is one small section of the study area that is nearby a significant source of vibration. A freight rail corridor passes through downtown El Paso between Franklin Avenue and Main Street in a grade-separated cut. The existing vibration levels from freight rail operations have been estimated using the FTA general assessment methodology. At vibration-sensitive land use locations adjacent to the El Paso Streetcar alignment, the predicted existing vibration levels are below the impact criteria. Therefore, in accordance with FTA guidance, the predicted future vibration levels from streetcar operations were compared to the applicable impact criteria at all vibration-sensitive locations to assess potential impact.

Vibration Impacts

The results of the vibration analysis indicate that ground vibration from streetcar operations has the potential to cause impacts. Two types of ground vibration impacts, ground-borne vibration and ground-borne noise, are identified. Ground-borne vibration impacts are projected at a total of 21 receptors and ground-borne noise impacts are projected at a total of 77 receptors. Vibration impacts from streetcar operations occur primarily at vibration-sensitive locations within approximately 60 feet of the track.

Vibration Mitigation Measures

The proposed mitigation approach to eliminate vibration impacts from streetcar operations is to incorporate resilient elements such as resiliently supported concrete ties and rail fasteners into

the track structure. Specific vibration mitigation measures will be incorporated into the design of the streetcar track system as the project progresses into further states of design.

With incorporation of the above mitigation measures into the project, no vibration impacts would be expected as a result of this project.

Construction Noise and Vibration Mitigation Measures

Construction activities will be carried out in compliance with all applicable local noise regulations. In addition, the following construction mitigation measures will be applied as needed to minimize temporary construction noise and vibration impacts:

- Avoiding nighttime construction in residential neighborhoods.
- Locating stationary construction equipment as far as possible from noise-sensitive sites.
- Constructing noise barriers, such as temporary walls or piles of excavated material, between noisy activities and noise-sensitive receivers.
- Routing construction-related truck traffic to roadways that will cause the least disturbance to residents.
- Using alternative construction methods to minimize the use of impact and vibratory equipment (e.g., pile-drivers and compactors).

With incorporation of the above mitigation measures into the project, no construction noise or vibration impacts to adjacent sensitive receptors would be expected as a result of this project.

Hazardous Materials

Available regulatory files of the Environmental Protection Agency (EPA) and Texas Commission on Environmental Quality (TCEQ) were reviewed on June 26, 2012 to evaluate potential regulatory environmental concerns within or adjacent to the proposed action area. The regulatory databases were searched within a one-mile radius of the project in accordance with the America Society of Testing and Materials (ASTM) Standard E 1527-00 and TxDOT standard search radii. The regulatory database listings include only those sites that are known to the regulatory agencies to be contaminated or in the process of evaluation for potential contamination at the time of publication.

Since excavation greater than three feet would be required in certain areas, the leaking petroleum storage tanks (LPST) and registered petroleum storage tanks (RPST) files for facilities adjacent or within 1,000 feet to the project limits were reviewed by the project team. Recorded sites were then classified as representing high, moderate, or low potentials for impact to the proposed construction effort and scheduled in the following manner:

- High – Sites located within 200 feet of the proposed project and of a type with a high potential for concern, such as sites listed on the National Priorities List or Leaking Petroleum Storage Tank (LPST) databases. Sites from those databases, which are located

between 200 and 400 feet from the proposed project with surface gradient elevations sloping towards the study area may also be given high hazard rankings.

- Moderate – Sites listed on one of the above databases and located between 200 and 400 feet of the proposed project were classified as moderate potential for concern. Sites from those databases located between 400 feet and 1,320 feet from the proposed project with surface gradient elevations sloping towards the alternative study areas were given moderate hazard rankings, unless they were identified as low impact sites for other reasons.
- Low – All other sites located between 400 and 1,320 feet of the proposed project.

The regulatory database lists reviewed and sites identified are provided in the following sections.

Registered PST Report

The TCEQ Registered Petroleum Storage Tank (PST) report is a listing of registered active and inactive petroleum storage tanks located within the State of Texas. A search of the database on June 26, 2012 yielded 76 RPST facilities. Thirty-eight of the PST facilities are listed as LPST sites. The site survey and research into the historical land use did not reveal any other abandoned and/or active gasoline service stations. A map showing the location of the sites is provided in **Exhibit 6**.

Leaking Petroleum Storage Tanks

A review of TCEQ's LPST on-line database query on June 26, 2012 indicated 38 LPST sites adjacent to the proposed action. A map showing the location of the sites is provided in **Exhibit 6**. According to the priority and status indicated in the list search, no impact was indicated in 14 of the 38 adjacent LPST listings. TCEQ issued the final concurrence for 11 of these 14 listings and the cases are closed. The other 3 cases have final concurrence pending documentation of well plugging. Only minor soil contamination was indicated in 1 of the 38 adjacent LPST listings. TCEQ issued the final concurrence for this listing and the case is closed.

The status and priority for 11 of the 38 adjacent LPST listings indicate soil contamination only. TCEQ issued the final concurrence for all 11 of these listings and the cases are closed. The site descriptions and priority rankings are included in **Table 12**.

Table 12: Soil Contamination LPST Sites

LPST No.	Proximity (miles)	Address	Potential Contamination Flow Direction *	Priority
092177	0.02	2001 N. Oregon St.	Away	High
095167	0.02	1801 N. Oregon St.	Away	High
091395	0.05	2200 N. Mesa	Toward	Moderate
102724	0.05	301 E. Main	Toward	Moderate
095881	0.05	601 S. Santa Fe	Away	Moderate
092314	0.15	220 E. Paisano	Toward	Moderate
100387	0.16	613 Myrtle St.	Away	Low
101977	0.21	501 W. Paisano	Away	Low
094078	0.24	900 Canal St.	Away	Low

Table 12: Soil Contamination LPST Sites (Continued)

LPST No.	Proximity (miles)	Address	Potential Contamination Flow Direction *	Priority
095953	0.27	701 E. Yandell	Away	Low
106253	0.28	200 San Francisco	Away	Low

*Potential contamination flow direction to project determined using topographical maps and elevation of sites in reference to the project.

The status and priority for nine of the 38 adjacent LPST listings indicate groundwater was impacted. TCEQ issued the final concurrence for all nine of these listings and the cases are closed. The site descriptions and priority rankings are included in **Table 13**.

Table 13: Groundwater Impacted LPST Sites

LPST No.	Proximity (miles)	Address	Potential Contamination Flow Direction *	Priority
099782	0.02	2800 N. Mesa	Toward	High
100636	0.02	2905 N. Stanton	Toward	High
105939	0.05	2900 N. Mesa	Toward	High
095371	0.08	600 E. Paisano	Toward	High
091136	0.13	Mesa	Toward	Moderate
111962	0.14	219 E. Paisano	Toward	Moderate
091805	0.19	3434 N. Mesa	Away	Low
109214	0.29	700 A San Francisco St	Away	Low
098827	0.29	700 A San Francisco St	Away	Low

*Potential contamination flow direction to project determined using topographical maps and elevation of sites in reference to the project

The status and priority for three of the 38 adjacent LPST listings indicate a designated major or minor aquifer was impacted. TCEQ issued final concurrence for all three of these listings and the cases are closed. They are included in **Table 14**.

Table 14: Major/Minor Aquifer Impacted LPST Sites

LPST No.	Proximity (miles)	Address	Potential Contamination Flow Direction*	Priority
092373	0.06	2301 N. Mesa	Toward	Moderate
097812	0.11	320 W. San Antonio St.	Away	Moderate
112154	0.15	220 E. Paisano	Toward	Moderate

*Potential contamination flow direction to project determined using topographical maps and elevation of sites in reference to the project

Although contaminated groundwater and soil may exist within the project limits, it is not anticipated they would be encountered during construction.

EPA Query

A search of the EPA Envirofacts Database was conducted on June 26, 2012 and yielded no results within a one-mile radius of the project.

NPL/Superfund Report
The National Priorities List (NPL) is an EPA listing of the nation's worst uncontrolled or abandoned hazardous waste sites. A search of this database was conducted on June 26, 2012. No sites were listed on the NPL within a one-mile radius of the project.

Toxic Release Inventory System
The Toxic Release Inventory System (TRIS) is an EPA listing of sites that release toxic chemicals into the environment; these chemicals may be in gaseous, liquid, or solid form. No TRIS sites were identified during the search on June 26, 2012 within a one-mile radius of the project.

During any construction there may exist some potential to encounter contaminated soil or water. Should hazardous materials/substances be encountered, the TxDOT El Paso District Hazardous Materials Section would be notified, and steps would be taken to protect personnel and the environment. The contractor would take appropriate measures to prevent, minimize, and control the spill of hazardous materials in staging areas. All materials removed and/or disposed of by the contractor would be in accordance with state and federal rules and regulations and as approved by TxDOT.

Biological Resources

Migratory Bird Treaty Act
The Migratory Bird Treaty Act (MBTA) states that it is unlawful to kill, capture, collect, possess, buy, sell, trade, or transport any migratory bird, nest, or egg in part or in whole, without a federal permit issued in accordance within the Act's policies and regulations. The contractor will remove all old migratory bird nests from September 1 through the end of February from any structure where work will be done. In addition, the contractor will be prepared to prevent migratory birds from building nests between March 1 and August 31. In the event that migratory birds or their nests are present prior to or during construction, actions will be implemented to ensure migratory birds, their nests, eggs, and young will not be harmed. In accordance with the Migratory Bird Treaty Act, construction activities and vegetation clearing will be conducted outside peak-nesting seasons to avoid any adverse effects to the migratory birds and their habitat.

Beneficial Landscaping/Invasive Species
Executive Order 13112 was issued to prevent the introduction of invasive species, provide for their control, and minimize the economic, ecological, and human health impacts. Any landscaping plans included with the proposed action would include native species in the seed mixes where practicable according to TxDOT Standard Specifications.

In accordance with the Executive Memorandum issued August 10, 1995, all agencies shall comply with NEPA as it relates to vegetation management and landscape practices for all federally assisted projects. The Executive Memorandum directs that where cost effective and to the extent practicable, agencies shall perform each of the following:

(1) use regionally native plants for landscaping
(2) design, use, or promote construction practices that minimize adverse effects on the natural habitat
(3) seed to prevent pollution by, among other things, reducing fertilizer and pesticide use
(4) implement water efficient and runoff reduction practices
(5) create demonstration projects employing these practices

Any landscaping plans associated with this project would be in compliance with the Executive Memorandum. Soil disturbance would be minimized to help prevent the establishment of invasive species in the ROW.

Fish and Wildlife Coordination Act
This project does not require a USACE permit. Therefore, no coordination under the Fish and Wildlife Coordination Act (FWCA) is required.

Farmland Protection Policy Act
Projects considered exempt under the Farmland Policy Protection Act (FPPA) are those that require no federal nexus or ROW acquisitions, and those that require new ROW that is developed, urbanized, or zoned for urban use. This project would require no additional ROW; therefore, the project is considered exempt under the FPPA. As a result, the proposed action would not require coordination with the Natural Resources Conservation Service (NRCS).

TxDOT-TPWD Memorandum of Understanding/Agreement (MOU/MOA)
In accordance with the TxDOT - TPWD Memorandum of Agreement (MOA), unusual features to be identified in the project area may include the following:

- unmaintained vegetation
- fencerow vegetation
- riparian vegetation
- trees that are unusually large
- unusual stands or islands (isolated) of vegetation

Of these unusual features, fencerow vegetation has the potential to occur within the project area. However, the only anticipated disturbance to the current vegetation within the proposed action area would be to landscaping vegetation consisting of muhly grass, honey mesquite trees, rosemary, and pine trees. All of the vegetation is maintained and the trees are not unusually large. The proposed action would impact 35 acres of existing pavement and 0.2 acre of maintained ROW vegetation. A photo of the vegetation anticipated to be removed is included in **Appendix B.**

In addition, in accordance with the TxDOT-TPWD MOA, special habitat features to be identified in the project area may include the following:

- bottomland hardwoods
- caves
- cliffs and bluffs
- native prairies
- ponds
- seeps or springs
- snags (dead trees) or groups of snags
- water bodies (creeks, streams, rivers, lakes, etc.)
- existing bridges with known or easily observed bird or bat colonies

No special habitat features listed above are present in the proposed action area. Therefore, no permanent or temporary impacts to unusual vegetation features or special habitat features are expected due to the proposed action.

Mitigation for potential impacts to vegetation and wildlife as a result of the proposed action was considered during project planning in accordance with Provision (4)(A)(ii) of the TxDOT-TPWD Memorandum of Understanding (MOU) and MOA. The MOA designates the following habitat categories for which TxDOT would consider mitigation:

- habitat for federal candidate species (affected by the project) if mitigation would assist in the prevention of the listing of the species
- rare vegetation series (S1, S2, or S3) that also locally provide habitat for a state–listed species
- all vegetation communities listed as S1 or S2
- bottomland hardwoods, native prairies, and riparian sites
- any other habitat feature considered to be locally important

The project area does not include habitat for any state or federally listed threatened, endangered, or rare species, including species of concern, rare vegetation series or communities, bottomland hardwoods, native prairies, and/or riparian sites, and would not adversely impact any unique habitat; therefore, no compensatory mitigation is proposed for this project.

The study area occurs entirely within the Trans Pecos Mountains and Basins eco-region as categorized by *The Vegetation Types of Texas (*McMahan et al., 1984*)*. This source classifies the study area vegetation as Crops (44) and Urban (46) (McMahan et al., 1984). The Crops classification is a vegetative community occurring within the Trans Pecos Mountains and Basins eco-region that includes cultivated cover crops or row crops used to create food and/or fiber for either people or domestic animals (McMahan et al., 1984). Urban (46) communities are not well defined by *The Vegetation Types of Texas* (McMahan et al., 1984); however, TPWD defines urban as areas occupied by people with concentrations of buildings, infrastructure and population (Texas Parks and Wildlife Department, 2011).

The dominant vegetative cover within and outside the existing ROW is not consistent with the Crops classification. The land use within the proposed action area is primarily developed and urban in nature. In general, the dominant vegetation cover type that exists within the project area more closely resembles the Urban (46) classification due to the alteration and commercialization of the project area, and is consistent with urbanized and maintained roadsides consisting of ornamental landscaping vegetation. Predominant herbaceous vegetation found within the ROW includes a species of muhly grass (*Muhlenbergia spp.*). Some sparse woody vegetation is also observed in these previously disturbed and landscaped areas, including honey mesquite trees (*Prosopis glandulosa*), rosemary (*Rosmarinus officinalis*), and pine trees (*Pinus spp.*).

Natural Diversity Database Search/Rare, Threatened and Endangered Species

To determine the effects of the proposed action on federally protected threatened and endangered species and state species of concern, the Annotated List of Rare Species for El Paso County and TPWD's Natural Diversity Database (NDD) were consulted on June 26, 2012. No records for state or federally listed threatened or endangered species were found, and no suitable habitat occurs within range of the project (1.5 mile search radius). The NDD query resulted in three records for two rare species being located in the immediate study area (1.5 mile search radius). These results, based on the stated limitations of the NDD, do not mean that there is an absence of other endangered, threatened or rare species; just that information is not available. These elements of occurrence (EOs) are presented in **Table 15**.

Table 15: Elements of Occurrence within 1.5 Miles of Project Area

Species	Federal Status	State Status	Description of Suitable Habitat	EO ID	Habitat Present	Species Effect
Pecos River muskrat *Ondatra zibethicus ripensis*	-	-	creeks, rivers, lakes, drainage ditches, and canals	1459	Yes	No Impact
Sand prickly-pear *Opuntia arenaria*	-	-	mesquite-sand sage shrublands	1300, 7542	No	No Impact

Source: TPWD, accessed 6/26/2012

While suitable habitat for sand prickly-pear historically occurred within 1.5 miles of the proposed project, alterations due to urbanization have likely eliminated these regions. Suitable habitat for Pecos River muskrats may occur within 1.5 miles of the proposed project; however, coordination with TPWD is not required as both these rare species have no state or federal status. As the proposed project would be constructed entirely within existing ROW, impacts to the above-mentioned rare species and EOs from TPWD's NDD would not be anticipated.

Endangered Species Act of 1973

In addition to consulting the NDD, TPWD's and the U.S. Fish and Wildlife Service's (USFWS) lists of threatened and endangered species and species of concern for El Paso County were consulted and habitat presence was determined within the one-half mile buffer. These lists are provided in **Appendix C**. The listing status of each threatened and endangered species within El Paso County is shown in **Table 16**.

Table 16: Federal and State Listed Threatened/Endangered Species of El Paso County

Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Effect
Birds					
American peregrine falcon *Falco peregrinus anatum*	DL	T	year-round resident and local breeder, nests in tall cliff eyries, also urban stopovers	Yes	No Impact
Interior least tern *Sterna antillarum athalassos*	E	E	nests along sand and gravel bars within braided streams, rivers	No	No Effect
Mexican spotted owl *Strix occidentalis lucida*	T	T	remote, shaded canyons of coniferous mountain woodlands	No	No Effect
Northern aplomado falcon *Falco femoralis septentrionalis*	E	E	open country, especially savanna and open woodland, and sometimes in very barren areas	No	No Effect
Southwestern willow flycatcher *Empidonax traillii extimus*	E	E	thickets of willow, cottonwood, mesquite, along desert streams	No	No Effect
Sprague's pipit *Anthus spragueii*	C	-	migrant, native upland prairie	No	No Impact
Fishes					
Bluntnose shine *Notropis simus simus*	-	T	Rio Grande; main river channel, often below obstructions	No	No Impact
Rio Grande silvery minnow *Hybognathus amarus*	E	E	Rio Grande and Pecos River systems and canals; pools and backwaters of medium to large streams	No	No Effect
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	C	C	breeds in riparian habitat and associated drainages; nests in willow, mesquite, cottonwood, and hackberry	No	No Impact
Mammals					
Black Bear *Ursus americanus*	T/SA;NL	T	bottomland hardwoods and large tracts of inaccessible forest	No	No Effect
Black-footed ferret *Mustela nigripes*	E	-	prairie dog towns	No	No Effect
Gray wolf *Canis lupus*	E	E	forests, brushlands, or grasslands	No	No Effect

Table 16: Federal and State Listed Threatened/Endangered Species of El Paso County (Continued)

Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Effect
Plants					
Sneed's pincushion cactus *Escobaria sneedii var sneedii*	E	E	xeric limestone outcrops on rocky, usually steep slopes in desert mountains	No	No Effect
Reptiles					
Chihuahuan desert lyre snake *Trimorphodon vilkinsonii*	-	T	crevice-dwelling in predominantly limestone-surfaced desert northwest of the Rio Grande	No	No Impact
Mountain short-horned lizard *Phrynosoma hernandesi*	-	T	open shrubby or openly wooded areas with sparse vegetation at ground level	No	No Impact
Texas horned lizard *Phrynosoma cornutum*	-	T	Open areas with sparse vegetation, feeds primarily on harvester ants	No	No Impact

Note: E = Endangered T = Threatened DL = Delisted T/SA;NL = Listed Threatened by Similarity of Appearance, but Not Listed C = Candidate Species - = No Status
Source: USFWS, updated 8/16/2012, accessed 8/16/12; TPWD, updated 8/7/2012, accessed 8/16/12. Site visit 6/6/12

After reviewing habitat requirements and conducting a field investigation, it was determined that potential habitat exists in the project area for several species of concern, including cave myotis, Yuma myotis, pale Townsend's big-eared bat, big free-tailed bat, and long-legged bat due to the urban characteristics that these species prefer, such as old, tall buildings, bridges and crevices. **Table 17** provides information on these species and all other species of concern in El Paso County. In addition, potential habitat may exist for the American and Arctic subspecies of the peregrine falcon (although the occurrence of these species in the project area would be largely migratory). However, no ROW would be acquired for the proposed project. Therefore, this project will have no effect on any federally or state-listed threatened or endangered species, nor will it adversely impact any species of concern (**Table 17**).

Table 17: Federal and State Species of Concern of El Paso County

Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Effect
Amphibians					
Northern leopard frog *Rana pipiens*	-	-	streams, ponds, lakes, wet prairies, and other bodies of water	No	No Impact
Birds					
Arctic peregrine falcon *Falco peregrinus tundrius*	DL	-	migrant, stopovers at leading landscape edges such as lake shores, coastlines, barrier islands, and urban	Yes	No Impact
Baird's sparrow *Ammodramus bairdii*	-	-	migrant, shortgrass prairie with scattered low bushes and matted vegetation	No	No Impact
Ferruginous hawk *Buteo regalis*	-	-	open country, primarily prairies, plains, and badlands	No	No Impact
Montezuma quail *Cyrtonyx montezumae*	-	-	open pine-oak or juniper-oak with ground cover of bunch grass on flats and slopes of semi-desert mountains and hills	No	No Impact
Prairie falcon *Falco mexicanus*	-	-	open, mountainous areas, plains and prairie; nests on cliffs	No	No Impact
Snowy Plover* *Charadrius alexandrinus*	-	-	potential migrant; winter along coast	No	No Impact
Western burrowing owl *Athene cunicularia hypugaea*	-	-	open grasslands, sometimes in open areas such as vacant lots near human habitation or airports	No	No Impact
Western snowy plover *Charadrius alexandrines nivosus*	-	-	potential migrant; winter along coast	No	No Impact
Insects					
A royal moth *Sphingicampa raspa*	-	-	woodland-hardwood; prairie acacia is caterpillar foodplant	No	No Impact
A tiger beetle *Cicindela hornii*	-	-	grassland/herbaceous; dry areas on hillside or mesas where soil is rocky or loamy and covered with grasses	No	No Impact
Barbara Ann's tiger beetle *Cicindela politula barbarannae*	-	-	limestone outcrops in arid treeless environments or in openings in less arid pin-juniper-oak communities	No	No Impact
Poling's hairstreak *Fixsenia polingi*	-	-	oak woodland with *Quercus grisea* substantial component	No	No Impact

Table 17: Federal and State Species of Concern of El Paso County (Continued)

Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Effect
Mammals					
Big free-tailed bat *Nyctinomops macrotis*	-	-	roosts in crevices and cracks in high canyon walls and buildings	Yes	No Impact
Black-tailed prairie dog *Cynbomys ludovicianus*	-	-	dry, flat, short grasslands with low, sparse vegetation	No	No Impact
Cave myotis bat *Myotis velifer*	-	-	caves, rock crevices, old buildings, carports, and under bridges	Yes	No Impact
Desert pocket gopher *Geomys arenarius*	-	-	cottonwood-willow association along the Rio Grande	No	No Impact
Fringed bat *Myotis thysanodes*	-	-	mountainous pine, oak, and pinyon-juniper to desert-scrub; prefers grasslands	No	No Impact
Long-legged bat *Myotis volans*	-	-	high, open woods and mountainous terrain; roosts in buildings, crevice, and hollow trees	Yes	No Impact
Pale Townsend's big-eard bat *Corynorhinus townsendii pallescens*	-	-	roosts in caves, abandoned mine tunnels, and occasionally old buildings	Yes	No Impact
Pecos River muskrat *Ondatra zibethicus ripensis*	-	-	creeks, rivers, lakes, drainage ditches, and canals	No	No Impact
Western red bat *Lasiurus blossevillii*	-	-	roosts in tree foliage in riparian areas	No	No Impact
Western small-footed bat *Myotis ciliolabrum*	-	-	mountainous regions, usually wooded	No	No Impact
Yuma myotis bat *Myotis yumanensis*	-	-	desert regions in lowland habitats near open water; roosts in caves, abandoned mine tunnels, and buildings	Yes	No Impact
Mollusks					
Franklin Mountain talus snail *Sonorella metcalfi*	-	-	terrestrial; bare rock, talus, scree; inhabits igneous talus most commonly of rhyolitic origins	No	No Impact
Franklin Mountain wood snail *Ashmunella pasonis*	-	-	terrestrial; bare rock, talus, scree; talus slopes, usually of limestone	No	No Impact
Plants					

Table 17: Federal and State Species of Concern of El Paso County (Continued)

Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Effect
Comal snakewood *Colubrina stricta*	-	-	in El Paso, found in a patch of thorny shrubs in colluvial deposits and sandy soils at the base of an igneous rock outcrop	No	No Impact
Desert night-blooming cereus *Peniocereus greggii var greggii*	-	-	Chihuahuan Desert shrublands	No	No Impact
Hueco rock-daisy *Perityle huecoensis*	-	-	north-facing or otherwise mostly shaded limestone cliff faces	No	No Impact
Sand prickly-pear *Opuntia arenaria*	-	-	mesquite-sand sage shrublands	No	No Impact
San sacahuista *Nolina arenicola*	-	-	mesquite-sand sage shrublands	No	No Impact
Texas false saltgrass *Allolepis texana*	-	-	sandy to silty soils of valley bottoms and river floodplains	No	No Impact
Vasey's bitterweed *Hymenoxys vaseyi*	-	-	occurs on xeric limestone cliffs and slopes at mid- to high elevations in desert shrublands	No	No Impact
Wheeler's spurge *Chamaesyce geyeri var wheeleriana*	-	-	sparingly vegetated, loose eolian quartz sand on reddish sand dunes or coppice mounds	No	No Impact
Reptiles					
Big Bend slider *Trachemys gaigeae*	-	-	prefer quiet bodies of fresh water with muddy bottoms and abundant aquatic vegetation	No	No Impact
New Mexico garter snake *Thamnophis sirtalis dorsalis*	-	-	any type of wet or moist habitat	No	No Impact

Note: DL = Delisted Taxon C = Candidate Species - = No Status
Source: USFWS, updated 8/16/2012, accessed 8/16/12; TPWD, updated 8/7/2012, accessed 8/16/12. Site visit 6/6/12

Triggers for Texas Parks and Wildlife Coordination

Table 18 lists activities and criteria that would trigger TPWD coordination for any item marked with a ~~"Y~~es" response. Based on project activities indicated below, Texas Parks and Wildlife coordination was required for possible impacts to mature woody vegetation. However, coordination with TPWD was initiated on 08/02/2012 with a ~~"N~~o Comment" response received 09/18/2012 (**Appendix C**).

Table 18: TPWD Coordination Triggers

Yes/No	TPWD Coordination Triggers
No	1. Does the project involve more than 1.0 acre of new ROW within floodplains or creek drainages in rural or undeveloped urban areas
No	2. Does the project require channel modifications to streams, rivers or water bodies?
No	3. Does the project involve a channel re-alignment involving the creation of new drainage ways or other excavation impacting more than 1.0 acre of mature woody vegetation?
No	4. Does the project require any excavation (scraping, clearing or other surface disturbance) of the existing channel outside of TxDOT's existing ROW or of the channel inside the ROW which is not routinely maintained and exhibits native vegetation?
Yes	5. Might the project affect mature woody vegetation or dense mature brush, including any significant remnant native vegetation (e.g., undisturbed native prairie or bottomland hardwood, etc.?
No	6. Is the project within range and in suitable habitat of any state or federally listed threatened or endangered species?
No	7. Does the project involve mitigation plans or otherwise involve proposals to redress project impacts on fish, wildlife or plant resources?
No	8. Does the project have previous environmental clearance; three years have passed without major action(s), without TPWD review but now meets any of the above listed criteria?
No	9. Have three years passed since environmental clearance with major actions, that TPWD may have or may not have reviewed, but meets any of the above listed criteria?

Source: TxDOT, 2009.

Visual

The El Paso Streetcar Project is not projected to have any negative visual impacts. The project would require some minimal additional infrastructure—stations with potential shelters and overhead catenary wires—which would not block views of the surrounding landscape. The streetcar would also operate within the existing roadway. The proposed streetcar may in fact be considered to have a beneficial visual impact, evoking reminiscence of the era in which streetcars historically operated in El Paso. Therefore, there would be no adverse visual impacts associated with the implementation of the proposed action.

Air Quality

Project Consistency with Transportation Plans and Funding

The proposed action is consistent with general transit recommendations found in the area's financially constrained Metropolitan Transportation Plan (Mission 2035 MTP). The project will be included in future updates to the El Paso MPO Transportation Improvement Program (TIP). All projects in the EPMPO TIP that are proposed for federal or state funds are initiated in a manner consistent with federal guidelines in Section 450, of Title 23 CFR and Section 613.200, Subpart B, of Title 49 CFR. Energy, environment, air quality, cost, and mobility considerations

are addressed in the programming of the TIP. The proposed action is considered a regionally significant project and therefore must be included in a conforming MTP and TIP. The project will be amended into the 2020 network analysis year of the 2035 Mission MTP to insure consistency with Air Quality Conformity regulations.

National Ambient Air Quality Standards (NAAQS) and Conformity

The project is located within the City of El Paso and El Paso County in an area which is designated a moderate Particulate Matter (PM_{10}) nonattainment area and a moderate Carbon Monoxide (CO) maintenance area; therefore, the transportation conformity rules apply. However, the proposed project is not currently consistent with a conformity determination, because it is not included in a currently conforming El Paso MPO MTP and TIP. The proposed action will be amended into the 2020 network analysis year of the Mission 2035 MTP to ensure consistency with Air Quality Conformity requirements. TxDOT will not take final action on this environmental document until the proposed project is consistent with a currently conforming MTP and TIP.

Carbon Monoxide (CO) Traffic Air Quality Analysis (TAQA)

The maximum design year traffic on roadways along the proposed El Paso Streetcar route is estimated to be 29,400 vehicles per day; therefore a Traffic Air Quality Analysis is not required because previous analyses of similar projects did not result in a violation of National Ambient Air Quality Standards (NAAQS).

Mobile Sources Air Toxics

The purpose of this project is to meet current and future pedestrian and circulation demands in downtown El Paso by constructing a modern streetcar system in the City of El Paso, El Paso County, Texas. The proposed project would not add capacity, add a new interchange, or involve a new roadway on a new alignment. The streetcar project has been determined to generate minimal air quality impacts for Clean Air Act Amendments (CAAA) criteria pollutants and has not been linked with any special Mobile Source Air Toxics (MSAT) concerns. As such, this project would not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause an increase in MSAT impacts of the project from that of the No-Build Alternative.

Moreover, EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's MOBILE6.2 model forecasts a combined reduction of 72 percent in the total annual emission rate for the priority MSAT from 1999 to 2050 while vehicle-miles of travel are projected to increase by 145 percent. This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project.

Congestion Management System (CMS)

This project is not adding single occupancy vehicle (SOV) capacity and is therefore exempt from a CMS analysis.

Air Quality Construction Emissions

Construction might temporarily degrade air quality through dust and exhaust gases associated with construction equipment. Measures to control fugitive dust would be considered and incorporated into final design and construction specifications. Detours may be needed during construction, and lane closures would be implemented as needed. All adjacent property owners would be provided access to their properties during construction activities.

Particulate Matter Hot Spot Requirements

The proposed project is located within a moderate PM_{10} nonattainment area; therefore, PM_{10} hot-spot analysis requirements could potentially apply. A hot-spot analysis is defined in 40 CFR 93.101 as an estimation of likely future localized $PM_{2.5}$ or PM_{10} pollutant concentrations and a comparison of those concentrations to the relevant air quality standards. Also, as required by 40 CFR Part 93.116, the project must not cause or contribute to any new localized particulate matter violations (hot spots), or increase the frequency or severity of any existing PM_{10}, and/or $PM_{2.5}$ violations in PM_{10} and $PM_{2.5}$ nonattainment and maintenance areas.

The proposed project is not adding capacity to local roadways and is not expected to contribute to unacceptable levels of service (LOS) or increased congestion at major intersections within the proposed action corridor. Therefore, the streetcar project is not anticipated to increase PM_{10} levels or cause a violation of the NAAQS for PM_{10}. The project is also not expected to change the vehicle mix (gasoline cars and diesel trucks) within the study area, nor will the project cause a significant increase in diesel vehicles. As such, the El Paso Streetcar project is not considered a project of air quality concern, and EPA has determined that such projects meet the Clean Air Act's conformity requirements without further hot-spot analyses. Therefore, following EPA (40 CFR 93.116) and Federal Highway Administration (FHWA) guidelines, a PM_{10} hot spot analysis is not required for the El Paso Streetcar project.

This project would meet all regional and local conformity requirements.

Indirect and Cumulative Impacts

The following section discusses indirect and cumulative impacts related to the proposed action.

Indirect Effects

The CEQ defines indirect effects as those effects:

> caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems (40 CFR 1508.8).

Indirect effects differ from direct effects associated with the construction and operation of the proposed action as they are caused by another action or actions that have an established relationship or connection to the proposed action. These induced actions are those that would not or could not occur without the implementation of the proposed action.

The indirect impacts analysis was conducted in accordance with TxDOT's *Revised Guidance on Preparing Indirect and Cumulative Impact Analyses* (June 2009). The revised guidance outlines steps that should be followed when determining the indirect effects caused by a proposed transportation project. Each step of the seven-step process has been applied to the proposed action and the findings documented in this report. The seven steps are listed in **Table 19**.

Table 19: Seven-Step Approach to Estimate Indirect Impacts

Step	Guidelines
1	Scoping: The basic approach, effort required, and geographical boundaries of the study are determined.
2	Identify the Study Area's Goals and Trends: Information regarding the study area is compiled with the goal of defining the context for assessment.
3	Inventory the Study Area's Notable Features: Additional data on environmental features are gathered and synthesized with a goal of identifying specific environmental issues by which to assess the project.
4	Identify Impact-Causing Activities of Proposed Action: Fully describe the component activities of the proposed action
5	Identify Potentially Substantial Indirect Effects for Analysis: Indirect effects associated with project activities and alternatives are cataloged, and potentially substantial effects meriting further analysis are identified.
6	Analyze Indirect Effects and Evaluate Results: Qualitative and quantitative techniques are employed to estimate the magnitude of the potentially significant effects identified in Step 5 and describe future conditions with and without the proposed transportation improvement. The uncertainty of the results of the indirect effects analysis is evaluated for its ramification on the overall assessment.
7	Assess Consequences and Consider/Develop Mitigation: The consequences of indirect effects are evaluated in the context of the full range of project effects. Strategies to avoid or lessen any effects found to be unacceptable are considered and developed. Effects are reevaluated in the context of those mitigation strategies.

Source: TxDOT 2009.

The seven-step process outlined above will serve as the basic approach for this indirect impacts analysis.

Step 1: Scoping

The proposed streetcar project would operate within existing roadway ROW along the following roadways: North Stanton Street, North Oregon Street, East Franklin Avenue, North/South Kansas Street, West Father Rahm Avenue, and Santa Fe Street. The two primary roadways that the streetcar would travel within are North Stanton Street and North Oregon Street, both of which are generally northwest/southeast running facilities that connect the northern neighborhoods of El Paso with UTEP and downtown El Paso. The proposed action would increase mobility within the study area and provide an alternative transportation option as well.

Table 20 introduces the level of effort determined for the indirect impacts analysis through the scoping process.

Table 20: Level of Effort Required for Indirect Impacts Analysis

Project Variables		Assessment Methodology
Project Type	Streetcar Construction	Qualitative
Project Scale	Small – 5.6 track miles	Qualitative
Project Scope	Local	Qualitative
Stage of Study	Design alternatives	Quantitative
Project Setting	Urban with moderate levels of growth	Quantitative
Design Features	In-street running in existing ROW	Qualitative/Quantitative
Project Purpose	Increase mobility and transportation options	Qualitative
Data Available	City of El Paso's *Plan El Paso* 2012 and the El Paso MPO's Mission 2035 Metropolitan Transportation Plan	Qualitative

Source: National Cooperative Highway Research Program (NCHRP) Report 466, Figure 3-1.

Due to the fact that the proposed action is still in the conceptual design stage, the indirect impacts analysis is a qualitative analysis with some quantitative data provided, when available. The proposed action is relatively small in scale and enhances local mobility options. A one-half mile buffer was used to determine the Area of Influence (AOI), which is the national standard for determining the area of influence for fixed-guideway transit, including streetcars. Areas outside of the AOI are better served by other roadways and other transit options and are more likely to have land development activities influenced by other factors. It was therefore determined that indirect effects would be localized and an AOI roughly bounded by the Rio Grande River (U.S./Mexico Border) on the south, Hawthorne Street on the west, Ochoa Street on the east, and La Cruz Drive on the north was established (**Exhibit 3**). The timeframe for the indirect impacts analysis is the El Paso MPO's planning horizon which is 2035.

Step 2: Identify the Study Area's Goals and Trends

Residential and commercial growth have followed two patterns within the project area: radiating outward from the downtown core, and extending linearly along major thoroughfares such as I-10, Mesa Street, Dyer Street, Montana Avenue, and Alameda Avenue.

The study area is surrounded by UTEP to the west, the U.S./Mexico border on the south, the Franklin Mountains and City of El Paso on the north, and Fort Bliss Military Base (Fort Bliss) and the City of El Paso on the east. The City of El Paso, UTEP, and Fort Bliss have all experienced steady growth from the 1970s through the present and this growth is expected to continue.

The project area is located in the core of a geographic area that is currently experiencing steady metropolitan expansion. As previously discussed, current trends indicate development will continue both within the study area and the surrounding region. In response to this anticipated growth, the City of El Paso developed a number of priorities that relate directly to the priorities of the study area.

According to the City of El Paso's *Plan El Paso,* which was adopted on March 6, 2012*,* the city's overall transportation goal is as follows:

> The City of El Paso wishes to become the least car-dependent city in the Southwest through meaningful travel options and land use patterns that support walkability, livability, and sustainability. Over time, El Paso will join the ranks of the most walkable and transit-rich metropolitan areas in the country.

In order to attain this overall transportation goal, *Plan El Paso* establishes 14 sub-goals as follows:

Goal 1: New and modified thoroughfares will match the existing or proposed character of land along their paths as well as serving their essential functions in the regional road network.

Goal 2: El Paso's thoroughfares will form a well-connected network of complete streets that support driving, walking, bicycling, and public transit.

Goal 3: The City of El Paso will improve its thoroughfares over time as opportunities are found to increase transit service and improve connectivity, walkability, bikeability, and economic benefits to surrounding areas.

Goal 4: Transform the Major Thoroughfare Plan (MTP) into a Sustainable Mobility Plan (SMP) that integrates all major travel modes and carries out the goals and policies of *Plan El Paso*.

Goal 5: El Paso's network of major thoroughfares will become the ~~"G~~reat Streets" of tomorrow. They will be integral parts of the communities that surround them, allowing easy movement and providing physical space for social, civic, and commercial activities.

Goal 6: Coordinate the region's planning for thoroughfares, public transit, freight, aviation, and border crossing through better collaboration with regional transportation planning partners.

Goal 7: Improve the region's air quality through more sustainable and energy-efficient transportation and land use practices.

Goal 8: Vigorously expand bicycle facilities throughout El Paso County to create a full network of connected, safe, and attractive bikeways and supporting facilities for both transportation and recreation.

Goal 9: Encourage increased bicycling by promoting health, recreation, transportation, tourism opportunities, and environmental benefits.

Goal 10: The City will strategically manage the amount, location, and physical form of on-street and off-street parking to help achieve the Transportation and Regional Land Use Patterns goals of *Plan El Paso*.

Goal 11: El Paso will have a safe, convenient, and economically viable public transit system that optimizes personal mobility, strengthens community character and economic vitality, and seamlessly integrates with other travel modes. The existing bus network will evolve into a multi-faceted regional transit network with frequent service on four Rapid Transit System (RTS) lines and, over time, other forms of high-capacity transit service.

Goal 12: Although its location at an international railroad junction caused El Paso to thrive, the continual movement of freight trains through a major city creates safety and congestion problems that are still worsening. The City wishes to capitalize on the advantages of its crossroads location while minimizing the problems and conflicts created by the current alignment of freight lines.

Goal 13: The El Paso International Airport will increase its role as a welcoming gateway for passengers, as an intermodal hub for incoming and outgoing goods, and as a center for related economic activities that serve the City and the region.

Goal 14: Strengthen multimodal connections with Juárez for binational mobility, commerce, economic development, familial bonds, tourism, and convenient routine travel between the two cities and countries.

Additionally, the El Paso Metropolitan Planning Organization (MPO) released the *Mission 2035 MTP* in August 2010. The *Mission 2035 MTP is a* $6.9 billion, 26-year multi-modal plan with roadway improvements, transit improvements, safety improvements, and environmental and economic vitality improvements. The *Mission 2035 MTP* covers a planning horizon of 26 years meeting the federal requirement of a 20-year MTP constant horizon that advances multi-modal access and mobility for people and goods/services, system preservation and performance, and quality of life. The MTP incorporates policies, goals and objectives, projected transportation demand, regional forecast of land use, housing, and employment patterns/trends. The *Mission 2035 MTP* defines transportation systems and services in the area containing the boundaries of the AOI and the proposed action is included in this plan.

Mission 2035 identifies factors that are influencing El Paso's population and economic growth:

- The growth in population is partially attributed to natural increase and partially due to an increase in domestic migration.
- The expansion of Fort Bliss brought about by Base Realignment and Closure (BRAC) is expected to bring approximately 40,000 additional troops by 2012. Expansion of Fort Bliss will bring not only troops to the El Paso area, but their civilian families as well.
- The influx of military personnel is also expected to result in an increase of civilian employment on Ft. Bliss, and an increase in employment in public schools and other local government jobs.
- The expansion is also expected to bring 2000 new engineering, technical and industrial jobs, which in addition will increase economic impact in the region by $857.96 million.

- By the year 2013, Texas Tech Medical School is expected to increase employment in the area by approximately 5,600 positions.

Step 3: Inventory of the Study Area's Notable Features
Notable features are considered to be sensitive species and habitats; valued environmental components; relative uniqueness, recovery time, unusual landscape features; and vulnerable elements of the population (NCHRP Report, 2002).

Notable features evaluated in the indirect analysis are provided below in **Table 21**.

Table 21: Notable Features for Indirect Impact Analysis

Resource Category	Resource Evaluated	Specific Notable Features
Cultural Resources	Historic Structures	Numerous historic structures located within AOI
Socioeconomic Resources	Access and Traffic Circulation	North Mesa St, North Stanton St, North Oregon St, East Franklin Ave, North/South Kansas St, West Father Rahm Ave, and Santa Fe Street

As shown in **Table 4** and discussed in detail in the cultural resources section, there are numerous historic structures located within the AOI. In addition to notable features associated with cultural resources, there are notable features related to access and traffic circulation within the AOI. Currently, the major roadways that provide access and traffic circulation within the AOI include North Mesa St, North Stanton St, North Oregon St, East Franklin Ave, North/South Kansas St, West Father Rahm Ave, and Santa Fe Street.

Step 4: Identify Impact-Causing Activities of the Proposed Action
Indirect effects are commonly related to changes in land use, including the conversion of land to transportation use. Changes in travel patterns may occur in conjunction with transportation projects. For example, when a transportation project is constructed, increased access (direct effect) may make an area more attractive for new development, redevelopment of already developed areas, or accelerate already planned development in the area. The development may occur in the form of retail centers, restaurants/bars, office buildings, and residences, including apartments, as well as mixed-use and transit-oriented developments.

Generally, it would be reasonable to expect that projects at a new location or larger scale projects (e.g., improvements that involve a significant increase in capacity such as increasing from a two- to six-lane facility with grade separations) would have more potential to cause indirect effects than smaller scale projects or projects being constructed in already developed areas. However, as evidenced in other cities throughout the nation that implement streetcar projects, the density of development adjacent to the streetcar line can be expected to increase dramatically after implementation of the project, in part due to the fact that the new developments do not need as much space dedicated for parking. Moreover, cities that implement streetcar projects generally

reduce the parking requirements and allow for more dense development adjacent to streetcar lines.

The proposed action would operate within the outside lanes of the existing roadway facilities discussed above, with no ROW acquisition required. Below is a list of impact-causing activities associated with the proposed action, described by type:

- Modification of regime – Approximately 0.2 acre of maintained ROW would be permanently impacted as a result of the proposed action. Additional temporary vegetation disturbances are anticipated during construction. The estimated length of the temporary disturbance is approximately two years.
- Processing – It is anticipated based on usual practices that the contractor, when selected, would negotiate to use a portion of the study area for a field office and storage site. If the contractor chooses to use undeveloped land or another site for material storage, temporary impacts to natural resources may increase.
- Land alteration – Erosion control and landscaping activities would result from the construction of the proposed action.
- Resource renewal activities – Revegetation, remediation activities would take place as needed.
- Access alteration – Although traffic volumes may be modified, current access would be maintained at all existing developments.

Step 5: Identify Potential Substantial Indirect Effects

For each of the study area's notable features, Step 5 examines the potential for substantial indirect effects potentially associated with the proposed action. All of the resource categories considered in this report were candidates for analysis with regard to indirect effects.

According to National Cooperative Highway Research Program (NCHRP) Report 466, three types of indirect effects related to proposed transportation projects include:

- encroachment-alteration effects – effects that alter the behavior and functioning of the physical environment, are related to design features, but are indirect in nature because they can be separated from the project in time or distance.
- induced growth effects – changes in traffic patterns and accessibility attributable to the design can influence the location of residential and commercial growth
- effects related to induced growth – effects attributable to induced growth and not to project design features

Encroachment-Alteration Effects

A team of historians has determined that encroachment-alteration effects to cultural resources would not be substantial. The proposed action would not directly affect any cultural resources and the only indirect encroachment-alteration effects that could potentially occur to cultural resources would consist of developers rehabilitating historic structures to take advantage of the increased access and mobility afforded by the proposed action.

There are currently five historic districts located within the AOI and the City of El Paso has a strong regulation process is place for protecting cultural resources within the city. According to the City of El Paso, on June 27, 1978, the El Paso City Council approved Ordinance 6243, the Historic Landmark Preservation Ordinance. This enabling legislation seeks to preserve and protect our community's buildings, structures, and archeological sites that convey the history and sense of place that makes El Paso a unique city. To ensure that the public's interests are attended to, the Historic Landmark Preservation Ordinance requires that property owners of buildings, structures, and land within locally designated historic districts submit any proposed exterior alterations to the property for review by the Historic Preservation Office or the El Paso Historic Landmark Commission prior to the issuance of a building permit. Therefore, encroachment-alteration effects to cultural resources would not be substantial and regulations are in place to limit the type of redevelopment permitted for these properties.

Encroachment-alteration effects to socioeconomic resources were identified as a concern during the scoping process and could be potentially substantial, requiring further analysis in Step 6 below. The proposed action would not result in the direct relocation of or alteration of homes, businesses, or public facilities/community centers. The proposed action would result in changes to access and traffic circulation, as discussed in Step 4 above. While this project would not result in relocations, it would result in access changes to adjacent parcels and would likely induce development of developable lands. However, economic development is one of the purposes of the proposed action and all adjacent parcels would maintain access to the roadway facilities.

Induced Growth Effects

Virtually all of the AOI is developed for urban use, with the exception of individual undeveloped parcels spread throughout the AOI. Recent trends indicate that further development and redevelopment is likely. Therefore, induced growth effects would be likely within the AOI. As mobility is improved within the AOI due to the proposed action and travelers seek to access the existing developments and the surrounding residential developments, the developable parcels along the streetcar route may be seen as areas that could be developed with complimentary services such as residential, commercial, mixed-use, or transit-oriented development. Much of the indirect impact of the proposed action on adjacent land use would depend on existing trends within the corridor.

Effects Related to Induced Growth

Induced growth is not anticipated to result in substantial effects to cultural resources. While additional development and redevelopment would likely be induced as a result of the implementation of the proposed action, the City of El Paso's Planning Department and the

Historic Landmark Commission would continue to regulate the types of development and redevelopment within the AOI.

In regards to socioeconomic resources, there would be no direct relocation of homes, businesses, or public facilities/community centers as a result of the proposed action. Induced growth in the form of in-fill development would likely occur within the undeveloped parcels spread throughout the AOI, and redevelopment of existing shopping centers, office complexes, etc., within the developed portion of the AOI would likely occur as well. However, this induced development would likely not result in any relocations or displacements as the majority of the existing development within the AOI is established.

While the induced growth would likely not result in relocations or displacements, it would likely result in increased traffic on the primary routes of travel, resulting in more congestion within the AOI and longer travel times for residents and other motorists traveling within the AOI.

Development within the AOI is already occurring at a steady rate, and would occur with or without implementation of the proposed action. However, the induced growth caused by the proposed action would likely increase the speed of development and redevelopment and the density of development within the AOI. Therefore, induced growth effects to socioeconomic resources as a result of the proposed action could potentially be substantial and therefore require further analysis in Step 6 below.

Step 6. Analyze Indirect Effects and Evaluate Results

Substantial indirect effects associated with the proposed action include encroachment/alteration effects and effects related to induced growth. Both types of indirect effects could have substantial effects to socioeconomic resources. These potentially substantial indirect effects are further analyzed below.

Encroachment/Alteration Effects

As discussed in Step 5 above, changes in access and traffic circulation within the AOI as a result of the proposed action would likely result in increased traffic on the primary routes of travel and induce development of developable parcels and redevelopment of existing parcels. Consistent with streetcar projects throughout the U.S., the induced development within the AOI that is associated with the proposed action would likely consist of more dense, urban development than currently exists, resulting in an alteration of the behavior and functioning of the existing study area and hence the socioeconomic makeup within this portion of the AOI.

Effects Related to Induced Growth

As mentioned previously, the vast majority of the AOI is already developed for urban use with the exception of individual parcels spread throughout the AOI. Based on current trends, it appears the area will continue to develop and redevelop in the future due to the City of El Paso's emphasis on making the area within the AOI a more walkable, pedestrian-friendly, and destination location for the entire community. The majority of the undeveloped parcels within the AOI are zoned for urban use. The project is located within the core of a growing urban area.

Utilities are available to the area and there are no policies in place that would discourage development. These factors suggest that development and redevelopment within the AOI is very likely. This would have an influence on the area's overall growth in terms of sales of goods and services, employment, land values, and tax revenues. Without implementation of the proposed action, the City of El Paso would not benefit from potential effects related to induced growth associated with the project.

The project corridor is already experiencing rapid development; however, as stated in Step 5 above, the proposed action would likely indirectly affect the speed and density at which the AOI is developed and/or redeveloped, resulting in an increased rate of development/redevelopment. There is the potential for new jobs associated with the construction of new residences and businesses and the potential for an increase in tax revenue. Quantifying these types of indirect impacts is impossible, as many variable factors unrelated to the proposed action, including prevailing economic conditions, changes in development patterns, and changes in development incentives contribute to the ultimate quantity and rate of development/redevelopment in the AOI. However, it is anticipated that the effects to socioeconomic resources related to induced growth within the AOI would likely be substantial, and include an increase in traffic volume, congestion, and travel times, while also stimulating the quantity, density, and rate of development/redevelopment within the AOI.

Step 7. Assess Consequences and Consider/Develop Mitigation

Since the proposed action is located within and along a long-established major transportation corridor that has exerted influence on local development patterns for many decades, it is not anticipated that the implementation of the proposed action would cause major escalation in local land development patterns. The influence of the transportation corridor on local development or land use is a long-established existing condition that would not be significantly altered by the proposed action. While project-induced development along the proposed action is anticipated, these indirect impacts are expected to be small in the overall context of the project or other regional changes that are occurring irrespective of the proposed action.

In general, mitigation should be considered for the following indirect impacts:

- those that conflict with study area goals
- those that could worsen the condition of a sensitive or vulnerable notable feature
- those that could delay or interfere with planned improvement of a notable feature
- those that could eliminate a valued or unique notable feature, or could render that notable feature ordinary (this could mean that something unusual or unique in its context is removed, or that more of the features are added so that it is no longer unusual, or that the particular aspect of a feature that makes it unique is affected in a way that it becomes similar to other features)
- those that are inconsistent with an applicable law

The indirect impacts identified as a result of the proposed action do not meet any of these criteria. Furthermore the indirect impacts identified do not have any associated negative consequences. No mitigation for the indirect impacts is therefore proposed.

Cumulative Impacts

The CEQ regulations (40 CFR §1508.7) define cumulative impacts (i.e., effects) as ~~"~~the impact on the environment which results from the incremental impact of the proposed action when added to other past, present and reasonably foreseeable future actions." As this regulation suggests, the purpose of a cumulative impacts analysis is to view the direct and indirect impacts of the proposed action within the larger context of past, present, and future activities that are independent of the proposed action, but which are likely to affect the same resources in the future. These same resources are then evaluated from the standpoint of their relative abundance among similar resources within a larger geographic area. Broadening the view of resource impacts in this way allows the decision maker to evaluate the incremental impacts of the proposed proposed action in light of the overall health and abundance of selected resources. In essence, a cumulative impacts evaluation creates a model of the predicted condition of each resource that is independent of the proposed action, and then analyzes the expected direct and indirect impacts of the project within that context to determine if there is a cumulative impact. The evaluation process for each resource considered may be expressed in shorthand form as follows:

BASELINE CONDITION + PROJECT IMPACTS + FUTURE IMPACTS = CUMULATIVE IMPACTS
(historical and current) (direct and indirect) (reasonably foreseeable)

The evaluation of cumulative impacts discussed in this report follows the eight steps in TxDOT's *Revised Guidance on Preparing Indirect and Cumulative Impact Analyses* (June 2009), which reflects the requirements of controlling case law (*Fritiofson v. Alexander*, 772 F.2d 1225, 5th Circuit, 1985). The methodology used to prepare this evaluation is also in accordance with guidance from the CEQ, *Considering Cumulative Effects under the National Environmental Policy Act* (1997).

The following eight steps of TxDOT's *Revised Guidance on Preparing Indirect and Cumulative Impact Analyses* (June 2009) serve as guidelines for identifying and assessing cumulative impacts:

1. Identify the resources to consider in the analysis
2. Define the study area for each affected resource
3. Describe the current health and historical context for each resource
4. Identify direct and indirect impacts that may contribute to a cumulative impact
5. Identify other reasonably foreseeable actions that may affect resources
6. Assess potential cumulative impacts to each resource
7. Report the results
8. Assess and discuss mitigation issues for all adverse impacts.

Information from the direct and indirect effects evaluation was used to identify resources for cumulative impact assessment. If the proposed action was determined to have no direct impacts or indirect effects on a resource, it would not contribute to a cumulative impact on that resource.

Step 1 - Identify the resources to consider in the analysis

This analysis focuses on resources that are affected by the proposed action and considered to have the potential for cumulative impacts even though the project's direct and indirect impacts may be relatively minor as well as resources that are in poor or declining health. Based on the results of the direct and indirect analyses and a review of the general health of the various resources, land use and access/traffic circulation, were determined to be resources to consider in the cumulative effects analysis.

Step 2: Define the study area for each affected resource

The geographic Resource Study Areas (RSAs) for the land use and access/traffic circulation resources was determined to be the same as the AOI that was used to determine indirect impacts (**Exhibit 4**). Cumulative impacts to land use, access and traffic circulation would be predominately borne within this area as the proposed action is localized in nature and much of the surrounding area is already built-out. The temporal RSA considered under the cumulative effects section is from 1975 to 2035. The lower end of the temporal RSA was determined based on the fact that the City of El Paso began experiencing a significant increase in population starting in the mid-1970s after a period of declining or sluggish population growth. Therefore, the resources discussed below began experiencing significant cumulative effects in 1975. The upper end of the temporal RSA was established based on the existing Mission 2035 MTP.

Step 3: Describe the current health and historical context for each resource

The following section provides a general historical overview of the area followed by a discussion of the current health and historical context for each resource included in the cumulative effects analysis.

As stated in the THSA, the region of El Paso has seen human settlement for thousands of years as evidenced by artifacts found at Hueco Tanks. By the time of the Spanish arrival, the Manso, Suma and the Jumano tribes populated the area. The Mescalero Apache were in the region as well. The first Europeans in all probability were Alvar Nunez Cabeza De Vaca and his three companions, survivors of an unsuccessful Spanish expedition to Florida, who passed through the El Paso area in 1535 or 1536, although their exact route is debated. The first party of Spaniards that in all certainty saw the El Paso del Norte (Pass of the North) was Rodriquez Sanchez and his expedition in 1581. El Paso del Norte (now Cuidad Juárez) was founded by Spanish conquistadores in 1659.

In 1680, El Paso del Norte (Cuidad Juárez) became a base for Spanish governance in the New World. Present day El Paso remained undeveloped during most of the Spanish control. Indian wars and continual attacks left this area unstable and dangerous. In the late 1600s, the Spaniards, led by Diego de Vargas, began re-colonization efforts from El Paso to the New Mexico region including Santa Fe. The Mexican Constitution of 1824 made present day El Paso the

southernmost locality of the Territory of New Mexico and part of the newly established state of Chihuahua. The Royal Road (Camino Real) tied El Paso to Mexico City and Santa Fe.

After the outbreak of hostilities between the U.S. and Mexico in May 1846, Col. Alexander Doniphan and a force of American volunteers defeated the Mexicans at the battle of Brazito, entered El Paso del Norte, and invaded Chihuahua in December. The Treaty of Guadalupe Hidalgo in 1848 which officially ended the Mexican War delineated the boundary between the two nations at the Rio Grande, the Gila River, and the Colorado River, thence westward to the Pacific. All territory north of that line, known as the Mexican Cession and comprising half of Mexico's national domain, became a part of the United States, which paid Mexico $15 million. Thus El Paso del Norte, the future Ciudad Juárez, became a border town.

El Paso was not considered part of Texas until 1848, well after the Texas Revolution. However, Anglos settlers had moved into the area and established themselves, often marrying into the established Hispanic elite. The Treaty of Hidalgo helped to make the settlements on the northern side of the Rio Grande American settlements. The current Texas-Mexico border was established with the Compromise of 1850. Also in this year, the state of Texas established El Paso County with San Elizario as the first County seat.

A settlement on Coons Rancho called Franklin became the nucleus of El Paso, Texas. El Paso County was established in March 1850, with San Elizario as the first county seat. The United States Senate fixed a boundary between Texas and New Mexico at the thirty-second parallel, thus largely ignoring history and topography. Fort Bliss, a military post, was established in 1854, and the Butterfield Overland Mail arrived in 1858. A year later pioneer Anson Mills completed his plat of the town of El Paso, a name that resulted in endless confusion until the name of the town across the river, El Paso del Norte, was changed to Ciudad Juárez in 1888.

During the Civil War most of El Paso supported the South. Confederate forces occupied Fort Bliss in 1861, but the Union Army took the fort over the next year. With the advent of the railroad in 1881 and 1882, El Paso grew substantially. El Paso became the county seat in 1883 and by 1890 had a population of 10,000. El Paso became known as ―Sin City" and ―Six Shooter Capital" where saloons, dance halls, gambling establishments, and houses of prostitution lined the main streets. In 1905, the city finally enacted ordinances ending prostitution and gambling.
The city grew from 15,906 in 1900 to 39,279 in 1910 and 77,560 in 1925. The exodus of refugees fleeing the disruption of the Mexican Revolution contributed heavily to the city's population growth during this period. Factors making this rapid development possible included El Paso's geographic location as a gateway to Mexico; its proximity to the mining areas of Mexico, New Mexico, and Arizona; its plentiful natural resources; and an abundant supply of cheap Mexican labor.

For more than 130 years Fort Bliss has played a significant role in local, national, and international affairs, and the relationship between the city and the post has always been close. The military establishment was responsible for much of El Paso's growth during the 1940s and 1950s, when El Paso absorbed the town of Isleta and greatly increased its municipal area. In

1986 military personnel made up one-fourth of the city's population and accounted for one out of every five dollars flowing through El Paso's economy. The rapid growth that characterized El Paso during the first quarter of the twentieth century slowed somewhat during the 1930s. After reaching 102,421 in the 1930 census the population declined to 96,810 by the 1940 census. Postwar development brought the number of residents up to 130,003 in 1950. Fueled by rapid military and commercial expansion, El Paso's population more than doubled during the next ten years, reaching 276,687 in 1960. Slower but steady growth continued throughout the 1960s, with the population reaching 339,615 in 1970. Despite a period of sluggishness from 1971 to 1974, El Paso's population grew by 32 percent during the 1970s, to 425,259 in 1980. By 2010 the population of El Paso had swelled to 805,660, an approximately 90 percent increase from 1980 to 2010.

Land Use

The land use RSA is the same as the indirect impacts AOI and contains the UTEP area, a majority of the downtown core, and points in between. Since the mid-1970s, the RSA has remained urban in nature and the predominant land uses within the RSA have consisted predominantly of residential, commercial, and institutional. Currently and historically, the southern portion of the land use RSA within the City of El Paso has supported more intense, urban-style growth, while the northern half of the RSA has supported more residential and institutional development. UTEP has continued to grow and add density within its campus since the mid-1970s, and supportive commercial developments geared towards serving the growing student population have developed in tandem around the campus – specifically along North Oregon and Mesa Streets.

According to *Plan El Paso*, "When considering regional growth strategies, the first priority for El Paso should be reinvestment in its historic Downtown…[and] an equally important priority should be encouraging mixed-use development and redevelopment on vacant or underutilized sites throughout El Paso, especially near transit centers and along existing and planned transit routes." Therefore, the City of El Paso supports economic development and growth in the RSA and its land use policies dictate the development of more intense, mixed-use, urban-style growth within the RSA.

While land use changes are occurring within the RSA due to continued growth, the City of El Paso is guiding this growth and ensuring that it occurs within the parameters set forth in their *Plan El Paso 2012* comprehensive plan. Therefore, the current health of the land use resource is stable.

Access and Traffic Circulation

As with the land use resource discussed above, the continued growth within the RSA has changed access and traffic circulation as well. Mesa, Kansas, and Stanton Streets have historically provided the majority of the traffic circulation and access within the RSA. However, as the RSA has continued to develop since 1975, many of the surrounding roadways have become more significant, serving as additional major access and traffic circulation routes within the RSA. These routes provide service and access to the areas of growth within the RSA.

As growth continues in the RSA, the roadways within the RSA are becoming increasingly congested, leading to a declining health in access and traffic circulation.

Step 4: Identify direct and indirect impacts that may affect resources
The following discussion identifies the direct and indirect impacts to the various resources that were carried forward to the cumulative impacts section.

Land Use and Access/Traffic Circulation
The proposed action would not require any additional ROW; therefore, no existing land uses would be directly converted to roadway ROW. Additionally, no displacements or relocations would be required. The proposed action would provide additional access and transportation options to existing and new developments within the RSA. Although current access points may be modified, access would be maintained at all existing developments.

Potentially substantial indirect effects could occur to socioeconomic resources, include encroachment-alteration effects and effects related to induced growth. As discussed in step 5 of the indirect impacts analysis, changes in access and traffic circulation within the AOI as a result of the proposed action would likely result in induced development of developable and redevelopable lands. This induced development would likely consist of more dense, urban development than currently exists in the northern half of the AOI, resulting in an alteration of the behavior and functioning of the existing residential neighborhood and hence the socioeconomic makeup within this portion of the AOI.

Qualitatively speaking, the effects to socioeconomic resources related to induced growth within the AOI would likely be substantial, and would include an increase in traffic volumes, congestion, and travel times, while also stimulating the quantity, type, and rate of development/redevelopment within the AOI.

As travelers seek to access the existing developments and the surrounding residential developments via the proposed action, the developable and redevelopable lands within the AOI would likely be seen as areas that could be developed or redeveloped with higher density, transit-oriented and/or mixed-use developments with residential, commercial, and retail components.

Indirect effects associated with the proposed action are expected to include conversion of undeveloped adjacent parcels to urban uses as well as redevelopment of existing developments.

Step 5: Other Past, Present, and Reasonably Foreseeable Actions
Below is a list of other past, present, and reasonably foreseeable actions (**Table 22**).

Table 22: Other Past, Present, and Reasonably Foreseeable Actions

Past Actions	• In 2002, the City of El Paso formally approved a public/private partnership with the El Paso Community Foundation to restore the Plaza Theatre to its original splendor. • In 2010, the City of El Paso added landscaping along Loop 375 from the Santa Fe Bridge to the Stanton Bridge. • Mills Plaza Parking, an affiliate of Mills Plaza Properties, constructed the St. Regis Parking Garage in 2011. The garage was designed after the façade of the original hotel and created a 700 to 1000 spot secure, well-lit parking lot connecting directly to the Mills Building. • The Paso del Norte Foundation and the El Paso Community Foundation have both built new offices and meeting spaces in Downtown El Paso. • A new 200-room Doubletree Hotel was completed in Fall 2008 in downtown El Paso. The hotel includes numerous meeting rooms including a 3,500 sq ft meeting room. • A new federal courthouse located in downtown El Paso was completed in Fall 2010. It offers the community a new 239,600 gross square foot federal facility along a 3.5-acre site located in El Paso's central business district. The new courthouse houses 11 courtrooms and serves 13 judges, five resident district judges, two senior judges, five magistrate judges and one court of appeals, consolidating El Paso's court services into one place. • The City of El Paso recently completed a $5.6M reconstruction of Oregon Street adjacent to the hospital district and UTEP campus.
Present Actions	• Mills Plaza Properties, with the architectural firm Martinez & Johnson Architecture of Washington DC and the Waters Design Group of El Paso, have developed plans to create a business, restaurant and retail district at the heart of El Paso's downtown focused around the Mills, Centre and Plaza Hotel buildings. • To unify the Mills Plaza buildings into a district, Mills Plaza Properties is working with the City of El Paso to close the adjacent block of Mills Avenue to auto traffic and make it pedestrian-only. The area will feature outdoor dining, trees and benches, and a venue for public art. • Two banks -- United Bank and Banamex -- have opened or are moving new corporate offices and headquarters into Downtown El Paso. • The Lofts and the Magoffin Villas, both representing the first new housing in more than 50 years in Downtown El Paso, have been built or are under way in downtown El Paso. • In Fall 2012, the El Paso City Council approved a $500,000 contract with SWA Group for the redesign of San Jacinto Plaza in Downtown. The project will include paving, water features, seating areas, additional green areas, a park café, a shade structure, a stage, streetscape, entry plaza, boccie court, street promenades and a table-tennis courtyard and will likely cost approximately $5M.

Table 22: Other Past, Present, and Reasonably Foreseeable Actions (Continued)

Reasonably Foreseeable Actions	• Sun Metro is currently planning four bus Rapid Transit System (RTS) lines within the RSA – Mesa St (late 2013), Alameda (early 2014), Dyer (late 2014), and Montana (late 2015). The RTS lines will be called Brio. • TxDOT and the City of El Paso are planning improvements to Loop 375 within the project study area, including resurfacing the roadway from 1.0 mile east of Santa Fe St to Santa Fe St in December 2012. • The City of El Paso is planning to repair the Santa Fe St bridge between Franklin St and Main St in 2013. • TxDOT and the City of El Paso are planning improvements to IH-10 within the project study area, including resurfacing the roadway from 0.58 mile east of Mesa St to Paisano Dr in 2014. • TxDOT and the City of El Paso are planning • TxDOT and the City of El Paso are currently planning the Loop 375 Border Highway West Extension Project between Race Track Drive and US 54. • The City of El Paso is considering the construction of a Downtown Sports Complex to include an AAA Baseball Ballpark at the current location of the El Paso City Hall on Franklin St, an MLS soccer facility south of Paisano St, and an arena facility on the convention center site. The City is moving forward with Ballpark planning with an anticipated opening date of April 2014.

Source: URS, 2012

As evidenced in **Table 22**, there are numerous past, present, and foreseeable actions within the RSA despite the recent economic downturn within the United States. As the economy improves, development and redevelopment within the RSA would likely increase.

Step 6 - Assess potential cumulative impacts to each resource

The following section provides a resource by resource assessment of cumulative impacts within the RSAs.

Land Use

Cumulative impacts related to land use within the RSA could potential be substantial. While growth and the associated densification of land uses would likely occur despite the proposed action and other reasonably-foreseeable actions, these projects would likely further stimulate the amount, type, rate, and density of development, and hence result in a faster rate of land use conversion. However, all land use changes would be consistent with the City of El Paso's comprehensive plan.

Access and Traffic Circulation

Cumulative impacts to access and traffic circulation within the RSA could potentially be substantial as well. The continued growth coupled with the increased rate of growth and density stimulated by the proposed action and other reasonably-foreseeable projects would likely result

in an increase in congestion within the RSA. In turn, the increased congestion would likely result in a reduced access and traffic circulation within the RSA. While projects such as the proposed action would likely result in improved access and traffic circulation within the immediate area surrounding the proposed action, the induced growth within other areas of the RSA as a result of the cumulative impacts would likely create increased congestion and reduced access and traffic circulation in these areas. However, longer-term the proposed action coupled with pedestrian improvements and pedestrian- and transit-friendly developments would likely result in a shift in transportation usage within the RSA towards transit and pedestrian/bicycle options, thus resulting in a slowing or even reversal of automobile traffic within the RSA.

Step 7: Report the results
Based upon the above cumulative effects analysis, potentially substantial cumulative impacts could occur to access and traffic circulation as well as land use resources as a result of the proposed action and other reasonably foreseeable projects.

However, not constructing the proposed action would leave the corridor in its existing state and result in the continuation of inadequate mobility and transportation options within the RSA. Not constructing the project would also limit the potential financial benefits that would result from the induced development, which is part of the purpose and need of the proposed action and a major objective of the City of El Paso.

Step 8: Assess and discuss mitigation issues for all adverse impacts
Mitigation for potential effects from proposed actions is solely the responsibility of the entity implementing that project. Therefore, mitigation for cumulative effects as a result of the reasonably foreseeable actions is only a recommendation. Consideration of potential mitigation measures as specified in 40 CFR 1508.20 for this project include the following:

a) avoiding the impact altogether by not taking certain actions or parts of an action
b) minimizing impacts by limiting the degree or magnitude of the action and its implementation
c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment
d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action
e) compensating for the impact by replacing or providing substitute resources or environments

Impacts to land along the project corridor would be minimized to the extent possible through the project area. The project would not result in any relocations or displacements. There would be some changes in access for residents and travelers alike; however, there would be no disproportionate, adverse effects to minority or low-income communities.

The other reasonably foreseeable transportation projects in the RSA would implement their own mitigation measures for reducing impacts to social and economic resources in the area. Those implementing the development projects may not deem mitigation necessary as the intent is to beneficially impact the social and economic resources in the area.

Therefore, potential mitigation for cumulative effects associated with the proposed action is only a recommendation, as FHWA and TxDOT can only mitigate for direct impacts associated with this particular proposed action.

Permits/Commitments

This section summarizes the elements that constitute the Environmental Permits, Impacts and Commitment (EPIC) Sheet. The EPIC sheet, found in the Environmental Tracking System, documents and communicates permit issues and environmental commitments that must be incorporated into the Plans, Specifications, and Estimates. The permits, impacts and commitments relevant to the proposed action are as follows:

- TPDES General Permit for Construction Activity
    - The proposed action would include five or more acres of earth disturbance. TxDOT would comply with TCEQ's Texas Pollutant Discharge Elimination System (TPDES) Construction General Permit (CGP). A Storm Water Pollution Prevention Plan (SW3P) would be implemented, and a construction site notice would be posted on the construction site. A Notice of Intent (NOI) would be required.
- Vegetation and Wildlife Habitat Resources Commitment
    - MBTA Commitment
        - In the event that migratory birds are encountered on-site during project construction, every effort will be made to avoid take of protected birds, active nests, eggs and/or young. The contractor would remove all old migratory bird nests from September 1 through the end of February from any structure where work will be done. In addition, the contractor would be prepared to prevent migratory birds from building nests from March 1 to August 31.
- Hazardous Materials or Contamination Issues Commitment
    - The contractor would take appropriate measures to prevent, minimize, and control the spill of fuels, lubricants, and other hazardous materials in construction staging areas. All spills generated by the contractor would be cleaned immediately and any contaminated soil would be removed from the project and disposed of properly. Designated areas would be identified for spoils disposal and materials storage. The areas would be protected from inflow and runoff. Materials resulting from the removal of existing pavement or other spoils would be stored in these designated areas. All materials being removed or disposed of by the contractor would be conducted in accordance with state and federal laws, and by the approval of the TxDOT Project Engineer.
- Archaeological Resources Commitment
    - In the event that unanticipated archaeological deposits are encountered during construction, work in the immediate area will cease, and TxDOT archaeological staff will be contacted to initiate post-review discovery procedures.

- Other Environmental Issues and Commitments
    - No other actions are required for the proposed actions.

Public Involvement

Public Meetings were conducted for the proposed action on July 17 and July 19, 2012. The meetings were conducted in a manner so that all interested parties were able to provide both oral and written comments concerning the proposed action. Reasonable arrangements (such as special communication interpreters or accommodation needs) were taken to ensure all persons had meaningful access to the programs, services, and information TxDOT provides.

Non-FHWA Categorical Exclusion Determination

The engineering, social, economic and environmental investigations conducted thus far on this proposed project indicate that no significant impacts would result. Therefore, the project meets the criteria for a Non-FHWA Categorical Exclusion and would not require any further environmental analysis.

November 2012

Appendix A
Exhibits

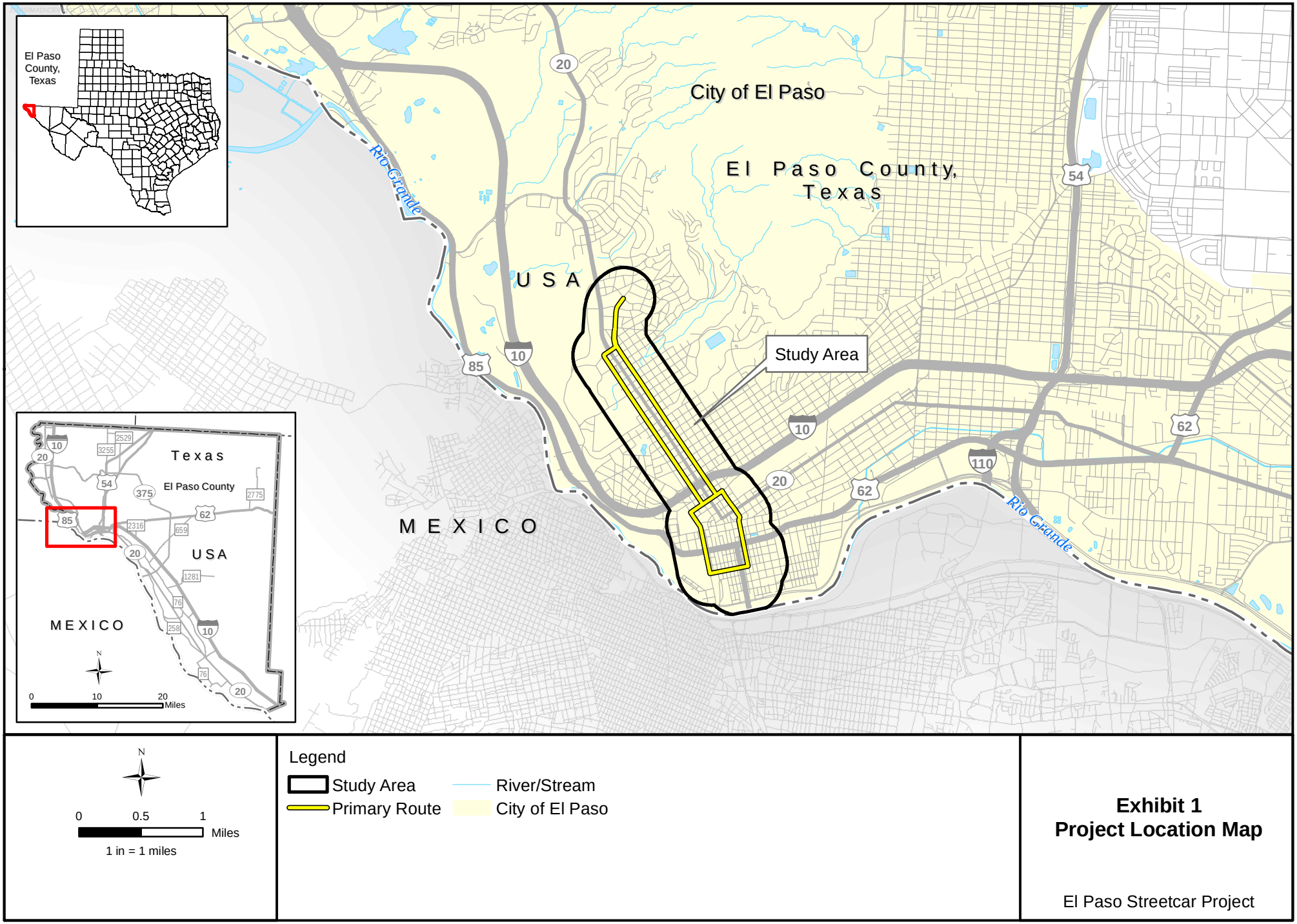
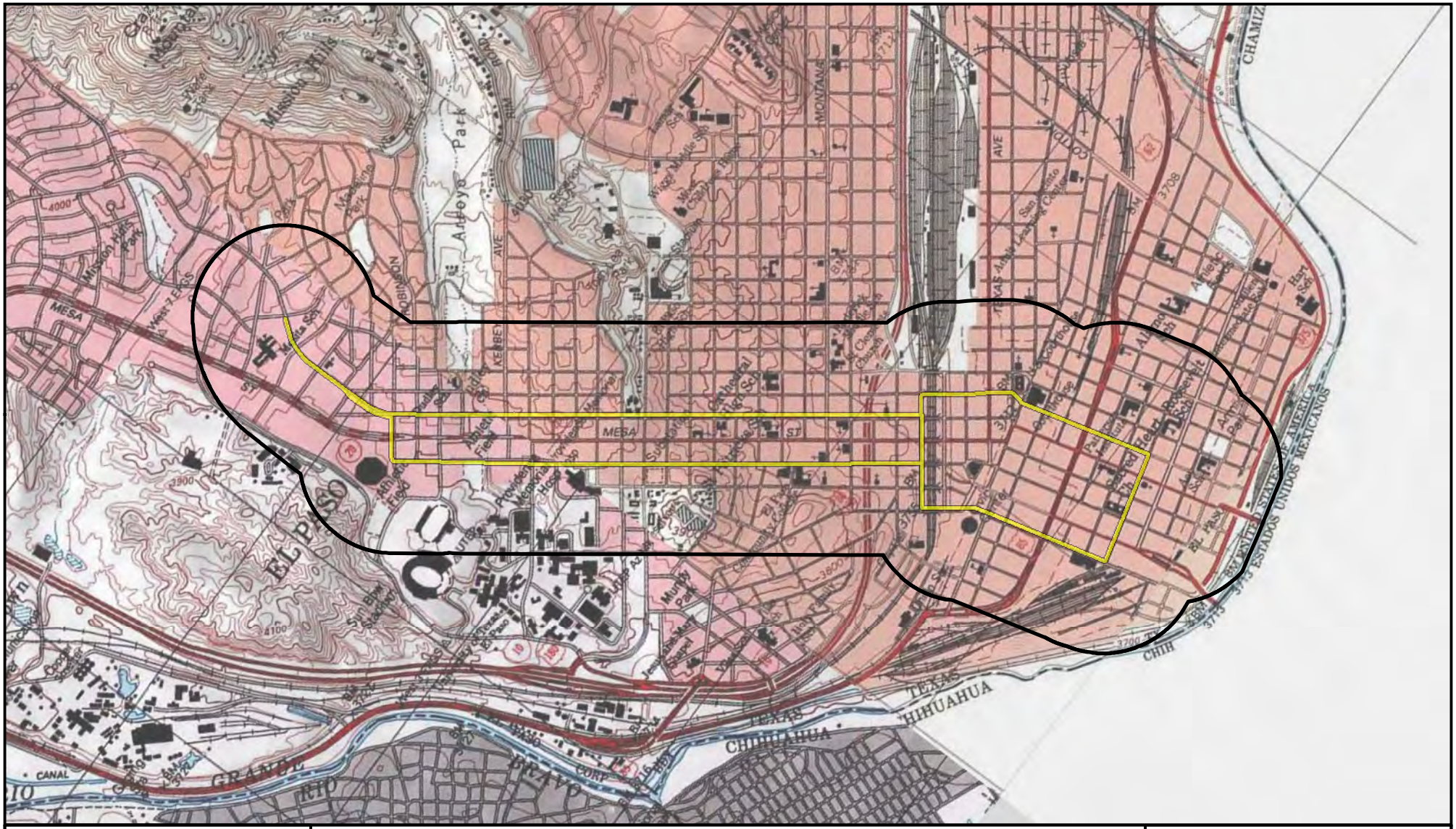


Exhibit 1
Project Location Map

El Paso Streetcar Project



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1 in = 2,000 feet

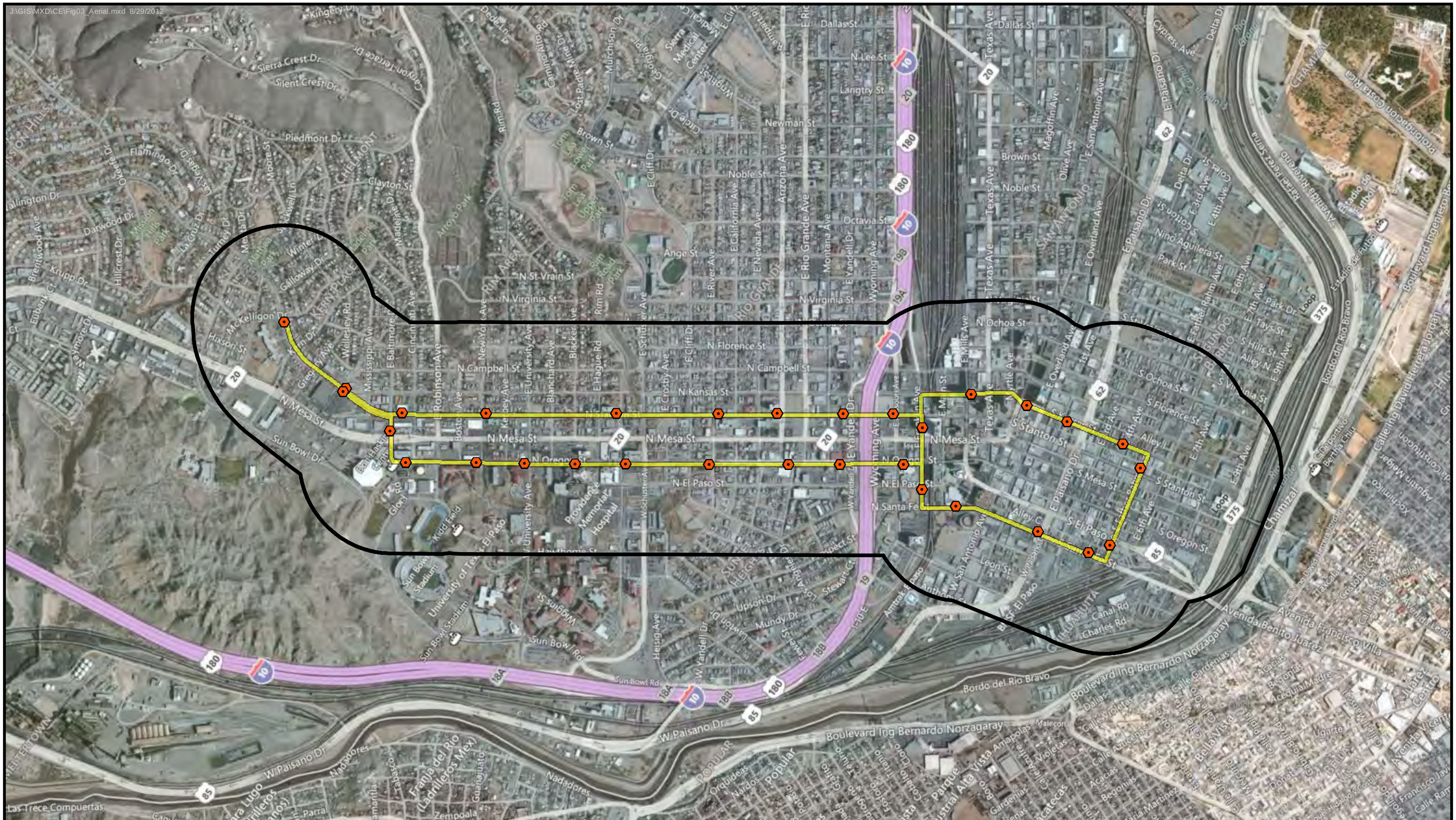
Legend

Study Area

Primary Route

Exhibit 2
USGS Topographic Map

El Paso Streetcar Project



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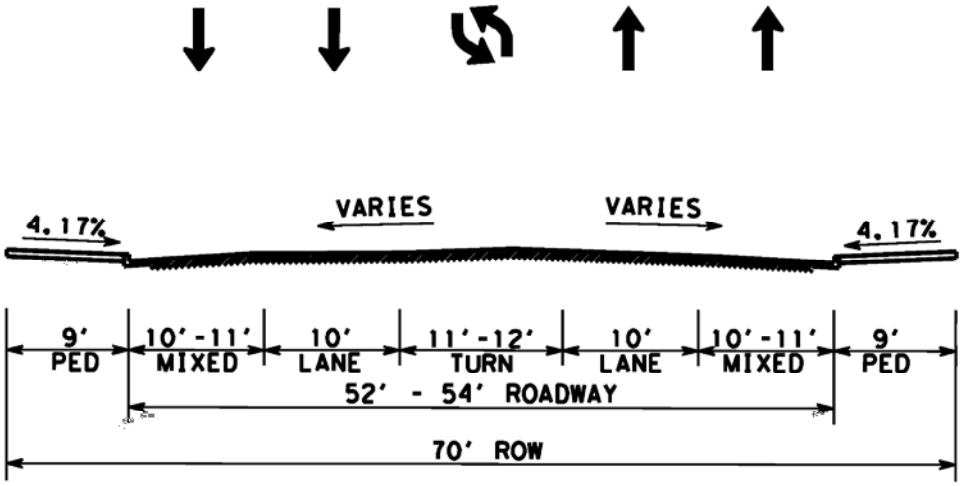
Study Area

Proposed Station

Primary Route

Exhibit 3
Aerial Photo Map

El Paso Streetcar Project



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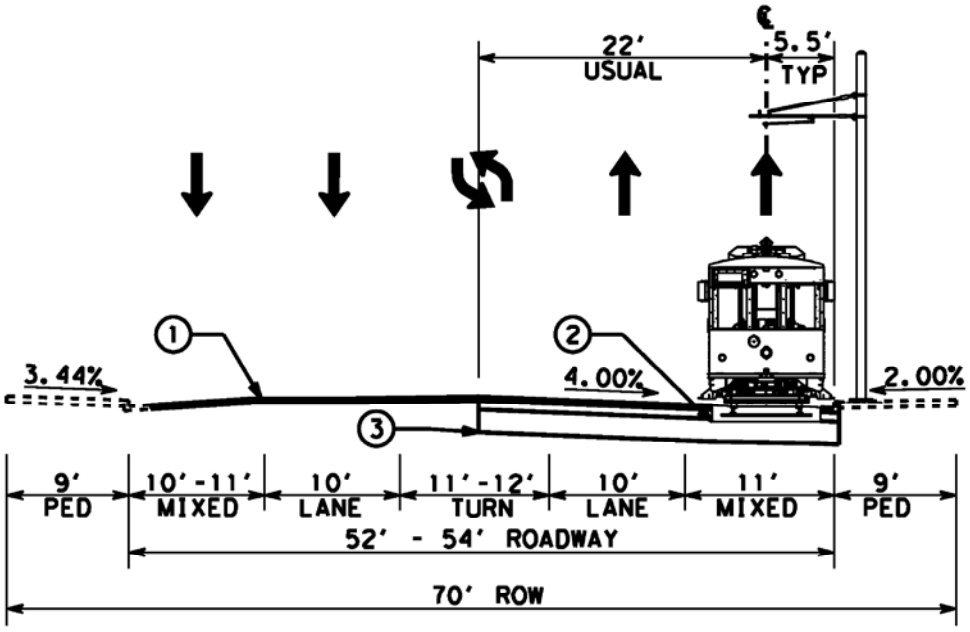

PROPOSED S SANTA FE ST

W FATHER RAHM AVE TO W SAN ANTONIO AVE

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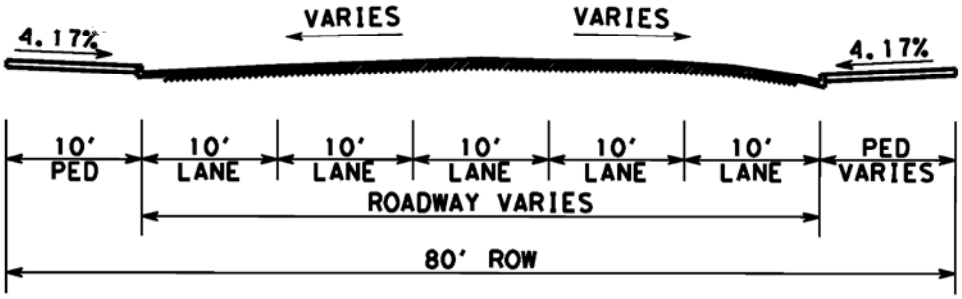
LEGEND

1. PROP MILL & OVERLAY
2. PROP TRACK SLAB
3. PROP FULL DEPTH RECONSTRUCTION

NOTE:
STREETCAR ALIGNMENT ESTABLISHED WITHOUT THE USE OF EXISTING UNDERGROUND UTILITY INFORMATION. IT MAY BE JUSTIFIED TO SHIFT THE ALIGNMENT DUE TO MAJOR UTILITY CONFLICTS ONCE THIS DATA IS AVAILABLE.

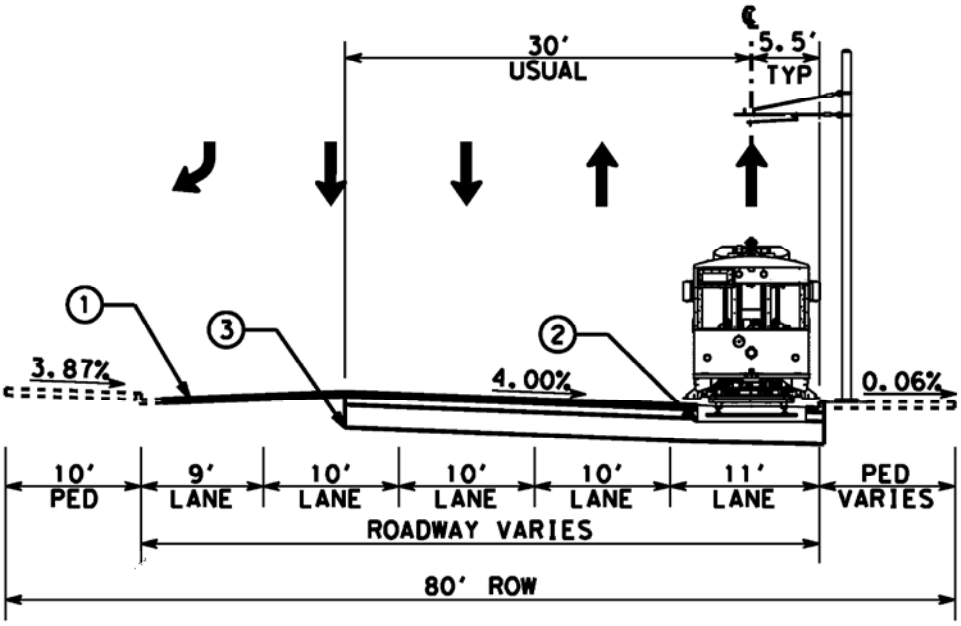
Exhibit 4-1
Typical Sections

El Paso Streetcar Project



EXISTING N SANTA FE ST

W SAN ANTONIO AVE TO E FRANKLIN AVE



PROPOSED N SANTA FE ST

W SAN ANTONIO AVE TO E FRANKLIN AVE

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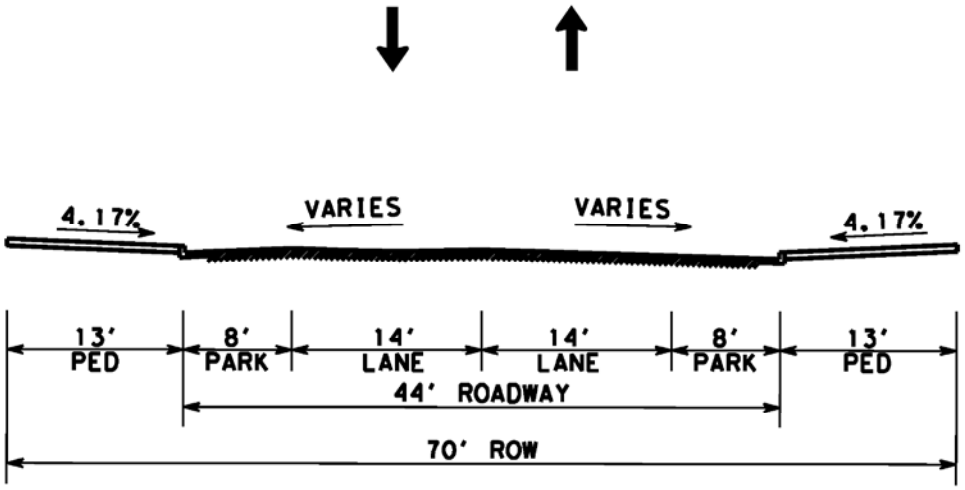
LEGEND

1. PROP MILL & OVERLAY
2. PROP TRACK SLAB
3. PROP FULL DEPTH RECONSTRUCTION

NOTE:
STREETCAR ALIGNMENT ESTABLISHED WITHOUT THE USE OF EXISTING UNDERGROUND UTILITY INFORMATION. IT MAY BE JUSTIFIED TO SHIFT THE ALIGNMENT DUE TO MAJOR UTILITY CONFLICTS ONCE THIS DATA IS AVAILABLE.

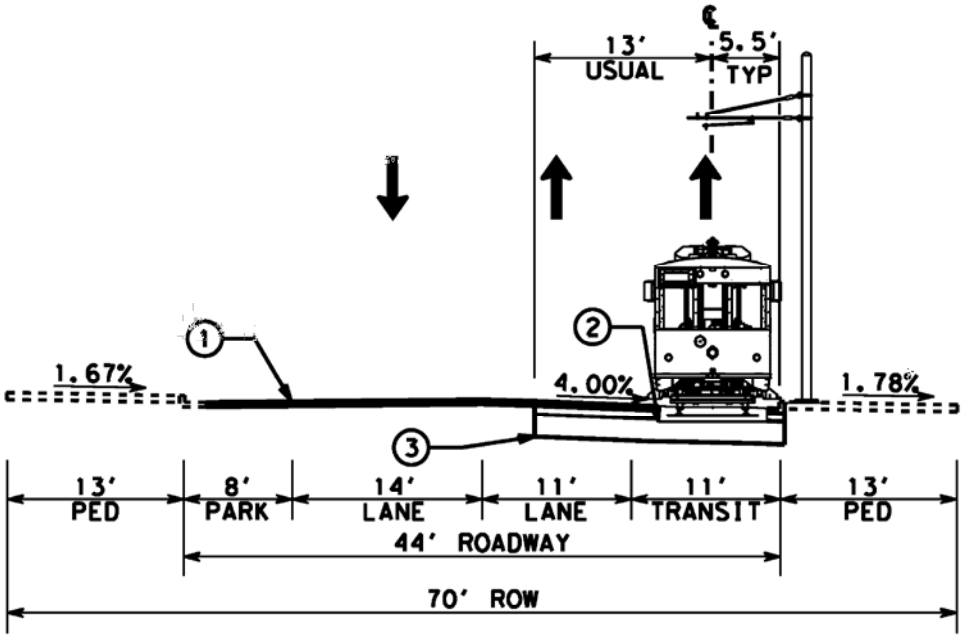
Exhibit 4-2
Typical Sections

El Paso Streetcar Project



EXISTING E FRANKLIN AVE

N SANTA FE ST TO N OREGON ST



PROPOSED E FRANKLIN AVE

N SANTA FE ST TO N OREGON ST

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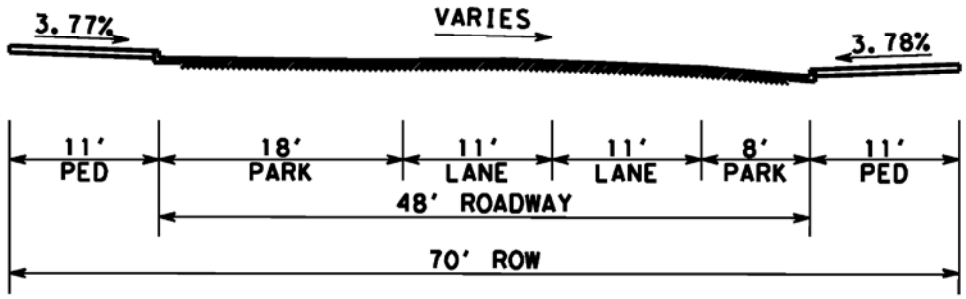
LEGEND

1. PROP MILL & OVERLAY
2. PROP TRACK SLAB
3. PROP FULL DEPTH RECONSTRUCTION

NOTE:
STREETCAR ALIGNMENT ESTABLISHED WITHOUT THE USE OF EXISTING UNDERGROUND UTILITY INFORMATION. IT MAY BE JUSTIFIED TO SHIFT THE ALIGNMENT DUE TO MAJOR UTILITY CONFLICTS ONCE THIS DATA IS AVAILABLE.

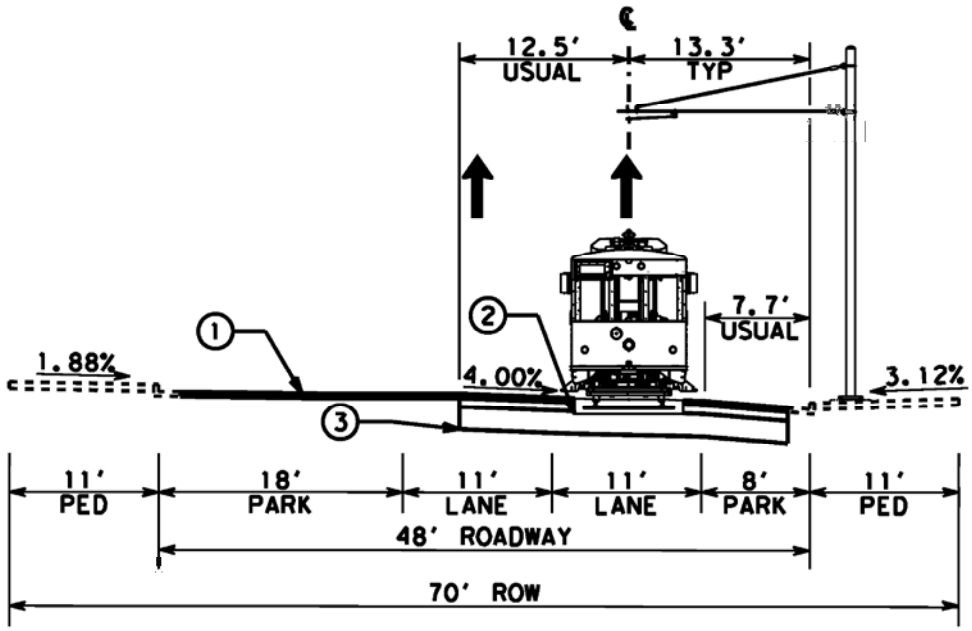
Exhibit 4-3
Typical Sections

El Paso Streetcar Project



EXISTING E FRANKLIN AVE

N OREGON ST TO N MESA ST



PROPOSED E FRANKLIN AVE

N OREGON ST TO N MESA ST

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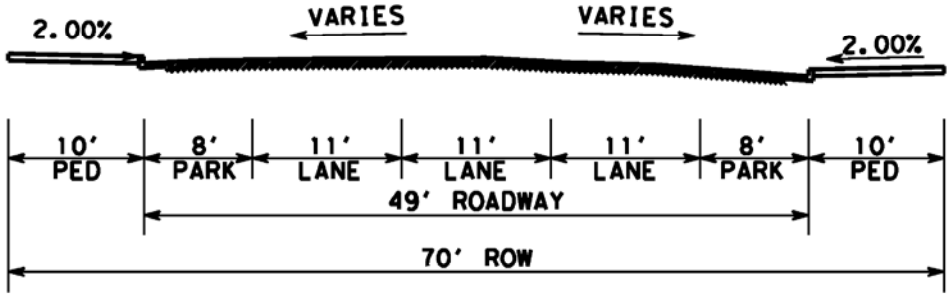
LEGEND

1. PROP MILL & OVERLAY
2. PROP TRACK SLAB
3. PROP FULL DEPTH RECONSTRUCTION

NOTE:
STREETCAR ALIGNMENT ESTABLISHED WITHOUT THE USE OF EXISTING UNDERGROUND UTILITY INFORMATION. IT MAY BE JUSTIFIED TO SHIFT THE ALIGNMENT DUE TO MAJOR UTILITY CONFLICTS ONCE THIS DATA IS AVAILABLE.

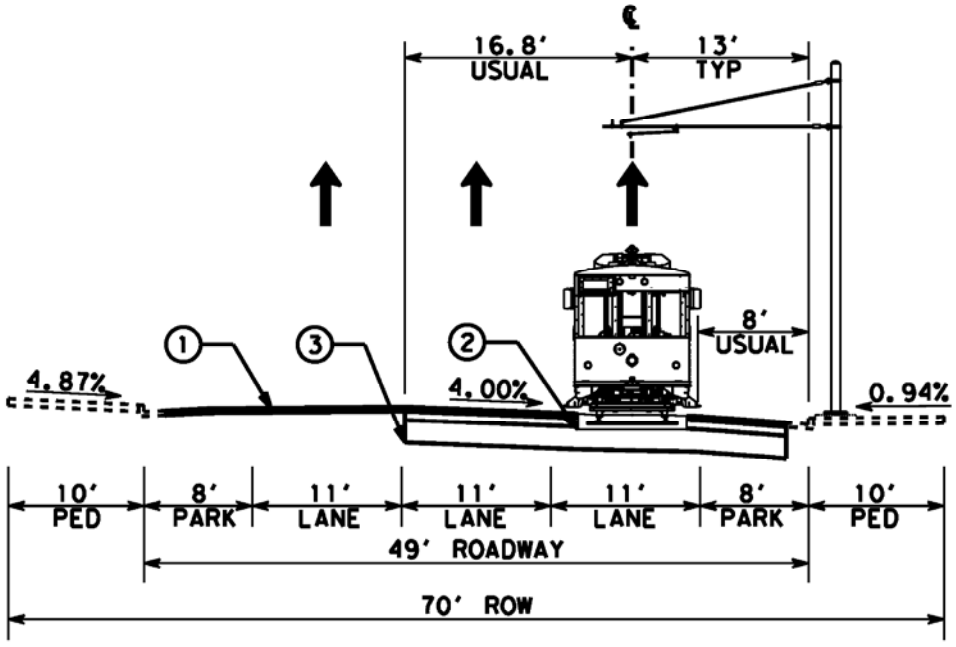
Exhibit 4-4
Typical Sections

El Paso Streetcar Project



EXISTING E FRANKLIN AVE

N MESA ST TO N KANSAS ST



PROPOSED E FRANKLIN AVE

N MESA ST TO N KANSAS ST

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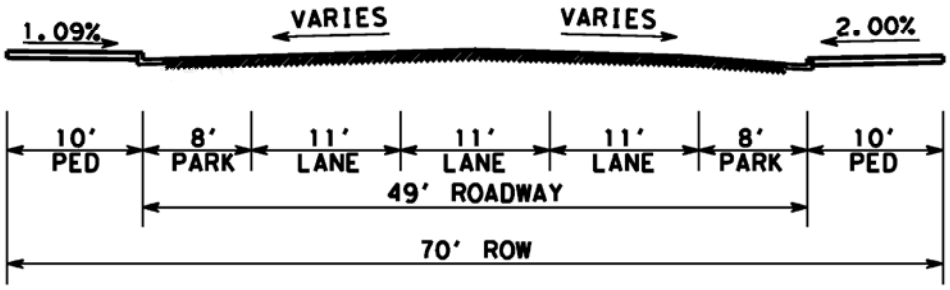
LEGEND

1. PROP MILL & OVERLAY
2. PROP TRACK SLAB
3. PROP FULL DEPTH RECONSTRUCTION

NOTE:
STREETCAR ALIGNMENT ESTABLISHED WITHOUT THE USE OF EXISTING UNDERGROUND UTILITY INFORMATION. IT MAY BE JUSTIFIED TO SHIFT THE ALIGNMENT DUE TO MAJOR UTILITY CONFLICTS ONCE THIS DATA IS AVAILABLE.

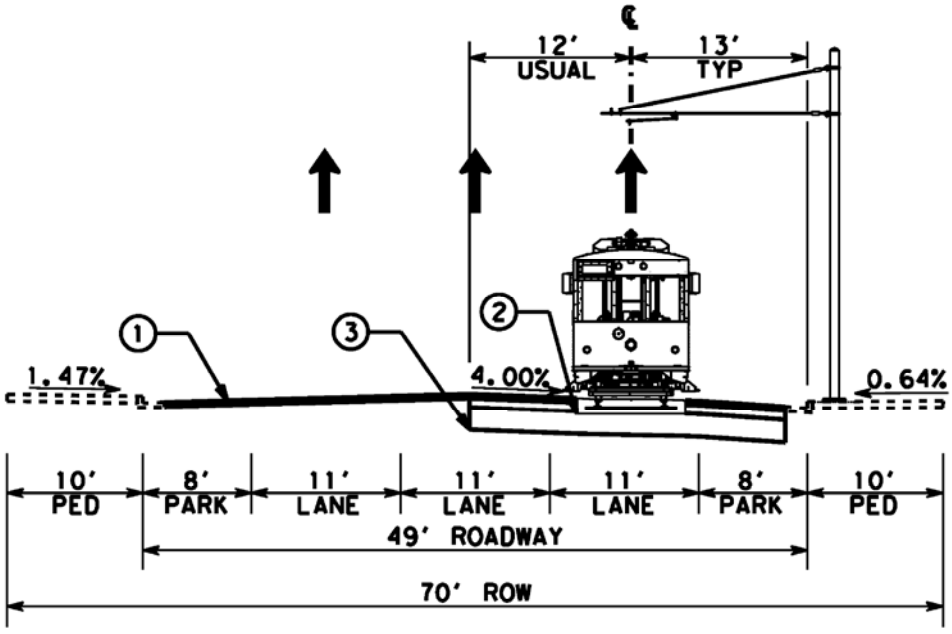
Exhibit 4-5
Typical Sections

El Paso Streetcar Project



EXISTING N STANTON ST

E FRANKLIN ST TO MONTANA AVE



PROPOSED N STANTON ST

E FRANKLIN ST TO MONTANA AVE

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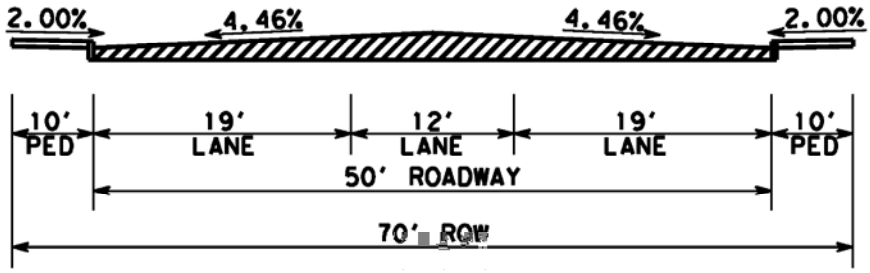
LEGEND

1. PROP MILL & OVERLAY
2. PROP TRACK SLAB
3. PROP FULL DEPTH RECONSTRUCTION

NOTE:
STREETCAR ALIGNMENT ESTABLISHED WITHOUT THE USE OF EXISTING UNDERGROUND UTILITY INFORMATION. IT MAY BE JUSTIFIED TO SHIFT THE ALIGNMENT DUE TO MAJOR UTILITY CONFLICTS ONCE THIS DATA IS AVAILABLE.

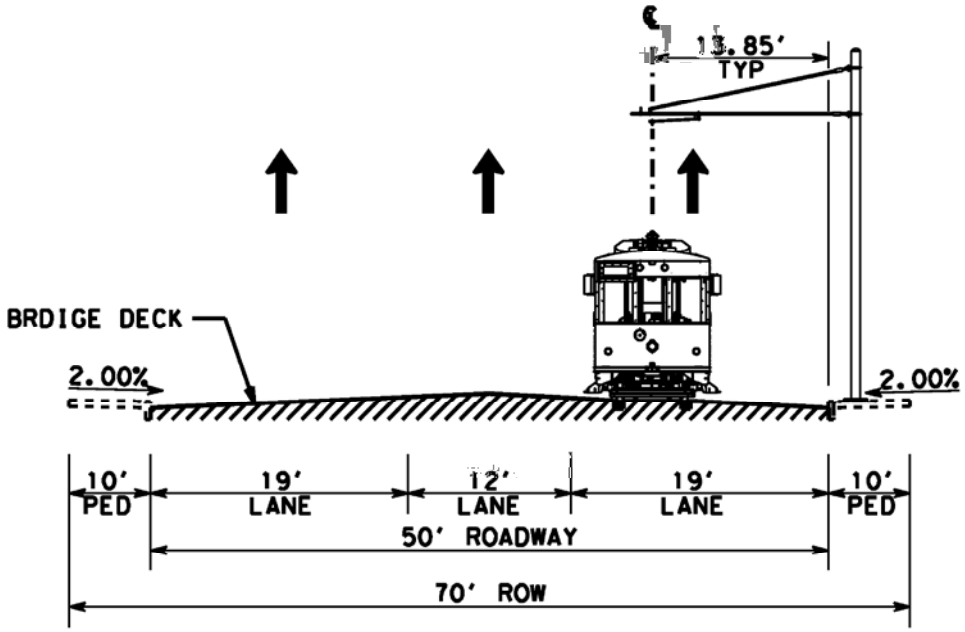
Exhibit 4-6
Typical Sections

El Paso Streetcar Project



EXISTING N STANTON ST

AT IH 10 OVERPASS



PROPOSED N STANTON ST

AT IH 10 OVERPASS
REFER TO OVERPASS FEASIBILITY TECHNICAL MEMORANDUM FOR MORE INFORMATION

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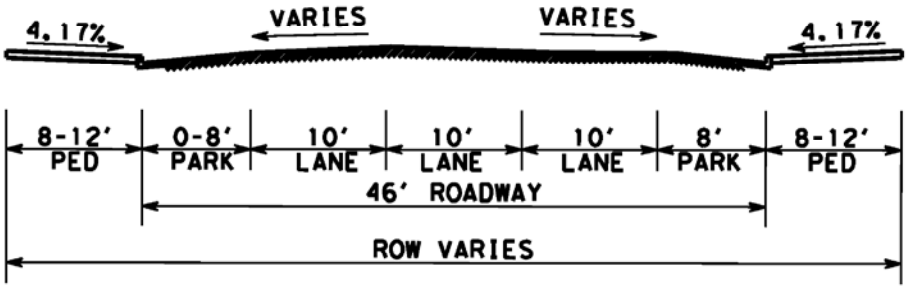
LEGEND

1. PROP MILL & OVERLAY
2. PROP TRACK SLAB
3. PROP FULL DEPTH RECONSTRUCTION

NOTE:
STREETCAR ALIGNMENT ESTABLISHED WITHOUT THE USE OF EXISTING UNDERGROUND UTILITY INFORMATION. IT MAY BE JUSTIFIED TO SHIFT THE ALIGNMENT DUE TO MAJOR UTILITY CONFLICTS ONCE THIS DATA IS AVAILABLE.

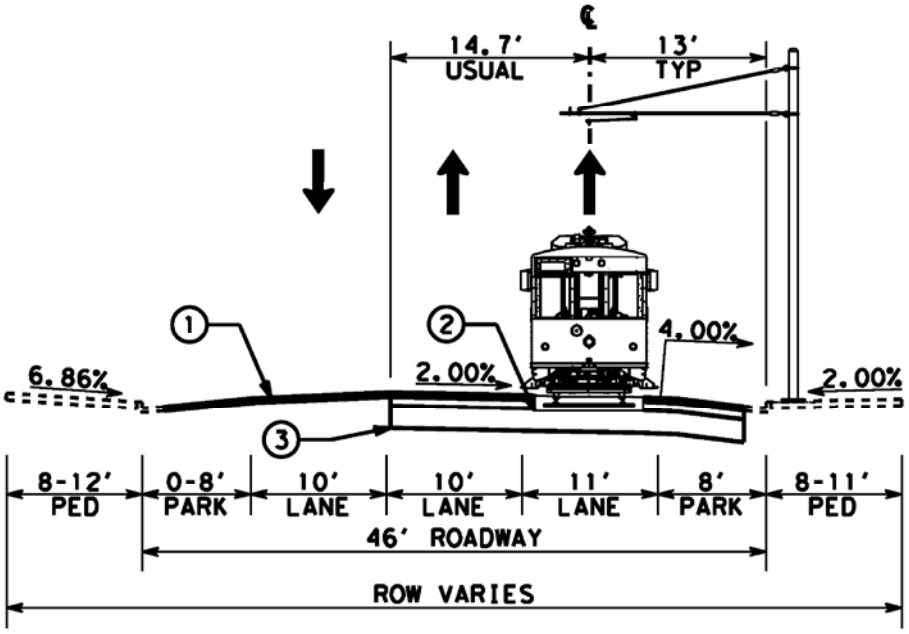
Exhibit 4-7
Typical Sections

El Paso Streetcar Project



EXISTING N STANTON ST

MONTANA AVE TO E CLIFF DR



PROPOSED N STANTON ST

MONTANA AVE TO E CLIFF DR

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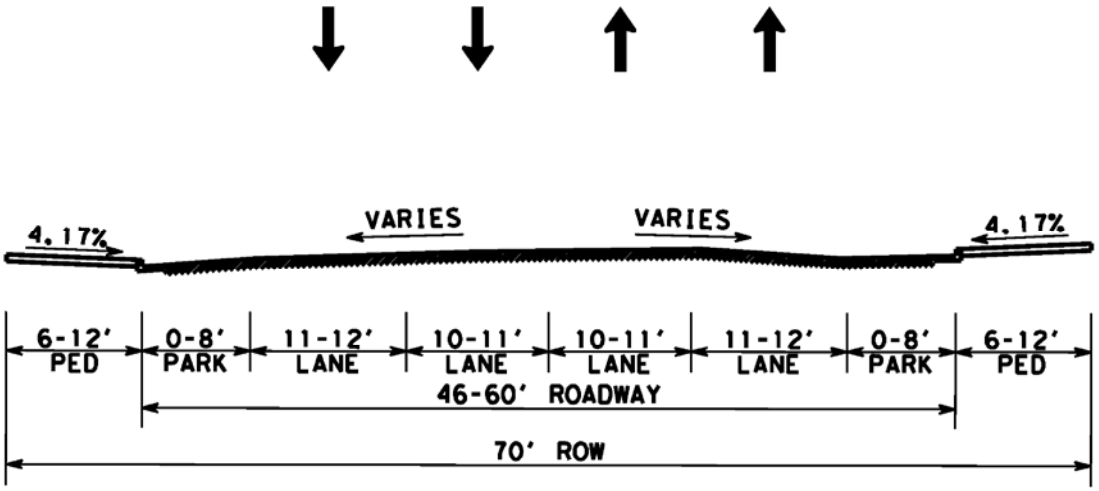
LEGEND

1. PROP MILL & OVERLAY
2. PROP TRACK SLAB
3. PROP FULL DEPTH RECONSTRUCTION

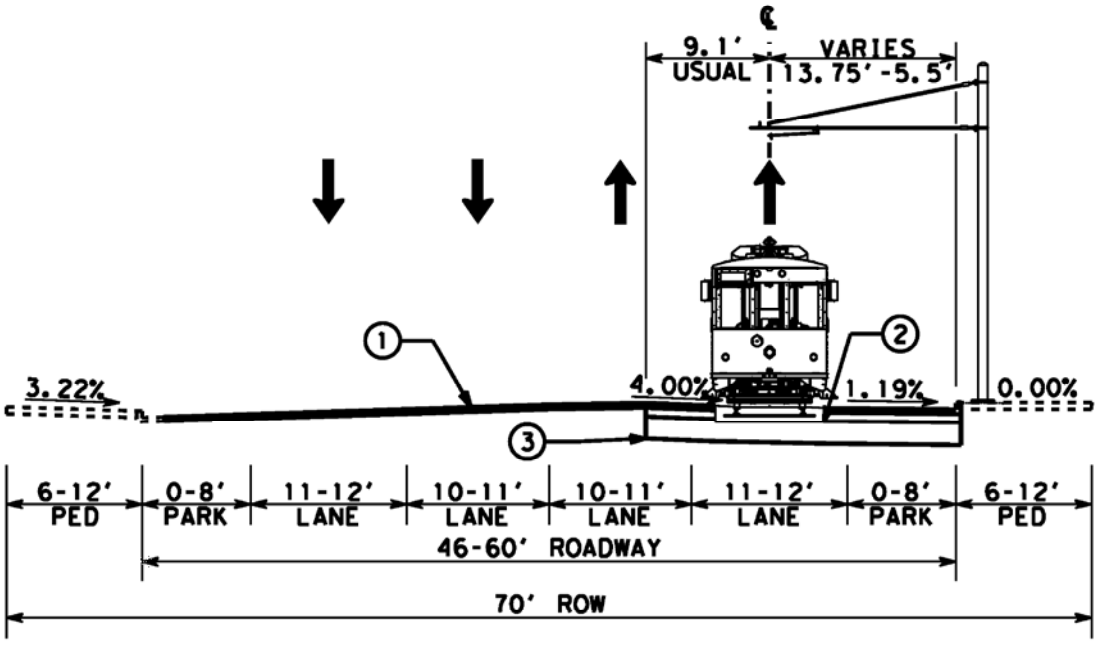
NOTE:
STREETCAR ALIGNMENT ESTABLISHED WITHOUT THE USE OF EXISTING UNDERGROUND UTILITY INFORMATION. IT MAY BE JUSTIFIED TO SHIFT THE ALIGNMENT DUE TO MAJOR UTILITY CONFLICTS ONCE THIS DATA IS AVAILABLE.

Exhibit 4-8
Typical Sections

El Paso Streetcar Project



EXISTING N STANTON ST
E CLIFF DR TO E BALTIMORE DR



PROPOSED N STANTON ST
E CLIFF DR TO E BALTIMORE DR

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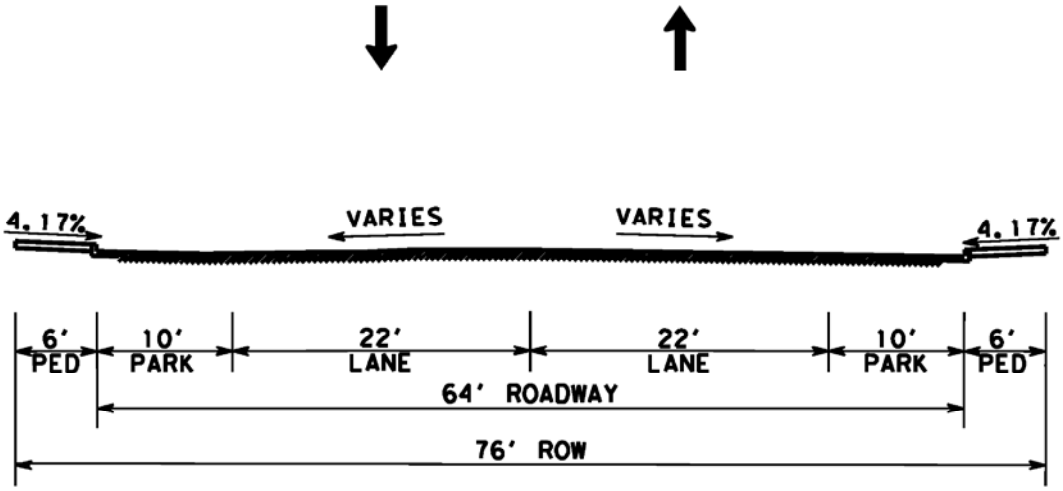
LEGEND

1. PROP MILL & OVERLAY
2. PROP TRACK SLAB
3. PROP FULL DEPTH RECONSTRUCTION

NOTE:
STREETCAR ALIGNMENT ESTABLISHED WITHOUT THE USE OF EXISTING UNDERGROUND UTILITY INFORMATION. IT MAY BE JUSTIFIED TO SHIFT THE ALIGNMENT DUE TO MAJOR UTILITY CONFLICTS ONCE THIS DATA IS AVAILABLE.

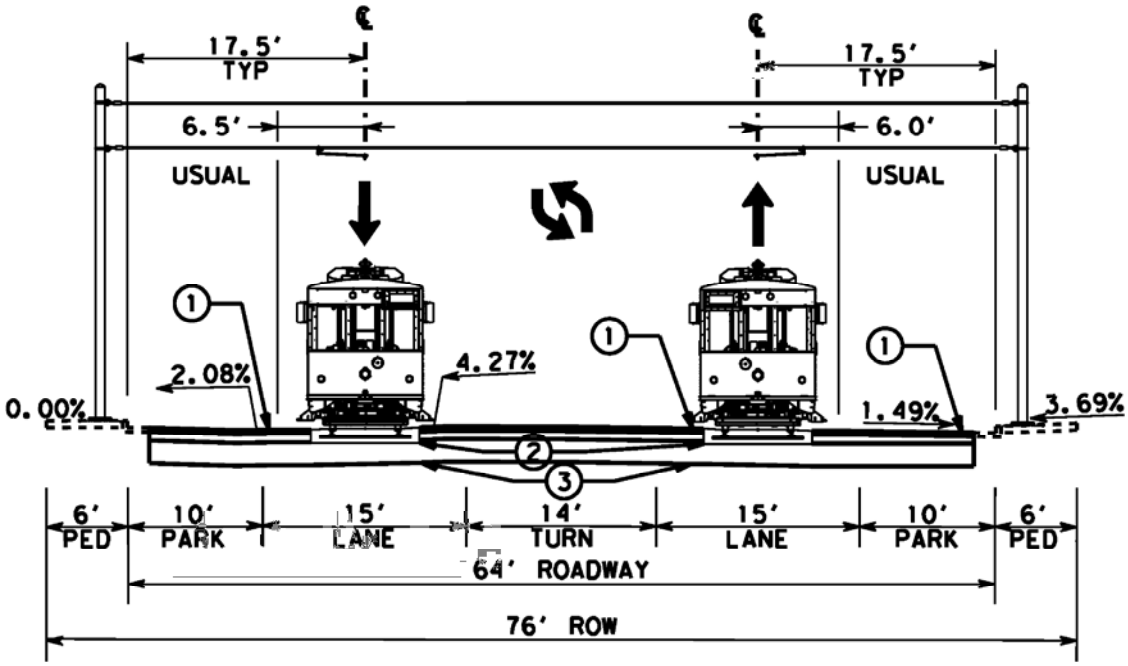
Exhibit 4-9
Typical Sections

El Paso Streetcar Project



EXISTING N STANTON ST

E BALTIMORE DR TO COFFIN AVE



PROPOSED N STANTON ST

E BALTIMORE DR TO COFFIN AVE

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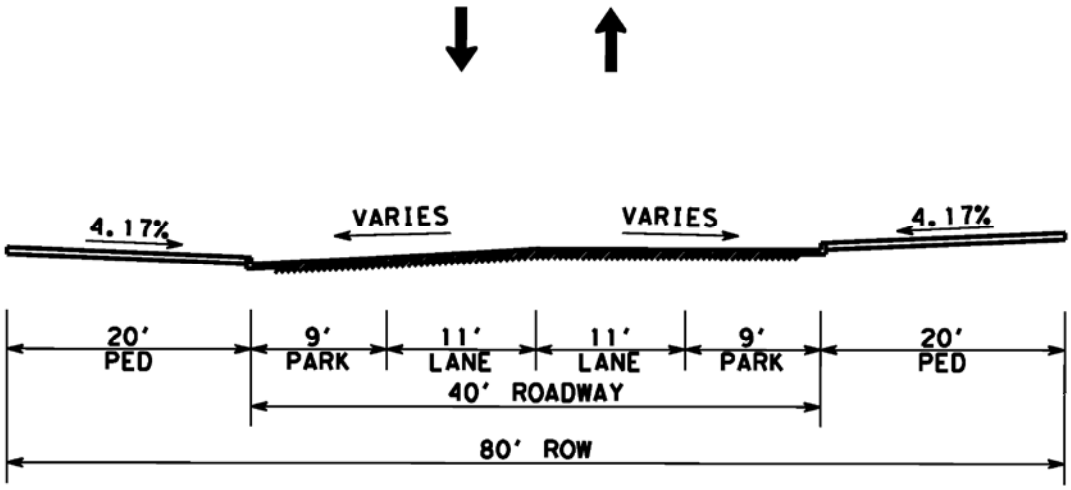
LEGEND

1. PROP MILL & OVERLAY
2. PROP TRACK SLAB
3. PROP FULL DEPTH RECONSTRUCTION

NOTE:
STREETCAR ALIGNMENT ESTABLISHED WITHOUT THE USE OF EXISTING UNDERGROUND UTILITY INFORMATION. IT MAY BE JUSTIFIED TO SHIFT THE ALIGNMENT DUE TO MAJOR UTILITY CONFLICTS ONCE THIS DATA IS AVAILABLE.

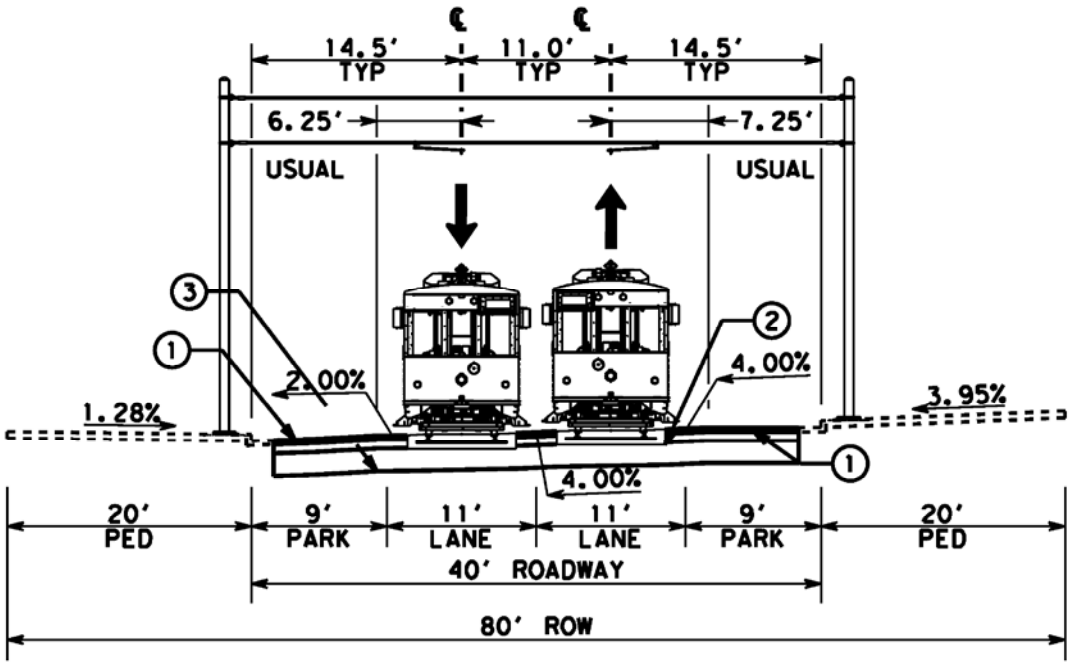
Exhibit 4-10
Typical Sections

El Paso Streetcar Project



EXISTING N STANTON ST

COFFIN AVE TO MCKELLIGON DR



PROPOSED N STANTON ST

COFFIN AVE TO MCKELLIGON DR

I:\GIS\MXD\CE\Fig04-11_TypSec.mxd 10/18/2012

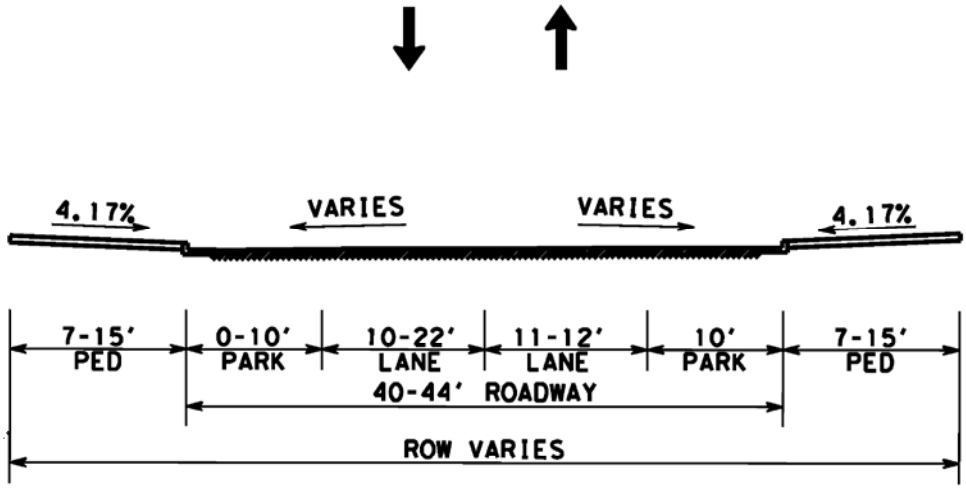
LEGEND

1. PROP MILL & OVERLAY
2. PROP TRACK SLAB
3. PROP FULL DEPTH RECONSTRUCTION

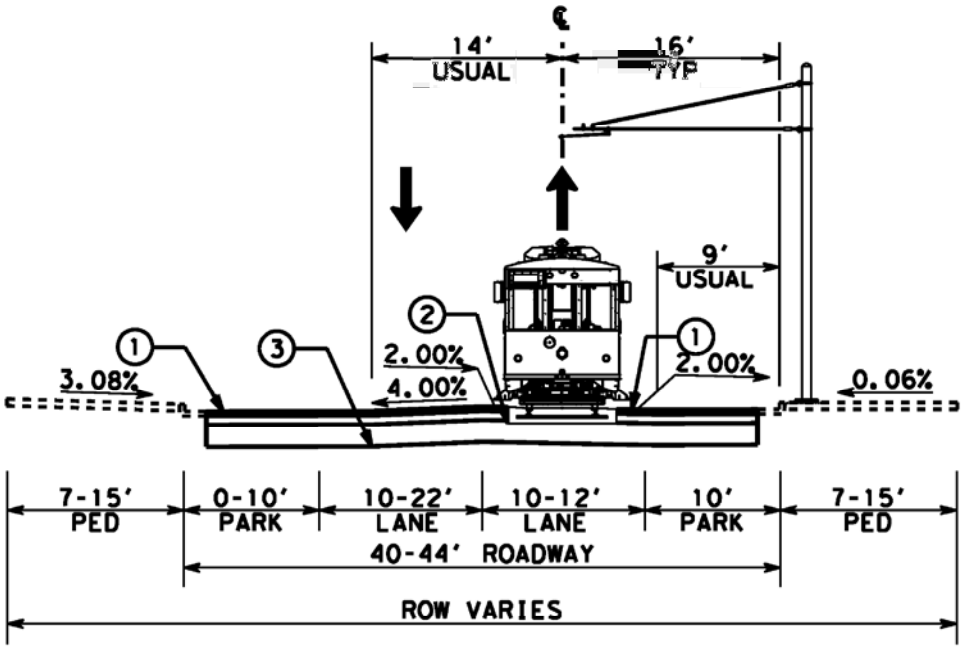
NOTE:
STREETCAR ALIGNMENT ESTABLISHED WITHOUT THE USE OF EXISTING UNDERGROUND UTILITY INFORMATION. IT MAY BE JUSTIFIED TO SHIFT THE ALIGNMENT DUE TO MAJOR UTILITY CONFLICTS ONCE THIS DATA IS AVAILABLE.

Exhibit 4-11
Typical Sections

El Paso Streetcar Project



EXISTING E BALTIMORE DR / GLORY RD



PROPOSED E BALTIMORE DR / GLORY RD

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LEGEND

① PROP MILL & OVERLAY

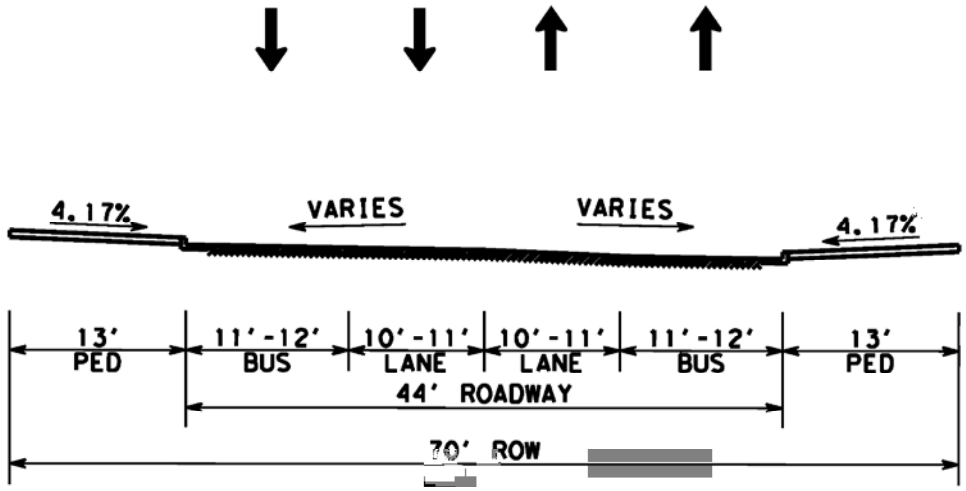
② PROP TRACK SLAB

③ PROP FULL DEPTH RECONSTRUCTION

NOTE:
STREETCAR ALIGNMENT ESTABLISHED WITHOUT THE USE OF EXISTING UNDERGROUND UTILITY INFORMATION. IT MAY BE JUSTIFIED TO SHIFT THE ALIGNMENT DUE TO MAJOR UTILITY CONFLICTS ONCE THIS DATA IS AVAILABLE.

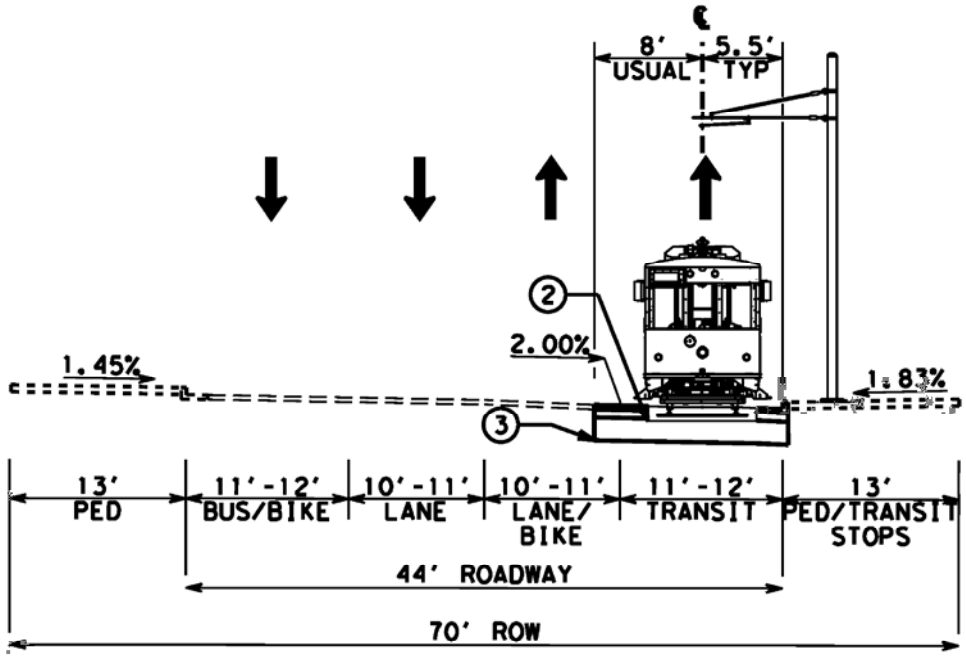
Exhibit 4-12
Typical Sections

El Paso Streetcar Project



EXISTING OREGON ST

GLORY RD TO E CLIFF DR



PROPOSED OREGON ST

GLORY RD TO E CLIFF DR

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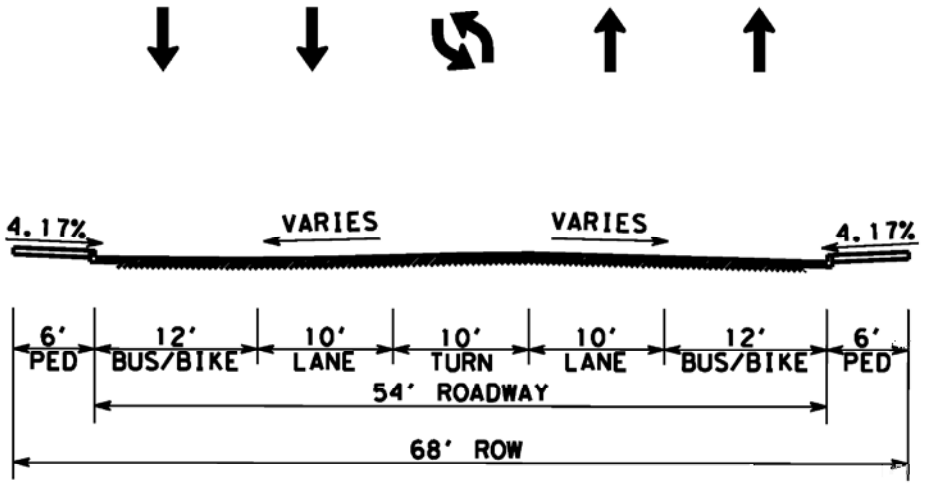
LEGEND

1. PROP MILL & OVERLAY
2. PROP TRACK SLAB
3. PROP FULL DEPTH RECONSTRUCTION

NOTE:
STREETCAR ALIGNMENT ESTABLISHED WITHOUT THE USE OF EXISTING UNDERGROUND UTILITY INFORMATION. IT MAY BE JUSTIFIED TO SHIFT THE ALIGNMENT DUE TO MAJOR UTILITY CONFLICTS ONCE THIS DATA IS AVAILABLE.

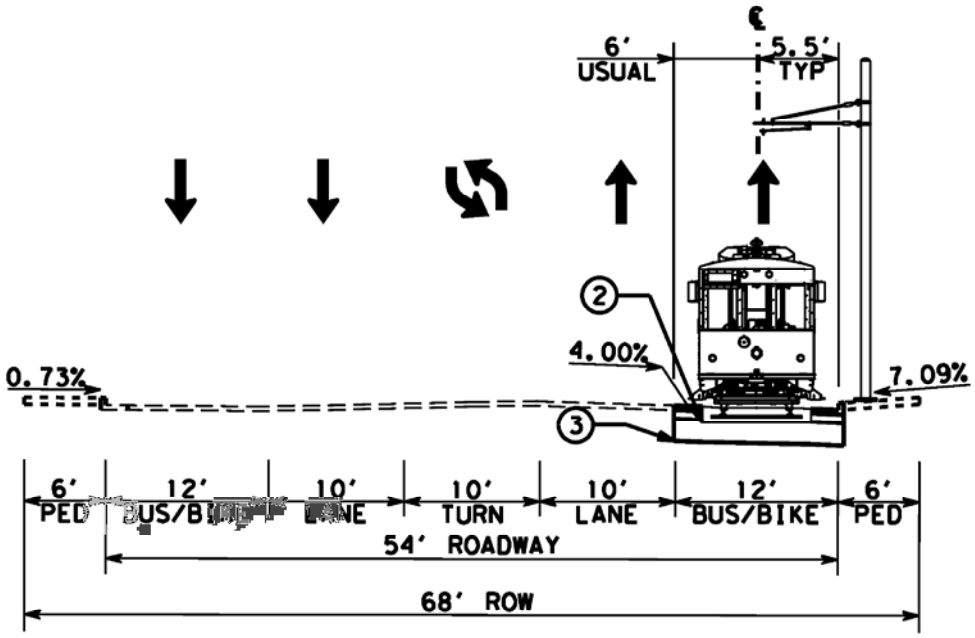
Exhibit 4-13
Typical Sections

El Paso Streetcar Project



EXISTING OREGON ST

E CLIFF DR TO IH 10



PROPOSED OREGON ST

E CLIFF DR TO IH 10

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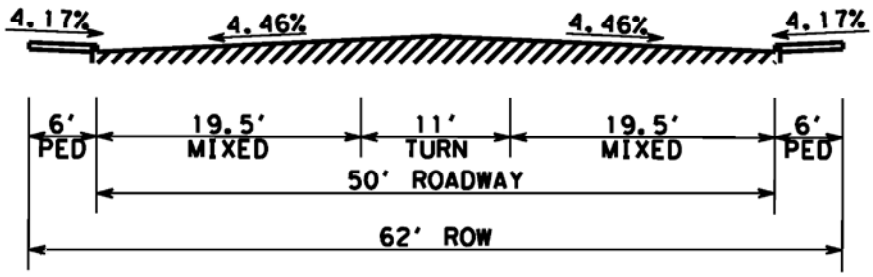
LEGEND

1. PROP MILL & OVERLAY
2. PROP TRACK SLAB
3. PROP FULL DEPTH RECONSTRUCTION

NOTE:
STREETCAR ALIGNMENT ESTABLISHED WITHOUT THE USE OF EXISTING UNDERGROUND UTILITY INFORMATION. IT MAY BE JUSTIFIED TO SHIFT THE ALIGNMENT DUE TO MAJOR UTILITY CONFLICTS ONCE THIS DATA IS AVAILABLE.

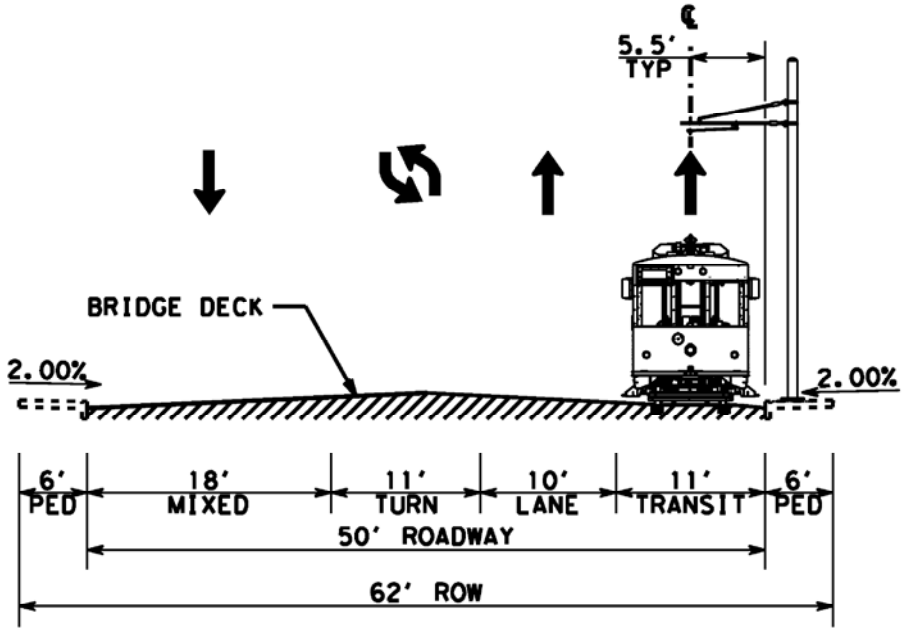
Exhibit 4-14
Typical Sections

El Paso Streetcar Project



EXISTING OREGON ST

AT IH 10 OVERPASS



PROPOSED OREGON ST

AT IH 10 OVERPASS
REFER TO OVERPASS FEASIBILITY TECHNICAL MEMORANDUM FOR MORE INFORMATION

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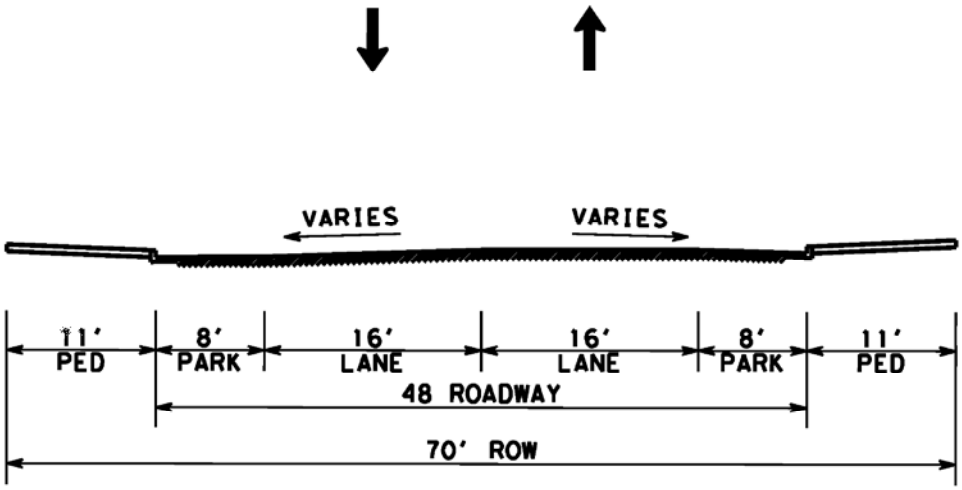
LEGEND

1. PROP MILL & OVERLAY
2. PROP TRACK SLAB
3. PROP FULL DEPTH RECONSTRUCTION

NOTE:
STREETCAR ALIGNMENT ESTABLISHED WITHOUT THE USE OF EXISTING UNDERGROUND UTILITY INFORMATION. IT MAY BE JUSTIFIED TO SHIFT THE ALIGNMENT DUE TO MAJOR UTILITY CONFLICTS ONCE THIS DATA IS AVAILABLE.

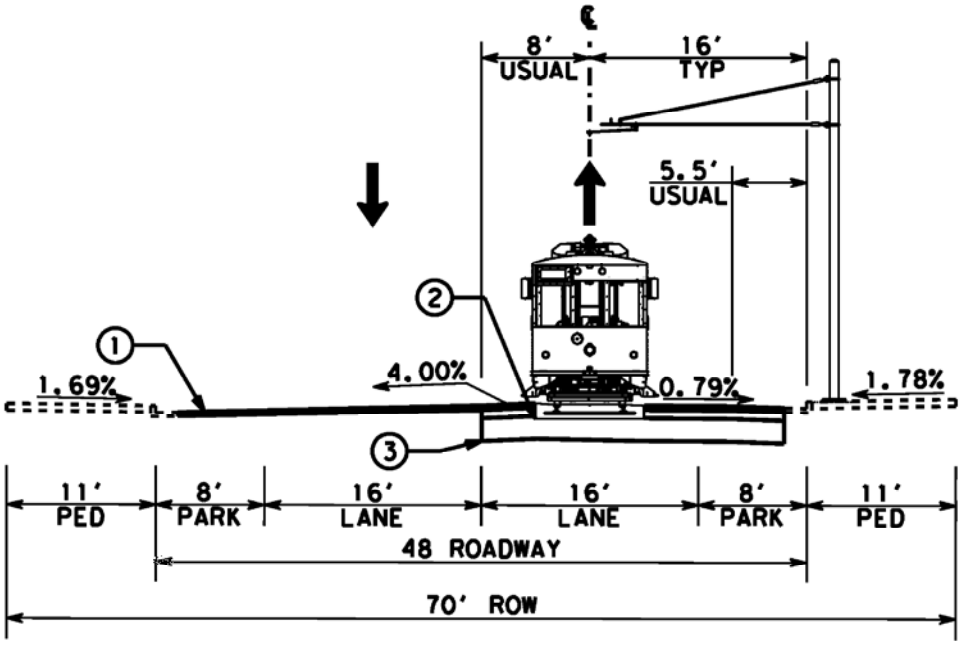
Exhibit 4-15
Typical Sections

El Paso Streetcar Project



EXISTING OREGON ST

IH 10 TO E FRANKLIN ST



PROPOSED OREGON ST

IH 10 TO E FRANKLIN ST

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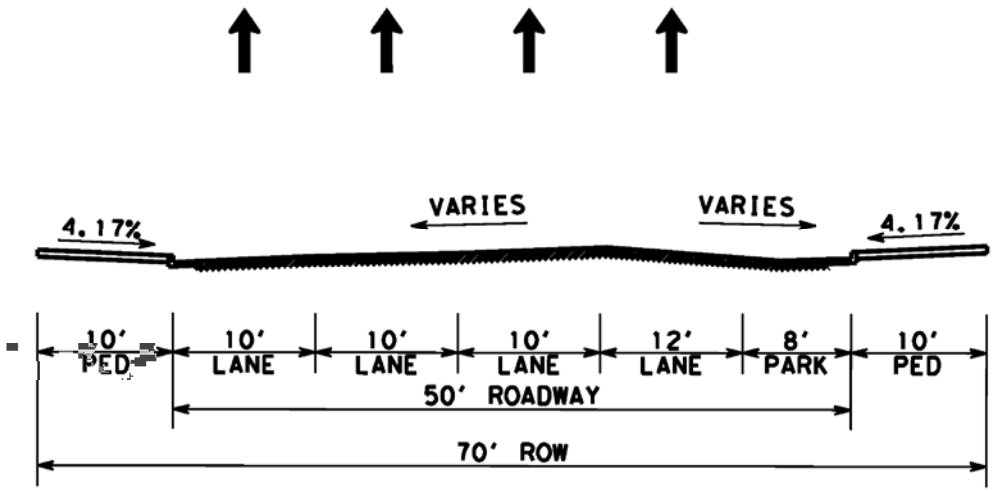
LEGEND

1. PROP MILL & OVERLAY
2. PROP TRACK SLAB
3. PROP FULL DEPTH RECONSTRUCTION

NOTE:
STREETCAR ALIGNMENT ESTABLISHED WITHOUT THE USE OF EXISTING UNDERGROUND UTILITY INFORMATION. IT MAY BE JUSTIFIED TO SHIFT THE ALIGNMENT DUE TO MAJOR UTILITY CONFLICTS ONCE THIS DATA IS AVAILABLE.

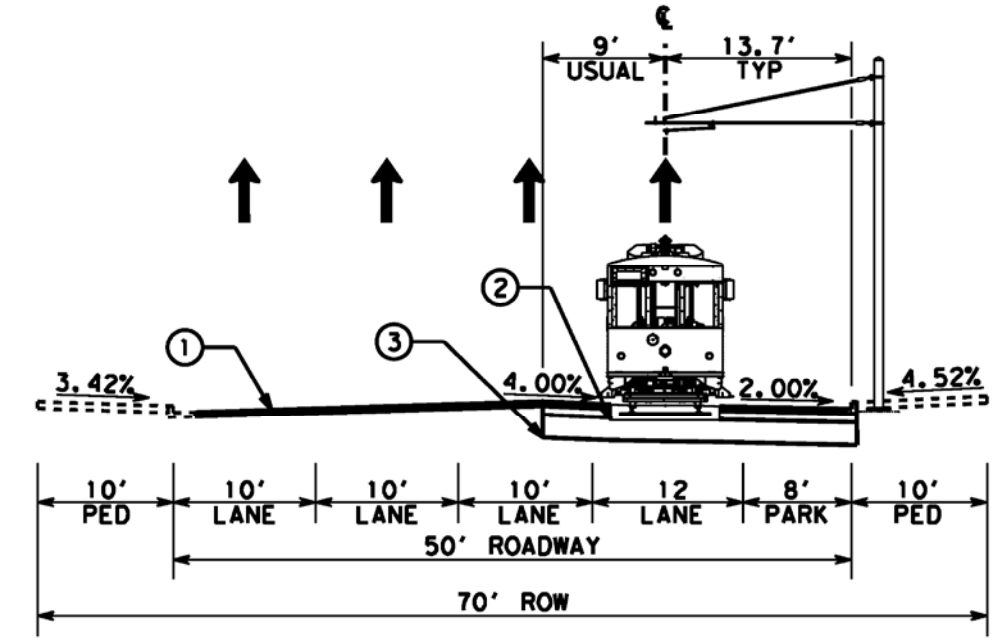
Exhibit 4-16
Typical Sections

El Paso Streetcar Project



EXISTING N KANSAS ST

E MAIN ST TO E MILLS AVE



PROPOSED N KANSAS ST

E MAIN ST TO E MILLS AVE

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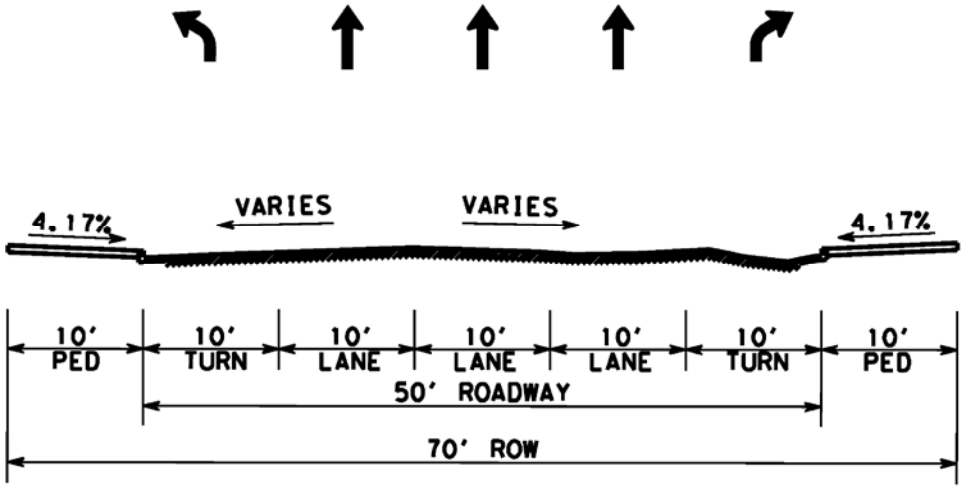
LEGEND

1. PROP MILL & OVERLAY
2. PROP TRACK SLAB
3. PROP FULL DEPTH RECONSTRUCTION

NOTE:
STREETCAR ALIGNMENT ESTABLISHED WITHOUT THE USE OF EXISTING UNDERGROUND UTILITY INFORMATION. IT MAY BE JUSTIFIED TO SHIFT THE ALIGNMENT DUE TO MAJOR UTILITY CONFLICTS ONCE THIS DATA IS AVAILABLE.

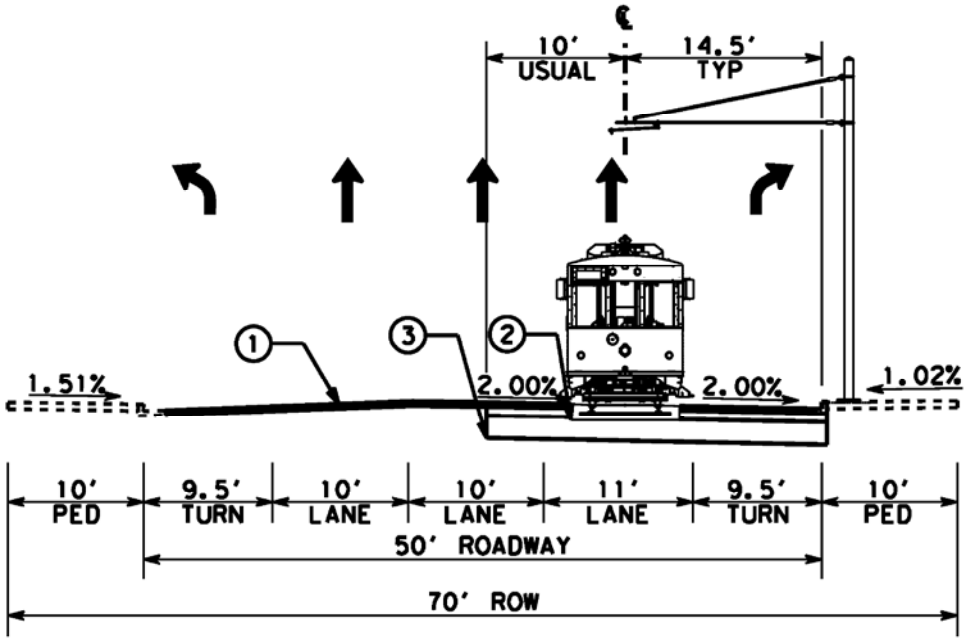
Exhibit 4-17
Typical Sections

El Paso Streetcar Project



EXISTING N KANSAS ST

E MILLS AVE TO TEXAS AVE



PROPOSED N KANSAS ST

E MILLS AVE TO TEXAS AVE

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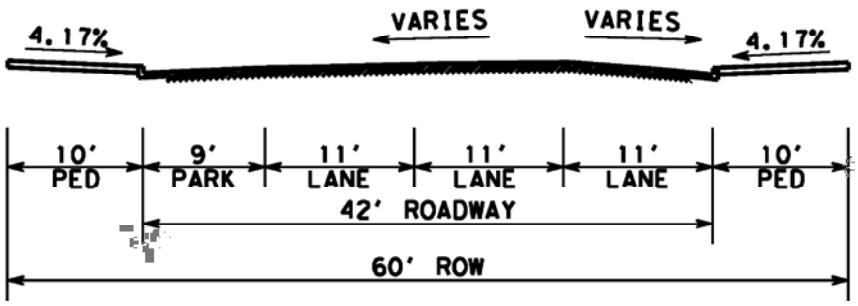
LEGEND

1. PROP MILL & OVERLAY
2. PROP TRACK SLAB
3. PROP FULL DEPTH RECONSTRUCTION

NOTE:
STREETCAR ALIGNMENT ESTABLISHED WITHOUT THE USE OF EXISTING UNDERGROUND UTILITY INFORMATION. IT MAY BE JUSTIFIED TO SHIFT THE ALIGNMENT DUE TO MAJOR UTILITY CONFLICTS ONCE THIS DATA IS AVAILABLE.

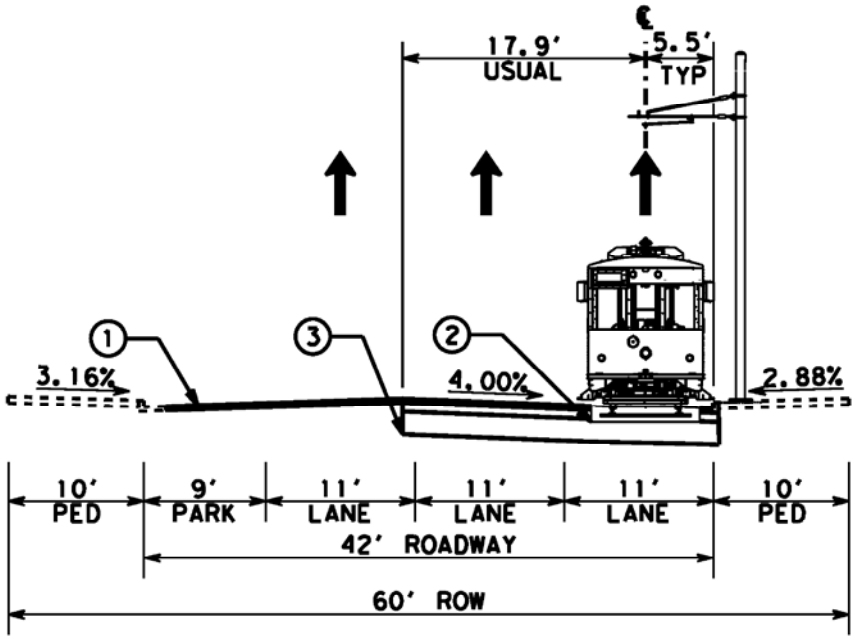
Exhibit 4-18
Typical Sections

El Paso Streetcar Project



EXISTING N KANSAS ST

TEXAS AVE TO E SAN ANTONIO AVE



PROPOSED N KANSAS ST

TEXAS AVE TO E SAN ANTONIO AVE

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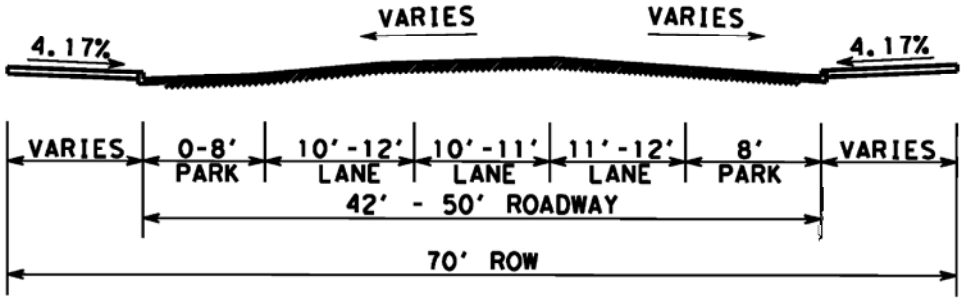
LEGEND

1. PROP MILL & OVERLAY
2. PROP TRACK SLAB
3. PROP FULL DEPTH RECONSTRUCTION

NOTE:
STREETCAR ALIGNMENT ESTABLISHED WITHOUT THE USE OF EXISTING UNDERGROUND UTILITY INFORMATION. IT MAY BE JUSTIFIED TO SHIFT THE ALIGNMENT DUE TO MAJOR UTILITY CONFLICTS ONCE THIS DATA IS AVAILABLE.

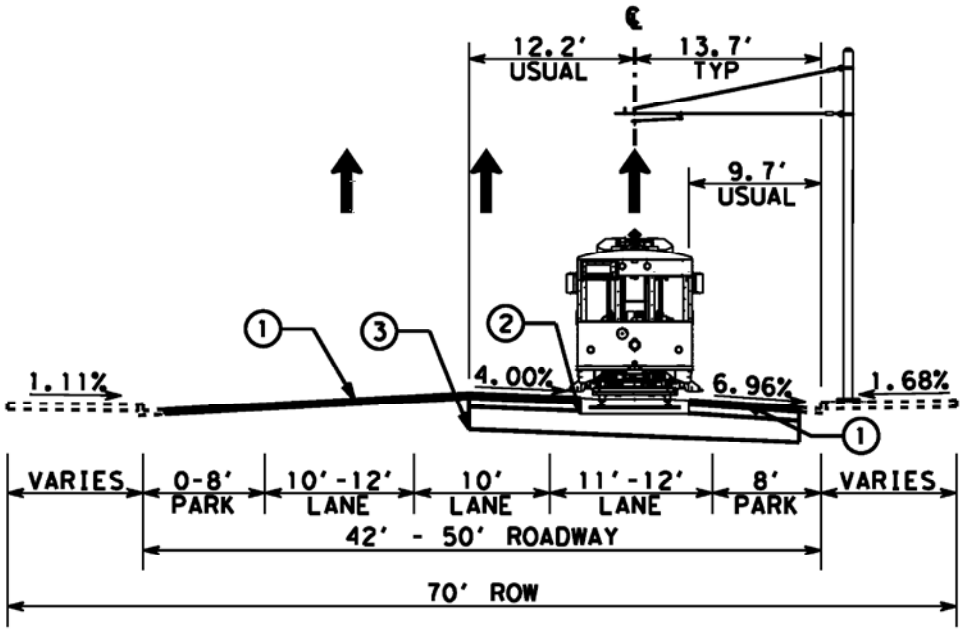
Exhibit 4-19
Typical Sections

El Paso Streetcar Project



EXISTING N KANSAS ST

E SAN ANTONIO AVE TO FATHER RAHM AVE



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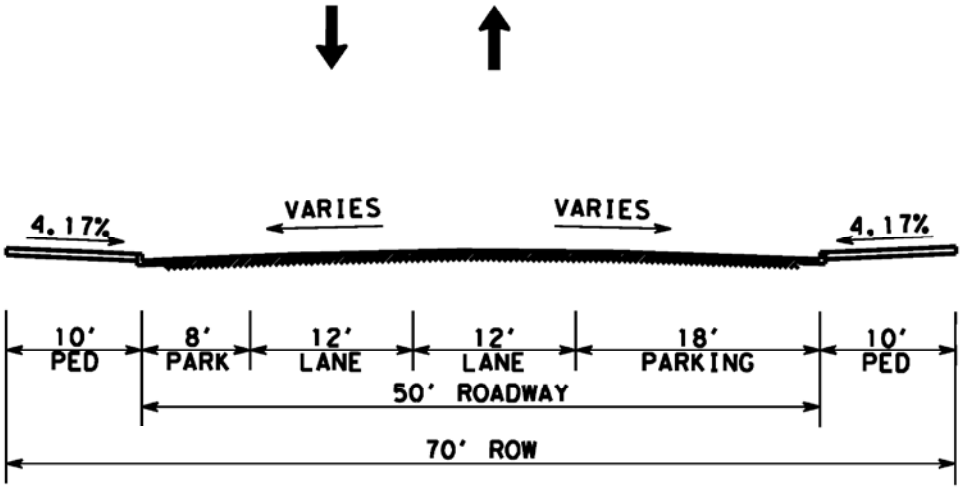
LEGEND

1. PROP MILL & OVERLAY
2. PROP TRACK SLAB
3. PROP FULL DEPTH RECONSTRUCTION

NOTE:
STREETCAR ALIGNMENT ESTABLISHED WITHOUT THE USE OF EXISTING UNDERGROUND UTILITY INFORMATION. IT MAY BE JUSTIFIED TO SHIFT THE ALIGNMENT DUE TO MAJOR UTILITY CONFLICTS ONCE THIS DATA IS AVAILABLE.

Exhibit 4-20
Typical Sections

El Paso Streetcar Project



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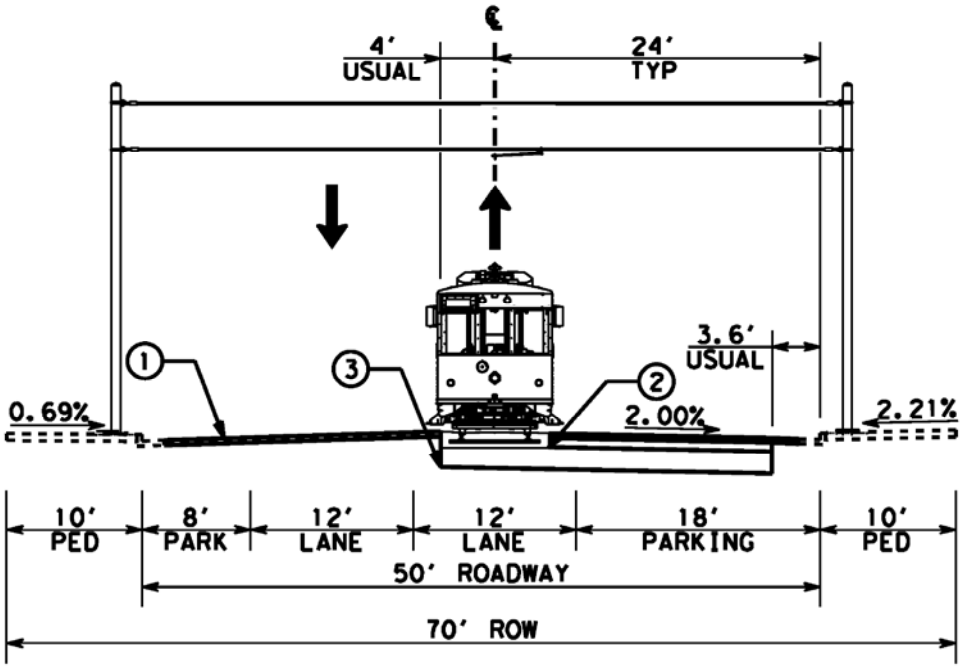

PROPOSED E FATHER RAHM AVE

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LEGEND

1. PROP MILL & OVERLAY
2. PROP TRACK SLAB
3. PROP FULL DEPTH RECONSTRUCTION

NOTE:
STREETCAR ALIGNMENT ESTABLISHED WITHOUT THE USE OF EXISTING UNDERGROUND UTILITY INFORMATION. IT MAY BE JUSTIFIED TO SHIFT THE ALIGNMENT DUE TO MAJOR UTILITY CONFLICTS ONCE THIS DATA IS AVAILABLE.

Exhibit 4-21
Typical Sections

El Paso Streetcar Project

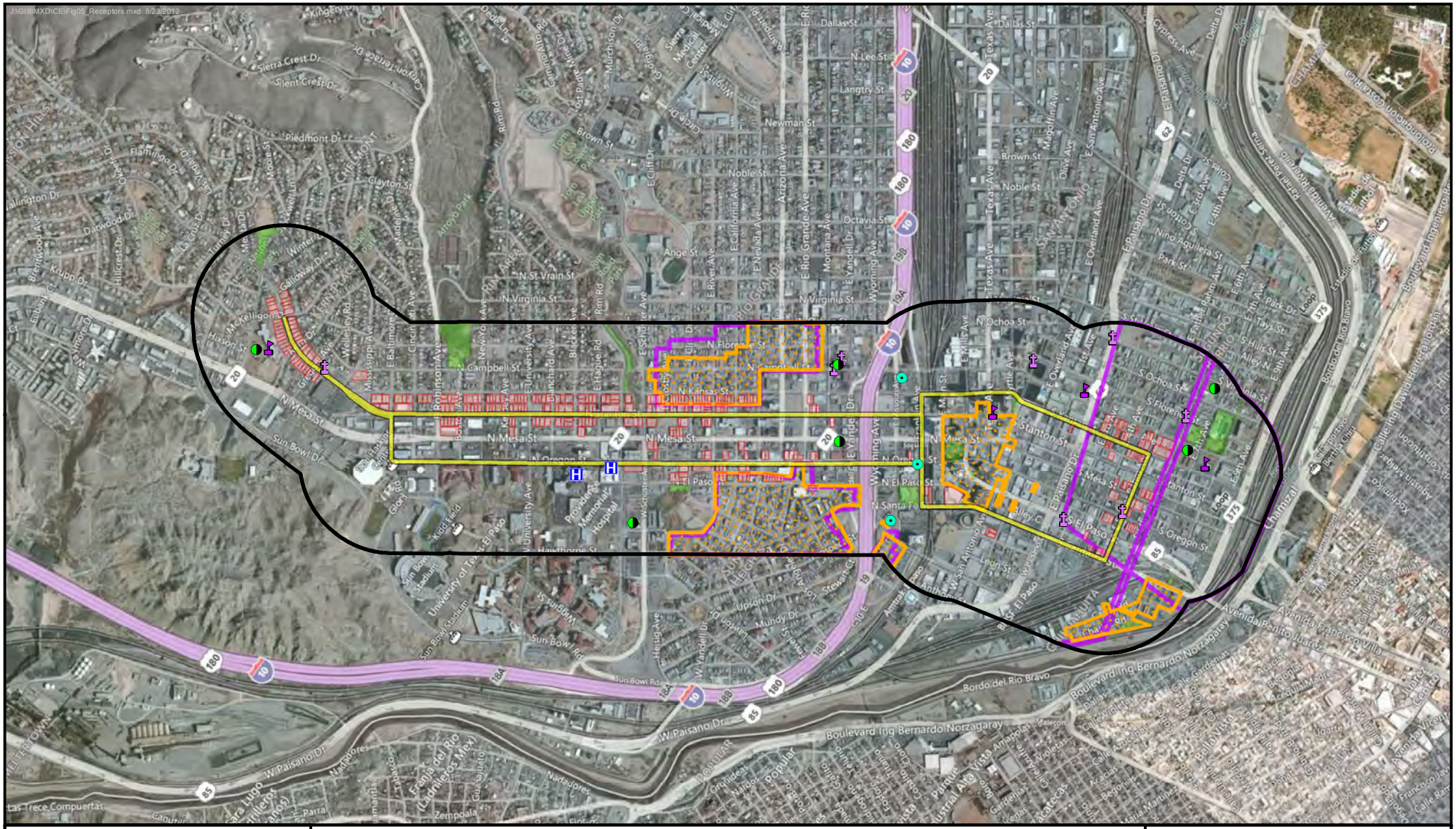
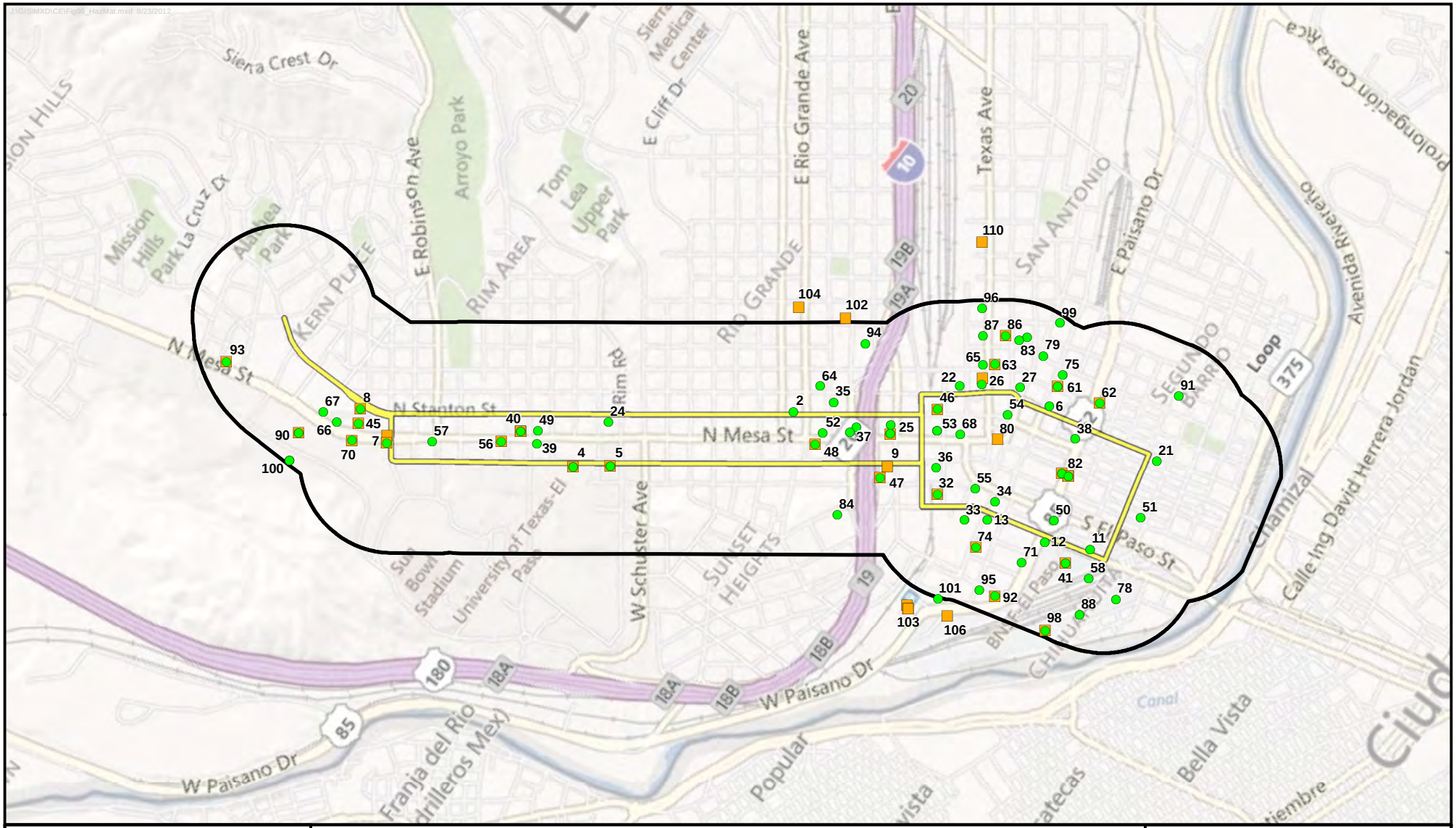


Exhibit 5
Sensitive and Noise Receptors Map

El Paso Streetcar Project


N Mesa St
N Stanton St
W Paisano Dr
E Rio Grande Ave
E Robinson Ave
Texas Ave
E Paisano Dr
W Schuster Ave
Rim Rd
E Cliff Dr
Sierra Crest Dr
Arroyo Park
Tom Lea Upper Park
Mission Hills Park
La Cruz Dr
Alameda Park
KERN PLACE
RIM AREA
RIO GRANDE
SAN ANTONIO
SEGUNDO BARRIO
SUNSET HEIGHTS
Sun Bowl Stadium
University of Texas-El Paso
Franja del Rio
Popular
Bella Vista
Avenida Rivereño
Calle Ing. David Herrera Jordan
Loop
375
10
20
19
19A
19B
18A
18B
180
85
S El Paso St
Canal
Legend
LPST
PST
Study Area
Primary Route
0
1,000
2,000
Feet
1 in = 2,000 feet
Exhibit 6
HazMat Map
El Paso Streetcar Project

Appendix B
Site Photographs

Photo 1: Stanton Street, one-way northbound (7/26/2012)

Photo 2: Stanton Street, two-way. Looking north (7/26/2012)

Photo 3: Baltimore Drive, looking west (7/26/2012)

Photo 4: Oregon Street, looking south (4/12/2012)

Photo 5: Franklin Street, looking east (7/26/2012)

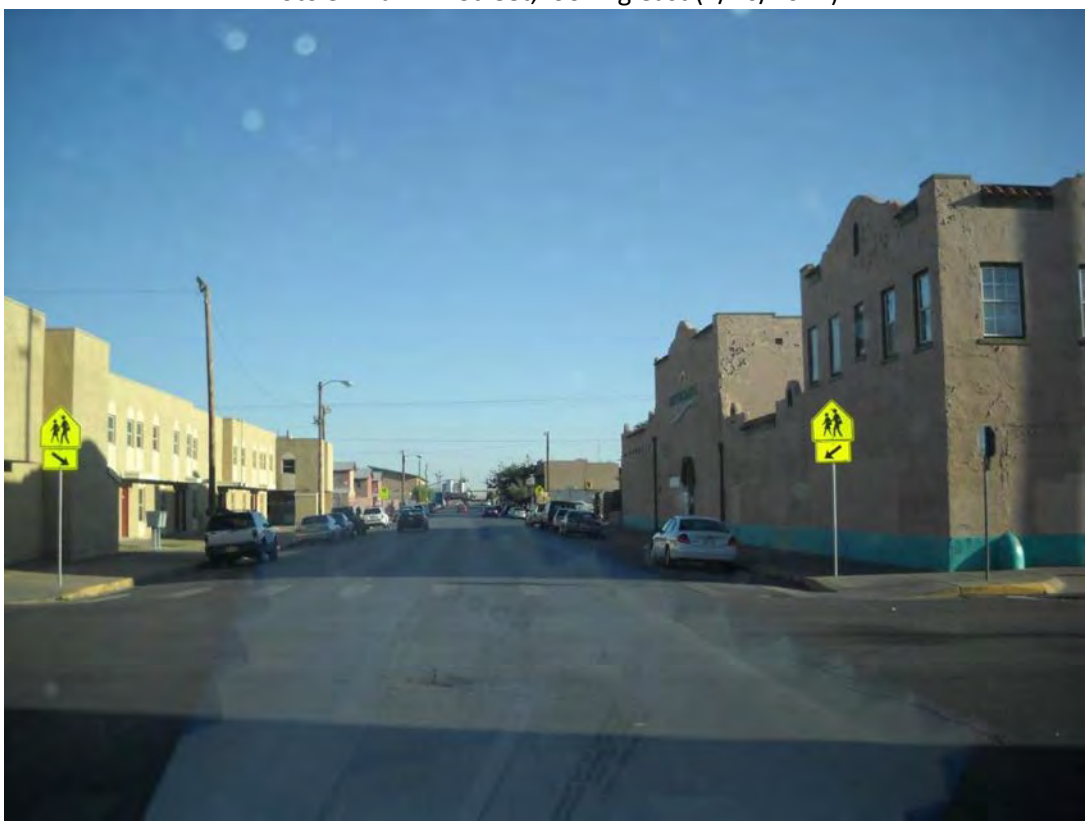


Photo 6: Kansas Street at Father Rahm Avenue, looking south (4/12/2012)

Photo 7: Father Rahm Avenue, looking west (7/26/2012)

Photo 8: Santa Fe Street, looking north at the intersection with Paisano Drive (7/26/2012)

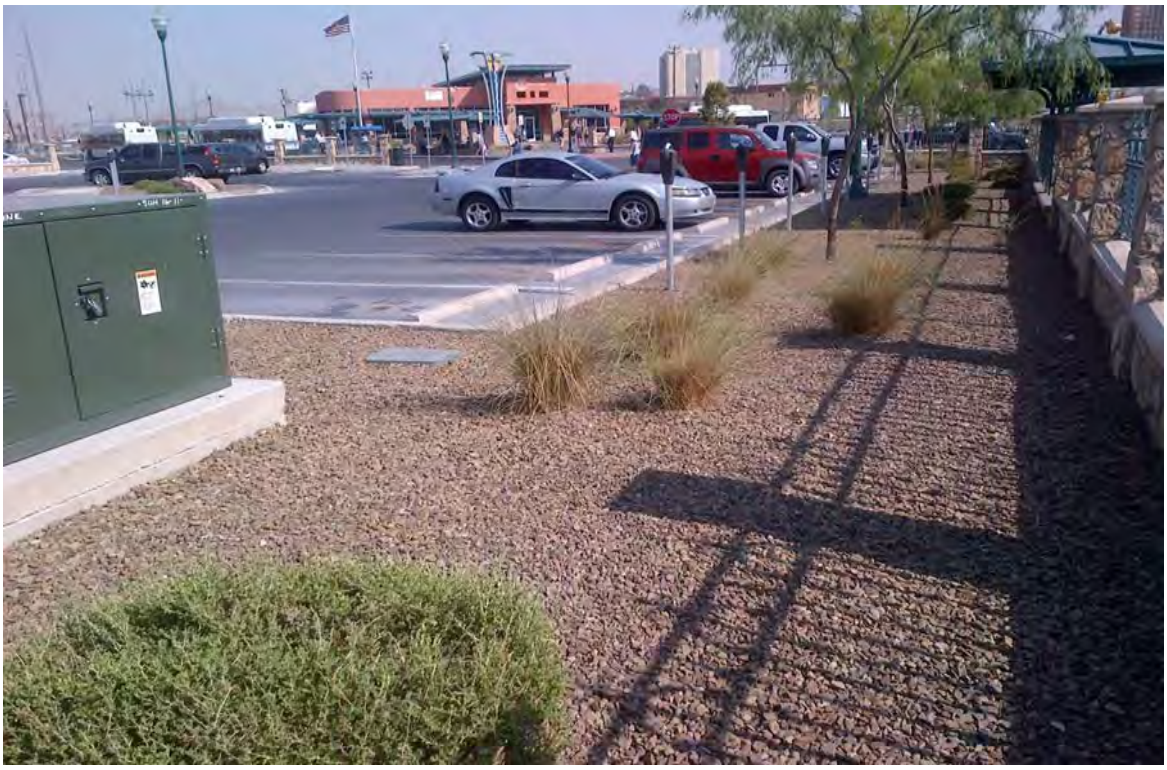


Photo 9 – Looking north at the maintenance and storage facility (7/9/2012)

Photo 10 – Looking east at the maintenance and storage facility (7/9/2012)

Photo 11 – looking south at the maintenance and storage facility (7/9/2012)

Appendix C
Supplemental Data

Texas Department of Transportation
DEWITT C. GREER STATE HIGHWAY BLDG. • 125 E. 11TH STREET • AUSTIN, TEXAS 78701-2483 • (512) 463-8585

August 2, 2012

Antiquities Code of Texas: No historic properties present (no NRHP-listed or SAL-designated properties present in ROW)

El Paso County
RE: Proposed Streetcar System, City of El Paso
CSJ#0924-06-446

Ms. Linda Henderson,
History Programs Division
Texas Historical Commission
Austin, Texas 78711

Dear Ms. Henderson:

The City of El Paso is implementing a state funded streetcar system linking the Golden Horseshoe/International Bridges area to the University of Texas at El Paso area through Downtown. The attachment provides a general description of the project, map, and the infrastructure requirements for the streetcar system. The map has also been electronically provided to your office (7.27.12 email) for ease of use.

Because this undertaking will employ state funds for these efforts (no federal funding is required for the project), this letter summarizes our historical studies consultation efforts per the Memorandum of Understanding (MOU) between our agencies as specified by Texas Administrative Code Rule §2.24.

Under the MOU, the APE is the current or proposed ROW. There are several historic properties (NRHP listed properties) in a study area that extends 150' beyond the APE.

For state-funded projects, TxDOT focuses our coordination process on designated properties (NHL, NRHP, SAL or locally designated). One NRHP-listed historic district (Sunset Heights) abuts the ROW and therefore falls within the study area rather than the APE; streets within the district are not delineated as contributing features. At the request of your office, we hereby notify you that the project poses no potential effects to the Sunset Heights Historic district.

Sunset Heights lies adjacent to the project APE for less than one block of the project, at the Rio Grande and Oregon intersection on the west side of the street. The school building at the SW quadrant of the intersection is contributing to the district and a designated city landmark. The building faces Rio Grande St. rather than Oregon St. No proposed stops would be located on the half block occupied by the school building property.

A scale drawing of a streetcar, layout of proposed stop/loading area and utilities information is provided in response to your office's request (see attachments).

El Paso Streetcar
CSJ#0924-06-446

August 2, 2012

TxDOT historians determined this project poses **no effect** to historic properties. We request your concurrence with this finding per the terms of the MOU. Please return a signed copy of this correspondence for our files. We look forward to further consultation with your staff and hope to maintain a partnership that will foster effective and responsible solutions for improving transportation, safety and mobility in the state of Texas. Thank you for your cooperation in this review process. If you have any questions or comments concerning these evaluations, please call me at (512) 416-2611.

Sincerely,

Renee Benn
Historic Preservation Specialist
Environmental Affairs Division
Texas Department of Transportation

CONCUR-
Memorandum of Understanding - Antiquities Code of Texas

NO EFFECT TO HISTORIC PROPERTIES

NAME: _____ DATE: 13 August 2012
for Mark Wolfe, State Historic Preservation Officer

Texas Department of Transportation
DEWITT C. GREER STATE HIGHWAY BLDG. • 125 E. 11TH STREET • AUSTIN, TEXAS 78701-2483 • (512) 463-8585

August 2, 2012

Texas Parks & Wildlife Dept.
AUG 6 - 2012
Wildlife Habitat Assessment Program

Environmental Document Coordination
CSJ: 0924-06-446
Project: El Paso Street Car Project
Limits: on Oregon Street and Stanton Street
El Paso County; El Paso District

Ms. Kathy Boydston
Texas Parks and Wildlife Department
Wildlife Division – Wildlife Habitat Assessment Program
4200 Smith School Road
Austin, Texas 78744

Dear Ms. Boydston:

Consistent with the Memorandum of Understanding signed by our two agencies, attached is a copy of the draft environmental document covering the subject project for your review and comment. Any comments you may have on this document will assist the Texas Department of Transportation (Department) in ensuring that the Department's projects are sensitive to the natural resources of the state. Please include the above CSJ number in your correspondence.

Please submit any comments you may have within 45 days from the date of this letter. If you do not have any comments on the document, please sign and date the bottom of this letter and return a copy to the Environmental Affairs Division. If no response is received after the 45 days have expired, we will proceed with project development. If you have any questions regarding this project please contact Jim Dobbins, El Paso District at 915/790-4329 or via e-mail at jim.dobbins@txdot.gov.

Sincerely,

Andrew Blair
Ecological Resources Branch
Environmental Affairs Division

Enclosure

☑ NO COMMENT: Julie C. Wicker
Wildlife Habitat Assessment Program
DATE: 09/18/2012

RECEIVED - TXDOT
SEP 21 2012
ENVIRONMENTAL AFFAIRS

MEMORANDUM

Texas Department of Transportation

TO: 850 File, El Paso Street Car; Oregon Street and Stanton Street, CSJ: 0924-06-446, El Paso County, El Paso District

re: No Effect

FROM: Scott Pletka **DATE:** October 5, 2012

SUBJECT: Internal review under the Memorandum of Understanding (MOU) Between the Texas Historical Commission and the Texas Department of Transportation

The above referenced proposed project would implement a streetcar system linking the Golden Horseshoe/International Bridges area to the University of Texas at El Paso area through Downtown El Paso. In accordance with the terms of the MOU, we are initiating documentation for internal review of this project.

The attached background study identifies the project's area of potential effects (APE) and describes the project's potential effects on sites that may warrant formal designation as State Archeological Landmarks.

The background study demonstrates that the project would not affect sites warranting formal designation as State Archeological Landmarks.

The proposed project can proceed to construction.

Approved by Scott Pletka Date October 5, 2012
For TxDOT
Attachments

Original for 850: Margaret Canty
Cc w/ attachments: PA project file; ECOS Data Entry; Jim Dobbins, ELP District
Cc w/out attachments:

USFWS Threatened and Endangered Species By County Report: El Paso County

Group	Name	Population	Status	Lead Office
Birds	Yellow-billed Cuckoo (*Coccyzus americanus*)	Western U.S. DPS	Candidate	Sacramento Fish And Wildlife Office
Birds	Northern Aplomado Falcon (*Falco femoralis septentrionalis*)	Entire, except where listed as an experimental population	Endangered	New Mexico Ecological Services Field Office
Birds	Mexican Spotted Owl (*Strix occidentalis lucida*)	N/A	Threatened	Arizona Ecological Services Field Office
Birds	Least Tern (*Sterna antillarum*)	interior pop.	Endangered	Mississippi Ecological Services Field Office
Birds	Southwestern Willow Flycatcher (*Empidonax traillii extimus*)	N/A	Endangered	Arizona Ecological Services Field Office
Flowering Plants	Sneed Pincushion Cactus (*Coryphantha sneedii var. sneedii*)	N/A	Endangered	New Mexico Ecological Services Field Office

Source: USFWS, 2012.

EL PASO COUNTY

AMPHIBIANS

		Federal Status	State Status

Northern leopard frog *Rana pipiens*

streams, ponds, lakes, wet prairies, and other bodies of water; will range into grassy, herbaceous areas some distance from water; eggs laid March-May and tadpoles transform late June-August; may have disappeared from El Paso County due to habitat alteration

BIRDS

		Federal Status	State Status
American Peregrine Falcon	*Falco peregrinus anatum*	DL	T

year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.

Arctic Peregrine Falcon *Falco peregrinus tundrius* DL

migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.

Baird's Sparrow *Ammodramus bairdii*

shortgrass prairie with scattered low bushes and matted vegetation; mostly migratory in western half of State, though winters in Mexico and just across Rio Grande into Texas from Brewster through Hudspeth counties

Ferruginous Hawk *Buteo regalis*

open country, primarily prairies, plains, and badlands; nests in tall trees along streams or on steep slopes, cliff ledges, river-cut banks, hillsides, power line towers; year-round resident in northwestern high plains, wintering elsewhere throughout western 2/3 of Texas

Interior Least Tern *Sterna antillarum athalassos* LE E

subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Mexican Spotted Owl *Strix occidentalis lucida* LT T

remote, shaded canyons of coniferous mountain woodlands (pine and fir); nocturnal predator of mostly small rodents and insects; day roosts in densely vegetated trees, rocky areas, or caves

Montezuma Quail *Cyrtonyx montezumae*

open pine-oak or juniper-oak with ground cover of bunch grass on flats and slopes of semi-desert mountains and hills; travels in pairs or small groups; eats succulents, acorns, nuts, and weed seeds, as well as various invertebrates

EL PASO COUNTY

BIRDS

		Federal Status	State Status
Northern Aplomado Falcon	*Falco femoralis septentrionalis*	LE	E

open country, especially savanna and open woodland, and sometimes in very barren areas; grassy plains and valleys with scattered mesquite, yucca, and cactus; nests in old stick nests of other bird species

Peregrine Falcon	*Falco peregrinus*	DL	T

both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, F.p. tundrius is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.

Prairie Falcon *Falco mexicanus*

open, mountainous areas, plains and prairie; nests on cliffs

Snowy Plover *Charadrius alexandrinus*

formerly an uncommon breeder in the Panhandle; potential migrant; winter along coast

Southwestern Willow Flycatcher	*Empidonax traillii extimus*	LE	E

thickets of willow, cottonwood, mesquite, and other species along desert streams

Sprague's Pipit	*Anthus spragueii*	C

only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.

Western Burrowing Owl *Athene cunicularia hypugaea*

open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Western Snowy Plover *Charadrius alexandrinus nivosus*

uncommon breeder in the Panhandle; potential migrant; winter along coast

Western Yellow-billed Cuckoo	*Coccyzus americanus occidentalis*	C;NL

status applies only to western population beyond the Pecos River Drainage; breeds in riparian habitat and associated drainages; springs, developed wells, and earthen ponds supporting mesic vegetation; deciduous woodlands with cottonwoods and willows; dense understory foliage is important for nest site selection; nests in willow, mesquite, cottonwood, and hackberry; forages in similar riparian woodlands; breeding season mid-May-late Sept

FISHES

		Federal Status	State Status
Bluntnose shiner	*Notropis simus simus*		T

extinct; Rio Grande; main river channel, often below obstructions over substrate of sand, gravel, and silt; damming and irrigation practices presumed major factors contributing to decline

EL PASO COUNTY

FISHES

		Federal Status	State Status
Rio Grande silvery minnow	*Hybognathus amarus*	LE	E

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

INSECTS

		Federal Status	State Status
A Royal moth	*Sphingicampa raspa*		

woodland - hardwood; with oaks, junipers, legumes and other woody trees and shrubs; good density of legume caterpillar foodplants must be present; Prairie acacia (Acacia augustissima) is the documented caterpillar foodplant, but there could be a few other woody legumes used

A tiger beetle *Cicindela hornii*

grassland/herbaceous; burrowing in or using soil; dry areas on hillside or mesas where soil is rocky or loamy and covered with grasses, invertivore; diurnal, hibernates/aestivates, active mostly for several days after heavy rains. the life cycle probably takes two years so larvae would always be present in burrows in the soil

Barbara Ann's tiger beetle *Cicindela politula barbarannae*

limestone outcrops in arid treeless environments or in openings within less arid pine-juniper-oak communities; open limestone substrate itself is almost certainly an essential feature; roads and trails

Poling's hairstreak *Fixsenia polingi*

oak woodland with Quercus grisea as substantial component, probably also uses Q. emoryi; larvae feed on new growth of Q. grisea, adults utilize nectar from a variety of flowers including milkweed and catslaw acacia; adults fly mid May - Jun, again mid Aug - early Sept

MAMMALS

		Federal Status	State Status
Big free-tailed bat	*Nyctinomops macrotis*		

habitat data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore

Black bear	*Ursus americanus*	T/SA;NL	T

bottomland hardwoods and large tracts of inaccessible forested areas; due to field characteristics similar to Louisiana Black Bear (LT, T), treat all east Texas black bears as federal and state listed Threatened

Black-footed ferret	*Mustela nigripes*	LE

extirpated; inhabited prairie dog towns in the general area

Black-tailed prairie dog *Cynomys ludovicianus*

dry, flat, short grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle; live in large family groups

EL PASO COUNTY

MAMMALS

Federal Status State Status

Cave myotis bat *Myotis velifer*

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

Desert pocket gopher *Geomys arenarius*

cottonwood-willow association along the Rio Grande in El Paso and Hudspeth counties; live underground, but build large and conspicuous mounds; life history not well documented, but presumed to eat mostly vegetation, be active year round, and bear more than one litter per year

Fringed bat *Myotis thysanodes*

habitat variable, ranging from mountainous pine, oak, and pinyon-juniper to desert-scrub, but prefers grasslands at intermediate elevations; highly migratory species that arrives in Trans-Pecos by May to form nursery colonies; single offspring born June-July; roosts colonially in caves, mine tunnels, rock crevices, and old buildings

Gray wolf *Canis lupus* LE E

extirpated; formerly known throughout the western two-thirds of the state in forests, brushlands, or grasslands

Long-legged bat *Myotis volans*

in Texas, Trans-Pecos region; high, open woods and mountainous terrain; nursery colonies (which may contain several hundred individuals) form in summer in buildings, crevices, and hollow trees; apparently do not use caves as day roosts, but may use such sites at night; single offspring born June-July

Pale Townsend's big-eared bat *Corynorhinus townsendii pallescens*

roosts in caves, abandoned mine tunnels, and occasionally old buildings; hibernates in groups during winter; in summer months, males and females separate into solitary roosts and maternity colonies, respectively; single offspring born May-June; opportunistic insectivore

Pecos River muskrat *Ondatra zibethicus ripensis*

creeks, rivers, lakes, drainage ditches, and canals; prefer shallow, fresh water with clumps of marshy vegetation, such as cattails, bulrushes, and sedges; live in dome-shaped lodges constructed of vegetation; diet is mainly vegetation; breed year round

Western red bat *Lasiurus blossevillii*

roosts in tree foliage in riparian areas, also inhabits xeric thorn scrub and pine-oak forests; likely winter migrant to Mexico; multiple pups born mid-May - late Jun

Western small-footed bat *Myotis ciliolabrum*

mountainous regions of the Trans-Pecos, usually in wooded areas, also found in grassland and desert scrub habitats; roosts beneath slabs of rock, behind loose tree bark, and in buildings; maternity colonies often small and located in abandoned houses, barns, and other similar structures; apparently occurs in Texas only during spring and summer months; insectivorous

EL PASO COUNTY

MAMMALS

Federal Status State Status

Yuma myotis bat *Myotis yumanensis*

desert regions; most commonly found in lowland habitats near open water, where forages; roosts in caves, abandoned mine tunnels, and buildings; season of partus is May to early July; usually only one young born to each female

MOLLUSKS

Federal Status State Status

Franklin Mountain talus snail *Sonorella metcalfi*

terrestrial; bare rock, talus, scree; inhabits igneous talus most commonly of rhyolitic origin

Franklin Mountain wood snail *Ashmunella pasonis*

terrestrial; bare rock, talus, scree; talus slopes, usually of limestone, but also of rhyolite, sandstone, and siltstone, in arid mountain ranges

REPTILES

Federal Status State Status

Big Bend slider *Trachemys gaigeae*

almost exclusively aquatic, sliders (Trachemys spp.) prefer quiet bodies of fresh water with muddy bottoms and abundant aquatic vegetation, which is their main food source; will bask on logs, rocks or banks of water bodies; breeding March-July

Chihuahuan Desert lyre snake *Trimorphodon vilkinsonii* T

mostly crevice-dwelling in predominantly limestone-surfaced desert northwest of the Rio Grande from Big Bend to the Franklin Mountains, especially in areas with jumbled boulders and rock faults/fissures; secretive; egg-bearing; eats mostly lizards

Mountain short-horned lizard *Phrynosoma hernandesi* T

diurnal, usually in open, shrubby, or openly wooded areas with sparse vegetation at ground level; soil may vary from rocky to sandy; burrows into soil or occupies rodent burrow when inactive; eats ants, spiders, snails, sowbugs, and other invertebrates; inactive during cold weather; breeds March-September

New Mexico garter snake *Thamnophis sirtalis dorsalis*

nearly any type of wet or moist habitat; irrigation ditches, and riparian-corridor farmlands, less often in running water; home range about 2 acres; active year round in warm weather, both diurnal and nocturnal, more nocturnal during hot weather; bears litter July-August

Texas horned lizard *Phrynosoma cornutum* T

open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September

EL PASO COUNTY

PLANTS

Federal Status State Status

Comal snakewood *Colubrina stricta*

in El Paso County, found in a patch of thorny shrubs in colluvial deposits and sandy soils at the base of an igneous rock outcrop; the historic Comal County record does not describe the habitat; in Mexico ,found in shrublands on calcareous, gravelly, clay soils with woody associates; flowering late spring or early summer

Desert night-blooming cereus *Peniocereus greggii var greggii*

Chihuahuan Desert shrublands or shrub invaded grasslands in alluvial or gravelly soils at lower elevations, 1200-1500 m (3900-4900 ft), on slopes, benches, arroyos, flats, and washes; flowering synchronized over a few nights in early May to late June when almost all mature plants bloom, flowers last only one day and open just after dark, may flower as early as April

Hueco rock-daisy *Perityle huecoensis*

north-facing or otherwise mostly shaded limestone cliff faces within relatively mesic canyon system; flowering spring-fall

Sand prickly-pear *Opuntia arenaria*

deep, loose or semi-stabilized sands in sparsely vegetated dune or sandhill areas, or sandy floodplains in arroyos; flowering May-June

Sand sacahuista *Nolina arenicola*

Texas endemic; mesquite-sand sage shrublands on windblown Quarternary reddish sand in dune areas; flowering time uncertain May-June, June-September

Sneed's pincushion cactus *Escobaria sneedii var sneedii* LE E

xeric limestone outcrops on rocky, usually steep slopes in desert mountains, in the Chihuahuan Desert succulent shrublands or grasslands; flowering April-September (peak usually in April, sometimes opportunistically after summer rains; fruiting August - November

Texas false saltgrass *Allolepis texana*

sandy to silty soils of valley bottoms and river floodplains, not generally on alkaline or saline sites; flowering (May-) July-October depending on rainfall

Vasey's bitterweed *Hymenoxys vaseyi*

Occurs on xeric limestone cliffs and slopes at mid- to high elevations in desert shrublands.

Wheeler's spurge *Chamaesyce geyeri var wheeleriana*

sparingly vegetated, loose eolian quartz sand on reddish sand dunes or coppice mounds; flowering and fruiting at least August-September, probably earlier and later, as well