

# Hidalgo County Commuter Rail Feasibility Study

August 2011



# Hidalgo County Commuter Rail Study

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# Table of Contents

<b>Chapter 1: Executive Summary / Methodology .....</b>	<b>6</b>
Purpose and Need .....	6
Identify Study Corridors .....	6
Station Locations .....	8
Existing Conditions.....	10
At-Grade Crossings and Railroad Spurs .....	10
Railroad Traffic.....	11
Population and Employment Projections.....	12
Existing Transit Service.....	12
Preferred Modal Alternative .....	13
Benefit Analysis.....	14
Cost Analysis .....	15
Decision Matrix .....	16
Receive Public Comments .....	17
Stakeholder Organizations Interviewed.....	17
Recommendations and Next Steps.....	18
<b>Chapter 2: Identification of Study Corridors .....</b>	<b>20</b>
Description of Development Patterns and Existing Rail System.....	20
Selected Routes .....	24
Station Locations .....	24
Selection Criteria .....	24
Selected Station Locations.....	25
<b>Chapter 3: Needs Assessment .....</b>	<b>27</b>
Descriptions of Data Collected .....	28
Railroad Traffic.....	28
Rail Characteristics .....	28
At-Grade Crossings.....	29
Spurs .....	30
Traffic Counts .....	33
Existing Bus Transit.....	33
Population and Employment Growth.....	38
Population .....	39
Employment.....	44
Vehicle Traffic Growth.....	48
<b>Chapter 4: Identification of Modal Alternatives.....</b>	<b>52</b>
Preferred Modal Alternative .....	55
<b>Chapter 5: Benefits Analysis.....</b>	<b>57</b>
Vehicles, Headways, Speeds, Park & Ride Facilities .....	60
Ridership Projections .....	63
Description of Model Source / Development .....	64
Model Inputs .....	64
Equations and Sample Calculation .....	67
Sensitivity Analysis .....	68
Projections Obtained.....	73

Station-Area Development.....	74
Understanding the Proposed Station Areas: .....	75
Station Typology.....	102
Station Area Analysis: .....	104
Texas Enterprise Zone Program.....	104
Applicability for Station-Area Related Enterprise Zones.....	107
Zoning Requirements and Planned Land Use.....	107
Future City Planning Efforts.....	110
International Considerations .....	110
Other Rail Benefits .....	111
<b>Chapter 6: Costs Analysis .....</b>	<b>112</b>
Drainage Issues .....	112
Discussion of Specific Drainage Locations .....	116
Cost Estimates.....	117
Project Capital Costs.....	117
Annual Operating and Maintenance Costs .....	121
Fare Collection and Enforcement .....	122
Fare Enforcement.....	124
Fare Enforcement in Texas .....	125
Current State of the Practice in U. S. Commuter Rail .....	126
Fare-Related Conclusions .....	128
At-Grade Crossing Eliminations.....	129
Future At-Grade Crossing Study .....	131
<b>Chapter 7: Decision Matrix.....</b>	<b>133</b>
<b>Chapter 8: Stakeholder and Public Comments .....</b>	<b>134</b>
Stakeholder Interviews.....	134
Stakeholder Organizations Interviewed by Date, with Representative .....	134
Stakeholder Organizations Not Participating.....	135
Recurring Comments from Stakeholders.....	136
Public Meeting.....	136
<b>Chapter 9: Recommendations and Next Steps.....</b>	<b>138</b>
Policy Considerations .....	138
Funding Plans.....	139
Federal Funding Sources.....	140
Use of Texas Rail Relocation and Improvement Fund proceeds.....	142
Operating Entity.....	143
<b>Appendix A: Existing Transit (Bus) Maps .....</b>	<b>144</b>
<b>Appendix B: Full Detail of Cost Estimates .....</b>	<b>154</b>
<b>Appendix C: Transcripts of Stakeholder Interviews.....</b>	<b>160</b>
<b>Appendix D: Full Details of Public Meeting.....</b>	<b>207</b>
<b>Appendix E: Updated Traffic Counts .....</b>	<b>212</b>
<b>Appendix F: FTA Requirements for Selected Funding Programs.....</b>	<b>214</b>

## List of Tables

Tables 1-4: At-Grade Crossing Characteristics .....	10
Table 5: Projected 2030 Rail Ridership by Station.....	15
Table 6: Cost Estimate by SCC Category.....	15
Table 7: Feasibility Decision Matrix .....	17
Tables 8-11: At-Grade Crossing Characteristics .....	29
Table 12: Documented Locations of Traffic Counts .....	33
Table 13: Population Growth of Texas’ Metropolitan Areas, 2000-2010 .....	39
Table 14: 2030 Population Forecast for Station Areas .....	43
Table 15: 2030 Employment Forecast for Station Areas.....	47
Table 16: Commuter Rail Systems Studied.....	57
Table 17: Light Rail Systems Studied .....	58
Table 18: Comparison of Operating Characteristics by Mode .....	58
Table 19: DMU Rail Systems Studied.....	59
Table 20: Typical DMU Operating Characteristics .....	60
Table 21 - Line Speed Peer Analysis.....	61
Table 22 - Station Parking Spaces .....	62
Table 23: Projected 2030 Ridership by Station .....	73
Table 24: Station Typology Matrix.....	102
Table 25: Station Transitions.....	103
Table 26: Possible Job Creation Per Station Area: .....	104
Table 27: Enterprise Zone Benefits: .....	106
Table 28: Cost Estimate by SCC Category.....	121
Table 29: Annual Operating and Maintenance Costs .....	122
Table 30: Fare Media and Sales – U. S. Rail Systems.....	127
Table 31: Potential Grade Separations with 2030 Average Daily Traffic .....	130
Table 32: Feasibility Decision Matrix .....	133
Table 33: Current Texas New Starts Projects by Status .....	140

## List of Figures

Figures 1-6: Field Observations – General Existing Conditions (Page 1 of 3) .....	21
Figures 7-12: Field Observations – General Existing Conditions (Page 2 of 3) .....	22
Figures 13-18: Field Observations – General Existing Conditions (Page 3 of 3) .....	23
Figure 19: Sample Station Location Consideration.....	25
Figure 20: McAllen’s Central Station – Exterior.....	34
Figure 21: McAllen’s Central Station – Interior Waiting Area .....	35
Figure 22: 2030 Population Forecast for Station Areas.....	44
Figure 23: 2030 Employment Forecast for Station Areas .....	48
Figure 24: Hidalgo County Road by Volume/Capacity Ratio, 2004 and 2030 .....	51
Figure 25: DART Light Rail Vehicle on Pacific Avenue, Downtown Dallas.....	52
Figure 26: Trinity Rail Express Push-Pull Vehicle near DFW Airport.....	53
Figure 27: Capital Metro DMU Vehicle at Park-and-Ride.....	54
Figure 28: Sensitivity Analysis –Operating Speed vs. Commuter Rail Ridership .....	69
Figure 29: Sensitivity Analysis –Jobs vs. Commuter Rail Ridership.....	71
Figure 30: Sensitivity Analysis –Population vs. Commuter Rail Ridership.....	71

Figure 31: McAllen Express Transit Ridership vs. Texas Average Gas Price .....	72
Figure 32: Projected 2030 Rail Ridership by Station and Mode .....	74
Figure 33: Aerial Photo of Mission Station: Park and Ride Station .....	76
Figures 34-37: Mission Station – Existing Development .....	77
Figure 38: Aerial Photo of McAllen Central Station: Downtown Station .....	78
Figures 39-44: McAllen Central Station – Existing Development (page 1 of 2) .....	79
Figures 45-47: McAllen Central Station – Existing Development (page 2 of 2) .....	80
Figure 48: Aerial Photo of McAllen North Station: Park and Ride Station .....	81
Figures 49-54: McAllen North Station – Existing Development .....	82
Figure 55: Aerial Photo of Edinburg Central Station: Campus and Civic Station .....	83
Figures 56-61: Edinburg Central Station – Existing Development .....	84
Figure 62: Aerial Photo of Edinburg 281 Station: Park and Ride Station .....	85
Figures 63-68: Edinburg 281 Station – Existing Development .....	86
Figure 69: Aerial Photo of McAllen East Station: Urban Park and Ride .....	87
Figures 70-73: McAllen East Station – Existing Development .....	88
Figure 74: Aerial Photo of Pharr Station: Suburban Main Street Station .....	89
Figures 75-78: Pharr Station – Existing Development .....	90
Figure 79: Aerial Photo of San Juan Station: Suburban Main Street Station .....	91
Figures 80-83: San Juan Station – Existing Development .....	93
Figure 84: Aerial Photo of Alamo-Donna Station: Park and Ride .....	94
Figures 85-89: Alamo/Donna Station – Existing Development .....	95
Figure 90: Aerial Photo of Weslaco Station: Campus and Civic Station .....	96
Figures 91-96: Weslaco Station – Existing Development (page 1 of 2) .....	97
Figures 97-100: Weslaco Station – Existing Development (page 2 of 2) .....	98
Figure 101: Aerial Photo of Mercedes Station: Urban Park and Ride Station .....	99
Figures 102-105: Mercedes Station – Existing Development .....	101
Figure 106: Station-Area Excerpt from San Juan Downtown Revitalization Plan .....	110
Figure 107: Railroad Viaduct near Mercedes .....	117
Figure 108: Upper Kirby District Improvements near Rail Station .....	139
Figure 109: El Paso Westside Multimodal Center Exterior .....	141
Figure 110: El Paso Westside Multimodal Center Interior .....	142

## List of Maps

Map 1: Existing Rail Corridors and Proposed Station Locations .....	8
Map 2: At-Grade Crossings and Spur Tracks .....	11
Map 3: Proposed Station Locations .....	27
Map 4: Existing At-Grade Railroad Crossings .....	30
Map 5: Existing Railroad Spurs .....	32
Map 6: Proposed Station Locations with Transit Routes .....	37
Map 7: 2004 Hidalgo County Population Density .....	41
Map 8: 2030 Hidalgo County Population Density .....	42
Map 9: 2004 Hidalgo County Employment Density .....	45
Map 10: 2030 Hidalgo County Employment Density .....	46
Map 11: 2004 Traffic Congestion Based on MPO Traffic Model .....	49
Map 12: 2030 Traffic Congestion Based on MPO Traffic Model .....	50

Map 13: 2010 Land Use Patterns near Mission Station.....	76
Map 14: 2010 Land Use Patterns near McAllen Central Station.....	78
Map 15: 2010 Land Use Patterns near McAllen North Station.....	81
Map 16: 2010 Land Use Patterns near Edinburg Central Station.....	83
Map 17: 2010 Land Use Patterns near Edinburg 281 Station.....	85
Map 18: 2010 Land Use Patterns near McAllen East Station.....	87
Map 19: 2010 Land Use Patterns near Pharr Station.....	89
Map 20: 2010 Land Use Patterns near San Juan Station.....	91
Map 21: 2010 Land Use Patterns near Alamo-Donna Station.....	94
Map 22: 2010 Land Use Patterns near Weslaco Station.....	96
Map 23: 2010 Land Use Patterns near Mercedes Station.....	100
Map 24: Locations of Drainage Concern (1 of 3).....	113
Map 25: Locations of Drainage Concern (2 of 3).....	113
Map 26: Locations of Drainage Concern (3 of 3).....	115

# Chapter 1: Executive Summary / Methodology

## ***Purpose and Need***

This study is in support of Hidalgo County’s stated goal of assessing the feasibility of developing a commuter rail system that connects major destinations in Hidalgo County and is accessible to residents. The intended use of the study, namely identification of potential projects for advancement into the FTA New Starts evaluation process, requires the determination of planning level cost estimates and transportation impacts to support capital programming decisions at the municipal and regional levels. The commuter rail system put forward will be defined in a manner that best accomplishes the Mission and Vision statements of the Hidalgo County Rail District Board:

### **Mission**

“The Hidalgo County Commuter Rail District is committed to create and maintain a modern self-supporting commuter transportation system that connects the important economic, educational, medical and entertainment venues of Hidalgo County, including metro and rural areas, at a low cost to the residents and visitors of the greater region of the Rio Grande Valley.”

### **Vision**

“The Hidalgo County Commuter Rail District will generate economic development along its path and provide an alternative mode of travel for the residents and visitors of the greater region of the Rio Grande Valley through efficient scheduling and services. The system will comprise modern green energy trains and interconnect convenient feeder bus lines for riders connecting to each of the cities’ educational, business, medical and entertainment venues, for metropolitan and rural areas, located in Hidalgo County.”

The purpose of this project was to conduct a feasibility study to determine whether a passenger rail system in Hidalgo County was feasible for future study, and what the most appropriate operating mode would be. It did not include financial or funding plans other than planning-level cost estimates and discussion of the typical Federal funding process; nor did it include operating plans beyond determining what track improvements would be necessary for differing train frequencies. These would be completed as parts of future phases of study.

## ***Identify Study Corridors***

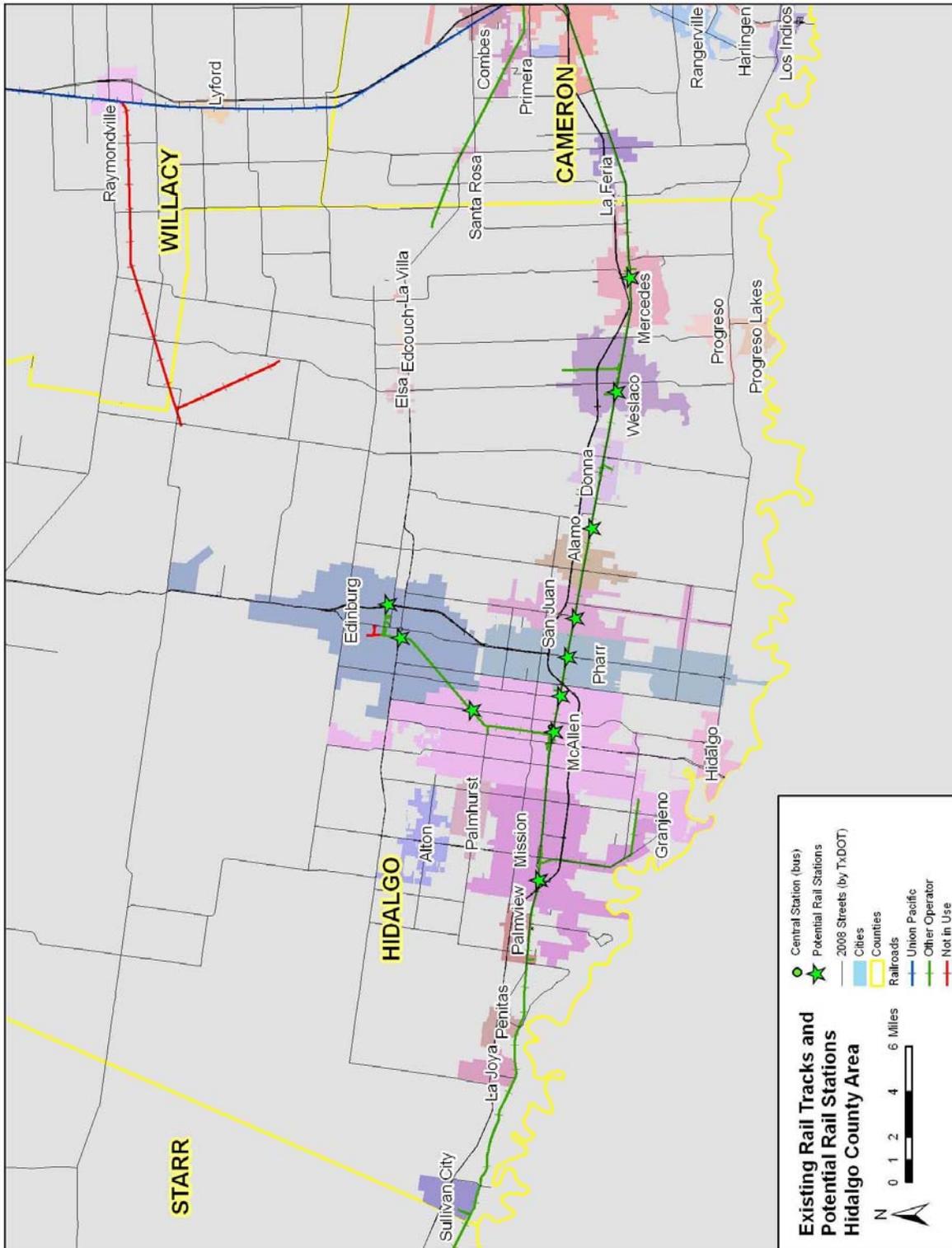
Tracks in the Hidalgo County study area are formerly Missouri Pacific (later Union Pacific) branch lines, and have been leased by the Rio Valley Switching Company (RVSC) since March 1993. RVSC operates freight service from the Union Pacific connection in Harlingen, approximately 41 miles westward to a connection with the Border Pacific Railroad west of the city of Mission. A branch line runs southward from Mission to the town of Hidalgo, near the international border crossing, approximately 8 miles. A second branch runs northward from McAllen to Edinburg (approximately 13 miles) and was leased by RVSC in September 1997.

The map on the following page depicts the incorporated cities in Hidalgo County, as well as the rail corridors described above and the proposed station locations discussed in the next section. The study corridors correspond to the operating freight rail segments in the most urbanized portions of the County, centering on McAllen and extending northward to Edinburg, eastward to Mercedes, and westward to Mission. The southern branch was not considered for passenger rail service at this time, since population and employment forecasts did not predict a sufficient density of development along the southern spur to make service feasible.

If conditions change over the next few years, it may be possible to serve the city of Hidalgo and the international bridge area, either along the existing southern branch, or via new alignment further to the east. The County (or the operating entity chosen for the passenger rail service) should continue to monitor population and employment projections generated by the MPO, to determine where future service corridors, or changes such as infill stations, may be warranted.

Further study should also be conducted about the timeframe for extending service east into Cameron County (to Harlingen and/or Brownsville); this study should be conducted in conjunction with the MPOs of Harlingen / San Benito and Brownsville. Assuming the Hidalgo system begins operating first, some Cameron County commuters into Hidalgo County may be expected to take advantage of the service; more discussion of this issue is located in the discussion of the Mercedes station. Finally, long-term planning should include examination of the feasibility and/or timeframe of connecting the Hidalgo system to more distant destinations such as Laredo, Corpus Christi, or San Antonio.

**Map 1: Existing Rail Corridors and Proposed Station Locations**



## ***Station Locations***

Eleven station location areas were selected for analysis. It must be emphasized that these locations are conceptual for the purposes of determining potential ridership and the feasibility of the system. When the system development project moves into engineering and design phases, station locations may shift for reasons of infrastructure or utility conflicts, localized traffic concerns, or land availability at the level of individual parcels.

The preceding map shows the location of the proposed stations. The locations (identified by nearest roadway intersection) are:

- Mission – Business 83 and Los Ebanos Road
- McAllen Central – Business 83 and 15<sup>th</sup> Street
- McAllen North – 10<sup>th</sup> Street and Hawk Avenue
- Edinburg Central – University Drive and 6<sup>th</sup> Avenue
- Edinburg 281 – US-281 and Jasman Road
- McAllen East – Business 83 and McColl Road
- Pharr – Business 83 and Cage Boulevard
- San Juan – Business 83 and Nebraska Avenue
- Alamo/Donna – Business 83 and Whalen Road
- Weslaco – Business 83 and Border Avenue
- Mercedes – W 2<sup>nd</sup> St (Business 83) and Virginia Avenue

## Existing Conditions

### At-Grade Crossings and Railroad Spurs

The project team identified a total of 313 at-grade railroad crossings in the whole of Hidalgo County, through the use of aerial and roadway photography. This includes all crossings, not just the ones within the corridors later selected for the operating segment. Of these 313, 11 (3.5%) were not accessible to field investigators.

**Tables 1-4: At-Grade Crossing Characteristics**

Grade Crossing Material			
Type	Number	Percent	
Asphalt	73	23.3%	
Gravel	23	7.3%	
Caliche	9	2.9%	
Concrete	128	40.9%	
Wood	62	19.8%	
Rubber	7	2.2%	
NA	11	3.5%	
<b>TOTAL</b>	<b>313</b>	<b>100.0%</b>	

NA = Not Accessible

Signage at Crossing			
Type	Number	Percent	
YES	273	87.2%	
NO	29	9.3%	
NA	11	3.5%	
<b>TOTAL</b>	<b>313</b>	<b>100.0%</b>	

NA = Not Accessible

Lighting at Crossing			
Type	Number	Percent	
YES	110	35.1%	
NO	192	61.3%	
NA	11	3.5%	
<b>TOTAL</b>	<b>313</b>	<b>100.0%</b>	

NA = Not Accessible

Gates at Crossing			
Type	Number	Percent	
YES	61	19.5%	
NO	241	77.0%	
NA	11	3.5%	
<b>TOTAL</b>	<b>313</b>	<b>100.0%</b>	

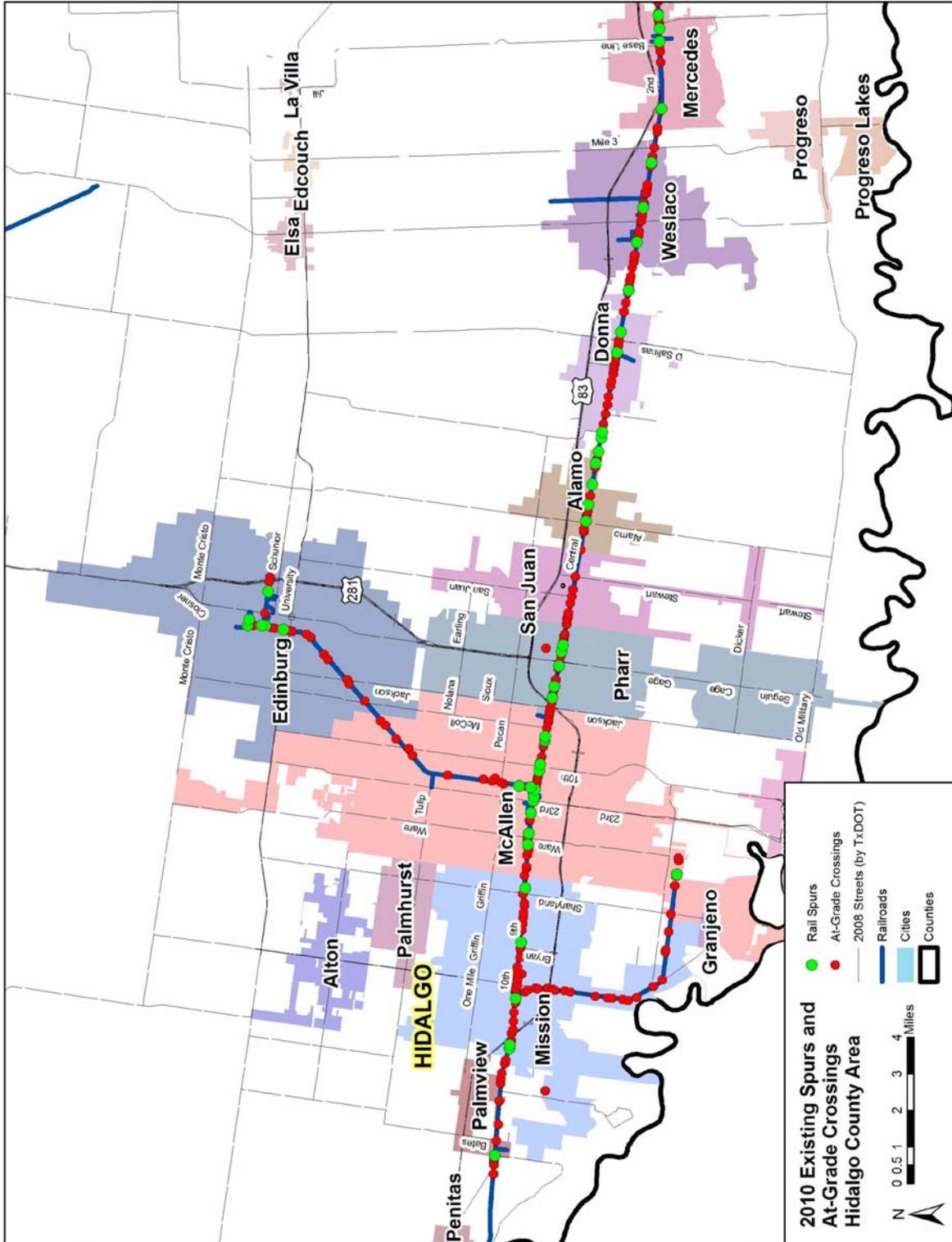
NA = Not Accessible

All statistics come from field investigations in 2010 and 2011.

A photographic survey was conducted of these locations, and the 1,300+ photos taken are included on the CD which accompanies this report. Further discussion of the implications of and future considerations for at-grade crossings is located in Chapter 6, Costs Analysis.

Through a field survey of the existing rail system, a record of all railway spurs in Hidalgo County was collected. Most of the spurs are located in the three largest cities of McAllen, Edinburg, and Pharr, which is expected given that these are the largest concentrations of business activity and thus that of potential freight rail customers. An additional concentration of spur tracks exists in the area between Alamo and Donna, which serve some of the large-scale agricultural operations in the Valley. The map on the following page depicts the concentration of at-grade crossings and spur tracks throughout Hidalgo County.

Map 2: At-Grade Crossings and Spur Tracks



## **Railroad Traffic**

RVSC traffic is indicated by [www.lagrangerailworks.com](http://www.lagrangerailworks.com) at 8,000 railcars per year. Further information on train consists, peak traffic times and freight rail travel patterns was not available from RVSC. The rail company was interviewed on June 7, 2011. They identified some coordination issues, such as liability standards, public education, and infrastructure upgrades, that will be necessary to operate mixed freight and passenger rail. Further detail is provided in Appendix C. Additional coordination with RVSC and with Union Pacific, the owner of the tracks (RVSC has trackage rights as part of a long-term lease), will be necessary as the project moves forward into Alternatives Assessment and design.

## **Population and Employment Projections**

Hidalgo County, according to the US Census Bureau, grew in population from 569,000 in 2000 to 775,000 in 2010, an annualized growth rate of 3.14%, which is quite substantial, especially when compared to the annualized growth rates of 1.89% for the state of Texas, and 0.98% for the United States as a whole. This is consistent with local assessments of rapid population growth.

The Hidalgo County Metropolitan Planning Organization (MPO) forecasts that countywide population in 2030 will total approximately 1,644,000 persons, or more than double the existing 2010 population of approximately 775,000. Future growth is largely predicted to occur in the incorporated areas, though this is not only due to densification of the existing urban areas, but also development around the existing periphery. The 11 stations that have been proposed for the operating system have within a 2-mile radius of the stations a total of 19.8% of the county's 2030 population, or 326,000 persons.

The MPO forecasts that countywide employment in 2030 will total approximately 445,000 jobs. Future growth is largely predicted to occur in existing areas of high job concentration, and growth in employment is much more centralized than growth in population. The only areas which show high job density in 2030 which did not also have such in 2004 are a few isolated locations on the eastern and northern sides of McAllen. These are presumably due to individual large employers such as hospitals or shopping areas, either new ones or expansions of existing ones. The 11 stations that have been proposed for the operating system have within a 2-mile radius of the stations a total of 30.1% of the county's 2030 employment, or 445,000 jobs.

## **Existing Transit Service.**

McAllen Express Transit (MET) provides service within the City of McAllen, running seven routes throughout the day. Buses operate continuously from 6:00 AM to 6:50 PM, six days a week (excluding Sunday). All seven routes run a 50-minute loop beginning and ending at McAllen Central Station. Total system ridership is approximately 427,000 riders annually.

RioMetro provides inter-city transit service and is the only operator in Hidalgo County outside of McAllen. Four of their seven routes provide service to Edinburg, McAllen, and along the US 83 corridor through the commuter rail study area. However, the schedule is

extremely limited, operating only two to three trips each in the morning and afternoon. Trips typically operate between about 6-9 AM and 2-5 PM. Total ridership is lower than the MET system, with approximately 58,000 riders annually\*. RioTransit, a related service, provides various rural routes, typically once per day.

*\*considering only Hidalgo County routes; RioMetro operates other routes in Cameron County, which do not connect to the Hidalgo routes and are not considered in this analysis.*

Considering which proposed station locations are best served by existing bus routes, McAllen Central has far and away the most service, with Edinburg Central and Mission also having multiple routes. In all cases, however, the bus system will have to coordinate with the train schedules, as well as ensuring service from the train station to nearby major destinations. *The ridership projections for each of the proposed stations assume suitable feeder bus service at all locations*; McAllen Central alone qualifies under the model's parameters as a "transportation center / rail trunk" for having four or more bus routes and two potential rail lines. Complete information on existing bus routes serving proposed station areas is provided in Appendix A.

### ***Preferred Modal Alternative***

In order to fully assess the viability of commuter rail operations within Hidalgo County, it was necessary to identify the range of potential rail technologies to consider. High capacity heavy rail, most often referred to as subway/elevated systems, was ruled out as a possible mode due to the preponderance of grade crossing issues to resolve in the system. There was also the need to secure the right-of-way through multiple CBDs, if electrified third rail power supply was employed. Streetcar or trolley service was similarly ruled out. The smaller, more agile, but slower vehicles are more suitable for urban circulator routes, providing high frequency of service over small areas.

Traditional commuter rail technology marries locomotives and coach cars into consists, similar to service operated by Amtrak. The nearest example of traditional commuter service to Hidalgo County as of this writing is the Trinity Railway Express between Dallas and Fort Worth.

Light rail transit (or LRT), by contrast, integrates vehicle propulsion with one or more passenger car (i.e., no locomotive). Cars are generally smaller than commuter rail coaches with less overall capacity per scheduled trip. The closest example of an LRT service to Hidalgo County as of this writing is the Houston METRO Main Street Line, which operates entirely on exclusive tracks.

Some transit agencies have elected to operate LRT systems using diesel electric motor equipped passenger cars, referred to as Diesel Multiple Units (or DMUs). The closest example of a DMU service to Hidalgo County as of this writing is the Capital Metro's Leander Line in Austin, which uses vehicles that are not FRA compliant.

The recommended mode for Hidalgo County is commuter rail, due to the increased ridership potential, the necessity of operating in mixed traffic with freight rail, the higher operating speeds necessary for longer-distance travel, and the greater station spacing envisioned for the Hidalgo system. The use of FRA compliant vehicles—meaning they are certified as sufficiently crashworthy (meaning able to survive a crash with no more than a certain specified level of vehicle damage and/or passenger injury) to operate in situations with mixed passenger and freight trains—is recommended because of their extensive use in other commuter rail operations, and to ensure the preservation of operational flexibility along active freight lines.

### ***Benefit Analysis***

The Benefit Analysis examines operating characteristics (e.g., running speeds, dwell times, bus transfer opportunities and park and ride lot locations) based upon peer systems and best practices for the modes and corridors studied. It is intended to use ridership data and local operating characteristics relative to peer systems operating the same modal alternatives to determine initial service standards (e.g., headways by time of day and spans of service). The analysis will identify the number of vehicles used in peak period service, refine operating assumptions for each modal alternative (e.g., dual tracking, station configurations and access requirements) to reflect service standards, and evaluate alternative governance and policing structures used by peer systems for applicability to Hidalgo County, with further consideration of possible future extension of service into Cameron County.

Daily Ridership projections are required to evaluate the adequacy of system capacity and to provide a basis for entering the federal New Starts/Small Starts project development pipeline. This study uses techniques and peer analyses established by the Transportation Research Board to project ridership based on multivariate regression. Transit oriented development (TOD) and international traffic are among the special variables considered by ridership projection regression equations. As alternatives were refined, such as changing station locations or headways, ridership projections were updated to reflect the corresponding changes in commuter rail benefit. Station locations were proposed and adjusted based on local input regarding relative attractiveness to ridership and potential to drive growth.

For the selected operating mode, commuter rail, the average Year 2030 weekday boardings obtained by the ridership model total approximately 16,200, assuming an operating speed averaging 25 miles per hour (top speed of 50 mph) and a midday headway not exceeding 30 minutes. Attempting to develop a comparable service standard with light rail yields ridership projections of less than half this amount, which was part of the reason for selecting commuter rail as the operating mode. Note also that projected light rail ridership is comparable to that of commuter rail at the more urban stations, but falls far short of commuter rail at the suburban and outlying stations. This again reinforces the concept that light rail is suited for much more urban conditions than typically occur in Hidalgo County. The following tables and charts illustrate the station-by-station ridership projections.

**Table 5: Projected 2030 Rail Ridership by Station**

Station	2030 Ridership	
	Commuter Rail	Light Rail
Mission	2,320	409
McAllen Central	1,612	1,760
McAllen East	1,528	417
Pharr	550	570
McAllen North	2,305	429
Edinburg Central	796	882
Edinburg 281	1,322	361
San Juan	1,623	422
Alamo-Donna	1,512	275
Weslaco-STCC	1,464	553
Mercedes	1,196	541
<b>TOTAL</b>	<b>16,229</b>	<b>6,620</b>

Other issues that the benefits analysis will consider are station-area related Enterprise Zones and use of the Texas Rail Relocation and Improvements Fund. Station Enterprise Zones are underdeveloped areas that receive favorable business incentives such tax breaks or regulatory exemptions. The Texas Rail Relocation and Improvements Fund was created by 2005 to relocate freight rail lanes outside urban areas.

### **Cost Analysis**

The methodology used for generating the project capital cost estimates is consistent with the Federal Transportation Administration (FTA) guidelines, consisting of all those costs associated with constructing, testing and commissioning the commuter rail system, occurring prior to the start of revenue service. As required by the FTA guidelines, these costs have been broken into the Standard Cost Categories “SCC”.

**Table 6: Cost Estimate by SCC Category**

SCC	Description	15-Min. Peak Headways	30-Min. Peak Headways
10	Guideway & Track Elements	\$65,193,000	\$55,774,000
20	Stations	\$8,506,000	\$8,506,000
30	Support Facilities	\$21,861,000	\$21,861,000
40	Sitework	\$15,805,000	\$14,340,000
50	Systems	\$29,697,000	\$29,897,000
60	Row	\$5,287,000	\$5,287,000
70	Vehicles	\$55,216,000	\$35,728,000
80	Soft Cost	\$36,681,000	\$33,803,000
90	Contingency	\$71,496,000	\$61,511,000
<b>Total Baseline Project Cost</b>		<b>\$309,742,000</b>	<b>\$266,707,000</b>

Hidalgo County Rail Operating & Maintenance Costs are expected to be within the range of \$13.8 and \$18.8 Million annually.

Drainage and grade crossing eliminations are major potential cost drivers for the HCCR. Major recent flooding events are mostly associated with Hurricane Alex in June 2010. Alex made landfall in northern Mexico, but the outer rain bands caused 6-7 inches of rainfall in McAllen in one day. Of the thirty locations of concern that were identified, only two are within the limits of the proposed rail system operations. One location in Edinburg has been reported by the City to not be of concern, and at the other, the floodway between Weslaco and Mercedes, the estimated replacement cost of the viaduct structure has been included in the system cost estimates.

A total of 313 at-grade rail intersections are located in Hidalgo County. Automobile traffic growth and increased rail use could justify a grade-separated rail crossing, or low auto traffic could justify the crossing's closure. Grade-separated rail crossings influence the design of the rail as well as that of nearby roadways, and increase the overall costs of the system.

As part of further analysis phases, it will be necessary to determine which at-grade crossings may be eliminated. As part of the design of the system, it will be necessary to classify the at-grade crossings into three groups: those to remain, those to be closed, and those to grade separate. Some high-traffic locations may warrant grade separation in order to reduce conflicts with train operations and delay to vehicle traffic. Low-traffic locations might simply be closed; these will also depend on the nearby street pattern and its ability to absorb diverted traffic.

The 2005 Rail Study recommended four in particular for further study, as listed below. That study estimated each grade separation would cost \$7 million to \$10 million in 2005 dollars.

- SH 107 (University Drive) in central Edinburg
- SP 115 (23<sup>rd</sup> Street) in central McAllen
- Bicentennial Boulevard, also in central McAllen
- US 281 (Cage Boulevard), in Pharr

Geometric issues to be resolved in the design of a grade separation include access to adjacent properties; the addition of retaining walls or embankments; whether nearby intersecting streets will be closed, elevated, or rerouted; and whether any sight distance issues are created with nearby intersections or driveways. Other considerations of developing a grade separation are environmental issues such as noise or loss of sunlight to adjacent properties, and the geotechnical evaluation of soil conditions.

### ***Decision Matrix***

As stated in Chapter 4, the recommended mode for Hidalgo County is commuter rail, due to the increased ridership potential, the necessity of operating in mixed traffic with freight rail, the higher operating speeds necessary for longer-distance travel, and the greater

station spacing envisioned for the Hidalgo system. A decision matrix has been prepared listing selected attributes of commuter rail and light rail, to determine the feasibility of continuing with future study. A commuter rail system appears to be feasible and further study is warranted to refine the plan and secure funding commitments.

**Table 7: Feasibility Decision Matrix**

Consideration	Light Rail	Commuter Rail
Can Operate in Mixed Traffic with Freight Rail?	NO	YES
Station Spacing Appropriate for Hidalgo County Area	NO	YES
Attracts New Development to Station Areas	YES	YES
Will Require Track Reconstruction	YES	YES
Will Require External Power	YES	NO
Typical Seating Capacity	less than 200	200 to 500
Potential Weekday Ridership	6,600	16,300
Cost of Development	not estimated	\$267 Million to \$310 Million
Cost of Annual Operations	not estimated	\$13.7 Million to \$17.3 Million
<b>Feasible for Pursuit?</b>	<b>NO</b>	<b>YES</b>
Green = more feasible mode		

### ***Receive Public Comments***

Throughout the course of the study, the project team interviewed various community stakeholders, to educate and inform them of the purpose of the study, convey its general schedule and scope, detail the potential passenger rail system being investigated and the expected recommendations to come from the study, and solicit general input.

The majority of the interviewees expressed interest and appreciation that the study was being conducted. Stakeholder organizations are listed below. Further discussion of the common themes brought up is provided in Chapter 8. The transcripts of each interview are included in Appendix C.

### **Stakeholder Organizations Interviewed**

- Edinburg Economic Development Corporation
- McAllen Economic Development Corporation
- Mercedes Economic Development Corporation
- Mission Economic Development Authority
- Rio South Texas Economic Council

- San Juan Economic Development Council
- Hidalgo County Metropolitan Planning Organization
- City of Alamo
- City of Donna
- City of Edinburg
- City of McAllen
- City of Mercedes
- City of Pharr
- City of San Juan
- City of Weslaco
- South Texas College
- The University of Texas Pan American
- Donna ISD
- Edinburg CISD
- Mercedes ISD
- Mission CISD
- Sharyland ISD
- Capote International Business Park, Pharr
- Doctors Hospital at Renaissance
- Hunt Valley Development (Sharyland Plantation)
- Rio Grande Premium Outlets
- Rio Valley Switching Company (Short-Line Railroad)

A public meeting was held on Monday, May 9, 2011, at the International Room on the campus of the University of Texas Pan-American, in Edinburg. Officials and representatives were invited from each of the community stakeholders listed above. In addition, a general mailing was conducted to members of the public who had attended previous County events, as compiled by the Hidalgo County Judge's Office.

A total of 31 people attended the meeting. The Project Team gave a PowerPoint presentation on the purpose, methodology, and recommendations of the project, then answered questions. Full detail of the comments from this meeting is located in Appendix D, along with sign-in sheets and a copy of the PowerPoint presentation.

### ***Recommendations and Next Steps***

The results of the initial analyses of potential rail modes affirm the future viability of the studied commuter rail system relative to the demographic conditions forecasted by the Hidalgo County MPO. Hidalgo County and the adjoining cities now have the opportunity and challenge to work together to bring about policy, financial, physical, and institutional environments that will maximize the benefits of such as system.

From a policy perspective, further consideration of station locations needs to be performed in a cooperative regional setting, a role which is ideally suited to the Hidalgo County MPO. The MPO will also provide a good setting to plan for development of various selected station locations as hubs for feeder transit services.

The magnitude of capital and operating expenditures needed to construct and sustain a commuter rail operation will inherently require the leveraging of a wide range of public and private resources. Hidalgo County officials should track the federal transportation bill reauthorization process and meet with federal representatives to lobby for federal funding. Local officials should also make contact with representatives from Federal Transit Administration (FTA) Region VI, Federal Railroad Administration (FRA) Region V, and TxDOT Public Transportation Division, as well as the Union Pacific Railroad and Rio Valley Switching Company to pursue capital assistance for various aspects of the system.

Lastly, Hidalgo County must examine the institutional relationships that will be needed to accomplish and sustain a regional commuter rail operation. Rio Metro and McAllen Express Transit both provide fixed route bus service within the study area using FTA formula allocations along with other resources. It is recommended that Hidalgo County work with study area cities to explore the creation of a regional transit authority that will subsume the roles of both providers. Note that this is already an action item in the MPO's *2010-2035 Metropolitan Transportation Plan*. Chapter 4 lists as a "Long-Range Priority Objective" the development of a "more formal transit governance structure."

## **Chapter 2: Identification of Study Corridors**

### ***Description of Development Patterns and Existing Rail System***

Settlement in the Hidalgo County area began in the mid-1700s, with Spanish land grants extending northward from the Rio Grande, intended for the development of ranches. Numerous farming and ranching operations developed over the years, and railroads such as the Texas & New Orleans, San Benito & Rio Grande Valley, and the St. Louis, Brownsville & Mexico built into the Valley between 1900 and 1930. The 20<sup>th</sup> century saw explosive population growth, from fewer than 20,000 residents in 1910 to over 700,000 today, and development patterns mostly followed the railroads.

Railways in the study area travel east and west, more or less parallel to the course of the Rio Grande, with several branch lines to the north, connecting to the rest of Texas, and south, connecting to industrial areas and communities along the Mexican border. Two major highways (US 83 and US 281) and their older business routes also parallel the rail lines, and collectively these transportation facilities have guided Hidalgo County's development to concentrate in an inverted "T" with McAllen more or less at the center.

A number of previously-extant rail lines have had their service discontinued; the tracks have been removed and the right-of-way sold off to adjacent property owners. This is the case with the tracks north of Edinburg, between Edinburg and Elsa, and the line extending north from Mission. Map 1 in Chapter 1 showed the remaining tracks in the County. Remaining rail lines include a mainline parallel to and immediately adjacent to Business US 83, running the entire length of Hidalgo County from east to west; a branch southward from Mission to the town of Hidalgo, near the international border crossing, approximately 8 miles; and a second branch northward from McAllen to Edinburg, approximately 13 miles.

The project team conducted a field visit on September 21, 2010, to document general conditions along and beside the rail corridors. The photographs on the following pages provide an overview of the development patterns in Hidalgo County, alongside with remaining rail lines.

**Figures 1-6: Field Observations – General Existing Conditions (Page 1 of 3)**



Existing track conditions (splintered ties and infiltrated ballast)



Adult day care center near rail line, Weslaco



Weslaco Economic Development Corporation building, between railroad and adjacent street



State Senator Lucio's Weslaco office, 500 S. Kansas, is two blocks from the rail line.



Auto-oriented commercial development in Mercedes



Preserved green space adjacent to rail in central Weslaco

**Figures 7-12: Field Observations – General Existing Conditions (Page 2 of 3)**



Concrete grade crossing at Colonel Rowe Blvd. in McAllen



View of corridor showing proximity of single-track rail to Business 83 in McAllen



Natural area juxtaposed with commercial development along Colonel Rowe Blvd.



Downtown Pharr has some transit-supportive land uses already



Entering Pharr from San Juan – planning for rail and its surroundings is unique to each city



Pedestrian-bike trail connection with ADA-compliant signal elements, McAllen

**Figures 13-18: Field Observations – General Existing Conditions (Page 3 of 3)**



These Sharyland ISD facilities in Mission are adjacent to the rail line.



Auto-oriented residential development across from Sharyland ISD property, Mission. Frontage remains undeveloped.



Example of railroad-related building available for redevelopment / repurposing, Mission



Chase Bank building in McAllen in only two blocks from the rail line.



View of La Central transit terminal from rail corridor, McAllen



Parking garage and Bentsen Tower, downtown McAllen

## ***Selected Routes***

The study corridors correspond to the operating freight rail segments in the most urbanized portions of the County, centering on McAllen and extending northward to Edinburg, eastward to Mercedes, and westward to Mission. The southern spur was not considered for passenger rail service at this time, since the population and employment forecasts did not indicate sufficient density of development along the southern spur to make service feasible.

If conditions change over the next few years, it may be possible to serve the city of Hidalgo and the international bridge area, either along the existing southern branch, or via new alignment further to the east. The County (or the operating entity chosen for the passenger rail service) should continue to monitor population and employment projections generated by the MPO, to determine where future service corridors, or changes such as infill stations, may be warranted.

Further study should also be conducted about the timeframe for extending service east into Cameron County (to Harlingen and/or Brownsville); this study should be conducted in conjunction with the MPOs of Harlingen / San Benito and Brownsville. Assuming the Hidalgo system begins operating first, some Cameron County commuters into Hidalgo County may be expected to take advantage of the service; more discussion of this issue is located in the discussion of the Mercedes station. Finally, long-term planning should include examination of the feasibility and/or timeframe of connecting the Hidalgo system to more distant destinations such as Laredo, Corpus Christi, or San Antonio.

## ***Station Locations***

### **Selection Criteria**

Locations of the proposed stations are based on accepted urban planning criteria involving proximity to potential ridership (jobs or housing) and interaction of the station and the development existing around and attracted to it. Some considerations when locating a station include:

- Employment Concentrations—central McAllen and central Edinburg are the two largest employment concentrations in the county
- Retail / Commercial—in addition to serving their own employees, ridership can increase with non-work trips by shoppers
- Downtowns / Main Streets—existing central cities can benefit from a station's presence (they are often considered in downtown revitalization efforts), and typically have good pedestrian connections to nearby residential areas
- Government / Education campuses—highly centralized employment destinations, typically have parking issues and good pedestrian connections
- Adequate Parking Supply—needed both to serve the ridership and minimize spillover into nearby neighborhoods

- Feeder Bus Routes—critical to both integrate the rail system into the overall transit framework and extend the station’s catchment area by attracting riders whose trip to the rail station is too far to walk but too close to drive
- Potential New Development—stations tend to attract development by their presence, and stations with surface parking may transition to structured parking over time

A good example of multiple criteria is central Weslaco, shown in the figure below. The historic main street, Texas Avenue, is shaded in red and is lined with retail and service businesses. Municipal buildings such as City Hall and the Chamber of Commerce extend along the railroad to the west of Texas Avenue, and a campus of South Texas College is located just west of that. A station located at the yellow star can conveniently serve all these destinations, as well as the residential areas appearing in the image.

**Figure 19: Sample Station Location Consideration**



### **Selected Station Locations**

Eleven station location areas were selected for analysis. It must be emphasized that these locations are conceptual for the purposes of determining potential ridership and the feasibility of the system. When system development projects move into engineering and design phases, station locations may shift for reasons of infrastructure or utility conflicts, localized traffic concerns, or land availability at the level on individual parcels.

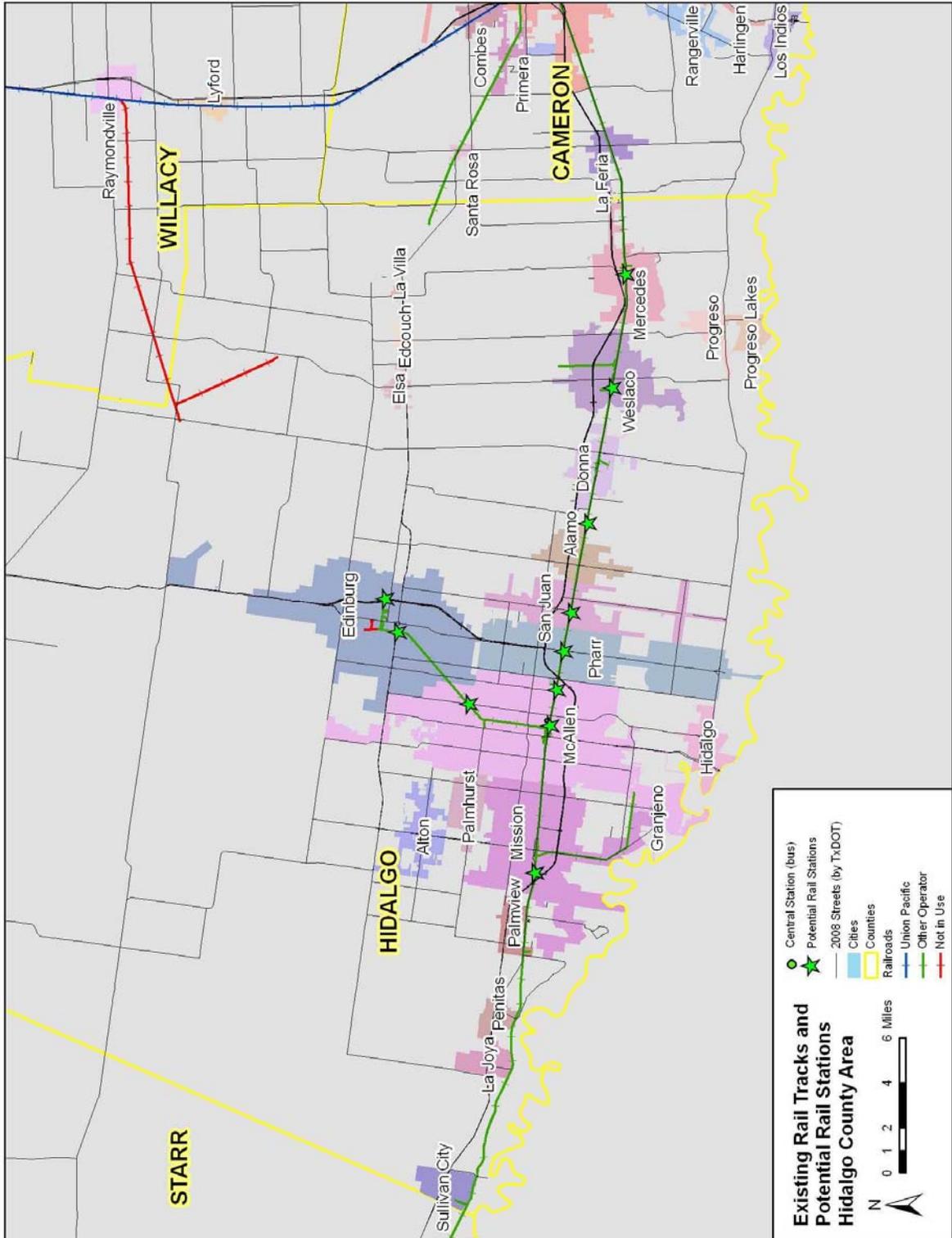
The proposed station locations (identified by nearest roadway intersection) are:

- Mission – Business 83 and Los Ebanos Road
- McAllen Central – Business 83 and 15<sup>th</sup> Street
- Mc Allen North – 10<sup>th</sup> Street and Hawk Avenue
- Edinburg Central – University Drive and 6<sup>th</sup> Avenue

- Edinburg 281 – US-281 and Jasman Road
- McAllen East – Business 83 and McColl Road
- Pharr – Business 83 and Cage Boulevard
- San Juan – Business 83 and Nebraska Avenue
- Alamo/Donna – Business 83 and Whalen Road
- Weslaco – Business 83 and Border Avenue
- Mercedes – W 2<sup>nd</sup> St (Business 83) and Virginia Avenue

The map on the following page indicates the proposed station locations overlaid on the city limits and roadway network of Hidalgo County.

**Map 3: Proposed Station Locations**



## Chapter 3: Needs Assessment

### *Descriptions of Data Collected*

#### **Railroad Traffic**

Current freight rail service in Hidalgo County is provided by the Rio Valley Switching Company (RVSC), at the address below.

Rio Valley Switching Company  
101 N. 21<sup>st</sup> Street  
McAllen, TX 78501  
956-971-9111

Tracks in the study area are formerly Missouri Pacific (later Union Pacific) branch lines, and have been leased by RVSC since March 1993. RVSC operates freight service from the Union Pacific connection in Harlingen, approximately 41 miles westward to a connection with the Border Pacific Railroad west of the city of Mission. As described in Chapter 2, a branch line runs southward from Mission to the town of Hidalgo, near the international border crossing, approximately 8 miles. A second branch runs northward from McAllen to Edinburg (approximately 13 miles) and was leased by RVSC in September 1997. The current freight operation is reported by publicly-available internet documentation ([www.lagrangerailworks.com](http://www.lagrangerailworks.com), accessed September 2010) to predominately serve producers of paper, food, and other agricultural products.

RVSC traffic is indicated by [www.lagrangerailworks.com](http://www.lagrangerailworks.com) at 8,000 railcars per year. Further information on train consists, peak traffic times and freight rail travel patterns was not available from RVSC. The rail company was interviewed on June 7, 2011. They identified some coordination issues, such as liability standards, public education, and infrastructure upgrades, that will be necessary to operate mixed freight and passenger rail. Further detail is provided in Appendix C. Additional coordination with RVSC and with Union Pacific, the owner of the tracks (RVSC has trackage rights as part of a long-term lease), will be necessary as the project moves forward into Alternatives Assessment and design.

#### **Rail Characteristics**

In determining the costs associated with initiating passenger rail service, it was necessary to include a task to assess existing structural reports on rail infrastructure. Similar to the experience with rail traffic information, numerous attempts to obtain this information from RVSC were unsuccessful. The 2005 Rail Study stated that the overall rail infrastructure was in poor condition, with numerous locations of fouled ballast and poorly-maintained track, such that trains were frequently required to operate at ten miles per hour or slower.

Based on this, the project team decided to assume that the existing track would not be usable for passenger rail operations, which require top speeds of forty to fifty miles per hour or more, but that entirely new track would need to be constructed. The cost

estimates assume a single track where possible in order to save money; double tracks are provided at stations and at selected locations for passing.

### At-Grade Crossings

The project team identified a total of 313 at-grade railroad crossings in the whole of Hidalgo County, through the use of aerial and roadway photography. This includes all crossings, not just the ones within the corridors later selected for the operating segment. Of these 313, 11 (3.5%) were not accessible to field investigators.

Concrete is the most common planking material, and also the most preferable in terms of durability and motorist comfort. Over 40% of crossings have concrete planking. Asphalt and wood planking together account for approximately 40% of crossings; these materials can be comparable to concrete when new, but require more maintenance and can deteriorate over time to a very rough surface. Gravel, caliche, and rubber planking are also present at some crossings.

Overall, signage is well-provided for, with over 87% of crossings having advance warning signage. Lighting is less common, with only a little over 35% of crossings having flashing red lights indicating oncoming trains. Gates are found generally at major arterials only, and are provided at less than 20% of crossings.

**Tables 8-11: At-Grade Crossing Characteristics**

Grade Crossing Material		
Type	Number	Percent
Asphalt	73	23.3%
Gravel	23	7.3%
Caliche	9	2.9%
Concrete	128	40.9%
Wood	62	19.8%
Rubber	7	2.2%
NA	11	3.5%
<b>TOTAL</b>	<b>313</b>	<b>100.0%</b>

NA = Not Accessible

Signage at Crossing		
Type	Number	Percent
YES	273	87.2%
NO	29	9.3%
NA	11	3.5%
<b>TOTAL</b>	<b>313</b>	<b>100.0%</b>

NA = Not Accessible

Lighting at Crossing		
Type	Number	Percent
YES	110	35.1%
NO	192	61.3%
NA	11	3.5%
<b>TOTAL</b>	<b>313</b>	<b>100.0%</b>

NA = Not Accessible

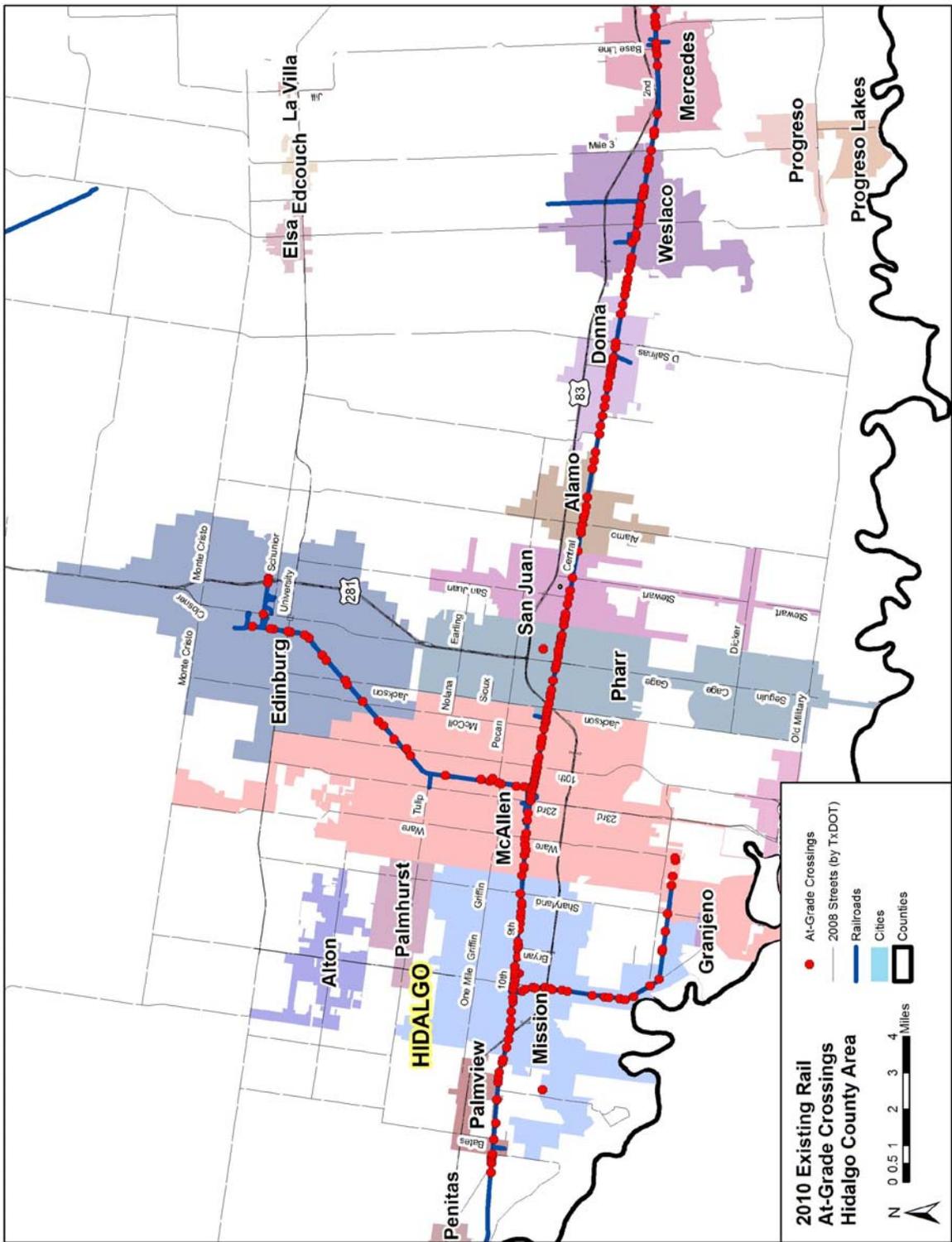
Gates at Crossing		
Type	Number	Percent
YES	61	19.5%
NO	241	77.0%
NA	11	3.5%
<b>TOTAL</b>	<b>313</b>	<b>100.0%</b>

NA = Not Accessible

All statistics come from field investigations in 2010 and 2011.

A photographic survey was conducted of these locations, and the 1,300+ photos taken are included on the CD which accompanies this report, along with full detail of each crossing's characteristics. The map on the following page illustrates the distribution of the at-grade crossings.

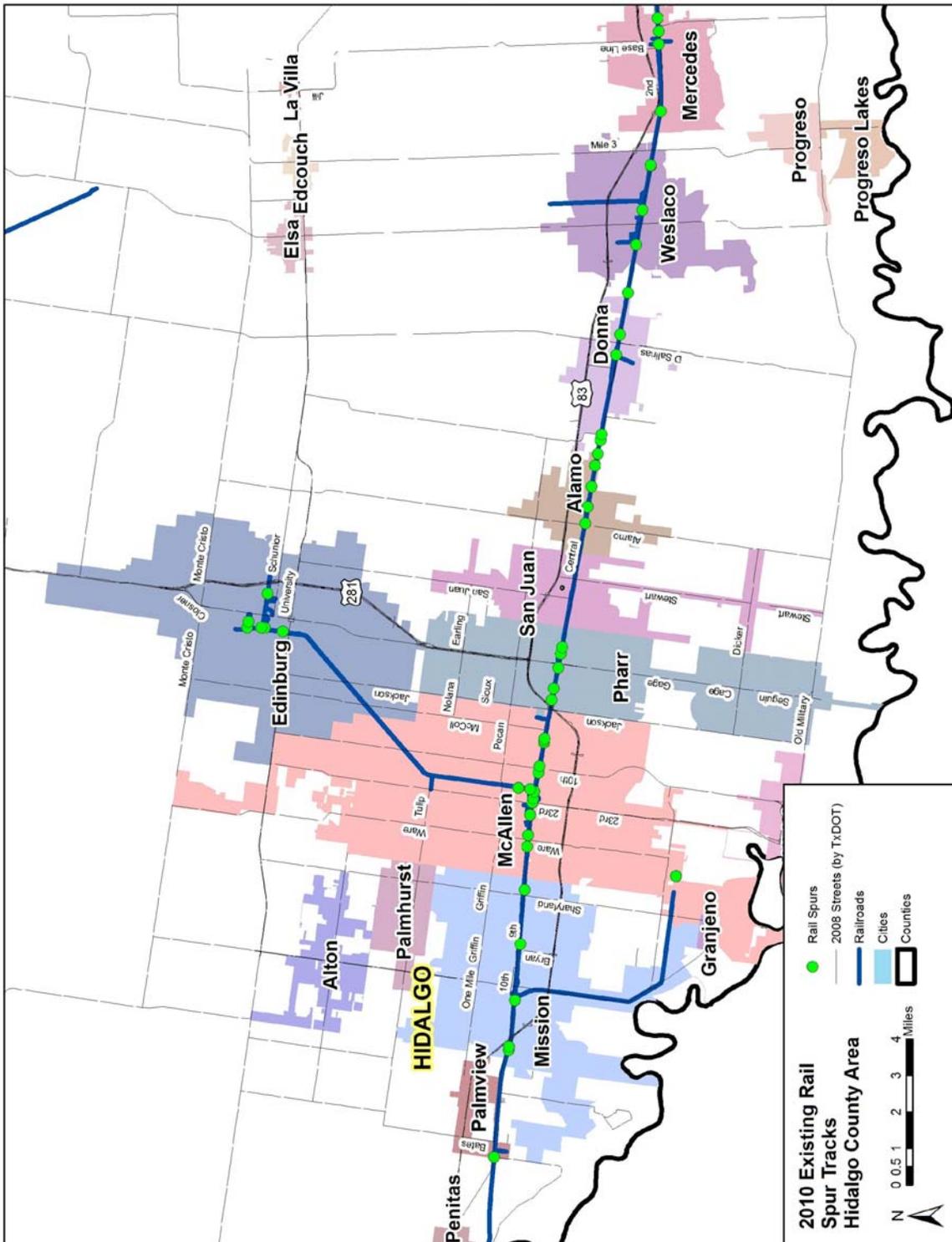
Map 4: Existing At-Grade Railroad Crossings



## **Spurs**

Through a field survey of the existing rail system, a record of all railway spurs in Hidalgo County was collected. The map on the following page depicts the locations of existing rail spurs and at-grade crossings in Hidalgo County. Most of the spurs are located in the three largest cities of McAllen, Edinburg, and Pharr, which is expected given that these are the largest concentrations of business activity and thus that of potential freight rail customers. An additional concentration of spur tracks exists in the area between Alamo and Donna, which serve some of the large-scale agricultural operations in the Valley.

Map 5: Existing Railroad Spurs



## Traffic Counts

The project team investigated availability of current traffic counts for 23 locations, mostly as identified in the 2005 Rail Study, with two exceptions. Rather than document new traffic counts available near Sugar Road in Pharr and 2<sup>nd</sup> Street/Colonel Rowe Boulevard in Edinburg, the crossings of North 10<sup>th</sup> Street in northern McAllen and Nebraska Avenue in San Juan were investigated instead. These locations are closer to proposed stations (McAllen North and San Juan, respectively) and address roads of higher functional classifications. The 23 locations examined in this study are listed below. Updated traffic counts for these locations are provided in Appendix E.

**Table 12: Documented Locations of Traffic Counts**

City	Segment*	Crossing Roadway
Alamo	East	FM 907 (Alamo Road)
Donna	East	FM 1432 (Val Verde Road)
	East	FM 493 (Salinas Boulevard)
Edinburg	North	FM 2061 (McColl Road)
	North	FM 3362 (Jackson Road)
	North	SH 107 (University Drive)
	North	Trenton Road
McAllen	West	FM 2220 (Ware Road)
	West	SP 115 (23rd Street)
	East	FM 2061 (McColl Road)
	North	FM 495 (Pecan Boulevard)
	North	FM 3461 (Nolana Loop)
	North	North 10th Street
	West	Bicentennial Boulevard
Mission	West	SH 107 (Conway Avenue)
	West	FM 396 (Bryan Road)
	West	FM 494 (Shary Road)
Pharr	East	FM 3362 (Jackson Boulevard)
	East	US 281 (Cage Boulevard)
	East	I Road
San Juan	East	Nebraska Avenue
Weslaco	East	FM 1015 (International Boulevard)
	East	Westgate Drive

## Existing Bus Transit

Two fixed route bus operations serve portions of the study area. McAllen Express Transit (MET), a department of the City of McAllen, operates services within the corporate limits of the city. Service is contracted from the Lower Rio Grande Valley Development Council (LRGVDC), which also directly operates Rio Metro in other portions of Hidalgo

County, as well as Cameron County. LRGVDC was designated by the Texas Department of Transportation as the region’s recipient agency for FTA Section 5307 (Urbanized Area Formula), 5310 (Elderly and Disabled), and 5311 (Rural) funds.

MET provides service within the City of McAllen, running seven routes throughout the day. Buses operate continuously from 6:00 AM to 6:50 PM, six days a week (excluding Sunday). All seven routes run a 50-minute loop beginning and ending at McAllen Central Station. Total system ridership is approximately 427,000 riders annually.

All seven MET routes serve the proposed McAllen Central station, as this already serves as a bus transfer center. Two routes, #2 and #4, serve the proposed McAllen North station; no routes currently serve the proposed McAllen East station, but two routes, #4 and #6, operate within one mile or so and could be re-routed to connect to it. It should be noted that any extension of re-routing of MET transit routes may require a major overhaul of the service schedule, as every route is currently configured as a once-an-hour loop, as described above.

MET’s Central Station, also called La Central, operates not only as a transfer center for local buses, but as a terminal for intercity buses. Numerous private bus operators offer service from La Central to other cities in Texas, long-distance travel to other parts of the United States, and transborder service throughout Mexico. See below for exterior and interior photographs of the station, taken in January 2010.

**Figure 20: McAllen’s Central Station – Exterior**



**Figure 21: McAllen’s Central Station – Interior Waiting Area**



The McAllen Central bus station already acts as a regional hub, and the proposed McAllen Central rail station will supplement it. The bus station covers a full city block, between 15<sup>th</sup> and 16<sup>th</sup> Streets, on the south side of Business 83. The rail station is proposed to be located approximately at 16<sup>th</sup> Street as well, and here the rail line is on the north side of Business 83. Note that this is a conceptual location only and may shift in further plans and design. The only constraint is having the station far enough to the east to clear the rail junction just west of Bicentennial Boulevard and Business 83, where the north, east, and west rail lines converge.

Although downtown McAllen generally is pedestrian friendly, with sidewalks and curb ramps in good condition, it is recommended that a specific study take place to improve pedestrian access between the bus and rail stations. It is envisioned that these stations will function together as a central transit hub for McAllen and Hidalgo County in general. Riders disembarking from the train can walk across the street to access local buses and vice versa.

RioMetro provides inter-city transit service and is the only operator in Hidalgo County outside of McAllen. Four of their seven routes provide service to Edinburg, McAllen, and along the US 83 corridor through the commuter rail study area. However, the schedule is extremely limited, operating only two to three trips each in the morning and afternoon. Trips typically operate between about 6-9 AM and 2-5 PM. Total ridership is lower than the MET system, with approximately 58,000 riders annually\*. RioTransit, a related service, provides various rural routes, typically once per day.

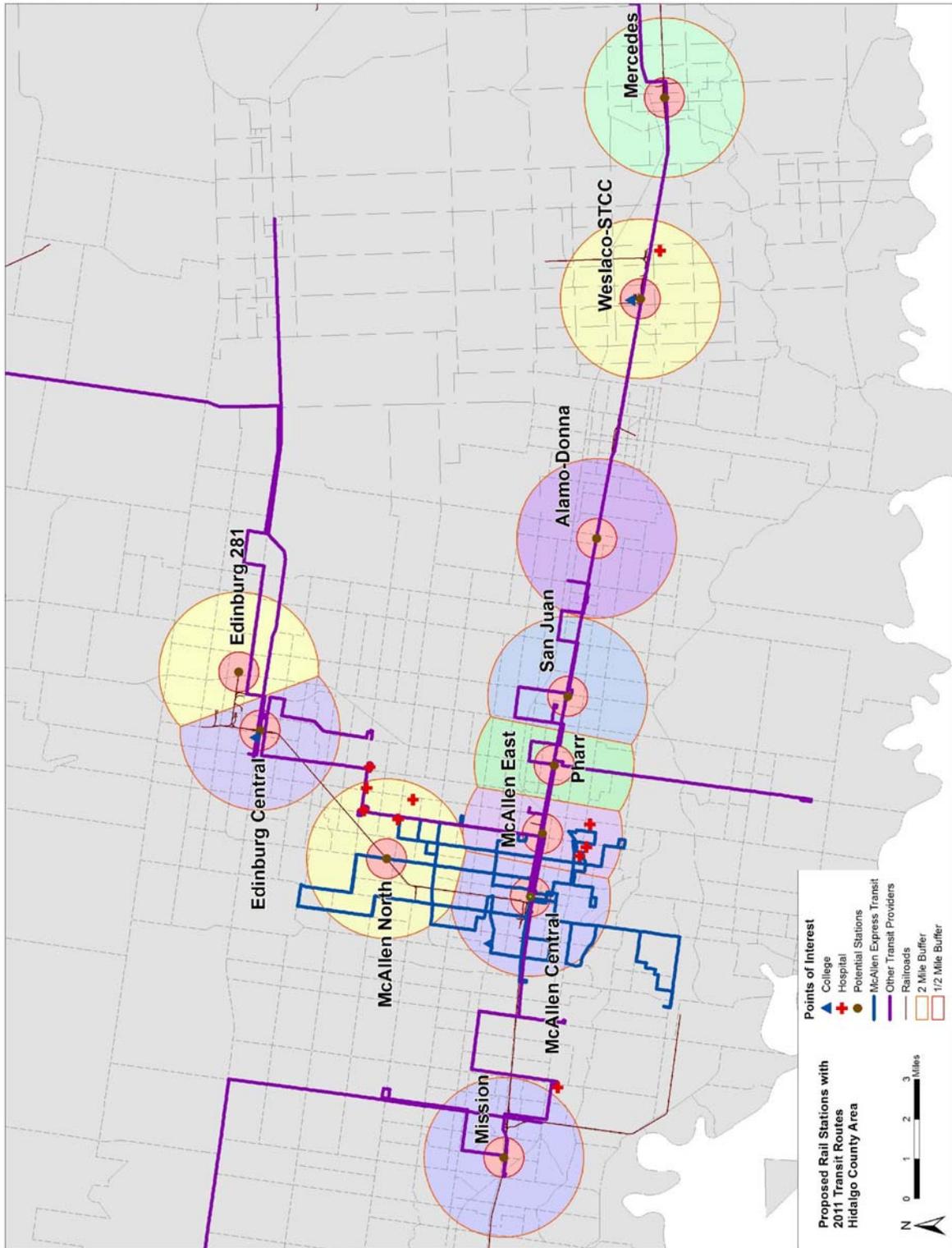
*\*considering only Hidalgo County routes; RioMetro operates other routes in Cameron County, which do not connect to the Hidalgo routes and are not considered in this analysis.*

RioMetro serves the immediate area of the proposed stations at Edinburg Central, Edinburg 281, Mission, and Pharr, but some minor route modifications and a major increase in service frequency would be necessary for these to act as feeder routes for the commuter rail service. The proposed stations at San Juan, Alamo-Donna, Weslaco-STCC, and Mercedes have RioMetro service only along Business 83. To serve as feeder routes for the commuter rail, these buses would require major increases in service frequency, as well as restructuring the route to serve the surrounding area, as they currently operate a route that would be largely duplicated by the rail service.

Considering which proposed rail station locations are best served by existing bus routes, McAllen Central has far and away the most service, with Edinburg Central and Mission also having multiple routes. In all cases, however, the bus system will have to coordinate with the train schedules, as well as ensuring service from the train station to nearby major destinations. *The ridership projections for each of the proposed stations assume suitable feeder bus service at all locations*; McAllen Central alone is classified as a “transportation center / rail trunk” for having four or more bus routes and two potential rail lines.

Maps from the transit providers, showing the existing bus service (as of early 2011) are compiled in Appendix A. The map on the following page illustrates these routes in relationship to the proposed station locations (discussed in Chapter 2).

**Map 6: Proposed Station Locations with Transit Routes**



## ***Population and Employment Growth***

Hidalgo County, according to the US Census Bureau, grew in population from 569,000 in 2000 to 775,000 in 2010, a ten-year change of 36%, and an annualized growth rate of over 3%. This rate is substantial, especially when sustained over 10 years. This is consistent with local assessments of rapid population growth, which are verified by the US Census data showing that Hidalgo County, from 2000 to 2010, had the fastest growth rate of any large county (over 500,000 people) in Texas. The Rio Grande Valley urban area as a whole (Hidalgo and Cameron counties) grew faster than any other Texas metropolitan area, except Austin. The table below shows the Valley's 2000-2010 population growth in contrast to the six other large Texas metropolitan areas. Note that Austin and Dallas/Fort Worth have commuter rail lines in operation, Dallas and Houston have light rail lines in operation, and San Antonio is studying rail within the city and a commuter rail line to Austin.

**Table 13: Population Growth of Texas' Metropolitan Areas, 2000-2010**

<b>Texas Metropolitan Areas with Rail Transit in 2011</b>				
<b>Urban Area</b>	<b>County</b>	<b>2000 Population</b>	<b>2010 Population</b>	<b>Growth</b>
<b>Austin</b>		<b>1,159,836</b>	<b>1,604,052</b>	<b>38%</b>
	Travis	812,280	1,024,266	26%
	Williamson	249,967	422,679	69%
	Hays	97,589	157,107	61%
<b>Houston</b>		<b>4,531,823</b>	<b>5,738,055</b>	<b>27%</b>
	Harris	3,400,578	4,092,459	20%
	Fort Bend	345,552	585,375	69%
	Montgomery	293,768	455,746	55%
	Galveston	250,158	291,309	16%
	Brazoria	241,767	313,166	30%
<b>Dallas-Fort Worth</b>		<b>4,589,769</b>	<b>5,622,128</b>	<b>22%</b>
	Dallas	2,218,899	2,368,139	7%
	Tarrant	1,446,219	1,809,034	25%
	Collin	491,675	782,341	59%
	Denton	432,976	662,614	53%
<b>Other Texas Metropolitan Areas</b>				
<b>Urban Area</b>	<b>County</b>	<b>2000 Population</b>	<b>2010 Population</b>	<b>Growth</b>
<b>Rio Grande Valley</b>		<b>904,690</b>	<b>1,180,989</b>	<b>31%</b>
	Hidalgo	569,463	774,769	36%
	Cameron	335,227	406,220	21%
<b>San Antonio</b>		<b>1,559,975</b>	<b>1,954,778</b>	<b>25%</b>
	Bexar	1,392,931	1,714,773	23%
	Comal	78,021	108,472	39%
	Guadalupe	89,023	131,533	48%
<b>El Paso</b>	<b>El Paso</b>	<b>679,622</b>	<b>800,647</b>	<b>18%</b>
<b>Corpus Christi</b>		<b>380,783</b>	<b>405,027</b>	<b>6%</b>
	Nueces	313,645	340,223	8%
	San Patricio	67,138	64,804	-3%

Data Source: US Census Bureau

As part of their responsibilities for regional planning for all modes of transportation, the Hidalgo County Metropolitan Planning Organization (MPO) prepares population and employment projections for the county. This is part of the technical assistance provided to the local governments of Hidalgo County for planning, coordinating, and implementing transportation decisions.

## Population

Existing concentrations of population are largely in incorporated areas, which follow the T-shape of the rail study corridors, extending north, east, and west from central McAllen. The existing area highways of US 83 and US 281 also follow this pattern of extending

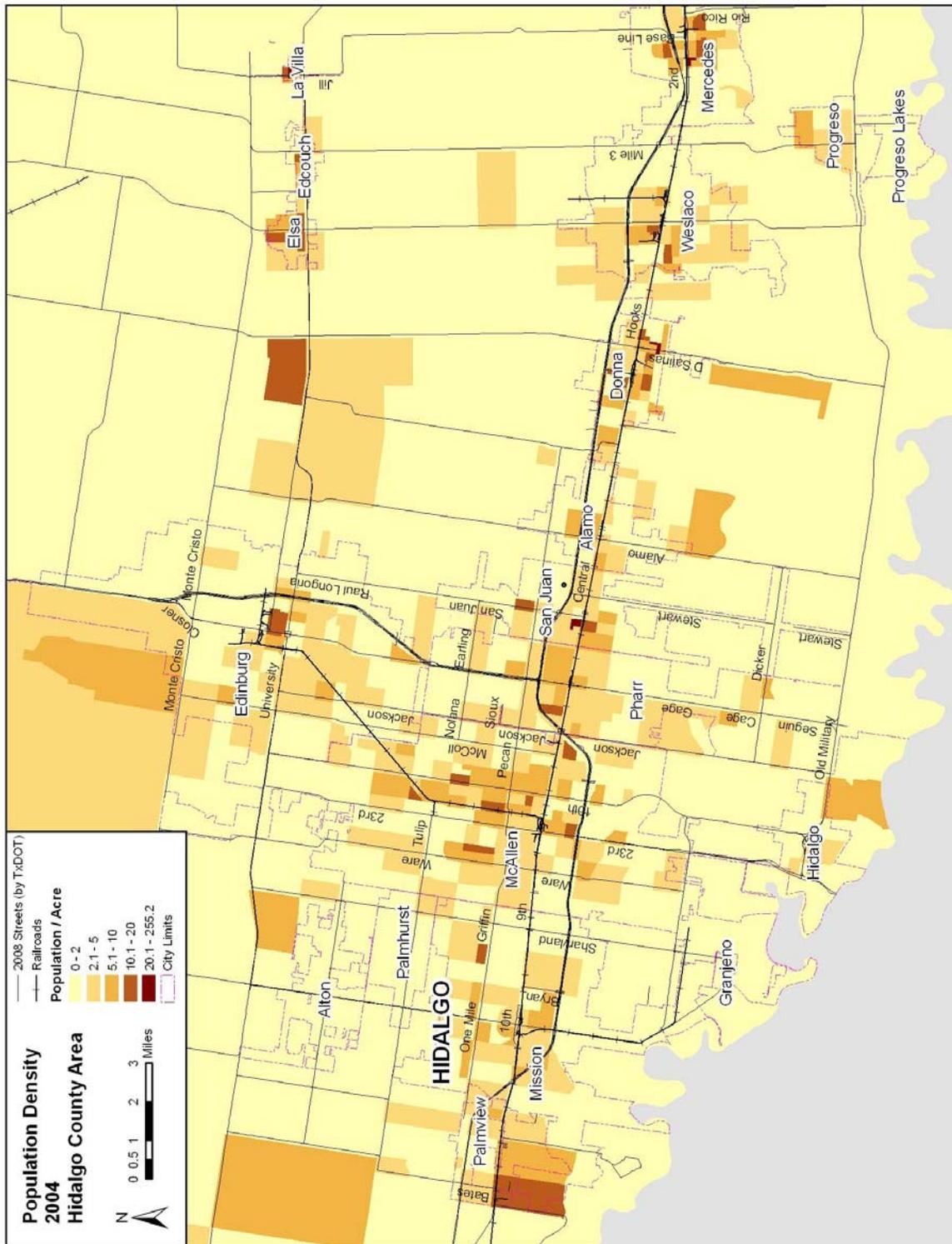
north, east, and west from central McAllen. This historical development pattern is beneficial for rail service, as it places the majority of population within a reasonable distance of the future transit service.

The MPO forecasts that countywide population in 2030 will total approximately 1,644,000 persons, or more than double the existing 2010 population of approximately 775,000. Future growth is largely predicted to occur in the incorporated areas, though it is noticeable that this is not only due to densification of the existing urban areas, but also development around the existing periphery.

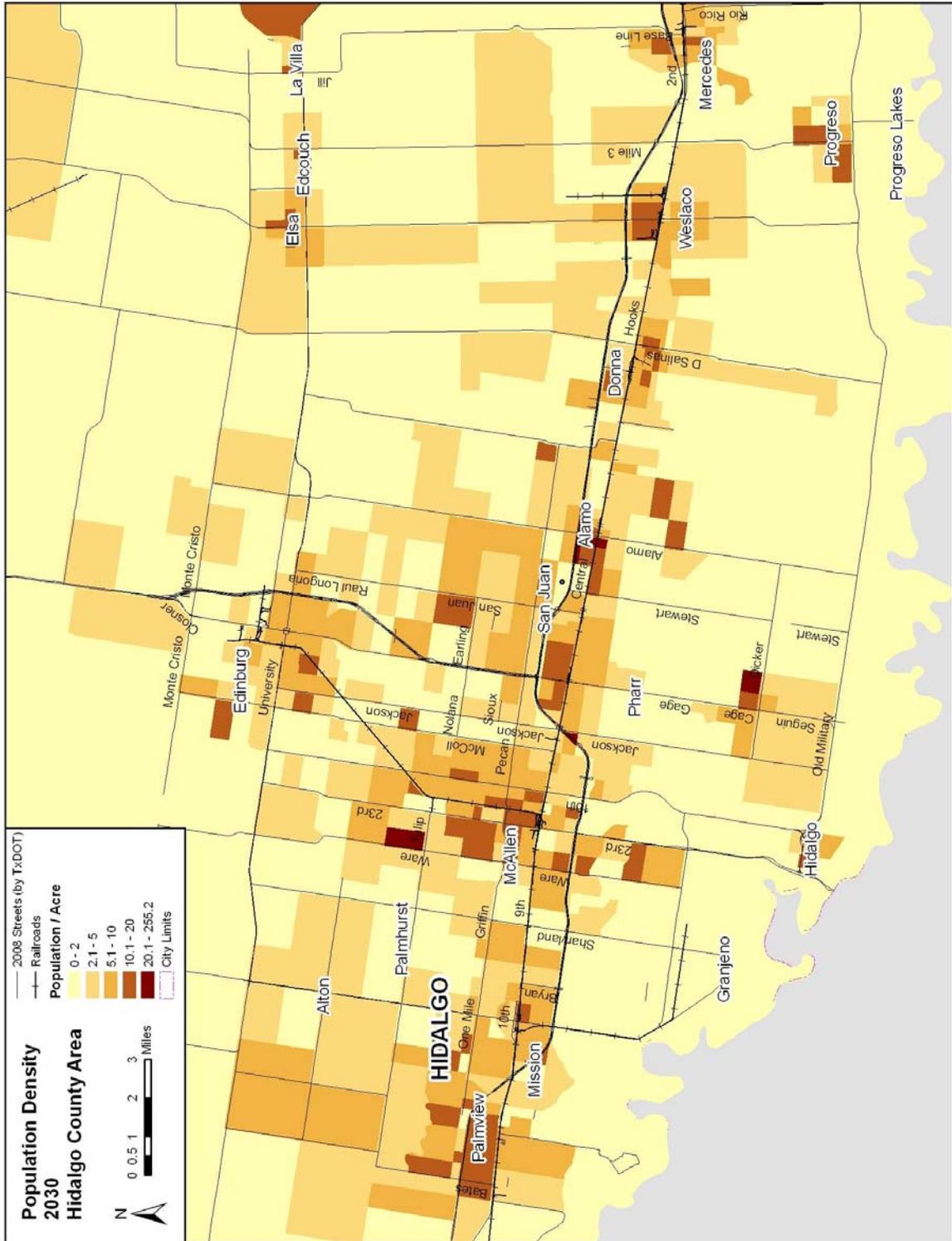
Cities not located along major roadway and railway corridors, such as Progreso, Elsa, and Edcouch, are also projected to expand outward from their city centers, though not to the degree of existing larger urban concentrations. In short, the residential development appears to follow patterns seen elsewhere in Texas, where most expansion is taking place at the outer periphery of existing developed areas, with a limited amount of densification in central urban areas.

The maps on the following pages illustrate the MPO's model of 2004 and 2030 population concentrations. Note that there appear to be some higher concentrations of population in rural areas at the edge of the county. This may be a discrepancy in the MPO model data, where acreage of analysis zones is reported incorrectly. Existing population concentrations are expected to be lower in rural areas.

**Map 7: 2004 Hidalgo County Population Density**



Map 8: 2030 Hidalgo County Population Density

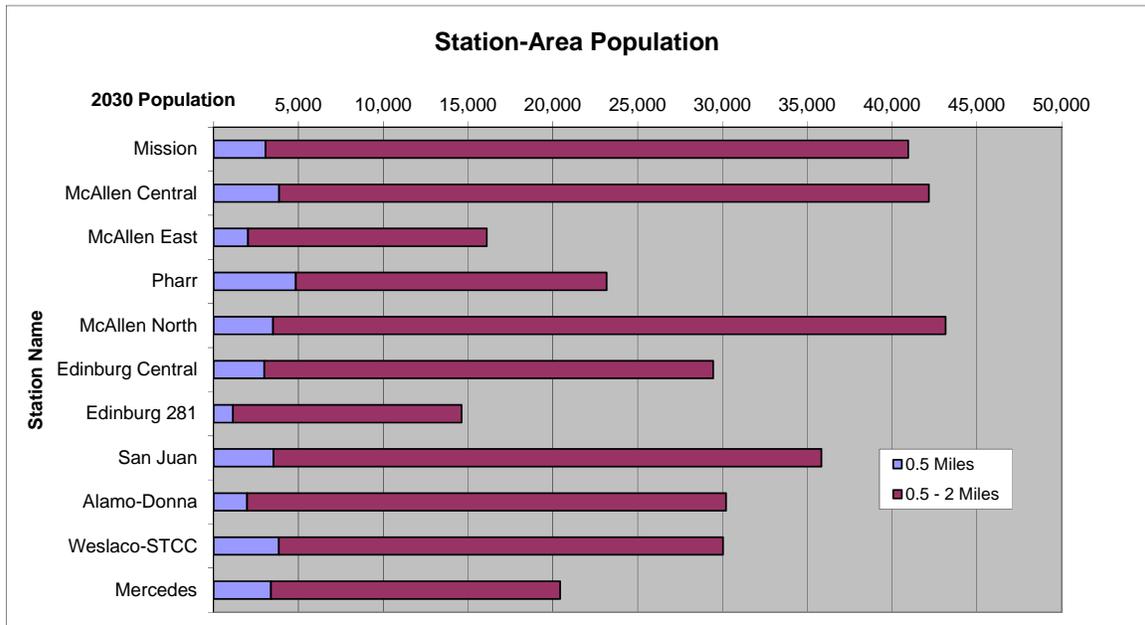


The 11 stations that have been proposed for the operating system have within a 2-mile radius of the stations a total of 19.8% of the county’s 2030 population, or 326,000 persons. Based on the MPO’s 2030 population forecasts, the stations with the highest population within walking distance (1/2 mile) will be Pharr, McAllen Central, and Weslaco-STCC. The stations with the highest population in what is considered the “ridership shed,” (2 miles) will be Mission, McAllen Central, and McAllen North.

**Table 14: 2030 Population Forecast for Station Areas**

Station	2030 Population		
	Within 1/2 Mile	From 1/2 to 2 Miles	TOTAL Within 2 Mi.
Mission	3,066	37,890	40,956
McAllen Central	3,863	38,306	42,169
McAllen East	2,026	14,076	16,102
Pharr	4,840	18,333	23,173
McAllen North	3,507	39,644	43,151
Edinburg Central	2,982	26,469	29,451
Edinburg 281	1,142	13,475	14,617
San Juan	3,533	32,295	35,828
Alamo-Donna	1,970	28,241	30,211
Weslaco-STCC	3,847	26,182	30,029
Mercedes	3,381	17,045	20,426
<b>Total Station Areas</b>	<b>34,157</b>	<b>291,956</b>	<b>326,113</b>
<b>Hidalgo County</b>			<b>1,644,000</b>
<b>Station Areas as % of Hidalgo County</b>			19.8%

**Figure 22: 2030 Population Forecast for Station Areas**



## Employment

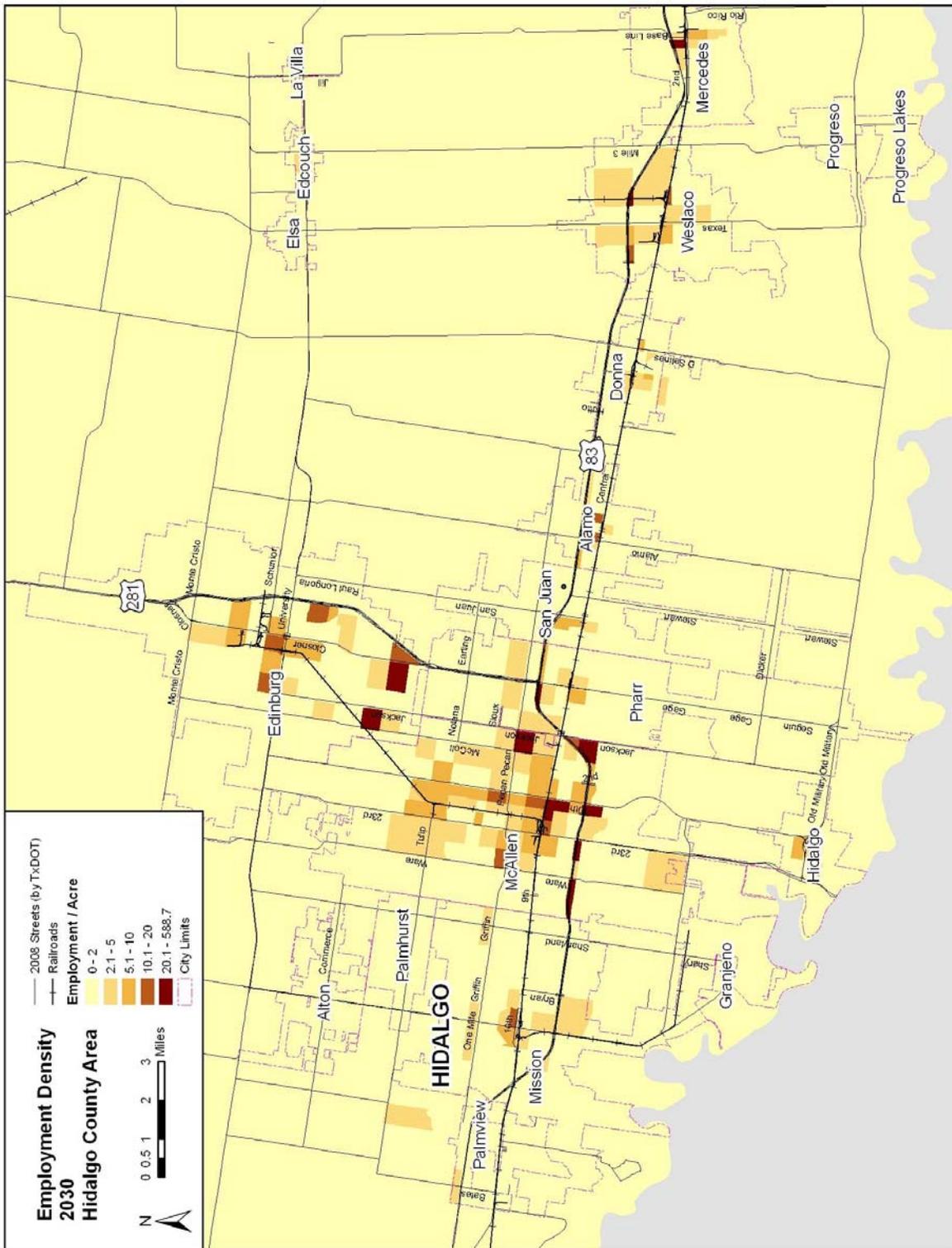
Existing concentrations of employment are heavily concentrated in central-city areas, with the largest concentration clearly being central McAllen. Other locations of employment density include downtown Edinburg (predominately the county government complex and the University of Texas Pan American) and other existing city cores. Although suburban development such as the area between McAllen and Edinburg has a large number of total jobs, the concentration of jobs per acre is less, making these areas more difficult to serve with transit.

The MPO forecasts the countywide employment in 2030 will total approximately 445,000 jobs. Future growth is largely predicted to occur in existing areas of high job concentration, and it is noticeable that growth in employment is much more centralized than growth in population. The only areas which show high job density in 2030 which did not also have such in 2004 are a few locations on the eastern and northern sides of McAllen. These are presumably due to individual large employers such as hospitals or shopping areas, either new ones or expansions of existing ones.

The maps on the following pages illustrate the MPO's model of 2004 and 2030 employment concentrations.



**Map 10: 2030 Hidalgo County Employment Density**



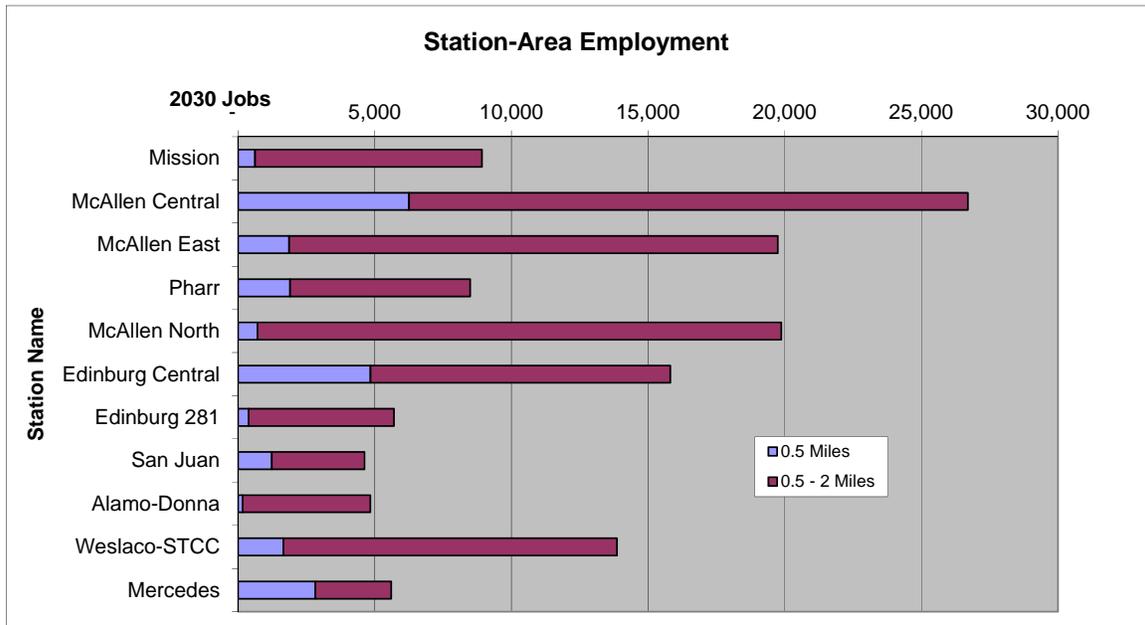
The 11 stations that have been proposed for the operating system have within a 2-mile radius of the stations a total of 30.1% of the county’s 2030 employment, or 445,000 jobs. Based on the MPO’s 2030 employment forecasts, the stations with the highest job count within walking distance (1/2 mile) will be McAllen Central, Edinburg Central (these two are considered the regional central business districts), and Mercedes. The stations with the highest job count in what is considered the “ridership shed,” (2 miles) will be McAllen Central, McAllen North, and McAllen East.

The table below shows the MPO’s projections for the number of jobs near each station. The “Within ½ Mile” column shows the job count nearest the station. The next column is additional employment further than ½ mile but closer than 2 miles. Those two are mutually exclusive. The last column is the sum of the two (all projected employment within 2 miles).

**Table 15: 2030 Employment Forecast for Station Areas**

Station	2030 Employment		
	Within 1/2 Mile	From 1/2 to 2 Miles	TOTAL Within 2 Mi.
Mission	617	8,304	8,921
McAllen Central	6,253	20,449	26,702
McAllen East	1,865	17,883	19,748
Pharr	1,896	6,592	8,488
McAllen North	708	19,162	19,870
Edinburg Central	4,842	10,970	15,812
Edinburg 281	383	5,319	5,702
San Juan	1,235	3,388	4,623
Alamo-Donna	163	4,672	4,835
Weslaco-STCC	1,654	12,212	13,866
Mercedes	2,828	2,774	5,602
<b>Total Station Areas</b>	<b>22,444</b>	<b>111,725</b>	<b>134,169</b>
<b>Hidalgo County</b>			<b>445,436</b>
<b>Station Areas as % of Hidalgo County</b>			30.1%

**Figure 23: 2030 Employment Forecast for Station Areas**



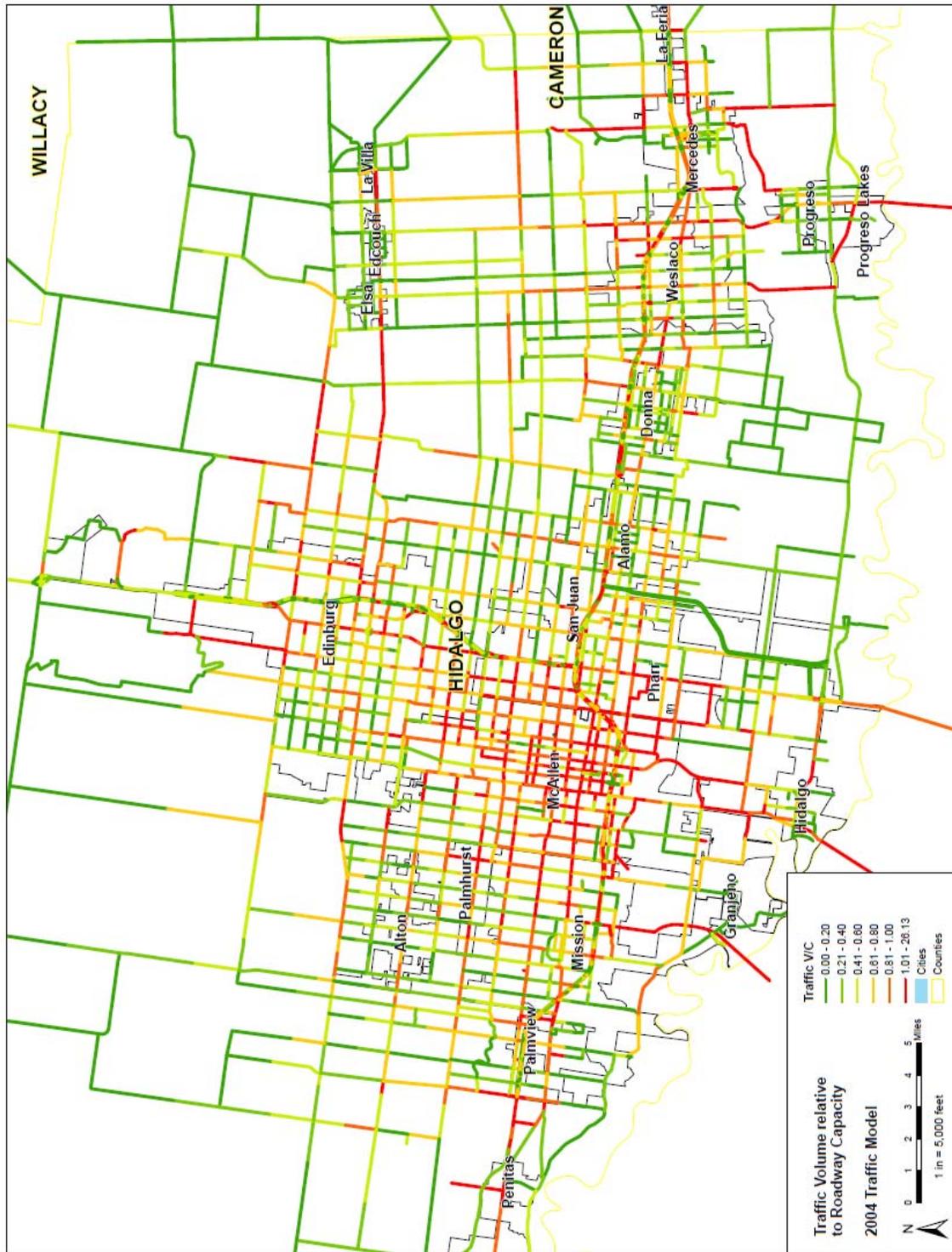
### **Vehicle Traffic Growth**

The Hidalgo County MPO, in addition to generating population and employment forecasts, uses these forecasts for trip generation and assignment, in order to produce traffic projections for the county’s roadway system. The model assigns trips to individual roadways (usually only major arterials are modeled) based on origin and destination, speed limits and roadway lane count, and other factors such as existing congestion.

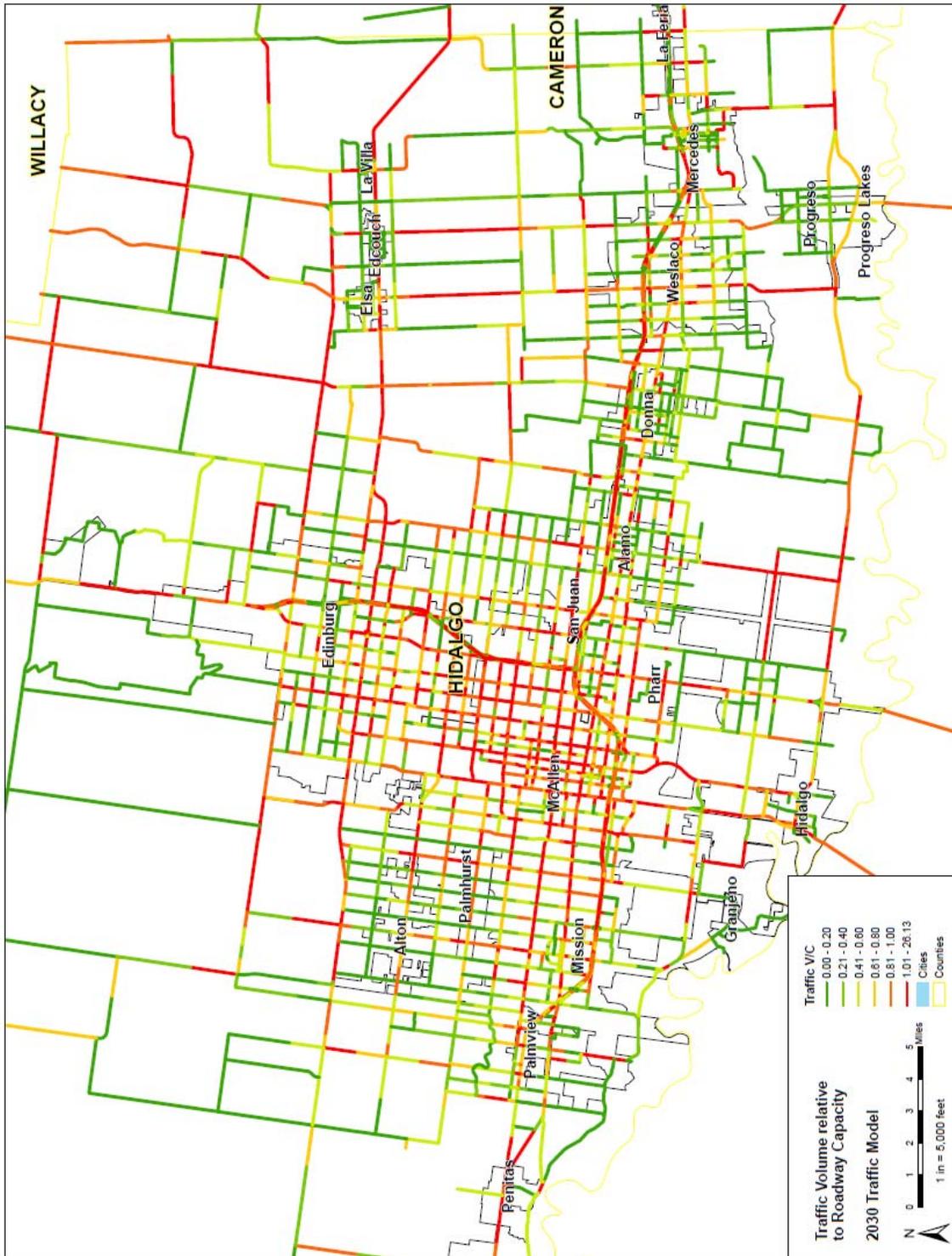
Traffic engineers use a measure known as volume-to-capacity, often expressed “v/c,” to convey the level of congestion on a roadway. A v/c ratio of greater than 1.0 indicates the road is being forced to carry more traffic than its comfortable maximum, and ratios over 0.8 are congested to the point that most motorists find objectionable.

The maps on the following pages show the MPO’s traffic model for both 2004 and 2030, showing at the same color scale, road segments with levels on congestion for each year. Note the expansion of the highest levels of congestion, shown in orange and red.

**Map 11: 2004 Traffic Congestion Based on MPO Traffic Model**

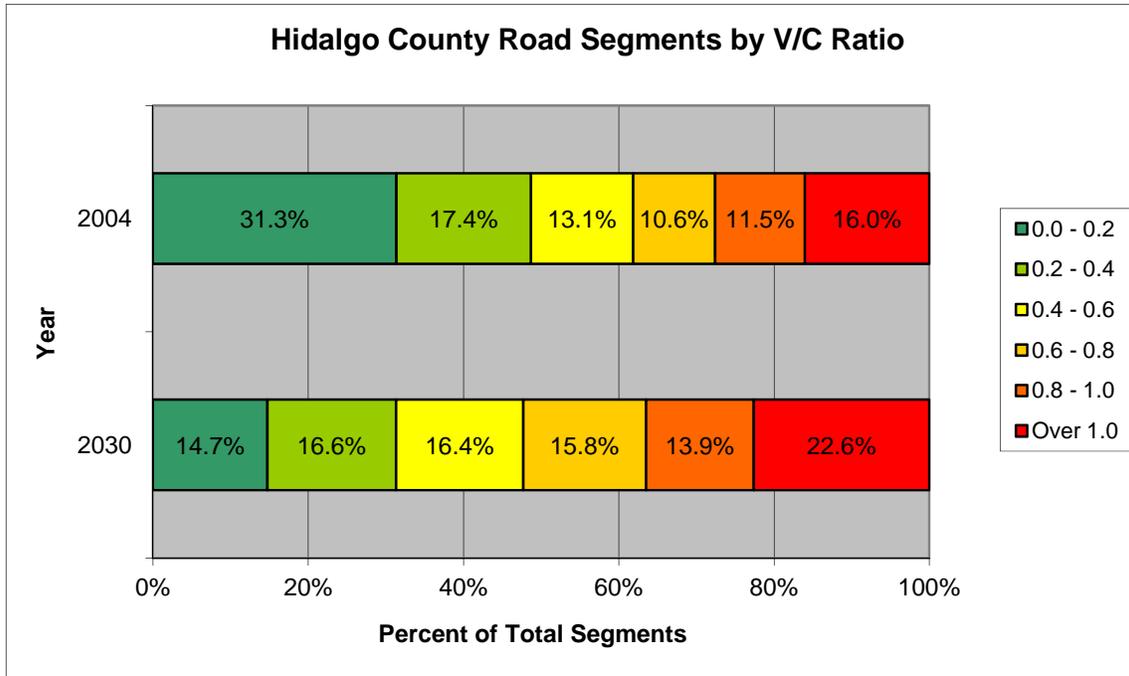


**Map 12: 2030 Traffic Congestion Based on MPO Traffic Model**



Between 2004 and 2030, the MPO traffic projections show increasing numbers of road segments experiencing higher levels of congestion. The count of roadway segments where the volume/capacity ratio is 0.8 or higher increases from approximately 27% of all segments in 2004, to more than 36% in 2030. Similar increases in congestion are seen across the whole spectrum of roadway segments, as illustrated in the figure below, where the count of roadway segments in the lowest-congestion category, with v/c less than 0.2, drops by half.

**Figure 24: Hidalgo County Road by Volume/Capacity Ratio, 2004 and 2030**



## Chapter 4: Identification of Modal Alternatives

The LRT performance characteristics were derived from the standard vehicle type used for the Dallas Area Rapid Transit (DART) system, which is substantially similar to at least two other systems (San Diego and Houston). The design operating acceleration and deceleration rates for the DART trains are in each case 3 mph/sec. This being the case, the theoretical minimum station spacing to reach a running speed of 50 mph would be 0.46 mile. It should be noted that, in this context, peak running speeds in the corridor were assumed to be 50 mph in suburban and rural areas and 25 mph elsewhere. For the LRT mode, a minimum spacing of 0.6 mile is appropriate to account for alteration of the speed profile to allow for gradual approaching and departing of vehicles at station platforms. The LRT configuration consists of a pair of coupled cars, each with a seated capacity of 76 patrons, yielding a total seated capacity of 152.

**Figure 25: DART Light Rail Vehicle on Pacific Avenue, Downtown Dallas**



Push-Pull performance characteristics were based upon Trinity Railway Express' (TRE) experience in the Dallas-Fort Worth area with EMD (Electro-Motive Diesel, a manufacturer) locomotives, coupled with four Hawker-Siddeley cab cars. Acceleration and deceleration rates were also confirmed using information appearing in TCRP Report 100. Reported acceleration and deceleration rates were both 1.3 mph/sec, yielding a theoretical minimum station spacing of 1.07 miles to reach a running speed of 50 mph. A minimum spacing of 1.25 miles was used to account for alteration of the speed profile to allow for gradual approaching and departing of vehicles at station platforms. Push-pull (commuter rail) operations traditionally offer longer station spacing of three or more miles in suburban areas; this corresponds well to the proposed station spacing in Hidalgo

County, which is four to seven miles in suburban areas and one-and-one-half to two miles in urban areas. The seated capacity of a TRE cabin car is 123 passengers. A four-car train will therefore have seating for 492 passengers. Longer and bi-level trains are frequently used for commuter purposes elsewhere in the country, so additional capacity is attainable should it be required.

**Figure 26: Trinity Rail Express Push-Pull Vehicle near DFW Airport**



Design characteristics of DMUs (Diesel Multiple Units, or diesel-electric motor-equipped passenger cars) were obtained from design work for the Capital Metro (Austin, TX) Leander service. The vehicles, manufactured by Stadler Bussnang AG for Capital Metro, have design acceleration and deceleration rates of 2.0 mph/sec respectively. This will result in a theoretical minimum station spacing of 0.69 mile to reach a running speed of 50 mph. A minimum spacing of 0.85 mile was assumed to account for alteration of the speed profile to allow for gradual approaching and departing of vehicles at station platforms. The DMU configuration consists of two train cars operating in tandem, each car with a seated capacity of 96 patrons, yielding a total seated capacity of 192.

**Figure 27: Capital Metro DMU Vehicle at Park-and-Ride**



Note that not all DMU vehicles, including the reference vehicle used by Capital Metro, are Federal Railroad Administration (FRA) “compliant.” This means that they are certified as sufficiently crashworthy for use on active freight rail corridors. Since the project team was unable to determine the level of existing freight traffic (other than that some exists), it must be noted that use of a non-compliant vehicle type presents issues in the area unless all conflicting freight operations within the corridor will be discontinued. If freight rail operations continue anywhere in the corridor, the design vehicle assumptions for this mode will need to be revisited along with the logistics associated with running urban passenger rail proximate to active freight rail traffic. It may be necessary to develop a system of temporal or spatial separation between freight operations and DMU vehicles, or to specifically choose FRA-compliant DMU vehicles.

Sonoma-Marín Area Rapid Transit (SMART) in northern California, whose system is currently being implemented, was the basis for much of the peer system comparisons used in this study. In December 2010, SMART received bids from five DMU vehicle manufacturers, all of whom offered vehicles that were FRA-compliant. These manufacturers were CAF USA Inc., Siemens, Stadler Rail AG, Sumitomo Corporation of America, and US Railcar. The draft manufacturing schedule calls for the first vehicles to be delivered to SMART in October 2013 and the final vehicle in May 2014. SMART passenger rail service is scheduled to begin in fall 2014.

All three modes are able to achieve the 50 mph peak running speed assumed for suburban conditions. Maximum running speeds reported for the LRT and DMU applications are both roughly 75 mph. For the push-pull system, the maximum running speed is 110 mph. This of course depends on optimized conditions, when the station spacing will enable rail vehicles to reach the assumed peak running speed between stations.

## ***Preferred Modal Alternative***

In order to fully assess the viability of commuter rail operations within Hidalgo County, it was necessary to identify the range of potential rail technologies to consider. High capacity heavy rail, most often referred to as subway/elevated systems operating on exclusive right-of-way and characterized by high capacity, electric power, multi-car trains, sophisticated signaling, and high speeds, was ruled out as a possible mode due to the preponderance of grade crossing issues to resolve in the system. It is not possible to operate this mode of rail with at-grade crossings or with mixed freight operations. There is the need to secure the right-of-way through multiple CBDs, if electrified third rail power supply was employed. The anticipated ridership does not justify the added cost of an exclusive right-of-way system.

Streetcar or trolley service was similarly ruled out. The smaller, more agile, but slower vehicles are more suitable for urban circulator routes, providing high frequency of service over small areas. They typically operate on tracks in street rights-of-way.

Traditional commuter rail technology marries locomotives and coach cars, similar to service operated by Amtrak. The shorter distances involved in commuter service, however, means that less space and fewer amenities are normally provided for passengers. Commuter rail technology normally operates in active freight rail corridors, since the heavier vehicles will comply with FRA crash worthiness standards to do so. Because they are large and heavy vehicles, commuter rail trains require long distances to accelerate and decelerate relative to other rail modes. This being the case, boarding and alighting opportunities are usually concentrated at stations several miles apart. The nearest example of traditional commuter service to Hidalgo County as of this writing is the Trinity Railway Express between Dallas and Fort Worth.

Light rail transit (or LRT), by contrast, integrates vehicle propulsion with one or more passenger car (i.e., no locomotive). Cars are generally smaller than commuter rail coaches with less overall capacity per scheduled trip. Vehicles are normally lighter than commuter rail cars, resulting in faster acceleration and deceleration characteristics. However, the lighter vehicle structures also make them non-compliant with FRA crash worthiness standards. Vehicles operating on active freight tracks must have a temporal separation agreement with the freight railroad that limits the hours of operation for both passenger and freight services to prohibit one type of vehicle from encountering the other at all times. The closest example of an LRT service to Hidalgo County as of this writing is the Houston METRO Main Street Line, which operates entirely on exclusive tracks.

Large urban/suburban areas can benefit from the use of multiple modal alternatives with streetcar, trolley or LRT in the city center, LRT in the immediate urban area and commuter rail to reach suburban areas. For higher population concentration, heavy rail systems become viable. The levels of population concentration and the fact that population is spread out over a large area make commuter rail the preferred mode for Hidalgo County.

Rail transit services generally operate with electric motors that receive power either from overhead wires or diesel engines. The diesel motors add weight and thereby affect acceleration and deceleration, but also eliminate the costs of the overhead wires and power supply. Some transit agencies have elected to operate LRT systems using diesel electric motor equipped passenger cars, referred to as Diesel Multiple Units (or DMUs). These vehicles offer near electrified LRT handling characteristics, suitable for more frequent, less concentrated boarding and alighting opportunities. Some DMU services use FRA compliant vehicles for further flexibility in operations over active freight track or where a mix of DMU and traditional commuter rail trains are in service. The closest example of a DMU service to Hidalgo County as of this writing is the Capital Metro's Leander Line in Austin, which uses vehicles that are not FRA compliant.

The recommended mode for Hidalgo County is commuter rail, due to the increased ridership potential, the necessity of operating in mixed traffic with freight rail, the higher operating speeds necessary for longer-distance travel, and the greater station spacing envisioned for the Hidalgo system. The use of FRA compliant vehicles is recommended because of their extensive use in other commuter rail operations, and to ensure the preservation of operational flexibility along active freight lines. The analysis will proceed in depth for commuter rail, but ridership projections will be generated for light rail as well, to provide a basis for comparison.

## Chapter 5: Benefits Analysis

### ***Peer Systems Documentation (Derived Service Standards)***

The regression model chosen for this study uses a series of operating systems in cities around the nation to determine quantifiable parameters affecting ridership. In addition to this, the project team used the peer systems examined in the model, as well as other systems with readily-available data, to determine reasonable assumptions for service standards. Standards of interest affect the cost to acquire rolling stock and maintain operations; these include parameters such as: number of vehicles required to operate the service, running speeds, operating headways, park-and-ride sizing, and other parameters defining the system. By establishing an average of current conditions for existing systems, it was possible to determine ranges of test alternatives for the ridership model and its sensitivity analysis. The conditions analyzed and the conclusions drawn from the peer systems are explained below.

**Average Weekday Ridership** – 2009 APTA 4<sup>th</sup> Quarter Ridership Report, other sources

**Annual Unlinked Trips** – 2009 APTA 4<sup>th</sup> Quarter Ridership Report, other sources

**Fixed Guideway Directional Route Miles (miles)** – 2009 National Transit Database

**Number of Stations** – by inspection

**Vehicles Available** – 2009 National Transit Database

**Average Fleet Age (years)** – 2009 National Transit Database

**Vehicles Operated in Maximum Service** – 2009 National Transit Database

**Peek to Base Ratio** – 2009 National Transit Database

**Percent Spares (percentage)** – 2009 National Transit Database

**Weekday/Saturday/Sunday Minimum Headway (hours:minutes)** – schedule

**Weekday/Saturday/Sunday Maximum Headway (hours:minutes)** – schedule

**Weekday/Saturday/Sunday Service Span (hours)** – schedule

Data from the following services were used to develop the regression models:

**Table 16: Commuter Rail Systems Studied**

Commuter Rail		
System	Largest City Served	Average Weekday Riders*
NJ Transit Rail**	New York/Philadelphia	291,428
MBTA Commuter Rail	Boston	130,800
SEPTA Regional Rail	Philadelphia	120,800
Caltrain (Peninsula Corridor Joint Powers Bd)	San Francisco/San Jose	35,900
VRE	Washington, DC	16,300
TRE	Dallas – Fort Worth	9,400

\* All data is from 2009 APTA 4<sup>th</sup> Quarter Ridership Report, unless otherwise noted

\*\* NJ Transit data is FY 2009 Facts at a Glance

**Table 17: Light Rail Systems Studied**

Light Rail		
System	Largest City Served	Average Weekday Riders*
Blue & Green Lines	Los Angeles	134,500
Red & Blue Lines	Portland	115,400
100, 101 & 102 Lines	Philadelphia	102,500
Red & Blue Lines	Dallas	65,700
Metrolink	Saint Louis	60,100
Folsom North & South Lines	Sacramento	55,800
Sandy Salt Lake & University	Salt Lake City	43,400
Alum Rock, Mountain View & Ohlone Lines	San Jose	31,500
Library & South Hills Lines	Pittsburgh	24,800
Metro Rail	Buffalo	20,600
Blue & Green Lines***	Cleveland	9,804

\* All data is from 2009 APTA 4<sup>th</sup> Quarter Ridership Report, unless otherwise noted

\*\* Greater Cleveland RTA data is from 2009 Comprehensive Financial Statement

In both cases, the service standards typical of the three most lightly patronized systems were evaluated as being most analogous to Hidalgo County in terms of regional demographics and expected ridership. In comparing the service characteristics of these six systems, there are a number of distinctions between light rail and commuter rail operations that become evident. The below table summarizes the key distinctions:

**Table 18: Comparison of Operating Characteristics by Mode**

Characteristic (unit)	Commuter Rail*	Light Rail**
Fixed Guideway Directional Route Miles (miles)	129.2	30.1
Station Density (track-miles/station)	3.4	0.4
Vehicles Available (number)	103	52
Average Fleet Age (years)	19.1	23.5
Peak to Base Ratio	3.00	3.10
Percent Spares	50%	90%***
Weekday Minimum Headway (hours:min)	0:20	0:07
Weekday Maximum Headway (hours:min)	1:03	0:29
Weekday Span (hours:min)	17	20
Saturday Minimum Headway (min)	1:00	0:16
Saturday Maximum Headway (min)	1:30	0:23
Saturday Span (hours:min)	17	19
Sunday Minimum Headway (min)		0:21
Sunday Maximum Headway (min)		0:26
Sunday Span (hours:min)		18

\* Average statistics for Caltrain, VRE, and TRE systems

\*\* Average statistics for Pittsburgh, Buffalo, and Cleveland referenced LRT lines

\*\*\* Influenced heavily by Greater Cleveland RTA's 182% spares. Otherwise, the remaining properties average 40% spares.

The Hidalgo County system more closely mirrors the traditional commuter rail configuration, with a station density of 3.1 track-miles per station. At 74.6 directional route-miles, it is roughly equivalent in length to the shortest commuter rail line in the peer group (VRE, which has 72.3 directional route-miles).

Diesel multiple unit (DMU) operations have been an emerging modal alternative since 2001, with two recent applications in Texas (Capital Metro’s Leander Line and DCTA’s A-Train). Four such lines have been in operation long enough to have comparable 2009 service statistics; these lines appear in the following table:

**Table 19: DMU Rail Systems Studied**

DMU Lines		
System	Largest City Served	Average Weekday Riders*
SFRTA Tri-Rail (mixed fleet)	Miami	12,400
NJ Transit Riverline	Trenton/Camden	9,771**
North County Transit District (NCTD) Sprinter	Oceanside	7,200
Westside Express Service (TriMet)	Beaverton	1,100

\* All data is from 2009 APTA 4<sup>th</sup> Quarter Ridership Report, unless otherwise noted

\*\* NJ Transit data is FY 2009 Facts at a Glance

SFRTA’s Tri-Rail and TriMet’s Westside Express Service operate FRA compliant vehicles, whereas the other operations are either on exclusive track or have “temporal separation” from freight traffic based upon their hours of operation. SFRTA operates a mixed fleet, which consists of DMUs, locomotives, and coaches.

The following table describes the average service characteristics of the DMU operations from the above lines based upon available data from the same sources:

**Table 20: Typical DMU Operating Characteristics**

<b>Characteristic (unit)</b>	<b>DMU</b>
Fixed Guideway Directional Route Miles (miles)	71.3
Station Density (track-miles/station)	1.8
Vehicles Available (number)	21
Average Fleet Age (years)	7.5
Peak to Base Ratio*	1.23
Percent Spares*	46%
Weekday Minimum Headway (hours:min)	0:23
Weekday Maximum Headway (hours:min)	0:32
Weekday Span (hours:min)	13
Saturday Minimum Headway (min)	1:00
Saturday Maximum Headway (min)	1:25
Saturday Span (hours:min)	17
Sunday Minimum Headway (min)	1:00
Sunday Maximum Headway (min)	1:25
Sunday Span (hours:min)	16

**Vehicles, Headways, Speeds, Park & Ride Facilities**

In order to fully understand the magnitude of the investments implied in developing a commuter rail service, it will be necessary to understand in general terms both the capital facilities and operating characteristics of that service.

**Running Speeds**

Examining the end-to-end travel times against route lengths for the routes chosen in the regression formulae peer groups, we are able to determine average line speeds for each corridor. It is important here to determine the longest travel times in each weekday schedule that will reflect the influence of peak demands at stations and other potential congestion related impediments on these speeds. The following table summarizes the line speeds for the peer group members previously identified as being most comparable to the proposed Hidalgo County system, as well as the aforementioned DMU systems with available 2009 operations data.

**Table 21 - Line Speed Peer Analysis**

<b>Operator</b>	<b>Largest City Served</b>	<b>Line Speed (mph)</b>
Caltrain	SF/San Jose	33.2
VRE - Fredericksburg Line	Washington, DC	33.7
VRE - Manassas Line	Washington, DC	27.3
TRE	Dallas/ Fort Worth	35.3
<b>Average - Commuter Rail Operations</b>		<b>32.4</b>
Library Line	Pittsburgh	8.7
South Hills Line	Pittsburgh	6.7
Metro Rail	Buffalo	17.7
Blue Line	Cleveland	10.9
Green Line	Cleveland	10.8
<b>Average - Light Rail Operations</b>		<b>11.0</b>
SFRTA Tri-Rail	Miami	34.5
NJ Transit Riverline	Trenton/Camden	31.7
North County Transit District (NCTD) Sprinter	Oceanside	24.9
Westside Express Service (TriMet)	Beaverton	32.4
<b>Average - DMU Operations</b>		<b>30.9</b>

It is apparent from this table that the light rail systems operate at much slower overall speeds than the other modes. This is largely due to greater density of stations on their routes, as well as steeper allowable grades (such as for the Pittsburgh system). Here again, the station spacing of the proposed Hidalgo system lends itself to achieving the higher line speeds. Trains traveling between stations can universally reach a peak track speed of 50 mph before they are required to slow down again. Depending on the assumed dwell time required at each station, the line speed for the overall system ranges from 32 to 35 mph.

**Park & Ride Lots**

Hidalgo Peer System analysis includes the statistics averages such as those indicated in “Station Parking Spaces” in the table below. Unit Cost reference is based on Parametric Data Cost Estimates from Denton County-TX Rail Project – DCTA and Capital Metro – Austin, TX.

**Table 22 - Station Parking Spaces**

	<b>Commuter Rail</b>	<b>Light Rail</b>	<b>DMU</b>
<b>Services</b>	Caltrain, VRE, TRE	The T (Pittsburgh), NFTA (Buffalo), RTA	Tri-Rail, NJ TRANSIT River LINE, Sprinter, WES
<b>TOTAL</b>	6,233	2,362	2,810
<b>Average Station</b>	340	87	184
<b>Maximum Station</b>	1,027	1,273	711

**Governance Structures**

Commuter rail lines are owned and operated in a variety of fashions throughout the United States. Larger systems are generally instrumentalities of state government that hire and train large, specialized work forces to handle all aspects of their services. These are the legacy systems that, for the most part, took over for failing private operations in the Northeast and Midwest. NJ Transit and MARC also represent state run services that arose in the mid 1980s with the intention of providing more comprehensive passenger rail services in the corridor between Washington, DC and New York City. The agencies either own or have trackage rights to the rail corridors; and freight operations, where they occur, are under separate ownership or franchised.

Smaller systems have appeared since the early 1990s as outgrowths of regional and multi-regional planning efforts. These tend to be structured as regional authorities, often the same agencies responsible for providing fixed route bus and other transit services within the metropolitan areas. A number of systems in California are owned and administered by Joint Powers Authorities, which create new administrative bodies where municipalities and/or regional agencies become tied together geographically by the systems being created. The Trinity Railway Express and Virginia Railway Express are similarly structured. State legislation in Virginia established a two percent motor fuel tax in affected jurisdictions to fund VRE operations and the state has one voting representative on the VRE Board.

Newer rail operations are largely contracted services. Existing tracks are sometimes owned by a freight railroad or Amtrak, leading to their contractual involvement in operating the service. Other services, such as those in the San Diego area and other parts of Texas, are operated by private companies or ventures.

Issues associated with establishing a governance structure for passenger rail service within Hidalgo County include:

1. Ensuring that system administration reflects the needs of the served communities;
2. Reconciling rail system administration with other regional bodies overseeing transportation improvements including, but not limited to:
  - a. Hidalgo County Regional Mobility Authority,
  - b. Lower Rio Grande Valley Development Council (FTA Sections 5307, 5310 & 5311 Designated Recipient), and
  - c. McAllen Express Transit;

3. Providing a high level of engagement with TxDOT, particularly their Rail Division;
4. Coordinating operation of rail and bus services with seamless transferring;
5. Supporting reliable freight rail operations; and
6. Facilitating possible future expansions of service to other municipalities.

The Rail Board's initial discussions pertaining to the administration of a passenger rail service for Hidalgo County need to include representation from LRGVDC, TxDOT, and affected cities. Consideration should be given to creation of a new authority that would incorporate representation from existing regional bodies, service providers, and financial stakeholders. Such an authority could be readily expanded to encompass areas added through system expansion.

Some examples of existing special-purpose authorities are listed below, with focuses on regional transportation and development.

“Hidalgo County Transportation Reinvestment Zone (TRZ) No. 1 - Hidalgo County, in conjunction with the Hidalgo County Regional Mobility Authority (HCRMA), is currently pursuing the development of the Hidalgo Loop Project, a transportation project being developed under the provisions of Texas Transportation Code section 222.104. In order to facilitate the development of the Hidalgo Loop Project, Commissioners' Court by order established the Hidalgo County Transportation Reinvestment Zone No. 1. The zone will promote public safety, facilitate the development or redevelopment of property, facilitate the movement of traffic, and promote the development of the Hidalgo Loop project.

Tax Increment Reinvestment Zone (TIRZ) No. 2, City of Donna, the “River Crossing Development” - The “River Crossing Development” project (i.e. TIRZ No. 2) is being developed by the County in conjunction with the City of Donna, Texas. The purpose of the creation of the TIRZ No. 2 is to:

1. Increase the population of the area,
2. Provide for a more efficient use of existing city services and infrastructure,
3. Offer employment opportunities to Donna and Hidalgo County residents,
4. Remove low valued vacant land from the tax rolls and replace it with higher value commercial, industrial and residential developments, and
5. Fund economic development projects within the zone with a portion of the revenue generated by the TIRZ No. 2.

A further rationale for creation of this TIRZ is to maximize the positive impact of the new Donna International Bridge to the local economy.”

### ***Ridership Projections***

The peer system characteristics and the derived estimates of service standards to be used feed into the ridership model. Daily ridership projections are required to evaluate the adequacy of system capacity and to provide a basis for entering the federal New

Starts/Small Starts project development pipeline. This study uses techniques and peer analyses established by the Transportation Research Board to project ridership based on multivariate regression. Transit oriented development (TOD) and international traffic are among the special variables considered by ridership projection regression equations. As alternatives were refined, such as changing station locations or headways, ridership projections were updated to reflect the corresponding changes in commuter rail benefit. Station locations were proposed and adjusted based on local input regarding relative attractiveness to ridership and potential to drive growth.

## **Description of Model Source / Development**

The ridership model used in this study was developed in a research paper sponsored by the Public Transportation and Development Committee of the Transportation Research Board (TRB) in 2006, entitled *Sketch Models to Forecast Commuter and Light Rail Ridership, Update to TCRP Report 16*. It is a multivariable regression model for sketch planning purposes, and is an update to a similar model developed by the Transit Cooperative Research Program (TCRP) in the 1990s. The TRB stated that the new model “performed consistently better, explaining between 31% and 213% more variation in observed rail boardings among the same validation data sets.” Data was validated against 58 commuter rail lines with 868 stations, and 22 light-rail lines with 348 stations. The resulting model covers both light-rail transit (LRT) and commuter rail. It calculates average weekday boardings for each proposed station.

The model performs very well at the route level, with R-squared values of 0.92 for light rail and 0.97 for commuter rail. For station-specific numbers, the fit is less good, with an R-squared of 0.76 for light rail and 0.57 for commuter rail. This is because errors in estimating individual station ridership cancel each other out when aggregated to the systemwide level.

## **Model Inputs**

Note that several model parameters refer to the Central Business District (CBD). The model defines the CBD as the area where employment density is more than 2 standard deviations above the mean density for the region, plus any territory adjacent to this location where the employment density is at least 1.5 times the mean regional density. In the case of Hidalgo County, this CBD is not as clear as in some urbanized areas. Though downtown McAllen is the largest concentration of jobs in the County, both it and downtown Edinburg have an employment density exceeding 1.5 times the regional average, but no area in Hidalgo County has an employment density of twice the regional average. In 2030, the MPO forecasts roughly 6,300 jobs in a ½-mile-radius circle centered on downtown McAllen, equivalent to a density of 8,000 per square mile, and 4,800 jobs in a similar location in Edinburg, equivalent to a density of 6,200 per square mile. In order to create ridership forecasts using the model, each proposed station was evaluated twice, once with McAllen defined as the CBD, and once with Edinburg defined so. A weighted average was computed for the two numbers. Since downtown McAllen in 2030 was projected to have roughly 1.59 times the number of jobs in downtown Edinburg, the weighted average was computed as  $(1.59 * McAllen-Centered-Ridership + 1.0 * Edinburg-Centered-Ridership) / 2.59$ .

In all cases, calculations that involve a count of employment or residents are made with 2030 projections provided by the Hidalgo County MPO. These projections were provided on the level of Traffic Analysis Zones; where a station area (most of which are defined as circular areas) did not cover an entire TAZ, the count of jobs or residents was pro-rated according to the percentage of TAZ area included in the area of interest.

### **Parameters Used in Both LRT and Commuter Rail Models**

#### **Parking Presence**

This parameter is a “yes/no” flag of whether parking is provided at the station. It does not control for the amount of parking, whether it is covered or not, or whether there is a fee to park.

#### **Transportation Center or Rail Trunk**

This is a “yes/no” flag for whether the station is considered a major transfer point. The model defines this as serving two or more rail lines, four or more bus routes, an airport, or a seaport.

#### **Jobs within ½ mile of Station**

This is a count of employment within a ½-mile radius of the proposed station, based on 2030 employment projections of the MPO.

### **Parameters in LRT Model Only**

#### **Bus Presence**

This parameter is a “yes/no” flag of whether transit buses serve the station. It does not control for frequency of service or what other destinations are served by those bus routes. The implication is that bus services supplied are comparable to those of the peer systems, taking into account the size of the transit rider market. This flag was set to “yes” for all stations, in order to maximize ridership, with the assumption that regional transit routes would be augmented and adjusted to support the rail system, if and when that system begins operating.

#### **CBD Employment Relative to Regional Employment**

This measures the number of jobs in the area defined as the CBD, divided by the total number of jobs in the metropolitan area. This regional total was projected by the MPO as 445,000 jobs in 2030, with downtown McAllen accounting for 1.4% of regional employment and downtown Edinburg 1.1%.

#### **CBD Employment Density**

This measures the jobs per square mile of the area defined as the CBD. Based on the MPO’s 2030 employment projections, it is roughly 8,000 jobs/square mile for downtown McAllen and 6,200 jobs/square mile for downtown Edinburg.

### **Average Household Size within 2 miles of Station**

This is the number of persons per household, calculated based on 2030 household size projections from the MPO. Values ranged from 2.4 to 3.4.

### **Households within ½ mile of Station**

This is a count of 2030 households whose dwellings are within a ½-mile radius of the proposed station. Together with average household size, it provides a calculation of nearby population.

### **Typical Fare Charged**

This parameter is the average fare, stated in 2005 dollars. In examining the typical fare parameter, it is important to note the regional influence of the cost of living in the Hidalgo County region relative to systems studied. According to five year data from the US Census Bureau's American Community Survey, the 2008 Median Household Income for the McAllen-Edinburg-Mission Metropolitan Statistical Area (MSA) was \$30,076. By comparison, the average Median Household Income of the eleven MSA's used to develop the LRT regression model was \$56,785, which is 89% higher. It is therefore reasonable to assume that local fares would actually be roughly half those assumed in determining ridership levels, in order to reflect the same portion of the regional median household income.

Since these are 2005 dollars, it will also be necessary to adjust for inflation when deriving actual local fares. This can be done by consulting consumer price index statistics from the US Department of Labor's Bureau of Labor Statistics.

### **Parameters in Commuter Rail Model Only**

#### **Speed to Downtown**

This parameter is the average travel speed of the journey in terms of miles-per-hour. The higher the speed, the quicker the journey and the more attractive the travel mode becomes. For rail, this average speed is dependent on the track condition and the number of at-grade crossings. Greater investment in track infrastructure costs additional money but can result in higher operating speeds.

#### **Travel Time to Downtown**

This parameter measures the travel time, in minutes, to the CBD. Note that the model is sensitive to reverse commuting, as station-area employment is included for all locations. Although the CBD is the largest concentration of jobs, it is not assumed to be the focus of all commuting trips.

#### **Midday Headway**

This is a measurement, in minutes, of the largest gap between scheduled trains in the off-peak period between morning and evening. Note that peak headways are not included in the model. The TRB's stated rationale is that peak headways are influenced by the ridership as much as ridership may be influenced by them; a greater peak demand may result in additional scheduled trains, so the statistical correlation was shown to be weak.

### **Total Number of Stations**

The system as evaluated has 11 stations.

### **Distance to Nearest Station**

This is the measurement in miles of the distance to the nearest station in either direction. This provides a measurement of how stations influence each others' ridership. Two stations too close together may cannibalize each other's ridership potential.

### **Metro Area Population**

This is the total regional population; the Hidalgo County MPO projects this to be 1,644,000 in 2030.

### **Population Within Two miles of Station**

This is the count of persons whose residences are within a 2-mile radius of each station. This number was calculated based on 2030 projections from the MPO.

### **Equations and Sample Calculation**

The equations for projecting Light Rail and Commuter Rail ridership are shown below, with the variables defined. Further information on the model, including the monograph on its development, is available for purchase from the Transportation Research Board at <http://trb.metapress.com/content/b4615vv318285145/> (\$25.00 as of August 2011).

#### **Light Rail station boardings =**

$$\begin{aligned} & 2.572 \\ & \times 2.609 \text{ [if bus is present]} \\ & \times 1.833 \text{ [if parking is present]} \\ & \times 1.957 \text{ [if transportation center or rail trunk]} \\ & \times \exp [6.411 \times \text{CBD employment} \div \text{metro area employment}] \\ & \times \exp [-1.141 \times \text{typical commuter fare (2005 dollars)}] \\ & \times \exp [0.464 \times \text{average household size within 2 miles of the station}] \\ & \times \exp [0.019401 \times \text{CBD density (1000s jobs/sq. mile), if line connects to CBD; 0} \\ & \text{otherwise}] \\ & \times (\text{jobs within 0.5 mile of the station}) ^ 0.281 \\ & \times (\text{households within 0.5 mile of the station}) ^ 0.180 \end{aligned}$$

#### **Commuter Rail station boardings =**

$$\begin{aligned} & 13.9031 \\ & \times 2.9125 \text{ [if parking is present]} \\ & \times 1.6653 \text{ [if transportation center or rail trunk]} \\ & \times \exp [0.052 \times \text{speed to downtown (miles/hour)}] \\ & \times \exp [-0.015 \times \text{time to downtown in minutes}] \\ & \times \exp [-0.0083 \times \text{midday headway in minutes; 0 if none}] \\ & \times \exp [-0.002 \times \text{total stations on the entire CR network in the metro area}] \\ & \times \exp [0.0263 \times \text{millions of people in the metro area}] \\ & \times (\text{population within 2 miles of the station}) ^ 0.265 \end{aligned}$$

$\times \exp [-1.173 \times \text{zero-car households} \div \text{households with cars, within 2 miles of the station}]$   
 $\times \exp [0.06828 \times 1,000\text{s of jobs within 0.5 mile of the station}]$   
 $\times \exp [0.087 \times \text{distance to the nearest station}]$   
*“exp” means e (a constant similar to pi, equal to 2.718281828) to the power of the bracketed number*

### Sample Calculation—Mission

As an example, the following calculation is shown for the Mission station for the commuter rail mode.

13.9031  
 $\times 2.9125$  (parking is assumed to be provided)  
 (not a major transfer center in terms of number of rail/bus lines present)  
 $\times 2.718281828 ^{[0.052 \times 25]}$   
 $\times 2.718281828 ^{[-0.015 \times 16]}$   
 $\times 2.718281828 ^{[-0.0083 \times 30]}$   
 $\times 2.718281828 ^{[-.002 \times 11]}$   
 $\times 2.718281828 ^{[0.0263 \times 1.644]}$  (County population projection for 2030 = 1,644,000)  
 $\times 40,956 ^{0.265}$   
 $\times 2.718281828 ^{[-1.173 \times 8.1\% \div 91.9\%]}$   
 $\times 2.718281828 ^{[0.06828 \times 0.62]}$  (job forecast = 617)  
 $\times 2.718281828 ^{[0.087 \times 6.6]}$  (mileage to McAllen Central)

$13.9031 \times 2.9125 \times 3.6693 \times 0.78852 \times 0.77958 \times 0.97824 \times 1.04419 \times 16.68252 \times 0.90936 \times 1.04303 \times 1.77571 = 2,621$  riders if McAllen Central is taken as the CBD. A similar calculation, assuming Edinburg is the CBD, results in 1,930.

The weighted average of ridership from any station equals  $(1.29 * \text{McAllen} + \text{Edinburg}) / 2.29$ . In the case of Mission,  $(1.29 * 2,621 + 1,930) / 2.29 = 5,311 / 2.29 = 2,320$ .

### Sensitivity Analysis

Some of the model parameters are fixed due to geography or regional data, such as the length of the rail line, the overall regional population, or the location of the central business district. Other parameters depend on the choices made in terms of system layout, or other items the County or cities may have control over. In order to maximize the usage of the system and thus the cost effectiveness, the project team conducted a sensitivity analysis of the ridership model, in order to determine, for the parameters that could be controlled, what modifications could be made that would increase the forecasted ridership. With the model set up in a spreadsheet, it was possible to, for example, flag a station as having parking provided or not, and evaluate whether that had a beneficial or detrimental effect on ridership. Notes on the various parameters evaluated and the testing results are discussed below.

### Parking

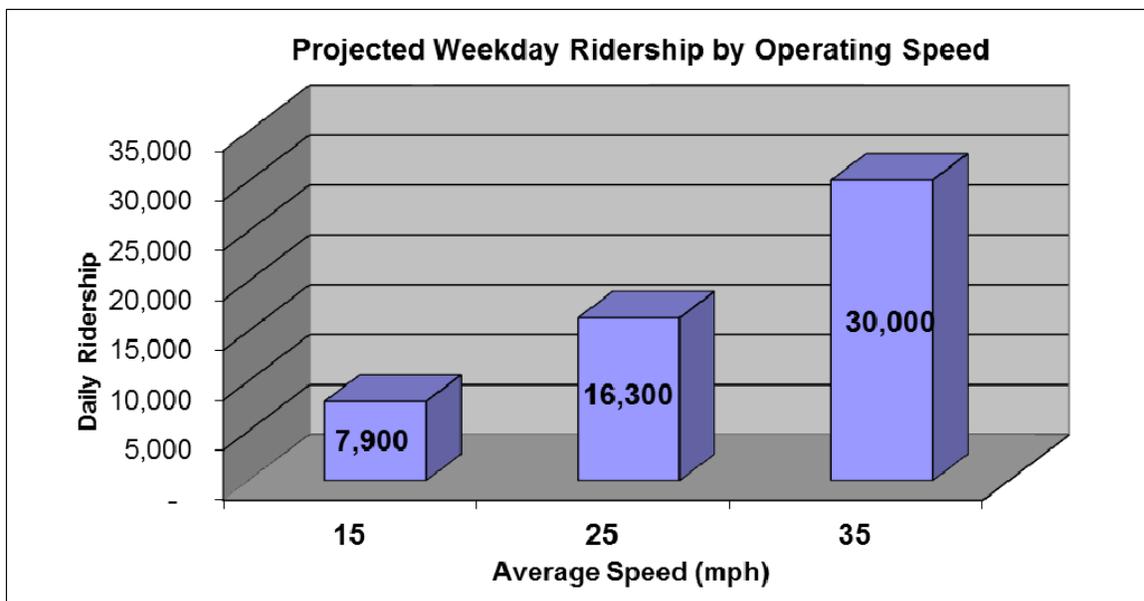
Presence of parking, along with feeder transit, is the largest single determinant in ridership. Presence of parking at a station nearly doubles ridership in the LRT model, and

triples it in the commuter rail model. Our first iteration of station locations assumed there to be parking at all stations, except for those in downtown McAllen, downtown Edinburg, and downtown Pharr.

### Running Speed

The average speed (and hence travel time) does not impact ridership in the light rail model. Average speed enters into the commuter rail model in terms of travel time to the CBD. Increases in running speed have a large effect on ridership, as shown in the graph below. Increasing the average speed from 15 mph to 25 mph yields a 91% increase in ridership. This requires a top speed of approximately 50 mph and an upgrade to Class III track at a cost of roughly \$850,000 per mile (track costs only) from the existing conditions.

**Figure 28: Sensitivity Analysis –Operating Speed vs. Commuter Rail Ridership**



Further increasing the average speed from 25 mph to 35 mph yields a 78% increase in ridership. This 35 mph average, however, necessitates a top speed of 60+ mph, or Class IV track, which would require upgrades of roughly \$2,000,000 per mile (track costs only) from the existing conditions. This is roughly twice the cost of the Class III track. For upgrade cost comparisons, the 2005 Rail Study envisioned upgrading the existing track from Class I to Class II, at a projected cost of \$150,000 to \$500,000 per track mile.

### Fare Charged

Only the LRT model includes a variable for typical fare. LRT ridership, while consistently predicted as lower than commuter rail ridership with similar conditions, is also highly dependent on fare. Every 50-cent increase in typical fare causes ridership projections to drop by more than 40%. It was not possible to test the effect of fares on commuter rail ridership, as that model does not use fare charged as a variable.

### **Population and Employment Density**

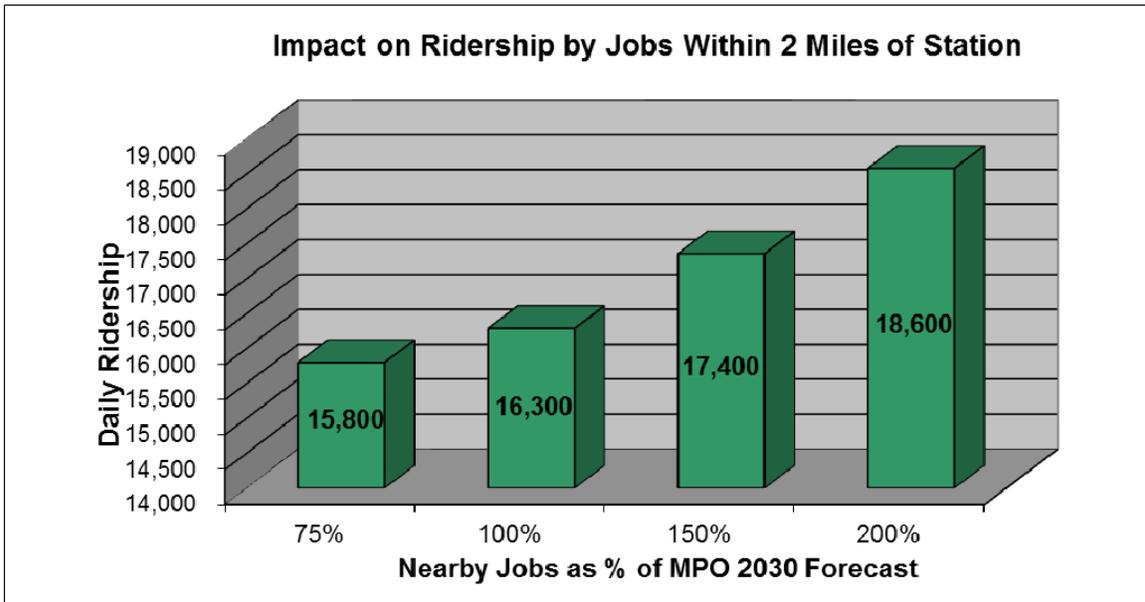
Both the LRT and commuter rail models depend on nearby residences and jobs; for LRT, the model considers jobs and households within ½ mile. It also explicitly includes the employment density of the CBD and its share of metro-area jobs. For commuter rail, the model considers jobs within ½ mile and population within 2 miles. The overall metro-area population is included with distance to the CBD, but CBD jobs are not included.

For the purposes of the sensitivity analysis, the number of jobs within ½ mile of the stations was varied from 75% to 200% of the MPO's 2030 forecast. Similarly, the population within ½ mile was varied from 75% to 200%. Population outside the ½ mile radius was held constant; this distance was chosen as it was considered unlikely that population densification could be achieved in a 2-mile radius, which in some cases covered entire towns.

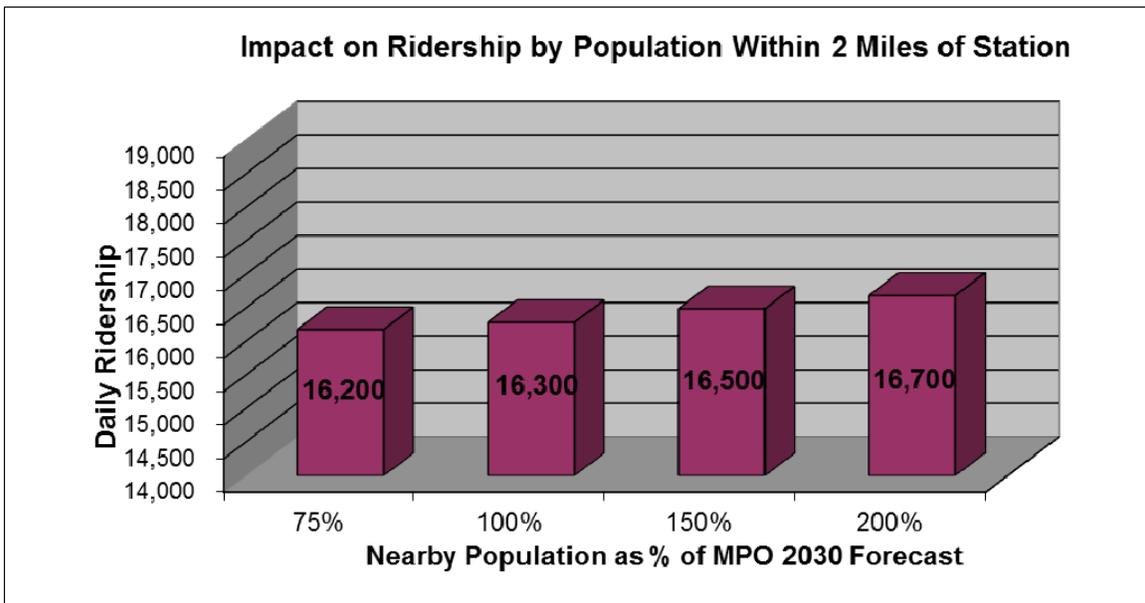
In both the LRT and commuter rail models, increasing job density near stations had more than triple the effect of increasing population density in the same area. Doubling population counts within ½ mile resulted in a 13% increase in ridership in the LRT model and a 3% increase in the commuter rail model. By comparison, doubling job counts within ½ mile resulted in a 49% increase in ridership in the LRT model and a 12% increase in the commuter rail model.

The following graphs show the impact of an increase in the total number of jobs or total number of residents within two miles of the eleven stations, for the commuter rail mode. This shows that one key to ensuring a successful rail system should be attracting more employment to the station areas. Note that this sensitivity analysis shows how rail ridership can be increased by providing more jobs and/or housing nearby. The converse relationship, that rail service can increase the attraction to employers, resulting in greater employment near a rail station than the neighborhood would otherwise have, is explored in depth later in this report, in the Station Area Analysis section later in this chapter.

**Figure 29: Sensitivity Analysis –Jobs vs. Commuter Rail Ridership**



**Figure 30: Sensitivity Analysis –Population vs. Commuter Rail Ridership**

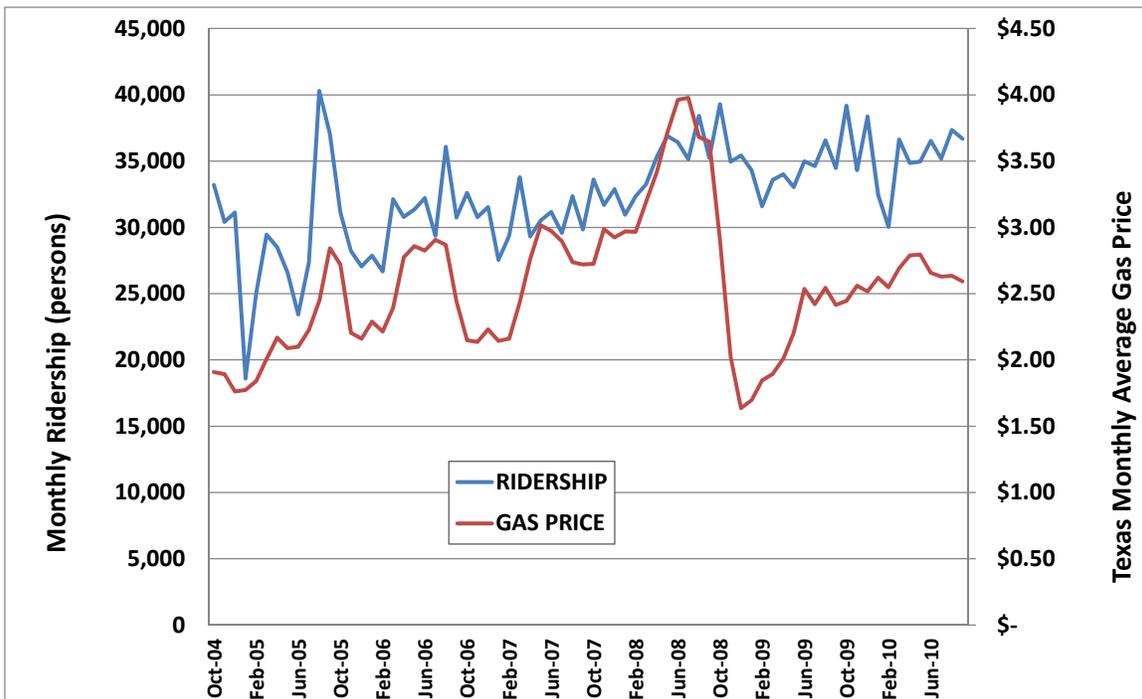


**Impact of Gas Prices on Transit Ridership**

While the ridership model does not take retail gasoline prices into account, spikes in gas prices can increase transit ridership, especially in lower-income areas. This of course assumes that transit service is available. Ridership data from McAllen Express Transit for 2004 through 2010, graphed against Texas average gas prices (all grades / all formulations) do show a relationship between the two, as shown in the graph on the following page.

In particular, note the increase in ridership in late 2005, associated with an almost 50% rise in gas prices. Similarly, in late 2008, when gas prices suddenly dropped, transit ridership dropped as well. It should be noted, though, that transit ridership, while correlated to shifts in the price of gas, changes at a lesser rate. Note that over the analysis period, gas prices varied roughly from \$2.00 per gallon to \$4.00, an increase of 100%, while transit ridership varied only from 25,000 to 40,000 monthly, an increase of only roughly 60%. It can be expected that if gas prices remain relatively high compared to other costs of living, that transit ridership will remain relatively high as well, as people choose transit over the use of their private vehicle. This has a positive benefit on the feasibility of the rail system.

**Figure 31: McAllen Express Transit Ridership vs. Texas Average Gas Price**



*Monthly Ridership from McAllen Express Transit*

*Average Texas Gas Price (all grades) from U.S. Energy Information Administration*

**Sensitivity Analysis Recommendations**

Due to the impact of the respective parameters on overall ridership, the following recommendations are made with respect to overall system design:

- Provide parking wherever possible. Commuter rail ridership is roughly tripled by the provision of parking.
- Provide feeder transit wherever possible. Note that neither local bus operator indicated plans for future service modifications.
- Upgrade track from present Class I to Class III. The resultant speed increase roughly doubles ridership at less than double the maximum cost planned in the 2005 Rail Study for freight-related upgrades alone. Upgrades to Class IV are not cost-effective given the price differential relative to the increased ridership.

- Focus zoning changes and transit-oriented development on employment-generating uses. This has a greater effect on ridership than residential density.

### Projections Obtained

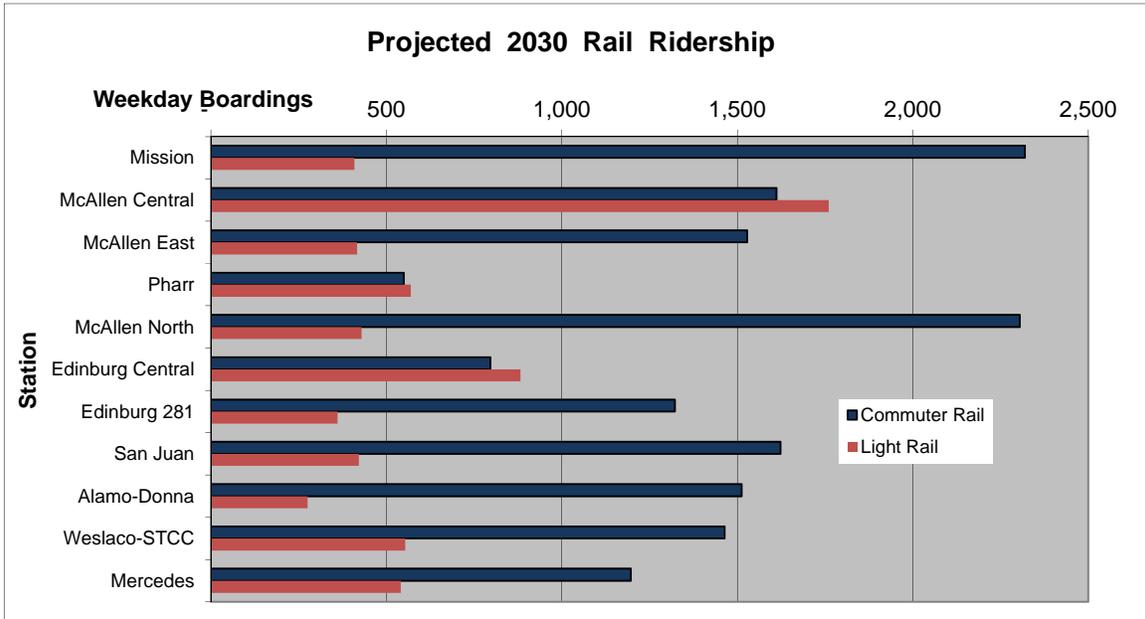
For the selected operating mode, commuter rail, the average Year 2030 weekday boardings obtained by the ridership model total approximately 16,200, assuming an operating speed averaging 25 miles per hour (top speed of 50 mph) and a midday headway not exceeding 30 minutes. Attempting to develop a comparable service standard with light rail yielded ridership projections of less than half this amount, which was part of the reason for selecting commuter rail as the operating mode. Note also that projected light rail ridership is comparable to that of commuter rail at the more urban stations, but falls far short of commuter rail at the suburban and outlying stations. This again reinforces the concept that light rail is suited for much more urban conditions than typically occur in Hidalgo County. The following tables and charts illustrate the station-by-station ridership projections.

**Table 23: Projected 2030 Ridership by Station**

Station	2030 Ridership		Travel Time (min) to McAllen Central*
	Commuter Rail	Light Rail	
Mission	2,320	409	16
McAllen Central	1,612	1,760	-
McAllen East	1,528	417	4
Pharr	550	570	8
McAllen North	2,305	429	9
Edinburg Central	796	882	20
Edinburg 281	1,322	361	25
San Juan	1,623	422	12
Alamo-Donna	1,512	275	18
Weslaco-STCC	1,464	553	36
Mercedes	1,196	541	48
<b>TOTAL</b>	<b>16,229</b>	<b>6,620</b>	

*\*based on average speed of 25mph, including station dwell times*

**Figure 32: Projected 2030 Rail Ridership by Station and Mode**



The busiest station is expected to see approximately 2,300 boardings per day in 2030. A general rule of thumb for transportation planning is that the peak hour of any day sees approximately 10% of the daily travel, which in this case would be 230 boardings. Given the passenger capacities per trainset of 152 for light rail, 492 for commuter rail, and 192 for DMU, this peak hour load can easily be handled by two trains per hour regardless of mode. This corresponds to the 30-minute minimum headways of the operating model.

The 2030 ridership projections for the Hidalgo County rail system are higher per day than the current ridership on the Trinity Rail Express between Dallas and Fort Worth. This can be explained by the Hidalgo County area being expected to continue its significant growth rate. Between the 2000 and 2010 Censuses, the county nearly doubled in population. Furthermore, the current ridership on McAllen Express Transit is roughly 400,000 boardings per year, or 2,000 per operating day. The projected Hidalgo rail system ridership of 16,200 boardings per day is reasonable considering it is planned to cover the majority of the county rather than just McAllen, including providing day-long transit services to areas that currently have peak-period service only, and that ridership projections are based on population and employment with nearly 20 years of expected growth. Also, the land use context around the Hidalgo County system is more supportive of traditional commuter rail, whereas the TRE is more of an intercity system, connecting Dallas and Fort Worth with relatively few stops in between.

### **Station-Area Development**

As part of the study, an analysis of proposed station locations was conducted during site visits and extensive analysis of existing and potential data for each of the station areas. This resulted in the current summary of urban design recommendations and will further

result in a complete analysis of appropriate station typologies and ranking of the station areas as potential Transit Oriented Development sites.

### **Understanding the Proposed Station Areas:**

As part of the study, an analysis of proposed station locations was conducted during a site visit and through an extensive analysis of existing and potential data for each of the station areas. This resulted in the current report of urban design recommendations, station typologies and development and jobs forecast for the eleven station areas.

The proposed operating system is based primarily along existing rail within Hidalgo County. This allows for usage of existing ROW for the routes and aligns many of the station areas within municipalities that currently have some density or historical Main Street oriented development adjacent to the station area.

Locating these stations took into account an array of issues including, but not limited to: employment districts, downtown or Main Street development (existing or potential), Civic or Educational facilities, access for residents to utilize a “park and ride” station, proximity to retail centers, population and employment forecasts, etc. One surprising aspect of the proposed system is that it is positioned to capture many of these drivers of rail transportation. Though the densities of these locations may not be at an optimum level, the potential for growth and expanded usage may present the ideal operating numbers in the future.

Eleven station locations were selected, based on the criteria discussed in Chapter 2. The proposed station locations (identified by nearest roadway intersection) are:

- Mission – Business 83 and Los Ebanos Road
- McAllen Central – Business 83 and 15<sup>th</sup> Street
- McAllen North – 10<sup>th</sup> Street and Hawk Avenue
- Edinburg Central – University Drive and 6<sup>th</sup> Avenue
- Edinburg 281 – US-281 and Jasman Road
- McAllen East – Business 83 and McColl Road
- Pharr – Business 83 and Cage Boulevard
- San Juan – Business 83 and Nebraska Avenue
- Alamo/Donna – Business 83 and Whalen Road
- Weslaco – Business 83 and Border Avenue
- Mercedes – W 2<sup>nd</sup> St (Business 83) and Virginia Avenue

The project team conducted a field visit on March 8, 2011, to document existing development conditions surrounding each of the eleven proposed stations. The photographs on the following pages depict typical building types, street conditions, and development density.

**Figure 33: Aerial Photo of Mission Station: Park and Ride Station**



The Mission station would serve as the west end of the operating segment and serve as a park-and-ride for Palmview and other cities to the west. The vacant and underutilized land parcels currently in the vicinity can provide for future growth in the area. With proper growth principles and appropriate TOD planning, the Mission station area could become an Urban Park and Ride with neighborhood-serving commercial and professional offices developing with a slightly higher density.

**Map 13: 2010 Land Use Patterns near Mission Station**



**Figures 34-37: Mission Station – Existing Development**



The intersection of Business 83 and Los Ebanos Road



Undeveloped land north of Business 83



This land north of Business 83 could become a transit-oriented development. Note existing apartments to the left.



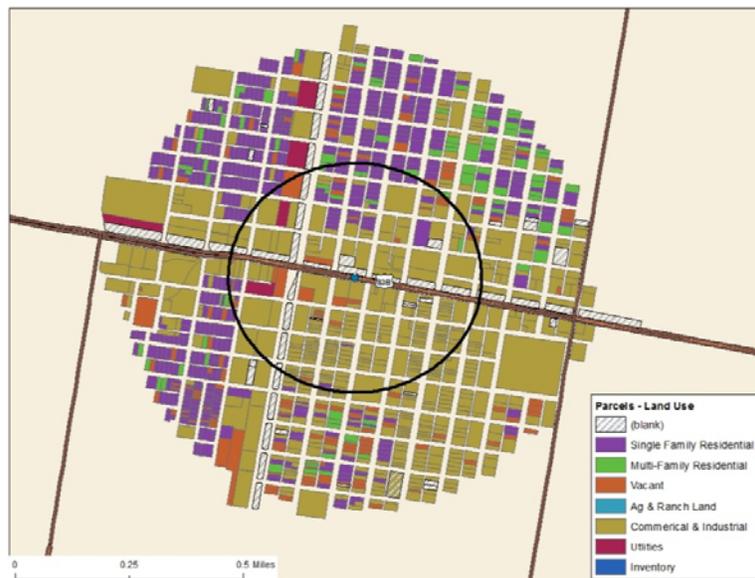
Small commercial buildings, facing southwest across Business 83.

**Figure 38: Aerial Photo of McAllen Central Station: Downtown Station**



This location boasts the highest density in Hidalgo County. Its gridded infrastructure and existing bus system makes this an essential location for a Downtown Station. This station currently has a large employment density, relative to Hidalgo County, and can benefit from incorporating more urban residential development and public gathering spaces. Integrating a station near the current bus terminal would be a benefit for the transit system and would allow the two systems to run symbiotically. Over the lifetime of this station, it would maintain a Downtown Station typology.

**Map 14: 2010 Land Use Patterns near McAllen Central Station**



**Figures 39-44: McAllen Central Station – Existing Development (page 1 of 2)**



The Bentsen Tower, off Bicentennial Blvd., is one of a few office towers.



S. Main Street is a busy retail area for several blocks south of Business 83.



Business 83 itself, on the northwest corner of downtown.



Broadway also has numerous retail businesses.



The Chase Bank tower, in the distance, and its surface parking, occupy four city blocks.



Broadway, like much of downtown, has one-way streets and angle parking.

**Figures 45-47: McAllen Central Station – Existing Development (page 2 of 2)**



An exit from La Central bus terminal.  
Note bus in distance.



North Main Street facing north from  
the railroad, a mostly residential area.



Business 83 near 18<sup>th</sup> Street. Railroad  
is located along the line of palm trees.

**Figure 48: Aerial Photo of McAllen North Station: Park and Ride Station**



McAllen North Station area is currently a typical suburban area with many vacant, odd shaped lots, due to the diagonal cut of the rail line. This actually provides a benefit to the area, allowing for a park and ride to be initially developed. With proper execution and planning, this station has the potential to grow into a Suburban Main Street location with great public amenities and gathering spaces. Its close proximity to Edinburg and McAllen would make this area a prime location for urban residential and neighborhood serving commercial retail and services.

**Map 15: 2010 Land Use Patterns near McAllen North Station**



**Figures 49-54: McAllen North Station – Existing Development**



Plaza Los Fuentes, new commercial development southeast of the railroad at N. 10th



Parking areas for Plaza Los Fuentes



Older commercial development south of railroad at Trenton Road



Gas stations and other commercial development on North 10<sup>th</sup> Street



Typical commercial development of North McAllen—more auto-oriented than most areas near railroad



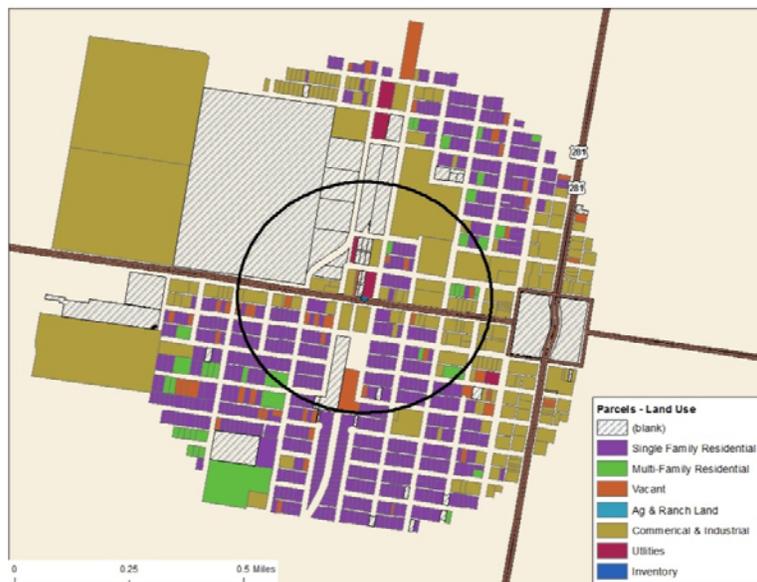
Sidewalks are generally good, though not heavily used.

**Figure 55: Aerial Photo of Edinburg Central Station: Campus and Civic Station**



This location serves County offices and other government activities, as well as the University of Texas Pan American. These identities alone make Edinburg Central a primarily Campus and Civic Station location. This area currently has a large work force and can benefit from incorporating more urban residential development and public gathering spaces into the well-established infrastructure. Over the lifetime of this station, it would potentially become Hidalgo County’s other Downtown Station type, but this would require integrating more urban residential, especially student housing within the urban fabric. This is consistent with UTPA’s goals of reducing single-occupant vehicle travel to the campus, in order to minimize surface parking. Strategic placement of residential and employment facilities would also help create a “place” and a city center.

**Map 16: 2010 Land Use Patterns near Edinburg Central Station**



**Figures 56-61: Edinburg Central Station – Existing Development**



Edinburg Chamber of Commerce (historic station building)



Edinburg Chamber of Commerce (historic station building)



Hidalgo County Courthouse, just east of potential station area



Typical office buildings in courthouse square area

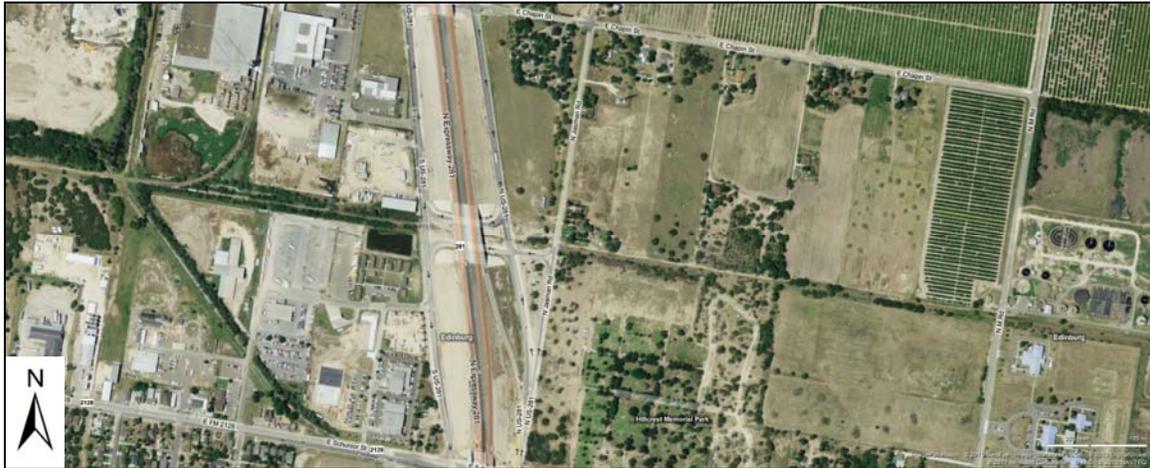


Hidalgo County Courthouse has extensive surface parking areas.



Museum of South Texas History, on north side of courthouse square

**Figure 62: Aerial Photo of Edinburg 281 Station: Park and Ride Station**



Edinburg 281 would serve as the northernmost station for park-and-ride services beyond Edinburg, into the Edinburg and McAllen Central Stations. There is primarily agricultural and ranch land surrounding this area and allows good conditions for park and ride services. With proper planning and growth in the adjacent area, the station could eventually take an Urban Park and Ride Station type. This would allow the introduction of neighborhood serving commercial retail and services, and some single and multi-family development.

**Map 17: 2010 Land Use Patterns near Edinburg 281 Station**



**Figures 63-68: Edinburg 281 Station – Existing Development**



US 281 northbound feeder road north of Chapin Street



US 281 overpass of Chapin Street



Existing rural residential uses along Jarman Road



US 281 northbound feeder road at Jasman Road split



Existing rural residential uses along Jarman Road



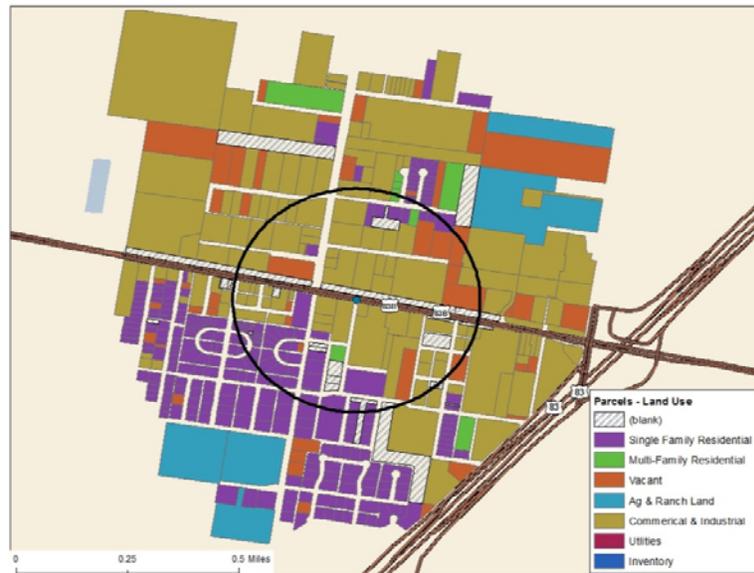
Cemeteries such as this one on Richardson Road are unlikely to relocate and will remain as open space.

**Figure 69: Aerial Photo of McAllen East Station: Urban Park and Ride**



The McAllen East Station maintains a viable location close to US-83 and Business 83. The intended station type would begin as an Urban Park and Ride due to its location, which despite a moderate density of nearby development would allow an easier parking experience than the McAllen Central and Edinburg Central Station areas. Commuters could easily park at the McAllen East station where parking rates may be less expensive and take a short ride into the Downtown locations. Over the lifetime of this station, it could potentially become a Suburban Main Street Station type, assuming proper city investment and planning for this location.

**Map 18: 2010 Land Use Patterns near McAllen East Station**



**Figures 70-73: McAllen East Station – Existing Development**



Business 83 at McColl Road, facing northeast across railroad



Auto-oriented commercial buildings on Business 83 at McColl Road



Business 83 at McColl Road, facing west along railroad



Business 83 at McColl Road, facing north across railroad

**Figure 74: Aerial Photo of Pharr Station: Suburban Main Street Station**



The Pharr Station area has a distinct location where US 281 crosses Business US 83. Its current “Main Street” development pattern allows for a station location that would benefit existing commercial and residential, which is mostly to the south of the railroad, in addition to future development to the north. Redevelopment and city planning efforts should aim to maintain a Suburban Main Street Station type throughout its lifespan. This allows the existing distinct character to be integrated and allows for an appropriate growth pattern within the Pharr Main Street area.

**Map 19: 2010 Land Use Patterns near Pharr Station**



**Figures 75-78: Pharr Station – Existing Development**



South side of railroad – east side of Cage Blvd.



South side of railroad – west side of Cage Blvd.



Business 83 at Cage Blvd. facing northwest – note lower level of development compared to south side



Business 83 at Cage Blvd. facing northeast – note lower level of development compared to south side

**Figure 79: Aerial Photo of San Juan Station: Suburban Main Street Station**



San Juan has a unique situation due to the visitors attracted by the Basilica of Our Lady of San Juan del Valle, a Catholic pilgrimage site. Locating the station within central San Juan, with access to bus services and an improved pedestrian route to the Basilica, would promote reinvestment into the Main Street area. This would benefit San Juan both by establishing a linkage from the Basilica to the main street and by encouraging growth and commerce throughout the area. This station location is consistent with the San Juan Downtown Redevelopment Plan, and would maintain a Suburban Main Street type to build upon the well-established grid system and density. Future growth should take a traditional form of growth with buildings brought up to the right-of-way and parking in center of the block. Place-making strategies should be implemented to promote tourists to stay and enjoy the San Juan area while visiting the Basilica.

**Map 20: 2010 Land Use Patterns near San Juan Station**



According to the San Juan Downtown Revitalization Plan (SJDRP, November 2010) and a visitor survey conducted as part of that study, the Basilica currently attracts 30,000 visitors in a typical week, with 96% of those visitors arriving by private car. 94% reported that this was not their first visit. 75% of visitors were from the Valley, and a further 13%, for a total of 88%, indicated this was a day trip (no overnight accommodations). These elements collectively indicate that some transit capture of Basilica trips by the commuter rail could be expected. Travel by commuter rail to central San Juan was assumed in one of three cases examined in the SJDRP, in terms of how much consumer demand there may be for various types of businesses.

The Basilica visitors' survey indicated 2% of visitors came by private buses. If commuter rail were to capture this entire market, this would be 600 visitors per week. No information was collected in the survey about weekday vs. weekend visitation, as the survey was only conducted on Saturday and Sunday. It is reasonable to expect, though, that the majority of visitors arrive on weekends, as the majority were there as a family or group to attend church services.

The overall commuter rail system ridership depends most heavily on journeys to work, a weekday activity, whereas the Basilica draws more heavily on weekends. The ridership projected for the San Juan station is approximately 1,600 riders per weekday. While the annual ridership may be higher considering the Basilica as a special generator, the typical weekday which the model generates may not change. As the commuter rail system is implemented, the operating agency should take note of the initial usage patterns by Basilica visitors, as it may be advisable to maintain shorter headways on weekends to accommodate this travel market.

**Figures 80-83: San Juan Station – Existing Development**



Commercial buildings along Business 83 in central San Juan



Commercial buildings along Business 83, viewed from railroad



Potential San Juan station area, viewed from Railroad Street



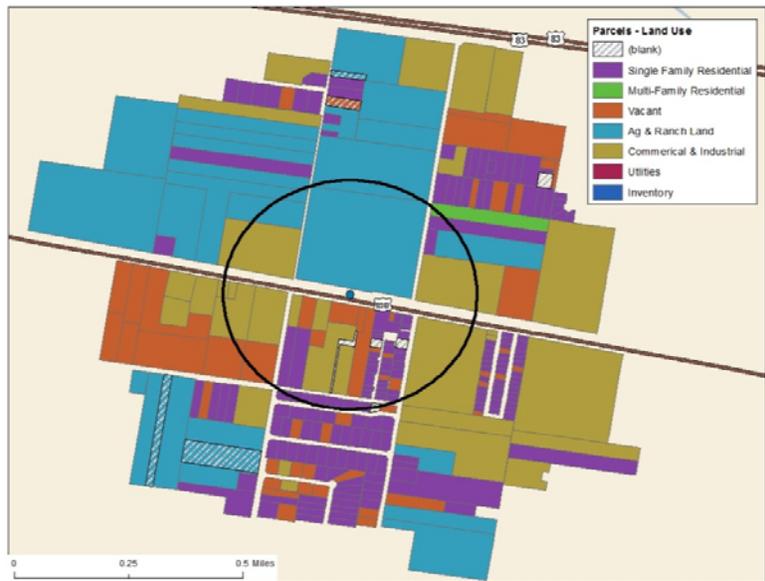
North Standard Street, a key pedestrian route from the station area to the Basilica of San Juan

**Figure 84: Aerial Photo of Alamo-Donna Station: Park and Ride**



The Alamo-Donna Station area is currently agricultural and ranch land, but also contains some of the busiest markets in the area. The farmer's and flea markets have such a high patronage on the days that the market is open, that it would seem beneficial to open a public market space that operates more days in the week. This location also provides a great spot for a park-and-ride to transport commuters to McAllen, Edinburg and San Juan for various employment and tourism activities. This location should aim to operate at an Urban Park and Ride type in the future, pending development patterns of future growth and the planned positioning of public activities and entertainment facilities that could be developed in this area.

**Map 21: 2010 Land Use Patterns near Alamo-Donna Station**



**Figures 85-89: Alamo/Donna Station – Existing Development**



Agricultural businesses along Business 83 near Border Road



Intersection of Business 83 and Border Road



Agricultural land along Business 83 near Whalen Road, facing northwest

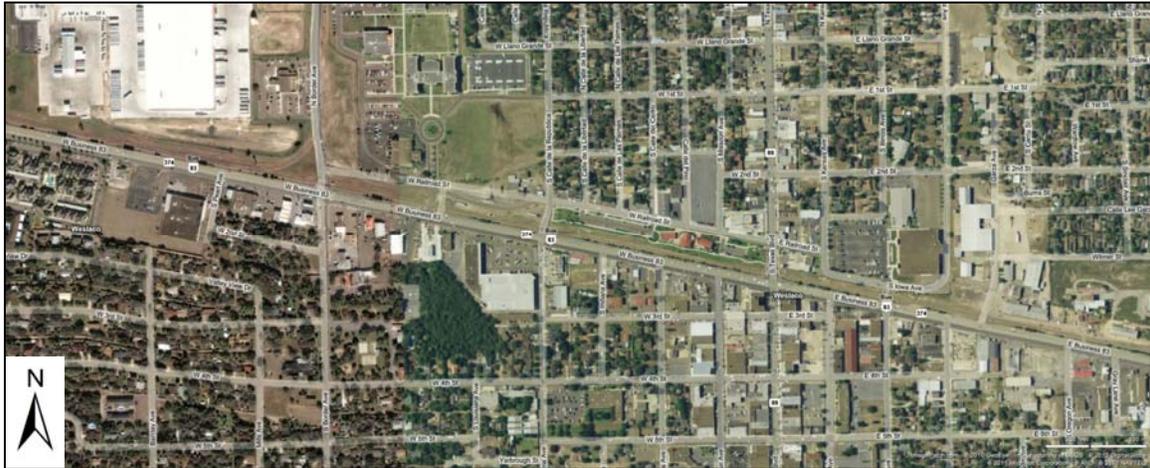


Agricultural land along Business 83 near Whalen Road, facing northeast



Flea Market parking (not open that day)

**Figure 90: Aerial Photo of Weslaco Station: Campus and Civic Station**



Weslaco has the unique ability to develop a connection to the station with South Texas Community College, Weslaco Civic facilities and the Weslaco Main Street area along Texas Boulevard. Connecting and incorporating these important locations will develop the Weslaco Station into a Campus and Civic Station type. Promoting urban residential, especially student housing, and reinvestment in the commercial uses along Texas Blvd will increase the ridership and viability of the Weslaco Station. Over its lifespan, the Weslaco Station should focus on maintaining a Campus and Civic Station type of TOD, as well as creating amenities and active spaces for students and professionals living and working in the area.

**Map 22: 2010 Land Use Patterns near Weslaco Station**



**Figures 91-96: Weslaco Station – Existing Development (page 1 of 2)**



Public Parking deck spanning 3<sup>rd</sup> St.



Weslaco Economic Development Corporation (east end of potential station area)



Weslaco Economic Development Corporation (historic station building)



South Texas College campus (west end of potential station area)



South Texas College campus (west end of potential station area)



Businesses along South Texas Avenue

**Figures 97-100: Weslaco Station – Existing Development (page 2 of 2)**



Historic hotel, now commercial, South Texas Avenue between 2<sup>nd</sup> and 3<sup>rd</sup>



Businesses along South Texas Avenue



Businesses along South Texas Avenue



Businesses along South Texas Avenue

**Figure 101: Aerial Photo of Mercedes Station: Urban Park and Ride Station**



The Mercedes Station would initially serve as the end of the east leg of the operating segment. This station would act as an Urban Park and Ride mainly due to its primary location within the Mercedes Main Street area near Virginia and Texas Avenues. The urban park and ride station would be utilized by the commuters that would rather park and ride the train to destinations further west. In addition to serving as the easternmost station on the proposed Hidalgo County system, and as a park-and-ride for the Mercedes area, this station is also expected to serve as a draw for potential commuters from further east in Cameron County and beyond. The ridership model used in this study only considers the standard 2-mile catchment area of the station and does not include population concentrations outside this 2-mile radius, which may be thought of as a special generator. In this case, Cameron County commuters who travel west into Hidalgo County may be attracted by the passenger rail service to park at Mercedes and board the train. This would result in higher ridership than projected by the model at the Mercedes station, as well as greater usage of nearby parking facilities. As a result, the ability to augment parking at this station to accommodate such future demands would need to be taken into consideration during design development.

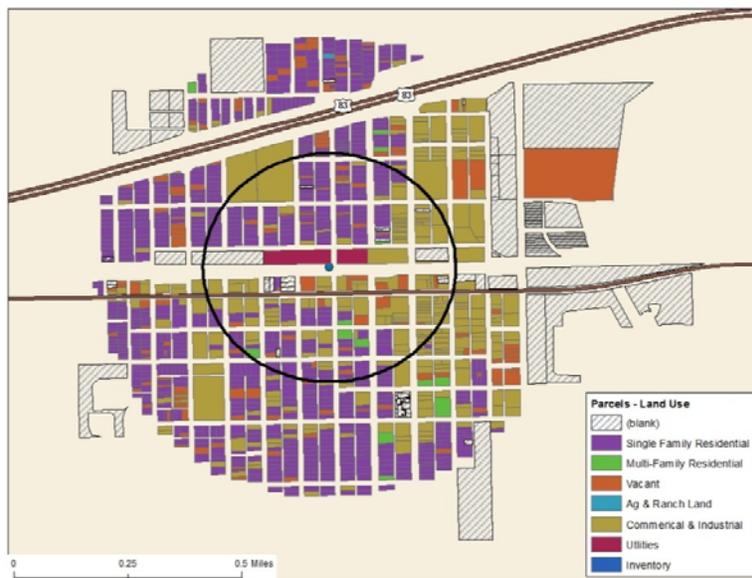
There is a great potential for growth and reinvestment in the Mercedes area, especially along its current commercial corridor, Texas Avenue. With proper planning efforts and activation of public spaces in the area the Mercedes station could reinvent itself into a Suburban Main Street station; with grounded employment and urban residential blended into the already well-established residential community.

There is also potential to operate a shuttle service to the Rio Grande Premium Outlet Mall, located approximately one mile to the northeast, on the US 83 freeway. The Mall indicated its year-round workforce was approximately 800 employees, rising to 1,000 over the Christmas shopping season. Approximately 6 million customers visit per year. Note, however, that the overall commuter rail system ridership depends most heavily on journeys to work, a weekday activity, whereas shopping centers typically draw more heavily on weekends.

The ridership projected for the Mercedes station is approximately 1,200 riders per weekday. While the annual ridership may be higher considering the Mall and its shoppers as a special generator, the typical weekday which the model generates may not change. The Mall itself estimated that 95% of its business came from international visitors entering from Mexico, and a “vast majority” of these arrive on organized bus trips. This is not an easy market to serve with commuter rail, as to do so would introduce multiple transfers on a journey that is currently served by point-to-point buses, similar to the issue with long-distance bus services from La Central bus station in McAllen.

However, as the commuter rail system is implemented, the operating agency should take note of the initial usage patterns by Mall visitors, as it may be advisable to maintain shorter headways on weekends to accommodate this travel market.

**Map 23: 2010 Land Use Patterns near Mercedes Station**



Note: the Rio Grande Premium Outlets Mall is off the map to the upper right (off the page at this scale). It is not within walking distance of the proposed station.

**Figures 102-105: Mercedes Station – Existing Development**



Buildings along North Texas Avenue.  
Note narrow sidewalks.



Buildings along South Texas Avenue.  
Note wider sidewalks.



Buildings along South Texas Avenue.  
The highrise in the distance is a senior  
citizen residence.



Shopping center and open spaces near  
potential rail station.

## Station Typology

The eleven stations will be identified as one of five station types as primary focus for initial development of stations. Each station, as well as any future stations, has potential of changing types throughout its lifespan, assuming the general characteristics are met for those types. In order to effectively connect station types and characteristics, a matrix (shown in the table below) has been developed that will allow typologies to be easily identified and arranged based on the density, scale of buildings, type of development and land-use mix. In addition, the subsequent table shows the possible station evolution for each of the station areas over a 20 year timeframe, assuming the various municipalities adopt a pro-TOD development and land-use strategy at these station locations.

**Table 24: Station Typology Matrix**

Station Type	Potential Development	Density/ Intensity	Building Scale	Land-Use Mix (up to ½ mile around station)
<b>Downtown Station</b>		High	3 to 8 stories generally	Mixed-Use, Commercial, Urban Residential, Retail, Entertainment, and Government Offices
<b>Campus and Civic Station</b>		High around station, Medium adjacent	2 to 5 stories generally	Government offices, College and University Campus, office and professional services urban residential (including student housing), general commercial and neighborhood retail
<b>Suburban Main Street</b>		Medium around station, Low adjacent	1 to 3 stories generally	Neighborhood serving commercial, entertainment venues/bars, medium- density urban residential, and professional offices

<b>Urban Park and Ride</b>		Medium around station, low adjacent	1 to 3 stories generally	Parking garage for Park and Ride with retail liner on the ground floor and screening of upper floors along public right-of-way, Multi-family residential, and neighborhood commercial
<b>Park and Ride</b>		Low	1 to 2 stories generally	Surface Parking, open space, agriculture, single-family residential. Multi-family residential, and neighborhood commercial



**Table 25: Station Transitions**

<b>Station</b>	<b>Possible Station Type Evolution</b>	
	<b>From 10 years</b>	<b>To 20 years</b>
<b>McAllen Central</b>	Downtown	Downtown
<b>Edinburg Central</b>	Campus and Civic	Downtown
<b>McAllen East</b>	Urban Park and Ride	Suburban Main Street
<b>McAllen North</b>	Park and Ride	Suburban Main Street
<b>Pharr</b>	Suburban Main Street	Suburban Main Street
<b>San Juan</b>	Suburban Main Street	Suburban Main Street
<b>Alamo-Donna</b>	Park and Ride	Urban Park and Ride
<b>Weslaco</b>	Campus and Civic	Campus and Civic
<b>Mercedes</b>	Urban Park and Ride	Suburban Main Street
<b>Mission</b>	Park and Ride	Urban Park and Ride
<b>Edinburg 281</b>	Park and Ride	Urban Park and Ride

For cities with a strong urban presence, such as McAllen or Edinburg, there was a priority for stations to be located within the urban fabric to maximize the potential ridership. For all locations, it is recommended that there be a “feeder” bus system implemented in order to secure a larger catchment area for the station to operate successfully. Utilization of feeder buses would ensure that the public has better access to

the rail service and would then be more likely to utilize the system. Not all stations will have “park and ride” capacity for parking cars. It can be assumed that some amount of parking will be required for new development in all locations, but not always to the degree required for park and ride stations. Park-and-Ride and Urban Park-and-Ride station types should be designed to take into account eventual development around the station area; land-use and infrastructure improvements should consider this growth potential when planning and development occurs.

### Station Area Analysis:

The preceding pages depict the analysis of each station area and the characteristics that identify these areas as primary locations. Each station has its own unique qualities and is recognized for its potential growth in population and employment for the next twenty years. Based on current vacant and undeveloped land within ½ mile of each station, estimates for potential employment increases with the introduction of rail have been calculated. This is over and above the employment changes forecasted by the Hidalgo MPO. The table below shows the possible job creation based on a pro-TOD development and land-use strategy for the station areas.

**Table 26: Possible Job Creation Per Station Area:**

Station	Possible Job Creation (within ½ mile of stations)			Vacant Land (acres)
	Current	Future	Growth	
<b>McAllen Central</b>	4,526	5,028	502	26.7
<b>Edinburg Central</b>	2,454	2,626	172	14.6
<b>McAllen East</b>	1,614	2,318	704	121.0
<b>McAllen North</b>	1,131	1,664	533	67.9
<b>Pharr</b>	1,447	1,907	460	36.4
<b>San Juan</b>	1,196	1,490	294	27.9
<b>Alamo-Donna</b>	49	740	691	290.6
<b>Weslaco</b>	1,635	1,809	174	15.9
<b>Mercedes</b>	1,951	2,364	413	38.3
<b>Mission</b>	456	974	518	131.1
<b>Edinburg 281</b>	329	964	635	266.8
<b>Total</b>	<b>16,788</b>	<b>21,884</b>	<b>5,096</b>	<b>1,037.2</b>

### Texas Enterprise Zone Program

The Texas Enterprise Zone Program (EZP) is an economic development tool for local communities to partner with the State of Texas to promote job creation and capital investment in economically distressed areas of the state. The EZP was created to help

companies grow and expand their business in Texas. It is an economic development sales tax incentive partnering the state and local government to help local employment and support business investment. It does not return money directly to city or county governments; instead, as an eligible company grows, they are eligible to apply for a state sales tax refund. During these tough economic times, EZP has supported more jobs than any other state incentive program.

### **Participation**

Local communities must nominate a company as an Enterprise Project to be eligible to participate in the EZP. Legislation limits allocations to the state and local communities per biennium. The state accepts applications quarterly with deadlines on the first working day of March, June, September and December.

The number of designations available varies with the size of the city or county. In Hidalgo County, since all the municipalities have populations under 250,000, but the county itself is in excess of 250,000, each municipality may make up to six designations per cycle; Hidalgo County may make nine of their own, but no more than three in any one municipality. So-called “double jumbo” or “triple jumbo” projects are those in excess of \$150 million and \$250 million, respectively, and count as two or three of a city or county’s designations.

In 2010, Hidalgo County had only three companies that received Enterprise Zone money. No designations were made elsewhere in the Valley. The three Hidalgo designations are:  
Edinburg – Santana Textiles, \$180M (“double jumbo”)  
Harlingen – Tyco Valves & Controls, \$5.7M  
McAllen – Columbia Rio Grande Healthcare, \$19M

In the 2008-2009 biennium, the following companies received Enterprise Zone money:  
Brownsville – T-Mobile USA, \$17.5M  
Edinburg – Doctors Hospital, \$59.4M  
Harlingen – United HealthCare Services, \$6.3M  
McAllen – Fred Loya Insurance Agency, \$5.2M  
McAllen – Infinity Insurance, \$7.5M

### **Benefits to Participation**

The Enterprise Zone Program is performance-based and allows qualified businesses to receive a refund of state sales and use taxes, ranging from \$2,500–\$7,500 per job created and/or retained during a five-year designation period, up to a maximum of \$1.25–\$3.75 million. The level and amount of refund is related to the capital investment and jobs at the qualified business site.

**Table 27: Enterprise Zone Benefits:**

Level of Capital Investment	Maximum number of jobs allocated	Maximum potential refund	Maximum refund per job allocation
\$40,000 to \$399,999	10	\$25,000	\$2,500
\$400,000 to \$999,999	25	\$62,000	\$2,500
\$1,000,000 to \$4,999,999	125	\$312,500	\$2,500
\$5,000,000 to \$149,999,999	500	\$1,250,000	\$2,500
Double Jumbo Project \$150,000,000 to \$249,999,999	500	\$2,500,000	\$5,000
Triple Jumbo Project \$250,000,000 or more	500	\$3,750,000	\$7,500

In addition, local communities must offer their own incentives to participants under the EZP, for those participants to be eligible for state money. These local incentives can be monetary but do not have to be; they may include tax abatement, tax increment financing and one-stop permitting. Zoning variances, building-density bonuses, fast-track approvals, or other development-related offers are permissible.

**Participation Requirements**

Communities may nominate projects for a designation period up to five years, non-inclusive of a 90-day window prior to the application deadline. Employment and capital investment commitments must be incurred and met within this window. Projects may be physically located in or outside of an enterprise zone, but if they are outside a designated zone, additional requirements apply.

- Communities may nominate projects, for a designation period up to five years, non-inclusive of a 90-day window prior to the application deadline. Employment and capital investment commitments must be incurred and met within this timeframe.
  - Projects may be physically located in or outside of an Enterprise Zone.
  - If located within a zone, the company commits that at least 25% of their new employees will meet economically disadvantaged or enterprise zone residence requirements.
- If located outside of a zone, the company commits that at least 35% of their new employees will meet economically disadvantaged or enterprise zone residency requirements.
- Under limited statutory provisions, an enterprise project designation may be granted for job retention.”

## **Applicability for Station-Area Related Enterprise Zones**

### **Eligibility**

Under state statutes, “an area automatically qualifies for designation as an Enterprise Zone if the area is a block group, as defined by the most recent federal decennial census available at the time of designation, in which at least 20 percent of the residents of the block group have an income at or below 100 percent of the federal poverty level.”

At the time of the report, 2010 Decennial Census information on income (including poverty level) was not available. 2000 Census information indicated that, while the majority of block groups in Hidalgo County qualified under the 20% or more criterion, many of the block groups which did not were located in urban areas, through which the rail line travels. The project team recommends that this poverty determination be conducted later in 2011 when more up-to-date information is available.

However, a further criterion under state statute is that “an area automatically qualifies for designation as an Enterprise Zone if it is in a ‘distressed’ county,” according to the criteria below.

- Poverty rate above 15.4%
  - Hidalgo County estimated at 36% by U. S. Census in 2009
- At least 25.4% of the adults without a high school diploma/GED
  - Hidalgo County estimated at 40.5% by U.S. Census in 2009
- Unemployment rate over 4.9% during the preceding five years
  - Hidalgo County = 6.6% to 11.6% from 2006-2011, according to Texas Workforce Commission

These metrics would indicate Hidalgo County qualifies as “distressed” under the state statute and thus *Enterprise Zone status is available to the whole county*.

### **Recommendations**

Hidalgo County and the constituent municipalities are free to nominate companies and projects from anywhere in their jurisdiction for Enterprise Zone money. It is recommended that the County and municipalities set up a formal criterion whereby companies willing to locate or expand within, say, ½ mile of a proposed rail station (or existing one, once the system is operational), will be fast-tracked to state application. Zoning application fees could be waived as the municipal contribution, or perhaps height limits or density limits could be relaxed, in a further effort to create more employment near a rail station.

Portions of this section from:

<http://www.statutes.legis.state.tx.us/Docs/GV/htm/GV.2303.htm>

## **Zoning Requirements and Planned Land Use**

### **McAllen**

The City of McAllen has a fairly straightforward zoning classification, with fourteen zoning categories denoting residential, commercial, and industrial uses. Uses are typically cumulative within each category; for example, R3A, which permits 5+ unit

apartments, also permits the single- and dual-family homes permitted in R-1 and R-2. “Rail passenger terminals” are only permitted in zone C-3, General Business.

Commercial zones do not permit by-right residential uses or vice-versa, with the exception of the “Heart of the City” area (see below). This may be an obstacle to the type of mixed-use development envisioned in a TOD, specifically around the McAllen North and McAllen East stations. Residential uses are allowed in commercial overlay districts (see below), although each unit requires a specific use permit.

There are defined overlay districts in the “Heart of the City,” defined as Hackberry Avenue to Expressway 83, and 10<sup>th</sup> Street to Bicentennial Boulevard. These include a Downtown Retail Overlay, and an Entertainment and Cultural Overlay.

Foresight McAllen, the comprehensive plan, envisions three areas as “Urban Center High,” the area to the southwest of 10<sup>th</sup> and Business 83 (near the existing office tower), 10<sup>th</sup> Street for several blocks north of the US 83 freeway, and the area to the southeast of 10<sup>th</sup> Street and Nolana Loop. There are some “Urban Residential Mixed” areas near 23<sup>rd</sup> and US 83, as well as north of Downtown. No areas are specifically labeled for mixed use.

#### Edinburg

The City of Edinburg also has a fairly straightforward zoning classification (as part of its Unified Development Code), with twelve zoning categories denoting residential, commercial, and industrial uses. There is an “Urban Center” classification which is “appropriate or warranted” only around the downtown square and its immediate environs. It permits “a range of commercial uses, as well as high-density residential uses. Vertically mixed-use development with retail, restaurant, and entertainment uses on the ground floor and offices or residential on the upper floors is encouraged.” This zone does not extend west to the railroad line, where parcels are typically zoned “General Commercial,” although the distance is short enough that it would most likely qualify as an extension of the downtown square area. Many nearby residential areas are classified as “Neighborhood Conservation.”

The environs of the proposed rail terminus near US 281 are zoned “Suburban Residential” west of the freeway and “Industrial” to the east.

#### Mission

The City of Mission’s zoning map depicts seventeen categories of agricultural, residential, commercial, and industrial uses. Most categories have Permitted, Conditional, and Prohibited uses. Much of the property along Business 83, which is the relevant corridor for the commuter rail stations, is zoned General Business (C-3), with some limited Light Industrial (I-1) on the south side of the roadway. Immediately behind these commercial areas, the areas not classified as Open Space are Single-Family Residential. Based on the City’s zoning codes, two of the three surrounding zone types support mixed use on a conditional basis. Single-Family Residential allows a planned unit development (PUD), and General Business allows uses specified for Multifamily Residential District.

Mixed use is not permitted in Light Industrial as the code prohibits “Any building erected or land used for other than one or more of the preceding specified uses.”

#### Pharr

The Pharr zoning code has approximately twenty categories of agricultural, residential, commercial, and industrial uses. Individual categories apply to various institutional land owners, effectively creating a special zone. An example is property belonging to the various school districts in the city. Along Business 83, most property is zoned “General Business,” “Heavy Commercial,” or “Business District.” Areas immediately to the north and south are typically zoned residential, with considerable areas labeled “small lot” or “medium density.” Mixed use is not permitted by zones “General Business” and “Heavy Commercial.” Mixed use is conditionally permitted in “Business District” as long as the residential uses are meeting the area requirements of districts in which they are allowed.

#### San Juan

The San Juan zoning code has approximately nine categories of residential, commercial, and industrial uses. The Neighborhood Commercial District (C-1) does allow Residential-Multifamily Use as a Conditional Use. Based on this description, the current zoning regulations do permit mixed use development. Further discussion of the mixed-use potential of the downtown area is found in the recently completed San Juan Downtown Revitalization Plan, which is discussed in greater detail at the conclusion of this section.

#### Alamo

The Alamo zoning code has seven categories of residential, commercial, and industrial zoning. Uses are typically cumulative within a particular land use category. Uses C-1 (Light Commercial) and C (Commercial) also allow uses permitted in R-2 (Duplex, Multi-Family, Townhouse, and Apartment), so mixed use is supported by the existing zoning code.

#### Donna

Zoning information was not available online.

#### Weslaco

The Weslaco zoning code has approximately ten categories of agricultural, residential, commercial, and industrial uses. The Neighborhood Business District (B-1) permits R-2 duplex and apartment district uses. Secondary and Highway Business District (B-2) Central Business District (B-3) permit R-1 residential uses as well. All other uses do not explicitly permit mixed use. No map was available online.

#### Mercedes

The Mercedes zoning code has sixteen categories of agricultural, residential, commercial, and industrial uses. Uses are typically cumulative within the residential category; for example, B-1 – Two Family Residence allows everything in lower-density zones, typically referring to lighter-intensity residential use. Business and Industrial zones tend to allow any uses permitted in lighter-intensity zoning, but do not explicitly define lighter

use. Mixed use is only permitted by the L-Local Retail zone, which explicitly allows apartments. No map was available online.

### Future City Planning Efforts

The City of San Juan and the San Juan Economic Development Corporation recently (November 2010) completed the San Juan Downtown Revitalization Plan (SJDRP). The consultant was Edminster, Hinshaw, Russ, and Associates of Houston, TX. This plan is a good example of the station-area planning that other cities in the Valley should undertake in order to help make the passenger rail system a success.

The SJDRP looked at the potential demand for retail space in a revitalized downtown, and the infrastructure improvements that would both facilitate and serve that revitalization. It included an examination of a potential passenger rail station (reflected in this study); access to existing attractions, such as the Basilica of San Juan Del Valle National Shrine; provision for increased transit service over time; streetscape improvements for beautification and improved pedestrian mobility and comfort; and expansion of the downtown retail core over time.

The illustration below is from the SJDRP and shows a potential transit-oriented development surrounding the proposed station, along Business 83 between Nebraska and Standard Avenues. Note the sidewalk improvements in yellow, the street-fronting retail along Business 83, and the surface parking areas behind buildings (which elsewhere in the report are called out as potential future structured parking). All these elements are conducive to increased pedestrian accessibility in the areas where commuters will be entering or leaving the proposed rail station (to be located somewhere within the central plaza area in orange).

**Figure 106: Station-Area Excerpt from San Juan Downtown Revitalization Plan**



### International Considerations

Unlike Brownsville, Laredo, or El Paso, the international ports of entry between Hidalgo County and Mexico are removed quite a distance from the heart of the community. This

is due to the fact that McAllen and most other Hidalgo cities grew up along the railroads built in the 19<sup>th</sup> and 20<sup>th</sup> centuries, and not along the Rio Grande itself. The bridges that cross the river (the international border) are typically ten to twelve miles south of Hidalgo County's core urban areas. Although rail service to the international border should be retained as a long-term consideration, it will require track constructed on new alignment, a considerably more expensive proposition than adding passenger service to an active freight rail corridor and likely to require detailed analysis of all viable alternatives. Also, it has been noted previously that many private bus lines now operate transborder services, particularly from the La Central bus station in McAllen. These services begin and end in the city cores on both the United States and Mexico sides, reducing the demand for service specifically to the border itself, as well as potentially making it politically feasible to provide a public service that undercuts successful private providers.

### ***Other Rail Benefits***

Finally, improvements to the railways to allow passenger service is also expected to benefit freight operators such as Rio Valley Switching Company (RVSC) as well as the community as a whole, through the increased viability of freight rail operations. This concept has been researched by the Pennsylvania Department of Transportation, who have developed evaluation criteria for determining this benefit, listed in a report entitled *Analysis of Public Benefits for Pennsylvania Freight Rail Funding*, completed January 2011 (Contract # 355I01, Project # 080910).

It is imperative to continue a dialogue with RVSC, and their landlord, Union Pacific, with regards to track improvements, as the passenger rail systems moves closer to implementation. Improved track conditions mean rail shipment of agricultural and other cargo is more competitive with trucking in terms of time and money spent. This reduction in road-based freight trips can help improve air quality through reduced traffic congestion, similar to the air quality benefit of shifting commuter travel from roadways to passenger rail. Eventual rail connections to nearby seaports such as Brownsville and to rail services in Mexico have the potential to allow trans-shipment of cargo without transferring it to roadways, further increasing the utilization of the rail system.

## **Chapter 6: Costs Analysis**

### ***Drainage Issues***

On January 6, 2011, the Project Team met with Mr. Godfrey Garza of Hidalgo County Drainage District #1, to discuss potential railroad drainage issues related to the 1% floodplains (formerly known as 100-year floodplains) as defined by the Federal Emergency Management Administration (FEMA). The most recent major flooding events were on June 30, 2010. These were associated with Hurricane Alex, which made landfall in northern Mexico, but whose outer rain bands caused upwards of 6-7 inches of rain in the McAllen area in one day. Flooding forced closures of numerous roads and some railroads in the study area.

The three maps included in this section show the locations investigated. The subsequent discussion centers on the locations of apparent concern to potential passenger rail service.







## **Discussion of Specific Drainage Locations**

### **#1 – West of Penitas**

Where the rail line and Highway 83 are much closer to the Rio Grande, the river's recently-defined base flood elevation is above the level of the tracks, and the rail line was shut down during Hurricane Alex. Further investigation in this area is being conducted by the International Boundary and Water Commission, whose jurisdiction includes the Rio Grande. This area is not included in the initial proposed passenger rail service, which extends only just to the west side of Mission. It is, however, part of a potential connection to Laredo or San Antonio, including future high-speed rail. Although the drainage issues in this area are not now of concern for passenger rail services, they will need to be resolved to make inter-regional service feasible.

### **#2-9 and #13-28 – Numerous locations in Alton and Palmhurst, near Elsa and Edcouch, and north of Edinburg**

The rail in this area no longer exists. The right-of-way has been sold off to abutting property owners. Although the north branch of the proposed rail service reaches just northeast of Edinburg (but still short of location #13), it is not planned to extend into these other areas where track and right-of-way are not available, so there are no potential rail drainage issues to be resolved.

### **#10-11 – Two locations south of Mission**

These two areas are within the 1% FEMA flood plain, and were discussed in the Mission Inlet Study by TC&B (now AECOM). Similar to location #1, the area is not included in the initial proposed passenger rail service. However, if extensions along this rail corridor are ever proposed, resolution of the drainage issues would be required. It should be noted that these two locations are along some of the same drainage channels as the airport, and improvements and modifications to the channels in that area, as part of the ongoing airport expansion, may reduce the floodplain further upstream.

### **#12 – Between McAllen and Edinburg**

The Engineering Department of the City of Edinburg reported in February 2011 that they knew of no reported flooding at this location in recent years. In addition, the railroad tracks and road in that area were elevated during a recent reconstruction of Canton Road, and therefore the City doesn't foresee problems at this location.

### **#29-30 – Two locations near Mercedes**

The major element of concern here is the viaduct structure which carries the rail line over the floodway at location #29, as shown in the following figure.

**Figure 107: Railroad Viaduct near Mercedes**



During Hurricane Alex, floodwaters reached within 12 inches of the railroad elevation, and the rail line was shut down. Freight rail service resumed after floodwaters receded, and the structure continues to be used. However, as Rio Valley Switching Company was unwilling to document conditions or maintenance of the structure, as a conservative estimate it is assumed this structure will have to be reconstructed to accommodate passenger rail service, and such reconstruction is included in the system cost estimates. Location #30 further east, while not part of the initial passenger rail service section, is part of a potential connection to Harlingen or Brownsville, or northward along US 77 to Corpus Christi.

### **Recommendations**

Of the thirty locations of concern that were identified, only two are within the limits of the proposed rail system operations. At the first, location #12, the City of Edinburg has reported it to not be of concern, and at the other, location #29, the estimated replacement cost of the viaduct structure has been included in the system cost estimates below.

### **Cost Estimates**

#### **Project Capital Costs**

The methodology used for generating the project capital cost estimates is consistent with the Federal Transportation Administration (FTA) guidelines, consisting of all costs associated with constructing, testing and commissioning the commuter rail system, occurring prior to the start of revenue service. As required by FTA guidelines, these costs have been broken into the Standard Cost Categories “SCC”.

- Guideway & Track
- Passenger Stations
- Yard & Shops
- Systems
- Revenue Vehicles
- Right-of-Way
- Soft Cost

Each of these cost categories is explained below, and summarized in Table 28 on page 121. The costs included are for “initial service” and have been based on two (2) assumed options for the commuter rail service, 15-Minutes and 30-Minutes Peak Headways, each with a second track added when required for passing. Full detail on the cost estimates, including a spreadsheet listing each constituent element, is shown in Appendix B.

Construction Costs were developed using a parametric cost approach. Parametric cost is the cost per unit of measure of relatively large elements of the project. For example, a cost per track-foot of completed track is used to estimate the cost of track construction, which includes the purchase and installation of all parts of the track (ballast, rail, ties and fasteners). Similarly, a cost per track-foot of a bridge would represent all the costs related to building the bridge, including foundation, abutments and superstructure. Where the level of design does not support quantity measurements, parametric estimating techniques are utilized, as it is the recommended industry standard as the most appropriate approach. In all cases the unit cost used was derived from recent data cost estimates for similar projects across the country, such as SMART Sonoma-Marín Area Rapid Transit – CA, Capital Metro Rail, Austin – TX, and DCTA Denton County Transportation Authority, Denton – TX.

### **Guideway and Track**

As explained in Chapter 3, numerous attempts at obtaining existing track condition and structural data from Rio Valley Switching Company (the current freight operator) were unsuccessful. Due the poor track condition reported in the 2005 Rail Study, the project team assumed that existing track would have to be completely reconstructed.

Guideway and Track element costs were assumed to be typical of the industry. Parametric Unit Cost references used include data cost estimates from Denton County-TX Rail Project – DCTA and Capital Metro – Austin. This category includes reconstruction of 53 grade crossings, reconstruction of 37.3 miles of track, corresponding to the mainline track and additional second tracks: 20 miles identified in option 1, 15-min. peak headways, and 11 miles identified in option 2: 30-min. peak headways. Track costs include rail, rail ties, welding, fasteners, anchors, ballast, embedded track and special track elements such as switches and turnouts, vibration and noise dampening. A total of 47 #9 Turnouts will be installed for each of the options’ mainline track, along with 22 and 12 #20 Turnouts for the additional second tracks of options 1 and 2, respectively. This category also includes the rehabilitation of the viaduct structure at the

floodway west of Mercedes (1,530 LF). Track will be similar to that used by DCTA for its mainline track, including 115-pound continuously welded rail.

Guideway Unit Costs were assumed to be all-inclusive of the components as described above, based on industry standards and depending on the cost category element, such as cost-per-route-foot, cost-per-track-mile and cost-per-square-foot, adjusted for local conditions.

### **Passenger Stations**

The station cost category consists of station structures and parking lots. The eleven (11) locations discussed as potential stations will include station stops, shelters and platforms.

Station Unit Costs were assumed to be all-inclusive of the components as described above, based on industry standards and depending on the cost category element, such as cost-per-square-foot, and cost-per-space calculation basis, adjusted for local conditions. Parking averages are based on the parking provided at stations identified in the peer systems analysis in Chapter 5. For DMU and commuter rail systems, the average station provided 184 to 340 parking spaces, with the maximum number provided ranging from 711 to 1,027.

### **Support Facilities: Yards, Shops, Administration Buildings**

Items in this category include office support areas, right-of-way maintenance facilities, track work for vehicle storage, vehicle cleaning and maintenance facilities, and associated storage and shop buildings. Category Unit Costs have been assumed all-inclusive of the aforementioned components as well, which major elements include the administration building, a maintenance shed and track. Parametric Unit Cost references used include data cost estimates from Denton County-TX Rail Project – DCTA and Capital Metro – Austin, TX.

### **Site work**

This cost category includes site work and special conditions that may be in addition to the scope covered under normal profiles for guideway and station construction. It includes: demolition (removal of existing rail track and track elements), clearing, earthwork, site utility relocation, access ways and temporary facilities. Parametric Unit Cost reference used includes data cost estimates from Denton County-TX Rail Project –DCTA.

### **Systems**

The goal of this cost category is to produce fully integrated systems that meet clients' long-range needs while delivering maximum return on invested capital. Each component must be expertly designed and constructed, and all system components must function together as a smoothly operating whole. This systems cost category includes several sub-categories, such as the train control and signals including Positive Train Control (PTC), roadway crossing warning signals, communications, fare collection system and equipment and central control. Per industry standard, unit cost is all-inclusive of the above named components.

The Communications cost sub-category includes the installation of two-way radios, a public address system, telephones, closed-circuit television, variable message signs and specialty communication equipment.

The Fare Collection cost sub-category includes ticket vending machines, fare gates, a cost inclusive of vendor design, manufacture and installation.

The Central Control sub-category includes civil, structural, architectural, mechanical, electrical and systems costs for remote monitoring operations, track and roadway conditions, substations and station facilities.

Parametric Unit Cost reference used includes Data Cost Estimates from SMART Sonoma-Marín Area Rapid Transit – CA. and Capital Metro – Austin, TX.

### **Right-Of-Way – ROW**

This cost category includes real estate acquisition and relocation cost. Determination of the right-of-way required at each station has been based on ridership projections for each proposed station as well as parametric data prorated from SMART Sonoma-Marín Area Rapid Transit – CA and Capital Metro – Austin, TX. The land values are based on typical values in the vicinity of each proposed station, gathered from the Hidalgo County Appraisal District January 19, 2011.

### **Vehicles**

The count of vehicles required for revenue service was determined based on industry standards, applied to the local conditions as well as the train schedule. Under these criteria, 17 vehicles have been estimated for the 15-Minutes Peak Headways (Option 1) and 11 for the 30-Minutes Peak Headways (Option 2). The scope of this SCC Category will include: design engineering, manufacturing and testing. Parametric Unit Cost references used include data cost estimates from SMART Sonoma-Marín Area Rapid Transit – CA and Capital Metro –Austin – TX.

### **Soft Cost**

This cost category covers conceptual and alternatives analysis, preliminary engineering, final design, design support during construction, construction management, insurance and startup and testing. This cost is estimated as a percentage of the total capital construction cost, based on industry standard. Unit Cost (percent) reference used includes Estimating Soft Costs for Major Public Transportation Fixed Guideway Projects, TCRP Report 138, 2010.

**Table 28: Cost Estimate by SCC Category**

SCC	Description	15-Min. Peak Headways	30-Min. Peak Headways
10	Guideway & Track Elements	\$65,193,000	\$55,774,000
20	Stations	\$8,506,000	\$8,506,000
30	Support Facilities	\$21,861,000	\$21,861,000
40	Sitework	\$15,805,000	\$14,340,000
50	Systems	\$29,697,000	\$29,897,000
60	Row	\$5,287,000	\$5,287,000
70	Vehicles	\$55,216,000	\$35,728,000
80	Soft Cost	\$36,681,000	\$33,803,000
90	Contingency	\$71,496,000	\$61,511,000
<b>Total Baseline Project Cost</b>		<b>\$309,742,000</b>	<b>\$266,707,000</b>

**Annual Operating and Maintenance Costs**

O&M Costs include all expenditures required to provide daily transit service, including administrative costs, wages and benefits for transit vehicle operators and maintenance workers, security and the maintenance of the transit guideway, stations, facilities and vehicles.

The Rail Operations costs consist of fixed costs and variable costs:

- Fixed Costs:
  - Track and signal maintenance per track mile,
  - Dispatch,
  - Insurance,
  - Station maintenance, and
  - General & administrative costs.
- Variable Costs:
  - Fuel
  - Train and crews, and
  - Equipment maintenance.

Hidalgo County Rail Study Operating & Maintenance Costs (see table below) are expected to be within the range of \$13.8 and \$18.8 million annually, for the 30 and 15 minute peak headways respectively.

**Table 29: Annual Operating and Maintenance Costs**

<b>Fixed Cost:</b>	15-Min. Peak Headways	30-Min. Peak Headways
Track & Signal	\$2,361,000	\$2,011,000
Dispatch	\$2,298,000	\$2,298,000
Insurance	\$2,000,000	\$2,000,000
General & Administration	\$1,500,000	\$1,500,000
<b>Variable Cost:</b>	15-Min. Peak Headways	30-Min. Peak Headways
Fuel	\$3,928,000	\$2,007,000
Train Crews	\$3,543,000	\$1,814,000
Equipment Maintenance	\$1,466,000	\$949,000
<b>Sub-Total:</b>	<b>\$17,096,000</b>	<b>\$12,579,000</b>
Contingency	\$1,710,000	\$1,258,000
<b>Total</b>	<b>\$18,805,000</b>	<b>\$13,837,000</b>

References for the above analysis include statistics gathered from the following projects:

- SMART Sonoma-Marín Area, CA - 35-miles: \$16.9 Million – Initial Operating Segment January 27, 2011.
- Capital Metro, Austin, TX – 32-miles Red Line System: \$14.3 Million – Financial Status Report November 2010.

### **Fare Collection and Enforcement**

The purpose of this section is to describe the options available for the Hidalgo County Rail to implement fare collection and enforcement, based on data from existing commuter rail systems.

Over the past two decades, urban transit agencies in the United States and abroad have moved toward various forms of electronic payment systems (EPS) and automated fare collection (AFT), often magnetic stripe cards or smart cards. These developments have been driven by benefits ranging from reductions in the accounting and cash management cost to opportunities for enhanced data collection to support planning and operations. However, applying these technologies to the open, barrier-free layouts of commuter rail stations has proven challenging, and adoption has lagged behind that of other transit modes.

According to the SMART Memorandum: Reference: Agenda Item 6, dated March 9, 2011, when the SMART commuter rail passenger service goes into operation in late 2014, fares collected from passengers will begin to generate a significant revenue stream that will be important to the support of the District’s operations and achievements of its mission. The generation of operating revenue and the size of the passenger revenue stream, will depend upon a series of policy decisions to be made by the Board.

The development of a comprehensive fare collection policy involves some technical components of the fare system that are essentially already set, being inherent in the design of a passenger rail system like SMART. Other elements are influenced by the local operating environment in the form of connecting bus and ferry fare systems already in place. Similarly, regional specifications for smart card fare media (the Clipper), are already in place. These realities form an overall context within which SMART must develop fare policy, procure fare collection equipment, and establish fare collection practices.

The body of the fare policy has two main areas:

- Policies about the fare structure can take several forms: a flat fare for travel between all points, distance-based fares that reflect the distance between origin and destination, or zone-based fares that are calculated based on the number of defined geographic zones through which the passenger travels. It also includes the various discounts that may be offered for seniors, students or other groups. A second dimension is the fare type purchased. These typically include individual one-way and round-trip fares, multi-rides, weekly or monthly passes good for unlimited travel during a particular time period, and stored value passes that debit the customer's account with each ride.
- Policies governing the system of fare collection system and media – the technical apparatus and systems used to move the revenue from the customers to the District, while simultaneously guaranteeing the integrity of the system, achieving service integration with connecting transit systems, and providing a user-friendly experience to customers.

Some basic elements of the fare systems are already in place, with regard to fare structure or price, distance-based fares are typically employed for long distance, limited stop and linear services like SMART, the Golden Gate Transit already has a distance-based zone fare system with four zones overlapping the initial SMART operating segment (San Rafael – Santa Rosa), and two more between San Rafael and San Francisco, which cannot be ignored since its services parallels to SMART from end to end.

Existing fares already in place in the SMART corridor cover a fairly wide range, as follows:

- Sonoma County Transit – bus service throughout the county charging a local fare of \$1.25 and adding 55 cents for longer distances.
- Santa Rosa Citybus charges \$1.25 for local ride.
- Marin Transit in Marin County has a \$2.00 local fare to ride anywhere in the County.
- Golden Gate Transit charges \$6.15 for travel between Santa Rosa & San Rafael.
- SMART may choose to charge a higher fare than the comparable bus fare.

The Bay Area is already moving toward a widespread use of smartcards for fare collection. The regional transit card administrated by MTC, known as the “Clipper” card, is already in use on Golden Gate, MUNI, Caltrain, AC Transit, and BART, and is being introduced on SamTrans and VTA (completing MTC’s Phase 2 implementation of Clipper on the Big 7 transit operations in the Bay Area). The card has flexible utility – for example, it can be used as a stored value card, like the BART magnetic paper ticket – with fares deducted for each separate use, or it can be used as a monthly pass (or a pass for any desired period). An important consideration for SMART will be that Golden Gate Transit, one of SMART’s most important connections, has adopted the Clipper card for all its discounted fares. MTC is actively encouraging all Bay Area transit agencies to adopt the Clipper for pre-paid fares in support of the goal of seamless regional transit customer experience.

Acceptance of cash for fare payment is an important issue. From SMART’s point of view, it may be more cost effective to eliminate the ability to pay for fare with cash – avoiding the initial cost of cash acceptance in fare collection equipment (ticket vending machines), and the cost associated with “revenue servicing” (collecting the cash from machines, counting, depositing and auditing it). Golden Gate Transit encourages the use of pre-paid fare media by charging 20% less than the cash fare for a given trip if the fare is paid for with a Clipper card. Yet, more than 60% of Golden Gate passengers continue to pay cash. Many people clearly find it difficult and inconvenient to make use of the high-tech fare instrument like the Clipper card.

SMART may consider encouraging its potential clientele to use more cost efficient and regionally accepted fare media, it may want to consider the entire market of potential customers, and encourage maximum ridership by accepting cash at stations and procuring the fare collection equipment and adding the staff required to service and administer cash payment systems.

## **Fare Enforcement**

With regard to fare collection, as with almost all commuter railroad systems, SMART’s overall station concept makes a barrier-based turnstile collection system, such as BART’s for example, infeasible. SMART’s plan is based on a proof-of-payment concept, with passengers required to pay fares before boarding trains, and train hosts providing the basic fare inspection function, with support as needed from security and local law enforcement. Almost all new commuter rail and light rail systems in the U.S. use the proof-of-payment technique, and some older ones, including Caltrain, have converted their fare collection format to proof-of-payment.

Most Rail Systems across the country continue to use the same fare enforcement, such as:

**Metro Light Rail and Valley Metro Bus – Phoenix, AZ**, share the same fare system, and operate on a proof-of-payment system. All passengers are subject to a fare inspection at any time and must present an activated pass upon request. The pass must be activated at the Metro Station before boarding the train. Metro fare inspectors regularly patrol the

system and will ask passengers to produce a valid pass. Violators are subject to fines ranging from \$50 to \$500 and may lose their transit privileges.

**New Jersey Transit – The Hudson-Bergen Light Rail** – operates on a proof-of-payment fare collection system. This policy requires a time-stamped ticket prior to boarding a light rail car. Passengers will retain the ticket until leaving the final destination station area. Under the proof-of-payment fare collection, tickets will not be collected; however, passengers should be prepared to show a time-stamped ticket or a monthly pass to a Fare Enforcement Officer if requested. Violators are subject to fines up to \$100.

**Greater Cleveland Regional Transit Authority – Red, Blue and Green Lines**, utilize a type of fare collection system based on proof-of-payment. A pass or fare-card must be purchased and activated before entering the rapid station’s “Fare Paid Zone” and kept throughout the entire trip. While traveling along the lines, uniformed officers called Fare Enforcement Officers are patrolling the trains and stations and asking the passengers to show their proof-of-payment. Once at the Tower City Station in downtown Cleveland, all customers on the Red, Blue and Green Lines must swipe their pass or fare-card through the fare-gate reader in order to get through the turnstiles. Violators will be subject to fine of \$76.00. Second time violators are subject to criminal prosecution.

## **Fare Enforcement in Texas**

### **Capital Metro, Austin**

CAMPO Setting the Fare: Provides that an increase in single-ride base fares become effective unless the CAMPO Board takes action within 60 days of the vote to stop implementation.

#### Moral Turpitude

Changes “fare evasion” for Capital Metro services from a crime of moral turpitude, which would block the offender from such things as enrolling law school, applying for professional licenses, securing a realtors license, securing a CPA certification at any time in the future, to a Class C misdemeanor.

Allows Capital Metro to hire fare enforcement officers, just as DART does, to ensure MetroRailriders have purchased their ticket.

### **Denton County Transportation Authority - DCTA.**

Fare enforcement officers would be deployed on the new commuter rail train running from Denton to Carrollton, to ensure riders were buying tickets and not attempting to travel for free, under a bill recently approved by a Senate transportation committee.

## **Dallas Area Rapid Transit – DART**

Various regulations are in place pertaining to proper conduct and usage of the system:

1. Ride a DART vehicle without evidence that the proper fare has been paid;
2. Unauthorized presence on a DART vehicle, DART facility, or DART property after hours of operation;
3. Unauthorized use of a DART facility or DART property for non-transportation related purposes;
4. Crossing DART Light Rail tracks at a location other than at a traffic or pedestrian controlled intersection or at a designated pedestrian crossing;
5. Interfering with the operation of a DART vehicle.

A person who violates one or more of these regulations may be warned and/or ordered to leave the DART vehicle, DART facility, or DART property immediately by a DART Police Officer, a DART Fare Enforcement Officer, or a DART Bus/LRV Line Supervisor. Situations where a person refuses to leave a DART vehicle, DART facility or DART property after being ordered to do so may be handled by DART Police or other appropriate law enforcement agencies. In the case of a violation of Section 2.02 (a)(13), riding a DART vehicle without evidence that the proper fare has been paid, such situations may be handled in accordance with Texas Transportation Code, Section 452.0611.

As most transit authorities (including all major ones in Texas) have their own police force who handle fare enforcement, they are also typically tasked with maintaining safety and security in and around station platforms and on transit vehicles, patrolling routes that transit vehicles use, and cooperating with other local authorities for emergency management and crime investigation and prevention. As part of the implementation of a passenger rail system, Hidalgo County will need to identify or create a law enforcement agency to be part of the transit authority.

## **Current State of the Practice in U. S. Commuter Rail**

For illustration purposes only, the following table has been gathered from the Final Report Number: FTA-MA-26-7109-2009.01, Sponsored by The Federal Transit Administration, Office of Research, Demonstration and Innovation, U.S. Department of Transportation 1200 New Jersey Avenue, SE Washington, D.C. 20590, to show the results of a scan of the practice for all commuter railroads listed in the APTA 2008 Public Transportation Fact Book, in addition to several other services that began operation after that report was completed.

**Table 30: Fare Media and Sales – U. S. Rail Systems**

Commuter Rail/Transit Agency	Weekdays Ridership (000s) (2)	Fare Media	Fare Options	Fare Structure	Peak Fares	Onboard with Surcharge	Onboard No Surcharge	On board Credit Card	No Onboard Sales	TVM	Ticket Window	Web Mail	3 <sup>rd</sup> Party Vendor
Alaska Railroad	3.5	P	S, M	D	X				X			X	
Allamonte Comm. Express Stockton, CA	3.7	P	S, M, T	D			Mid-day train only		X	Only Validate	X	X	X
Caltrain – San Fr. CA	44.9	P	S,M,T	Z					X	X	X	X	
Capitol Corridor Sacramento Amtrak Service	6	P	S, M, T	D		X				X	X	X	
Coaster – San Diego, CA	7.1	S, P	S, T	Z					X	X	X	X	
MARC Train- Baltimore, MD	33.1	P	S,M,T	D		X				X		X	X
Mass. Bay Trans. Auth. (MBTA)	144.1	P	S,M,T	Z		X				X	X	X	X
Metro- Chicago, IL	335.9	P	S,M,T	Z		X				X	X	X	
Metro-link LA-CA	47.6	P	S,M,T	D	X				X	X	X	X	X
Metro-North - New York, NY	292.8	P	S,M,T	Z	X	X				X	X	X	
MTA Long Island R.R.	350	P	S,M,T	Z	X	X				X	X	X	
Music City Star – Nashville, TN	0.9	P	S, M, T	Z					X	X	X	X	X
New England Pass. Rail Auth. Amtrak Down-Easter- Portland, ME	1.5	P	S, M, T	D					X	X	X	X	
New Jersey Transit	276	P	S,M,T	D	X	X				X	X		
NM Rail Runner Express	2.7	P	S, M, T	Z			X	X				X	
Northern Indiana Comm. Tr. Distr.	15	P	S,M,T	Z		X					X	X	
PA Dept of Transportation Amtrak- Harrisburg, PA	1.7	P	S, M, T	D					X	X	X	X	
Shore Line East – New Haven, CT	2.3	P	S, M, T	D			X				X	X	
Sounder – Seattle WA	10.4	S, P	S, T	D					X	X			
Southeast PA T.A. - SEPTA	127.3	P	S,M,T	Z	X	X					X	X	
Trinity Railway Ex. Dallas/FT.W.	10.9	P	S, T						X	X		X	X
Tri-Rail – Miami – FL	15.3	P	S,M,T	Z	X				X	X	X		
UT Transit Auth. Front-Runner	7.9	P	S, T	D					X	X	X	X	X
Virginia Railway Exp. VRE	15.6	P	S,M,T	Z					X	X		X	X

Fare Media: P = Paper Ticket, SC = Smart Card  
 Fare Options: S = Single Trip, M = Multi-Trip, T = Time-Based  
 Fare Structure: D = Distance-Based, Z = Zone-Based

## Fare-Related Conclusions

Urban transit agencies in the United States and abroad have moved toward various forms of EPS and AFC over the past two decades. Although adopters have been rewarded with a number of benefits, adoption on commuter rail systems has proven challenging and has lagged behind that of other transit modes.

Paper-based tickets have long been used by commuter railroads throughout the U.S, while findings from some scans show that they are still standard fare media, with nearly every agency offering non-electronic single and multi-ride tickets and passes. Even systems that have introduced more advance fare-collection technologies have not completely transitioned over from paper-based media – monthly passes are still primarily “flash” passes which are virtually inspected by conductors onboard, and handheld devices print paper ticket receipts.

A six case study performed by the FTA on Rail Systems of New Mexico Runner Express, Virginia Railway Express, Sounder Commuter Rail, San Diego Coaster, Metropolitan Transit Authority New York Metro- North and Shore Line East, reflect more in-depth findings and showcase a variety of technologies stages of adoption, end levels of regional integration, which includes:

- The barrier-free environment of commuter railroads and their often complex fare structures required AFC solutions which are different from those gated urban transit systems. Using a proof-of-payment approach (versus conventional fare collection with some onboard sales) also has implications for the design of an AFC system.
- Specifically, agencies must consider the impact of fare collection technologies on conductors’ workloads, fare policy, transit benefit programs, and possibly even train car and station design electricity & Wi-Fi on trains; fare validation boxes on platforms.
- Agencies that have adopted AFC generally anticipate benefits in the area of consumer satisfaction and convenience, better regional integration of multiple modes and services, and reduce accounting and back-office cost.
- To facilitate adoption, pilot testing and user feedback are important and can help identify areas where technologies or policies need adjusting.
- New railroads have the opportunity to approach fare collection in innovative new ways.
- Most agencies still favor a non-electronic multi-use ticket or pass which allows for travel on multiple modes of transport and can even function across different agency services. In particular, for smaller agencies with modest ridership and relatively simple operations, the benefits of AFC may not yet outweigh the costs of new technology and equipment.
- Adopting a regional smart card requires financial backing and upgraded physical infrastructure. Having many different transit providers in a region can spur innovation and cooperation or create barriers to further integration. Regions with many smaller agencies require significant cooperation to implement a regional smart card,

- The growing interest in and acceptance of financial industry cards, employer identification cards, mobile payment devices and other account-based payment methods may provide additional opportunities for commuter rail fare payment.

### ***At-Grade Crossing Eliminations***

The project team identified a total of 313 at-grade railroad crossings in Hidalgo County, as detailed and mapped in Chapter 3. A photographic survey was conducted of these locations, and the 1,300+ photos taken are included on the CD which accompanies this report. These 313 locations were compared against the roadway network modeled by the MPO. Of the total, 115 had corresponding traffic projections for 2004 (base year) and 2030. The average growth rate at all 115 locations was 2.78% annualized; this is a reasonable number compared to typical background growth of 1-2%, given that growth and development in Hidalgo County has been high and is projected to remain that way.

Of the 313 crossings, approximately 180 are within the limits of the planned rail system. Of these, roughly half have traffic volumes too low to be included in the MPO's traffic model. Some of these low-volume local streets may be candidates for closure, depending on the proximity of other crossings. See the discussion on subsequent pages of future crossing studies.

The University of Wisconsin has published research on travel time and delay aspects of trains at at-grade roadway crossings, and has developed a rule of thumb for planning purposes. It states that if the average daily traffic multiplied by the number of daily trains exceeds 70,000 in a rural area or 290,000 in an urban area, the crossing is a candidate for a grade separation. Considering all 90 crossings with available traffic projections under the more stringent urban standard, 47 to 67 crossings qualify for potential grade separation, depending on the number of trains per day. Train count per day varied from 36 (assuming 18 hours of operation with 30-minute headways) to 72 (assuming 18 hours of operation with 15-minute headways). The project team took the average number of potential grade separations, 57, and compiled into the following table those 57 locations with the highest traffic. As further analysis and design proceeds on the Hidalgo County commuter rail system, these locations should be further investigated. Discussion follows the table on what that investigation will need to consider.

**Table 31: Potential Grade Separations with 2030 Average Daily Traffic**

Intersection	2030 Daily Traffic*	Intersection	2030 Daily Traffic*
Bicentennial Blvd & Nolana St	51,327	Wisconsin Rd/South McColl St	11,595
Bicentennial Blvd & Pecan Blvd (SH 495)	33,879	Col Rowe Rd	11,354
Business 83 & Bicentennial Blvd	32,011	Business 83 & Stewart Ave	10,569
Business 83 & Jackson Rd	30,632	Business 83 & Airport Drive	9,913
Business 83 & 23rd St	29,774	Business 83 & Sugar Rd	9,906
Business 83 & North Ware Rd	29,117	Business 83 & Cesar Chavez	9,621
West U.S. 83 Business/North 2nd St (Col Rowe Blvd)	27,814	Business 83 & Nebraska Ave	9,608
Closer Blvd	26,276	East US-83/Mile 3 ½ Rd W (Pleasantview Dr)	9,600
Business 83 & 10th St	26,061	Freddy Gonzalez Rd	9,515
Bicentennial Blvd	25,926	Business 83 & North 29th St	9,452
University Dr	25,812	Bicentennial Blvd & La Vista St	9,273
Trenton Rd	23,410	Bicentennial Blvd & Harvey St	9,212
East US-83/3 Mile Rd W	23,399	Business 83 & Westgate Drive	8,672
North 10th St/(btwn. Hawk Ave and Dove Ave)	22,381	Hooks Ave/North Main St	8,668
Business 83 & Cage Blvd	21,590	Canton Rd	8,626
Schunior St	20,507	Bicentennial Blvd & Hackberry Ave	8,295
McColl Rd	19,897	Business 83 & Standard Rd	7,674
Business 83 & McColl Rd	19,530	Chapin St	7,448
Business 83 & North Conway Ave	18,926	Martin Ave/(btwn. North 7th St and North 6th St)	7,321
Hooks Ave. & Salinas Blvd	16,850	Sprague Rd	7,240
Business 83 & Texas Blvd	16,445	Business 83 & Main St	6,877
Jackson Rd	16,081	Business 83 & North Taylor Rd	6,672
Business 83 & U.S. 83	15,855	Business 83 & North Bentsen Rd	6,669
Business 83 & Alamo Rd	15,763	Business 83 & Glasscock Rd	6,639
Sugar Rd	15,170	Business 83 & Los Ebanos Rd	6,532
Dove Rd	15,086	West Hooks Ave/North Val Verde Rd	5,859
West Business Highway 83/Veterans Blvd (North I Rd)	14,005	Business 83 & Stewart Rd	5,837
Business 83 & Bryan Rd	13,656	Hooks Ave. & Victoria Rd	5,631
Business 83 & North Shary Rd	12,597	4th St/(btwn. West Sprague St and West Hill Dr)	5,438
Business 83 & Tower Rd	11,630		

\*based on Hidalgo County MPO model

## **Future At-Grade Crossing Study**

As part of further analysis phases, it will be necessary to determine which at-grade crossings may be eliminated. As part of the design of the system, it will be necessary to classify the at-grade crossings into three groups: those to remain, those to be closed, and those to grade separate. Some high-traffic locations may warrant grade separation in order to reduce conflicts with train operations and delay to vehicle traffic. Low-traffic locations might simply be closed; these will also depend on the nearby street pattern and its ability to absorb diverted traffic.

### **Private Crossings**

In cases where there is an alternative point of access to a particular property (such as to a side road), the crossing may likely be closed without adverse effect. The County will still have to negotiate with the property owner if it requires a reconfiguration of driveways. In cases of private properties which have no other means of access than across the rails, the at-grade crossing likely must be retained. As it is not cost-effective to provide gates unless the property owner is willing to pay for them, additional signage (most likely stop controls) will be required to maintain safety with the increased number of trains operating.

### **Low-Volume Streets**

Local streets, and other low-volume crossings, such as the approximately 90 crossings whose streets are not in the MPO traffic model, are candidates for closure. Isolated local street instances near major arterials may likely be closed without great traffic impact or in-depth study, while in other locations, especially in places like downtown McAllen where numerous local streets in succession cross the railroad, a traffic study with possible simulation of before-and-after conditions may be recommended to determine the magnitude of traffic diversion to other streets. Each city's department of engineering will need to develop criteria of what they consider acceptable and unacceptable traffic impacts, to determine which local streets remain open and which are to be closed. Crossings that remain open should be evaluated for signs, lights, and/or gates.

### **High-Volume Streets**

As noted previously, 47 to 67 at-grade crossings may justify grade separation, based on the University of Wisconsin criteria. As it is doubtful that constructing all of these is affordable or even desirable, methods will need to be established for evaluating potential grade separations. It is recommended that the first step be the continuing evaluation of the four locations listed as potential grade crossings in the 2005 Rail Study:

- SH 107 (University Drive) in central Edinburg
- SP 115 (23<sup>rd</sup> Street) in central McAllen
- Bicentennial Boulevard, also in central McAllen
- US 281 (Cage Boulevard), in Pharr

The freight rail study made the following statement about potential costs. Keep in mind these are 2005 costs and have not been inflated to current day.

*Highway-rail grade separations can usually be constructed for \$7 million to \$10 million. These four examples would fall in that range, with the construction price largely affected by the amount of property acquisition and the number of home and business relocations involved. In many cases, a grade separation will cost approximately \$6 million to construct, but the price will nearly double when urban land acquisition is factored in.*

Geometric issues to be resolved in the design of a grade separation include access to adjacent properties; the addition of retaining walls or embankments; whether nearby intersecting streets will be closed, elevated, or rerouted; and whether any sight distance issues are created with nearby intersections or driveways. Other considerations of developing a grade separation are environmental issues such as noise or loss of sunlight to adjacent properties, and the geotechnical evaluation of soil conditions.

## Chapter 7: Decision Matrix

As stated in Chapter 4, the recommended mode for Hidalgo County is commuter rail, due to the increased ridership potential, the necessity of operating in mixed traffic with freight rail, higher operating speeds necessary for long-distance travel, and greater station spacing envisioned for the system. A decision matrix has been prepared listing selected attributes of commuter rail and light rail, to determine the feasibility of continuing with future study.

**Table 32: Feasibility Decision Matrix**

Consideration	Light Rail	Commuter Rail
Can Operate in Mixed Traffic with Freight Rail?	NO	YES
Station Spacing Appropriate for Hidalgo County Area	NO	YES
Attracts New Development to Station Areas	YES	YES
Will Require Track Reconstruction	YES	YES
Will Require External Power	YES	NO
Typical Seating Capacity	less than 200	200 to 500
Potential Weekday Ridership	6,600	16,300
Cost of Development	not estimated	\$267 Million to \$310 Million
Cost of Annual Operations	not estimated	\$13.7 Million to \$17.3 Million
<b>Feasible for Pursuit?</b>	<b>NO</b>	<b>YES</b>
Green = more feasible mode		

Commuter rail vehicles, being FRA-compliant for crashworthiness, can operate with freight rail. They also are more suited for serving stations of the type and spacing envisioned for Hidalgo County. Commuter rail vehicles are self-powered and do not require additional infrastructure such as overhead catenary wires or third rails. The seating capacity is greater and ridership projections for Hidalgo County, considering jobs and housing distribution and system operating standards, are higher than light rail and in line with peer systems in the state of Texas and elsewhere.

A commuter rail system appears to be feasible and further study is warranted to refine the plan and secure funding commitments.

## **Chapter 8: Stakeholder and Public Comments**

### ***Stakeholder Interviews***

Throughout the course of the study, the project team interviewed various community stakeholders, to educate and inform them of the purpose of the study, convey its general schedule and scope, detail the potential passenger rail system being investigated and the recommendations from the study, and solicit general input.

The majority of the interviewees expressed interest and appreciation that the study was being conducted. Stakeholder organizations and their participant(s) are listed below with the date of the interview, followed by a discussion of common themes occurring in the interviews. The transcripts of each interview are included in Appendix C.

### **Stakeholder Organizations Interviewed by Date, with Representative**

#### **January 6, 2011**

- McAllen Economic Development Corporation— Keith Patridge, President & CEO
- Edinburg Economic Development Corporation—Pedro Salazar, Executive Director

#### **January 7, 2011**

- Mission Economic Development Authority—Pat Townsend

#### **February 4, 2011**

- Hunt Valley Development (Sharyland Plantation)—Paul Curtin, Vice President

#### **February 6, 2011**

- Capote International Business Park, Pharr—Phil Dyer

#### **February 18, 2011**

- City of Pharr—David Garza, Utilities Director, and Edward Wylie, City Planner

#### **February 21, 2011**

- The University of Texas Pan American—Martha Salinas-Hovar, AIA, LEED Project Manager – Dept. Facilities Planning, Marianela Franklin, AIA, LEED AP Director, Department of Sustainability, Letty Benavides, University of Texas Pan American – Director of Auxiliary Services, Jorge Vidal, University of Texas Pan American – Project Manager for Facilities, Pastor Jim Edge, Vice Chair – Hidalgo County Rail Commission

#### **February 23, 2011**

- City of Weslaco—Rolando Gonzalez, Director of Dept. of Planning, Jose Pedraza, Planning Dept. Code Enforcer

#### **February 24, 2011**

- City of Donna—Fernando Flores, Planning Director
- South Texas College—Dr. Shirley Reed, President of the Board

#### **February 25, 2011**

- City of Mercedes—Diana Tovar, Mayor Pro Tem, Michelle Leftwich, Asst. City Manager/Planning Director

- City of McAllen—Mike Perez, City Manager, Julie Rankin, Planning Director

**February 28, 2011**

- City of Alamo—Jaime Sandoval, Community Planning & Development Director

**March 2, 2011**

- Mercedes Rio Grande Premium Outlets—Rick Rios, Manager

**March 3, 2011**

- Rio South Texas Economic Council—Raudel Garza, Executive Director

**March 7, 2011**

- Sharyland ISD—Jesse Muniz, Assistant Superintendent

**March 9, 2011**

- Donna ISD—Roberto Loreda, Superintendent

**March 10, 2011**

- City of San Juan—J.J. Rodriguez, City Manager
- San Juan Economic Development Council—Miki McCarthy, Executive Director
- City of Edinburg—Tomas Reyna, Assistant Engineering Director, Ponicano Longoria, City Engineer

**March 11, 2011**

- Mercedes ISD—Walter N. Watson, Federal Programs Director

**March 23, 2011**

- Mission CISD—Dr. Cornelio Gonzalez, Superintendent
- Edinburg Consolidated Independent School District—Mario Salinas, Assistant Superintendent
- Mercedes Economic Development Corporation—Albert Gonzalez, Director
- Doctors Hospital at Renaissance—Alonzo Cantu, Chairman of the Board- Stock Holder

**June 2, 2011**

- Hidalgo County Metropolitan Planning Organization—Andrew Canon, Director

**June 7, 2011**

- Rio Valley Switching Company—Juan Lerma, Project Manager

**Stakeholder Organizations Not Participating**

In addition to the interviews successfully completed, six other organizations were contacted for input, but they either declined to be interviewed, or had scheduling conflicts that did not allow them to participate within the study's time frame. These organizations are listed below.

- City of Palmview
- El Central Mall
- City of Mission—City Manager's Office
- McAllen ISD—Superintendent
- Mercedes Livestock Show—General Manager
- Pharr Economic Development Corporation

A number of recurring themes were noted in the stakeholder interviews. This indicated a good commonality of experience among the stakeholders, and a good understanding of

the issues important to the development of the rail system as the project moves forward. Recurring comments (those noted by multiple stakeholders) are noted below.

### **Recurring Comments from Stakeholders**

- UTPA is working with the City of Edinburg and regional transit providers to develop a multi-modal station near the rail line
- Feeder bus service with timed transfers is needed, especially to these locations:
  - Areas west of Mission
  - STC Pecan and Military Hwy Campuses - future campus on south side of Pharr
  - Area Airports, especially McAllen-Miller
  - Mission Hospital
  - Basilica of Our Lady of San Juan del Valle National Shrine
  - Rio Grande City STC and UTPA campuses
  - Rio Grande Valley Premium Outlets
  - Border Crossings
  - McAllen Convention Center
  - McAllen Foreign Trade Zone (Military Highway and Ware Road)
  - Doctors Hospital at Renaissance
- Need to acquire and preserve any needed right-of-way now
- Availability of land and pro-active planning will lead to transit-oriented development around planned stations
- UTPA and STC need service
- Colleges will benefit from reuse of land tied up with parking
- Sharyland Plantation-type developments (large-lot, higher income) will be more difficult to serve since they have multiple cars
- ROW serving Edinburg's industrial area has been abandoned
- Congestion is not much of an issue; more mobility and supporting compact growth
- Weslaco will have a convention center next to rail and City Hall
- Planning and regulatory environment is now/is becoming more supportive of rail service (except Mission)
- Localities view rail stations as helpful to downtown revitalization efforts
- Cities may participate in operating and maintaining their respective stations
- Need separate accommodations to support freight rail
- Rio Metro and McAllen Express services are being revamped, shelters being added
- Representatives want to be kept apprised of the study status

### ***Public Meeting***

A meeting was held on Monday, May 9, 2011, at the International Room on the campus of the University of Texas Pan-American, in Edinburg. Officials and representatives were invited from each of the community stakeholders that were previously interviewed. In addition, a general mailing was sent to members of the public who had attended previous

County events, as compiled by the Hidalgo County Judge's Office. This list comprised approximately 281 persons, including the general public as well as neighborhood and community association representatives.

A total of 31 people attended the meeting. The Project Team gave a PowerPoint presentation on the purpose, methodology, and recommendations of the project, then answered questions.

Full detail of the comments from this meeting is located in Appendix D, along with sign-in sheets and a copy of the PowerPoint presentation.

## **Chapter 9: Recommendations and Next Steps**

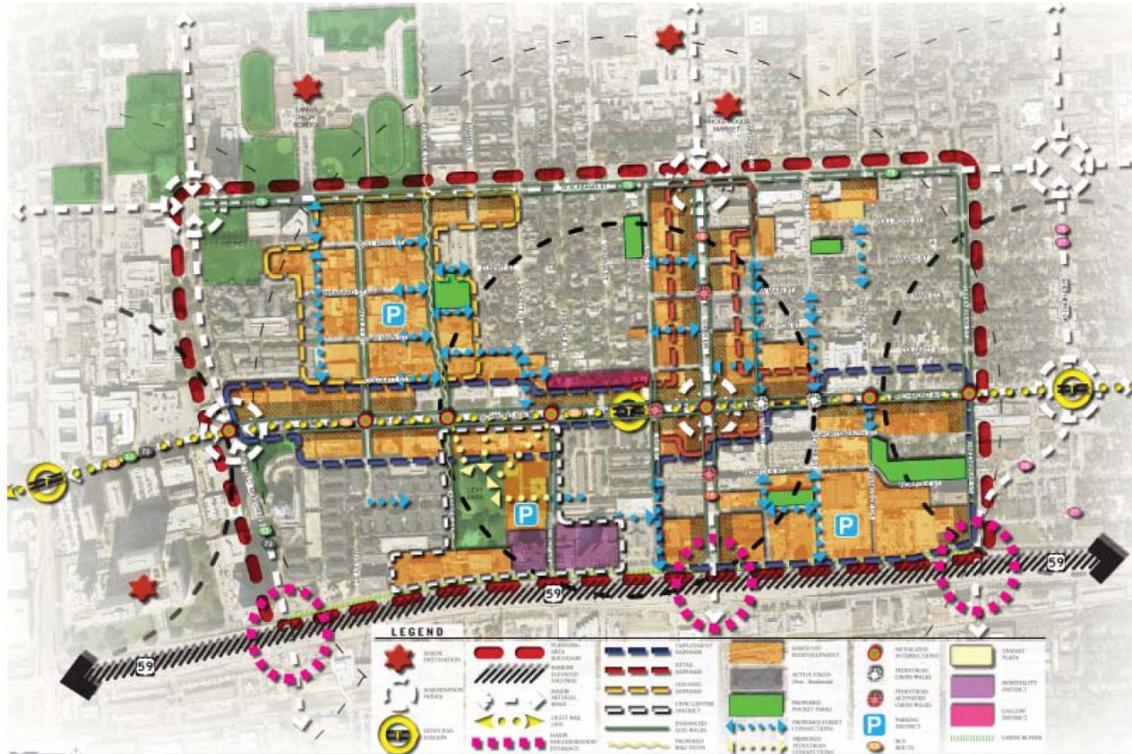
As stated at the outset of this report, Hidalgo County's urban development has been and continues to be concentrated around its backbone of rail lines. Area industries and, by extension, the surrounding communities along these rail lines have benefited from the combination of available urban infrastructure along these corridors and the favorable economic climate of the border region with its numerous international crossings. The addition of passenger rail service in the urbanized portion of the county should be viewed as a logical next step in growth. It must be done in a manner that is compatible with the transportation needs of industrial users as well as residents, workers, and visitors.

The results of the initial analyses of potential rail modes affirm the future viability of the studied commuter rail system relative to the demographic conditions forecasted by the Hidalgo County MPO. Hidalgo County and the adjoining cities now have the opportunity and challenge to work together to bring about policy, financial, physical, and institutional environments that will maximize the benefits of such a system.

### ***Policy Considerations***

From a policy perspective, further consideration of station locations needs to be performed in a cooperative regional setting, a role which is ideally suited to the Hidalgo County MPO. The MPO will also provide a good setting to plan for development of various selected station locations as hubs for feeder transit services. Other activities of the MPO should relate to conducting "Livable Center"-type master planning efforts to promote walking and bicycling activity in these areas. The figure below shows an example from a Livable Centers study conducted by the Houston-Galveston Area Council to identify improvements to pedestrian and bicyclist conditions around Houston METRO's future Upper Kirby light rail station. Lockwood, Andrews & Newnam, Inc. was a project team member on this study.

**Figure 108: Upper Kirby District Improvements near Rail Station**



Cities that contain identified station locations will need to examine their comprehensive plans and zoning regulations to ensure that they foster denser developments of various land use types within walking distances of station areas. The high-level analysis in this study indicated that some cities' regulations explicitly encourage this development type, others allow it but only in specific locations, and others do not permit it except by special exception.

Localities should also evaluate traffic needs of station areas associated with providing station related park & ride lots, shared use parking for area developments, and potential grade crossing modifications (i.e., consolidation and/or grade separation). This will tie into roadway and other capital improvement plans.

### ***Funding Plans***

The magnitude of capital and operating expenditures needed to construct and sustain a commuter rail operation will inherently require the leveraging of a wide range of public and private resources. As of this writing (March 2011), the provisions of the SAFETEA-LU federal transportation reauthorization legislation and other pertinent federal funding programs are being sustained through supplemental appropriations while new authorizations are pending. Hidalgo County officials should track this process and meet with federal representatives to lobby for federal funding. It is assumed for the purpose of this report that current funding programs will be carried forward with their next reauthorization.

Local officials should also make contact with representatives from Federal Transit Administration (FTA) Region VI, Federal Railroad Administration (FRA) Region V, and TxDOT Public Transportation Division, as well as the Union Pacific Railroad and Rio Valley Switching Company to pursue capital assistance for various aspects of the system. All of these agencies have an interest in an upgraded rail network and/or increased transit service in Hidalgo County.

### Federal Funding Sources

Traditional federal funding for commuter rail system startup comes from the FTA New Starts & Small Starts Program (Title 49 Code of Federal Regulations, Section 5309). Note here that the maximum overall project cost for the Small Starts category, which is less rigorous in terms of project evaluation and reporting requirements (see Appendix F for reference), is \$250 Million. The current cost estimate of a system for Hidalgo County is \$267 million to \$310 million, making the New Starts program the preferred avenue to pursue.

It is recommended that Hidalgo County begin the New Starts project development process; the first step in entering that pipeline is to undertake Alternatives Analyses at a corridor level. FTA prepared a document that outlines the requirements for such efforts entitled Framework for Alternatives Analyses that is available on their website:

[http://www.fta.dot.gov/planning/newstarts/planning\\_environment\\_3010.html](http://www.fta.dot.gov/planning/newstarts/planning_environment_3010.html)

**Table 33: Current Texas New Starts Projects by Status**

Project (Location)	Project Cost	Status
Mesa Corridor BRT (El Paso)	\$27.08 M	Project Development
MetroRapid BRT (Austin)	\$47.62 M	Project Development
Southeast Corridor LRT (Houston)	\$822.91 M	Final Design
North Corridor LRT (Houston)	\$756.00 M	Final Design
Northwest-Southeast LRT MOS* (Dallas)	\$1,406.22 M	FFGA**

\* Minimum Operable Segment

\*\* Full Funding Grant Agreement

Other federal funding programs through DOT and FRA may help accomplish grade crossing consolidations and separations (as was also reported in the 2005 Rail Study). Additionally there are funding programs through HUD, DOT, and EPA related to the development of alternative modes, sustainable communities, smart growth, energy conservation, and clean energy. EPA has a document that provides an overview of these programs available on their website:

[http://www.epa.gov/smartgrowth/pdf/2010\\_0506\\_leveraging\\_partnership.pdf](http://www.epa.gov/smartgrowth/pdf/2010_0506_leveraging_partnership.pdf)

Local officials will also need to periodically evaluate potential state and local funding options as may be available and explore potential private sector participation in terms of joint development of station areas and provision of matching funds for improvements. For example, potential tax increment financing of station related improvements should be examined where redevelopment of the surrounding properties is a significant consideration. Operating and maintenance costs will also need to be covered from a

variety of such sources, taking into consideration farebox and advertising and other types of revenues accrued by the system.

Various corridor improvements can proceed in piecemeal fashion because of their individual merits. In this way, costs can be spread out over time, different types of funding sources can be pursued as they become available, and associated benefits are accrued faster. Piecemeal improvements can include station-related park-and-ride lots and intermodal terminals where feeder bus connections are contemplated, grade crossing consolidations and separations, and bicycle/pedestrian infrastructure improvements. It is particularly important to advance the identification and development of park and ride locations to avoid unintended development of key targeted locations.

In El Paso, for example, transit terminals serving local and commuter bus operations were constructed in anticipation of future BRT system development, lessening the incremental costs of BRT implementation. In the meantime, multiple local bus routes use the terminal. The photos below illustrate the exterior and interior of the facility, located off IH 10 West on North Mesa Street. Note the multiple bus access in the exterior photo, and the sale kiosk for tickets and multiday passes in the interior photo.

**Figure 109: El Paso Westside Multimodal Center Exterior**



**Figure 110: El Paso Westside Multimodal Center Interior**



### **Use of Texas Rail Relocation and Improvement Fund proceeds**

If proceeds from the sale of bonds, notes, and other public securities are to be used for a project located in the planning area of a metropolitan planning organization, the project must first be approved by the policy board of the metropolitan planning organization (in this case the Hidalgo County MPO).

Bonds, notes, and other public securities may be issued for the following purposes:

1. To pay all or part of the costs of relocating, constructing, reconstructing, acquiring, improving, rehabilitating, or expanding rail facilities owned or to be owned by the Texas Department of Transportation, including any necessary design, in the manner and locations determined by the Transportation Commission that according to conclusive findings of the commission have an expected useful life, without material repair, of not less than 10 years;
2. To provide participation by the state in the payment of part of the costs of relocating, constructing, reconstructing, acquiring, improving, rehabilitating, or expanding publicly or privately owned rail facilities, including any necessary design, if the commission determines that the project will be in the best interests of the state in its major goal of improving the mobility of the residents of the state and will: (A) relieve congestion on public highways; (B) enhance public safety; (C) improve air quality; (D) or expand economic opportunity.

### ***Operating Entity***

Lastly, Hidalgo County must examine the institutional relationships that will be needed to accomplish and sustain a regional commuter rail operation. Rio Metro and McAllen Express Transit both provide fixed route bus service within the study area using FTA formula allocations along with other resources. It is recommended that Hidalgo County work with study area cities to explore the creation of a regional transit authority that will subsume the roles of both providers. Note that this is already an action item in the MPO's *2010-2035 Metropolitan Transportation Plan*. Chapter 4 lists as a "Long-Range Priority Objective" the development of a "more formal transit governance structure." Such an agency would also be empowered to enter into agreements with UP and short line RRs, pursue and receive grant funding, plan and develop public transportation and ridesharing services throughout the intended service area, thereby allowing for the future expansion of transit services to adjoining counties.



## **Appendix A: Existing Transit (Bus) Maps**

Buses run every hour on the hour.

Salidas de autobuses a cada hora.

### Information Routes & Bus Stops

The routes are mapped out on the reverse page. The time schedule shown correlates with the map for each route. Bus stops are located throughout the routes, if you are uncertain where the nearest stop is located, please contact us.

**Fares**  
Adults: \$1.00  
Elderly (60+): \$0.50  
Children (7-): Free  
Transfers: Free

**Must present ID**  
Person with Disabilities: \$0.50  
Medicare: \$0.50  
Students: Free

**Schedule** Monday - Saturday / 6:00am - 6:50pm  
The times shown above are ESTIMATED ARRIVAL TIMES. From this you can estimate the time of arrival for stops located between these intersections. It is recommended that the passenger arrives at bus stop location 5 minutes before the estimated schedule time.

To purchase tickets at Central Station they must be purchased at the VTC Counter.

To purchase tickets on route EXACT CHANGE IS NEEDED.  
MET does not operate on: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Eve & Christmas Day

### Información Rutas y Paradas de Autobuses

El mapa de las rutas está al reverso. El horario siguiente se correlaciona con el mapa de cada ruta. Las paradas del autobús están localizadas a lo largo de las rutas. Si no está seguro de la ubicación de la parada más cercana, favor de contactarnos.

**Precios**  
Adultos: \$1.00  
Mayor (60+): \$0.50  
Niños (7-): Free  
Transferencias: Free

**Necesita presentar ID**  
Persona con incapacidades: \$0.50  
Medicare: \$0.50  
Estudiantes: Free

**Horario** Lunes - Sábado / 6:00am - 6:50pm  
Los tiempos indicados arriba son TIEMPOS ESTIMADOS DE LLEGADA, y usted puede estimar la hora de llegada para paradas localizadas entre estas intersecciones. Se recomienda que la llegada de pasajeros a las paradas de autobús sean 5 minutos antes del horario estimado.

Los boletos en La Central deben ser comprados en la taquilla de VTC.

Para comprar boletos en la ruta CAMBIO EXACTO ES NECESARIO.  
MET no opera: Día Nuevo, Día Memorial, Día de la Independencia, Día del Trabajo, Día de las Gracias, Noche Buena y Navidad.

### ROUTE GUIDE

<b>1</b>	Central Station 15th St. & Houston 0:05	<b>2</b>	Central Station 10th St. & Gumwood 0:05	<b>3</b>	Central Station 23rd St. & Zieme 0:15	<b>4</b>	Central Station 10th St. & Uvalde 0:00
<b>5</b>	Central Station Hwy 83 & 26th St. 0:05	<b>6</b>	Central Station Main & Orange 0:05	<b>7</b>	Central Station 2nd St. & Hackberry 0:05		
	Central Station Pecan & 30th St. 0:15		Central Station McCoil & Hackberry 0:15		Central Station 2nd St. & Nolana 0:30		
	Central Station Nolana & 10th St. 0:30		Central Station Nolana & 29th St. 0:30		Central Station Dave & McCoil 0:40		
	Central Station Cynthia & Pecan 0:40		Central Station Pecan & 30th St. 0:40		Central Station 2nd St. & Nolana 0:50		
	Central Station 0:50		Central Station 0:50		Central Station 0:50		

### BUS ROUTE KEY

ROUTE	BUS STOP	ROUTE	BUS STOP
1		5	
2		6	
3		7	
4			

### LEGEND

- Shopping Center
- Hospital
- Public Building
- School
- Golf Course
- Grocery Store
- Central Station

### CLAVE DE LA RUTA

Ruta	Parada	Ruta	Parada
1		5	
2		6	
3		7	
4			

### LEYENDA

- Centro Comercial
- Hospital
- Edificio Público
- Escuela
- Campo de Golf
- Mercado
- La Central

### QUICK ROUTE REFERENCE

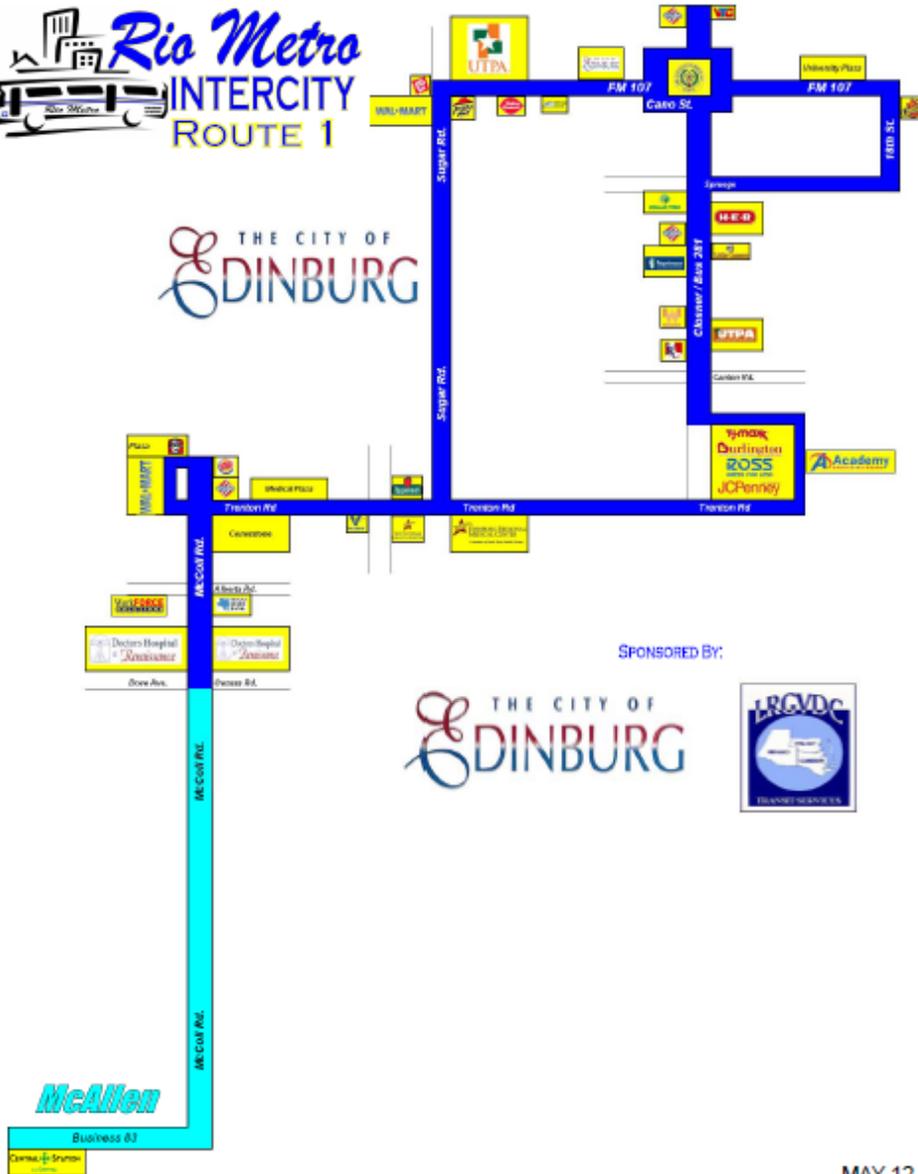
- 1** South, 23rd St. Flea Market Foreign Trade Zone STC - Technical Campus Palm View Community Ctr.
- 2** Compass BBVA Tower Trenton Crossing Shopping Ctr. North Community Ctr. North 10th St.
- 3** North, 23rd St. Lark Community Ctr. Indian Hills Trenton Crossing Shopping Ctr. Northcross Shopping Ctr.
- 4** Grocery Shopping Plaza Mall McAllen International Airport McAllen Shopping Ctr.
- 5** McAllen Convention Ctr. Health & Human Svc. Dept. STC - Main Campus Las Palmas Community Ctr. Post Office El Campo Social Security Office McAllen Theatre (Nolana) IMAS Wal-Mart (29th & Nolana)
- 6** Wellie Farms (2nd St.) Renaissance Hospital Seville Apartments VA Clinic & VA Home Colonia El Rancho



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MAY 12, 2010

McAllen Central Station	6:45 AM	8:40 AM	8:45 AM	10:40 AM	1:40 PM	3:35 PM	3:40 PM	5:40 PM
Edinburg Wal-Mart	7:00 AM	8:30 AM	9:00 AM	10:25 AM	1:55 PM	3:20 PM	3:55 PM	5:25 PM
Edinburg Hospital	7:05 AM	8:20 AM	9:05 AM	10:20 AM	2:00 PM	3:15 PM	4:00 PM	5:20 PM
UTPA	7:15 AM	8:10 AM	9:15 AM	10:10 AM	2:10 PM	3:05 PM	4:10 PM	5:10 PM
University Plaza	7:25 AM	8:00 AM	9:25 AM	10:00 AM	2:20 PM	2:55 PM	4:20 PM	4:55 PM
HEB (Closner)	7:35 AM	7:50 AM	9:35 AM	9:50 AM	2:30 PM	2:45 PM	4:30 PM	4:45 PM
Shoppes at Rio Grande	7:40 AM	7:45 AM	9:40 AM	9:45 AM	2:35 PM	2:40 PM	4:35 PM	4:40 PM

The enclosed map indicates the current Rio Metro bus route. Use the map to select the point closest to where you are and where you want to go. If you are transferring to another route, be sure to get a transfer ticket from the bus driver. Check the time schedule as to when the bus will be going by your stop. Please have the exact fare ready before boarding the bus. Please consult the bus schedule to see when the route runs. Buses are not assigned exact times at every stop. Please try to arrive at your stop a few minutes early. Bus stops are conveniently located throughout the route. If you are uncertain where the nearest stop is located, please call us. Have a pen and paper ready to take down the information given. It is recommended that you wait at a designated bus stop. Do not hesitate to call us at 1-800-574-8322 Monday thru Saturday from 7:00 a.m. to 7:00 p.m. All Rio Metro buses are wheelchair accessible. If you are a wheelchair user please call us a day in advance to schedule your pick-up. The Rio Metro buses do not run on New Year's Day, Memorial Day, 4th of July, Labor Day, Veterans Day, Thanksgiving Day, and Christmas Day.

El mapa muestra las rutas del autobús RioMetro. Localice la ruta más cercana de su punto de salida. Si el lugar donde se dirige no se encuentra en su ruta, el mapa le muestra los puntos de transbordo. Cheque el horario para saber cuando sale su ruta. Los intersecciones principales. Los autobuses no hacen un tiempo exacto para cada parada. De este punto puede estar el tiempo que el autobús tardara para pasar por su parada. Los paradas se localizan en varios puntos en cada ruta. Si usted no está seguro donde se encuentra la parada más cercana, llámenos. Si usted es para con frecuencia sobre todos los buses. Es recomendado que se espere en una de las paradas con señal. Por favor no deje de llamarnos al 1-800-574-8322 Lunes a Viernes desde las 7:00 a.m. hasta las 12:00 p.m. y desde las 9:00 p.m. hasta las 7:00 p.m. Los autobuses Rio Metro están equipados para silla de ruedas. Por favor avísenos 24 horas de anticipación para su reservación en el horario en que usted necesita. Rio Metro no corre los Domingos, Año Nuevo, Día Conmemorativo de los Caídos, Día de Independencia, Día de Trabajador, Día de Acción de Gracias, y Navidad.



# Rio Metro INTERCITY ROUTE 3



San Juan Shrine	6:45 AM	8:40 AM	8:45 AM	10:40 AM	1:40 PM	3:35 PM	3:40 PM	5:42 PM
Nuestra Clinica del Valle	6:47 AM	8:35 AM	8:47 AM	10:35 AM	1:42 PM	3:32 PM	3:42 PM	5:37 PM
Jr's Supermarket	6:50 AM	8:32 AM	8:50 AM	10:32 AM	1:45 PM	3:30 PM	3:47 PM	5:32 PM
HEB - I Rd & Us 83	6:55 AM	8:30 AM	8:55 AM	10:30 AM	1:50 PM	3:25 PM	3:52 PM	5:27 PM
Pharr - I Rd & Bus 83	6:57 AM	8:28 AM	8:57 AM	10:28 AM	1:52 PM	3:23 PM	3:54 PM	5:25 PM
M. Rivas Cage & Polk	7:00 AM	8:25 AM	9:00 AM	10:25 AM	1:55 PM	3:20 PM	3:57 PM	5:22 PM
VTC / Library	7:05 AM	8:20 AM	9:05 AM	10:20 AM	2:00 PM	3:15 PM	4:02 PM	5:17 PM
Jr's Supermarket	7:10 AM	8:15 AM	9:10 AM	10:15 AM	2:05 PM	3:10 PM	4:07 PM	5:12 PM
S. Cage & Austin St	7:15 AM	8:10 AM	9:15 AM	10:10 AM	2:10 PM	3:05 PM	4:12 PM	5:07 PM
Jr's Supermarket	7:20 AM	8:05 AM	9:20 AM	10:05 AM	2:15 PM	3:00 PM	4:17 PM	5:02 PM
VTC / Library	7:25 AM	8:00 AM	9:25 AM	10:00 AM	2:20 PM	2:55 PM	4:22 PM	4:57 PM
Bus 83 & Sugar Rd	7:30 AM	7:55 AM	9:30 AM	9:55 AM	2:25 PM	2:50 PM	4:27 PM	4:52 PM
McAllen Central Station	7:40 AM	7:45 AM	9:40 AM	9:45 AM	2:35 PM	2:40 PM	4:37 PM	4:42 PM

MAY 12, 2010

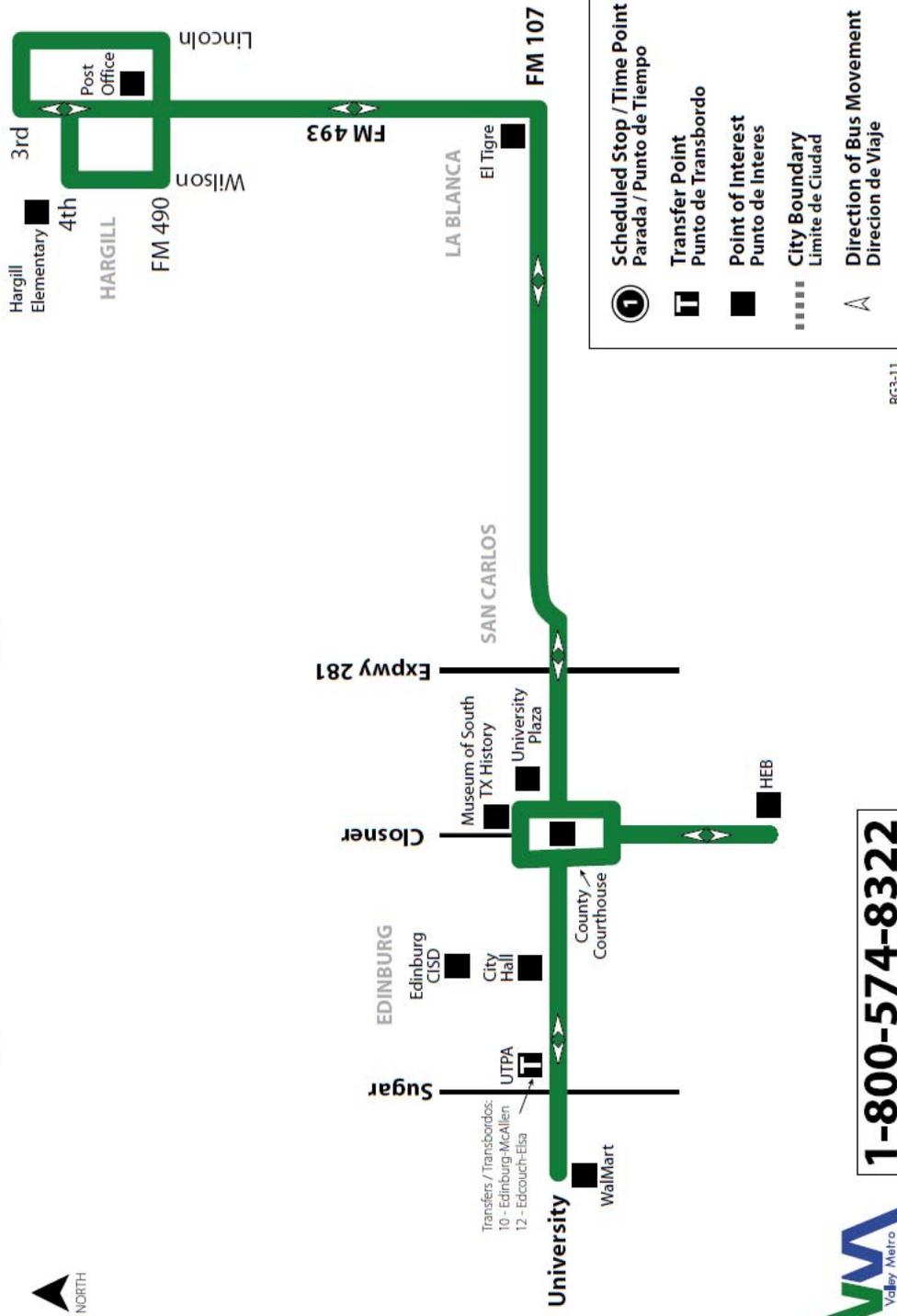
The enclosed map indicates the current Rio Metro bus route. Use the map to select the point closest to where you are and where you want to go. If you are transferring to another route, be sure to get a transfer ticket from the bus driver. Check the time schedule as to when the bus will be going by your stop. Please have the exact fare ready before boarding the bus. Please consult the bus schedule to see when the route runs. Buses are not assigned exact times at every stop. Please try to arrive at your stop a few minutes early. Bus stops are conveniently located throughout the route. If you are uncertain where the nearest stop is located, please call us at 1-800-574-8320. Do not hesitate to call us at 1-800-574-8320 Monday thru Saturday from 7:00 a.m. to 7:00 p.m. All Rio Metro buses are wheelchair accessible. If you are a wheelchair user please call us a day in advance to schedule your pick-up. The Rio Metro buses do not run on New Year's Day, Memorial Day, 4th of July, Labor Day, Veterans Day, Thanksgiving Day, and Christmas Day.

SPONSORED BY:



El mapa muestra las rutas del autobús Rio Metro. Localice la ruta más cercana de su punto de salida. Si el lugar donde se dirige no se encuentra en su ruta, el mapa le muestra los puntos de transbordo. Cheque el horario para saber cuándo sale su ruta. Las intersecciones principales. Los autobuses no tienen un tiempo exacto para cada parada. De este punto puede estimar el tiempo que el autobús tomará para pasar por su parada. Las paradas se localizan en varios puntos en cada ruta. Si usted no está seguro donde se encuentra la parada más cercana, llámenos. El autobús se para con frecuencia sobre todas las rutas. Es recomendado que se espere en una de las paradas con anticipación. Por favor no deje de llamarnos al 1-800-574-8320 Lunes a Viernes desde las 7:00 a.m. hasta las 12:00 p.m. y desde las 1:00 p.m. hasta las 7:00 p.m. Los autobuses Rio Metro están equipados para silla de ruedas. Por favor avise al hora de anotación para su reserva en un día con anticipación. Los autobuses no corren los días de Navidad, Día de Acción de Gracias, y Navidad. Comemorativo de los Cuados, Día de Independencia, Día de Trabajador, Día de Acción de Gracias, y Navidad.

# 11 - Hargill - Edinburg

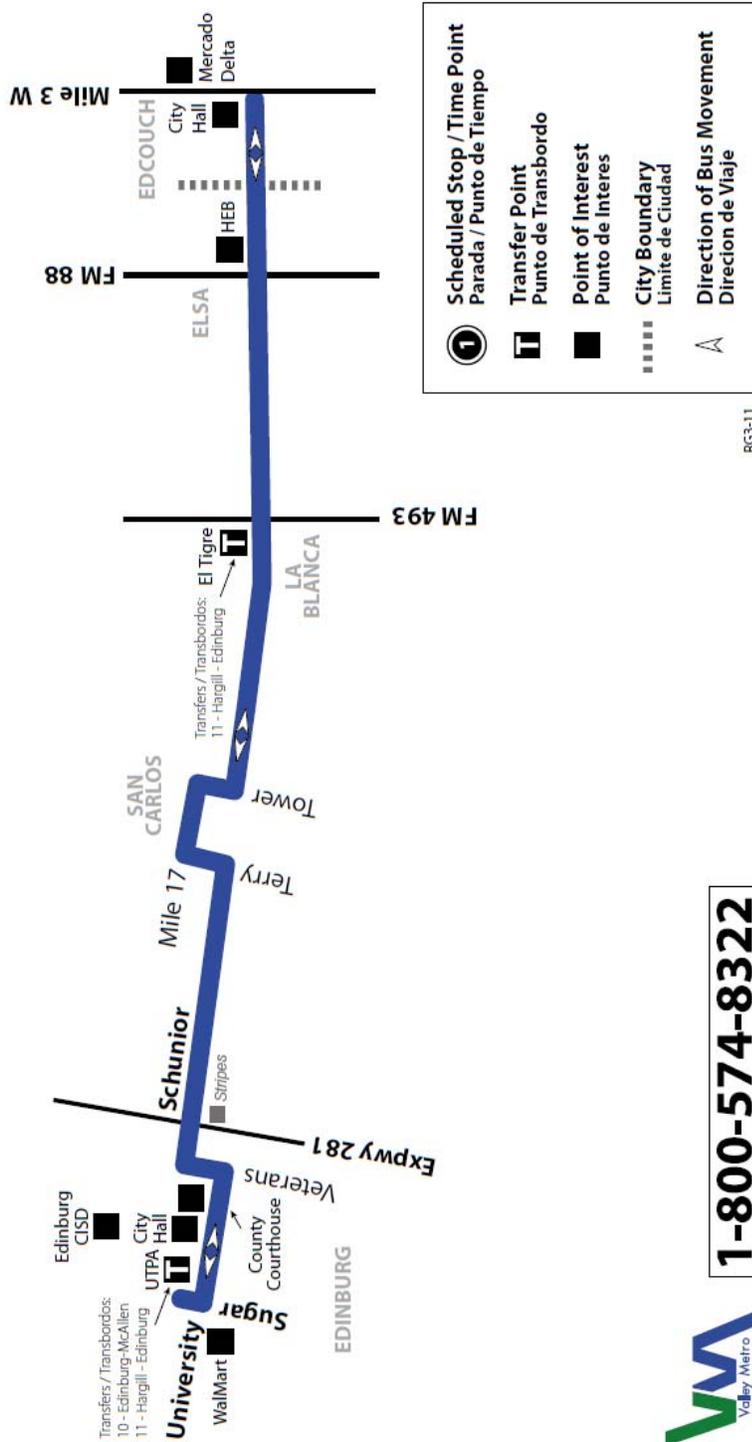


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**1-800-574-8322**



# 12- Edcouch/Elsa - Edinburg

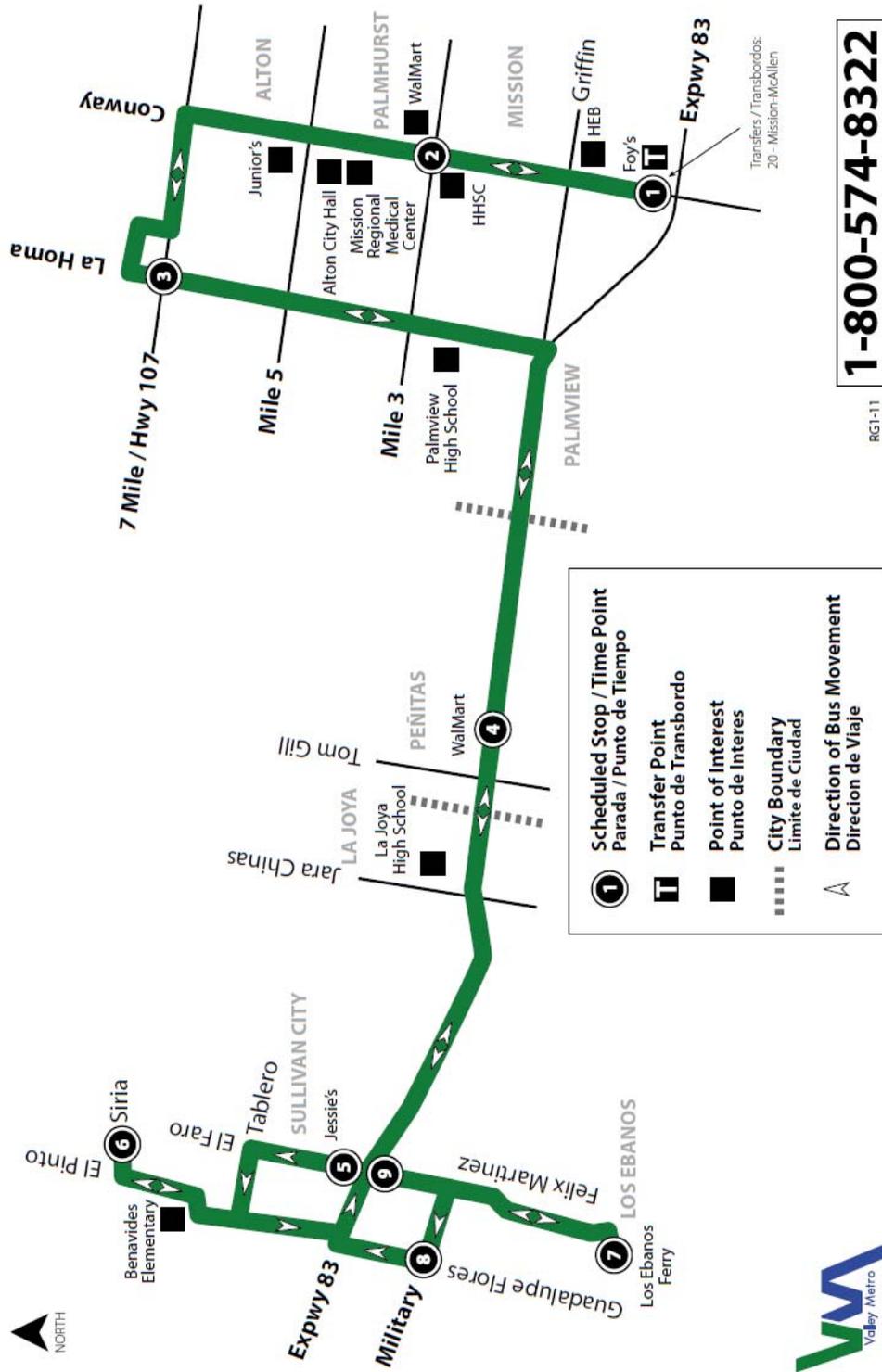


RG3-11

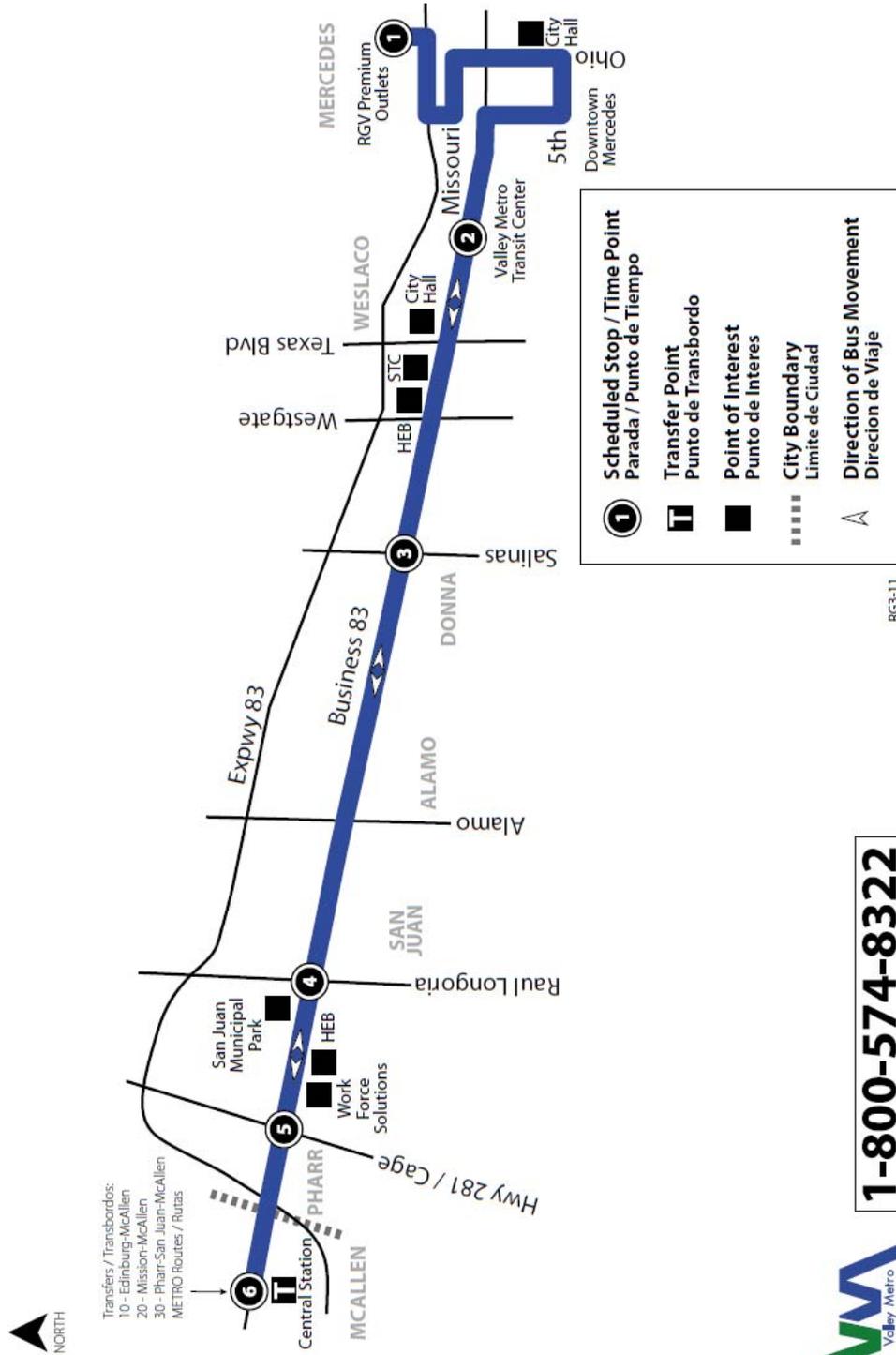


**1-800-574-8322**

# 21 - Sullivan City - Mission



# 31 - Business 83



## **Appendix B: Full Detail of Cost Estimates**

# Capital Costs

HIDALGO COUNTY RAIL						
Rough Order of Magnitude Capital Cost Estimate						
Option 1: 15 Minutes Peak Headway						
Date:	3/10/2011					
SCC No	Description	UM	Unit Cost	Qty	Extended Cost	Remarks
<b>10</b>	<b>GUIDEWAY &amp; TRACK ELEMENTS</b>				<b>\$ 65,192,632</b>	
10.01	At Grade Major Crossings Asphaltic Concrete Pavement	SF	\$ 3.43	397,390	\$ 1,363,048	Refer to Hidalgo County Rail Crossings - 15 Minutes Peak Headway - By S&B Infrastructure
10.02	At Grade Minor Crossings Asphaltic Concrete Pavement	SF	\$ 2.20	233,970	\$ 514,734	Refer to Hidalgo County Rail Crossings - 15 Minutes Peak Headway - By S&B Infrastructure
10.03	At Grade Crossings Concrete Panel	TF	\$ 100.00	11,927	\$ 1,192,700	Total Length of crossings 11,927 TF
10.04	Track Ballasted (incl. ties)	TF	\$ 160.00	196,944	\$ 31,511,040	Main Trackline increased 2.8 miles on 3/3/11. New Total System Length is 34.5+2.8 = 37.3 Miles
10.05	Track Secondary (E-W Sidings)	TF	\$ 160.00	76,560	\$ 12,249,600	One (1) mile added due to new Phar and STCC Stations locations (Phar-0.7miles + STCC-0.3miles)
10.06	Track Secondary (N-S Sidings)	TF	\$ 160.00	29,040	\$ 4,646,400	
10.07	Track New Turnouts No. 9 (Spur)	EA	\$ 106,450.00	47	\$ 5,003,150	
10.08	Track New Turnouts No. 20 (Sidings)	EA	\$ 215,180.00	22	\$ 4,733,960	
10.09	Existin Bridge Structure Rehabilitation	LF	\$ 2,600.00	1,530	\$ 3,978,000	Unit Cost based on DCTA Bridge Structure Rehab. Item Added on 3/3/11
<b>20</b>	<b>STATIONS</b>				<b>\$ 8,505,860</b>	
20.01	Platform Concrete	LS	\$ 300,000.00	11	\$ 3,300,000	Assumed: 300-LF long, High-platform (top of platform is level with coach or DMU floor)
20.02	Canopies	LS	\$ 150,920.00	11	\$ 1,660,120	Unit cost based on DCTA and Cap. Metro Rail Cost Data.
20.03	Furniture/Fixtures	LS	\$ 35,000.00	11	\$ 385,000	
20.04	Finishes	LS	\$ 15,000.00	11	\$ 165,000	
20.05	Electrical (Platform)	LS	\$ 70,000.00	11	\$ 770,000	
20.06	Parking	Space	\$ 180.00	3,355	\$ 603,900	Parking Space Quantity Provided by D.C.
20.07	Parking Electrical	LS	\$ 23,240.00	11	\$ 255,640	
20.08	Busway Drive	SY	\$ 90.00	15,180	\$ 1,366,200	SY - TBD
20.09	Property (ROW/Land acquisition) - @ \$44,000.00/AC			W/SCC 60		Included with Category 60
20.10	Property (ROW/Land acquisition) - @ \$355,000.00/AC			W/SCC 60		Included with Category 60
<b>30</b>	<b>SUPPORT FACILITIES: YARDS, SHOPS, ADM. BLDGS.</b>				<b>\$ 21,860,500</b>	Unit Cost based on Capital Metro, Austin - TX
30.01	Demolition	LS	\$ 874,000.00	1	\$ 874,000	
30.02	Earth Work	LS	\$ 120,000.00	1	\$ 120,000	
30.03	Track Work	LS	\$ 2,500,000.00	1	\$ 2,500,000	
30.04	Site Improvements	LS	\$ 300,000.00	1	\$ 300,000	
30.05	Facility Building Complete (Incl. Electr & Mech. Work)	LS	\$ 8,250,000.00	1	\$ 8,250,000	
30.06	Paving & Surfacing	LS	\$ 586,500.00	1	\$ 586,500	
30.07	Maintenance Shed	LS	\$ 2,600,000.00	1	\$ 2,600,000	
30.08	Car Was - Cleaning Equipment	LS	\$ 1,500,000.00	1	\$ 1,500,000	
30.09	Pipe Utilities	LS	\$ 980,000.00	1	\$ 980,000	
30.10	Yard Electrical	LS	\$ 4,150,000.00	1	\$ 4,150,000	
30.11	Property (ROW/Purchase of Land) - W/SCC - 60			W/SCC 60		Included with Category 60
<b>40</b>	<b>SITework &amp; SPECIAL CONDITIONS</b>				<b>\$ 15,869,766</b>	
40.01	Existing Track Removal (Main Trackline only)	TF	\$ 6.00	196,944	\$ 1,181,664	Main Trackline only.
40.02	Turnouts Removal	EA	\$ 5,500.00	47	\$ 258,500	
40.03	Clearing & Grubbing - ROW (light)	AC	\$ 4,300.00	362	\$ 1,555,297	Assumed ROW = 80 LF Wide (Google Earth)
40.04	Subballast	CY	\$ 31.00	209,166	\$ 6,484,153	Assumed Subballast W=28 LF, H= 8" Crushed limestone.
40.05	Subgrade Preparation	SY	\$ 2.00	941,248	\$ 1,882,496	Assumed Subgrade W=28 LF.
40.06	Drainage Improvements - "V" Earth Ditch	LS	\$ 1.00	550,000	\$ 550,000	Assumed earth ditch along both sides of main railtrack . Unit Cost from RS Means, First Qter. 2011
40.07	Utility Relocation	ML	\$ 60,000.00	37.3	\$ 2,238,000	Unit Cost based on DCTA - Denton County Rail Project Cost data.
40.08	Mobilization (1.5%)	LS			\$ 1,719,656	
<b>50</b>	<b>SYSTEMS</b>				<b>\$ 29,696,500</b>	
50.01	Communications	LS	\$ 4,668,000.00	1	\$ 4,668,000	TBD, if additional is required for the second track
50.02	Fare Collection & Equipment (TVM, DMS, Cameras, Blue Ph	EA	\$ 200,000.00	11	\$ 2,200,000	
50.03	Central Control	LS	\$ 2,500,000.00	1	\$ 2,500,000	
50.04	Automated Rail Crossing Control (Gates, Flashers & Wayside Signals)	ML	\$ 545,000.00	37.3	\$ 20,328,500	
<b>60</b>	<b>ROW, LAND.</b>				<b>\$ 5,287,000</b>	
60.01	ROW/Property (Land acquisition) for Stations	AC	\$ 41,000.00	57	\$ 2,337,000	Station/Parking Lot area per Smart Project, prorated per parking capacity (# of parking spaces)
60.02	ROW/Property (Land acquisition) for Stations	AC	\$ 355,000.00	6	\$ 2,130,000	Station/Parking Lot area per Smart Project, prorated per parking capacity (# of parking spaces)
60.03	ROW/Property (Land acquisition) for Support Facility	AC	\$ 41,000.00	20	\$ 820,000	Property Area based on DCTA O&M Facility. U. Cost from Hidalgo County Appraisal District.
<b>70</b>	<b>VEHICLES</b>				<b>\$ 55,216,000</b>	
70.01	DMU (FRA Compliant)	EA	\$ 3,248,000.00	17	\$ 55,216,000	Smart - The Sonoma Marin Area (CA) Rail System, & Capital Metro.
<b>80</b>	<b>SOFT COST</b>				<b>\$ 36,692,567</b>	
80.01	Preliminary Engineering	%	\$ 141,125,257.88	2.5%	\$ 3,528,131	
80.02	Final Design	%	\$ 141,125,257.88	6.0%	\$ 8,467,515	
80.03	Project Management for Design & Construction	%	\$ 141,125,257.88	8.0%	\$ 11,290,021	
80.04	Construction Administration & Management	%	\$ 141,125,257.88	4.0%	\$ 5,645,010	
80.05	Insurance	%	\$ 141,125,257.88	1.5%	\$ 2,116,879	
80.06	Legal: Permits/Fees	%	\$ 141,125,257.88	1.0%	\$ 1,411,253	
80.07	Surveys, Testing, Inspection	%	\$ 141,125,257.88	1.5%	\$ 2,116,879	
80.08	Start-up and Testing	%	\$ 141,125,257.88	1.5%	\$ 2,116,879	
	<b>Sub-Total</b>				<b>\$ 238,320,825</b>	
<b>90</b>	<b>CONTINGENCY</b>	%		30%	<b>\$ 71,496,247</b>	
	<b>TOTAL BASELINE PROJECT COST</b>				<b>\$ 309,817,072</b>	
	<b>CONSTRUCTION COST PER MILE</b>			MLE	57.3	\$ 5,406,930

<b>Qualifications</b>					
	<b>Option 1: 15 Minutes Peak Headway</b>				
1	This estimate is based on: Data gathered from "Copy of Report for Hidalgo County Rail Study" (HCMPO), dated February 28, 2005.				
2	Drawing Info.: Preliminary Drawings/Sketches such as: Existing Rail Tracks Hidalgo County Area Hidalgo County Thoroughfare Updates (Amended 12/4/03) Hidalgo County Transit Routes Existing Rail Tracks Hidalgo County Area (Highlighted Stations Location) All At-Grade Rail Crossings Hidalgo County Area All At-Grade Rail Spurs Hidalgo County Area Potential Rail Stations with 2030 Traffic Analysis Zones Hidalgo County Area				
3	This estimate includes: Parametric Unit Costs, developed using data from recent and similar Rail Projects around the country, such as DCTA-TX (Denton County Transportation Authority), Capital Metro - Austin, TX, SMART - CA ( Sonoma-Marin Area Rail Transit District.				
4	This estimate includes: A Trackline Total of 37.3 ML, proposed as follows: West Leg: 6.6 ML., North Leg: 10.5 ML & East Leg: 20.2. Track length increased 2.8 miles on 3/3/11.				
5	This estimate includes costs for removal/replacement of existing Main Railway.				
6	This estimate includes costs for removal/replacement of 47-ea existing Turnouts No. 9 at Main Trackline.				
7	This estimate includes Cost/Mile Ballasted Track for both, main and second rail alignments.				
8	This estimate includes costs for New Turnouts No. 20 at Sidings.				
9	This estimate includes cost for 11 proposed Park and Ride Stations: West Leg: Mission and McAllen Central, North Leg: McAllen North, Edinburg Central and Edinburg 281, and East Leg: McAllen East, Pharr, San Juan, Alamo-Donna, Weslaco-STCC and Mercedes.				
10	This estimate includes cost for Right Of Way -(ROW)/Property acquisition for 11-ea Stations and 1-ea Maintenance Facility, based on Hidalgo County Appraisal District Report, Dated January 19, 2011				
11	This estimate include cost for Station/Parking Lot area based on Smart Project, prorated according with the parking capacity (number of parking spaces).				
12	This estimate includes cost for grade crossings Asphaltic Concrete Pavement and Concrete Panel, based on S&B Infrastructure information.				
13	This estimate includes Cost for Rail Automated Crossing Signals (Gates, Flashers and Wayside Signals with control points and intermediate signals)				
14	This estimate includes cost per LF of earth ditch along both sides of the main track alignment.				
15	This estimate includes cost per mile for utility relocation along the main track alignment, based on DCTA Data Cost information.				
16	This estimate includes Cost for seventeen (17) proposed DMU Vehicles, based on parametric unit costs data from SMART - CA - Sonoma-Marin Area Rail Transit District and Capital Metro, Austin, TX.				
17	This estimate includes Soft Cost based on TCRP Report "Estimating Soft Cost for Transit Projects"				
18	This estimate includes Cost to Rehabilitate an existing 1,530 LF Bridge. This item was added on 3/3/11. Unit Cost based on DCTA Data Cost Information.				
19	This estimate does not include cost for Sound/Retaining walls.				

HIDALGO COUNTY RAIL						
Rough Order of Magnitude Capital Cost Estimate						
Option 2: 30 Minutes Peak Headway						
Date:	3/10/2011					
SCC No	Description	UM	Unit Cost	Qty	Extended Cost	Remarks
<b>10</b>	<b>GUIDEWAY &amp; TRACK ELEMENTS</b>				<b>\$ 55,774,325</b>	
10.01	At Grade Major Crossings Asphaltic Concrete Pavement	SF	\$ 3.43	403,420	\$ 1,383,731	Refer to Hidalgo County Rail Crossings - 30 Minutes Peak Headway - By S&B Infrastructure
10.02	At Grade Minor Crossings Asphaltic Concrete Pavement	SF	\$ 2.20	238,020	\$ 523,644	Refer to Hidalgo County Rail Crossings - 30 Minutes Peak Headway - By S&B Infrastructure
10.03	At Grade Crossings Concrete Panel	TF	\$ 100.00	10,774	\$ 1,077,400	Total Length of crossings 10774 TF - By S&B Infrastructure
10.04	Track Ballasted (incl. ties)	TF	\$ 160.00	196,944	\$ 31,511,040	Main Trackline increased 2.8 miles on 3/3/11. New Total System Length is 34.5+2.8 = 37.3 Miles
10.05	Track Secondary (E-W Sidings)	TF	\$ 160.00	42,240	\$ 6,758,400	
10.06	Track Secondary (N-S Sidings)	TF	\$ 160.00	18,480	\$ 2,956,800	
10.07	Track New Turnouts No. 9 (Spur)	EA	\$ 106,450.00	47	\$ 5,003,150	
10.08	Track New Turnouts No. 20 (Sidings)	EA	\$ 215,180.00	12	\$ 2,582,160	
10.09	Existin Bridge Structure Rehabilitation	LF	\$ 2,600.00	1,530	\$ 3,978,000	Unit Cost based on DCTA Bridge Structure Rehab. Item Added on 3/3/11
<b>20</b>	<b>STATIONS</b>				<b>\$ 8,505,860</b>	
20.01	Platform Concrete	LS	\$ 300,000.00	11	\$ 3,300,000	Unit Cost Based /Assumed 300-LF long, High-platform (top of platform is level with coach or DMU floor)
20.02	Canopies	LS	\$ 150,920.00	11	\$ 1,660,120	Unit cost based on DCTA and Cap. Metro Rail Data Cost Information.
20.03	Furniture/Fixtures	LS	\$ 35,000.00	11	\$ 385,000	
20.04	Finishes	LS	\$ 15,000.00	11	\$ 165,000	
20.05	Electrical (Platform)	LS	\$ 70,000.00	11	\$ 770,000	
20.06	Parking	Space	\$ 180.00	3,355	\$ 603,900	Parking Space Quantity Provided based on area ridership.
20.07	Parking Electrical	LS	\$ 23,240.00	11	\$ 255,640	
20.08	Busway Drive	SY	\$ 90.00	15,180	\$ 1,366,200	Assumed a total of 1,380-SY of Busway per Station. Broken Arrow/Tulsa Mass Transit Study.
20.09	Property (ROW/Land acquisition) - @ \$44,000.00/AC			W/SCC 60		Included with Category 60
20.10	Property (ROW/Land acquisition) - @ \$355,000.00/AC			W/SCC 60		Included with Category 60
<b>30</b>	<b>SUPPORT FACILITIES: YARDS, SHOPS, ADM. BLDGS.</b>				<b>\$ 21,860,500</b>	
30.01	Demolition	LS	\$ 874,000.00	1	\$ 874,000	
30.02	Earth Work	LS	\$ 120,000.00	1	\$ 120,000	
30.03	Track Work	LS	\$ 2,500,000.00	1	\$ 2,500,000	
30.04	Site Improvements	LS	\$ 300,000.00	1	\$ 300,000	
30.05	Facility Building Complete (Incl. Electr & Mech. Work)	LS	\$ 8,250,000.00	1	\$ 8,250,000	
30.06	Paving & Surfacing	LS	\$ 586,500.00	1	\$ 586,500	
30.07	Maintenance Shed	LS	\$ 2,600,000.00	1	\$ 2,600,000	
30.08	Car Was - Cleaning Equipment	LS	\$ 1,500,000.00	1	\$ 1,500,000	
30.09	Pipe Utilities	LS	\$ 980,000.00	1	\$ 980,000	
30.10	Yard Electrical	LS	\$ 4,150,000.00	1	\$ 4,150,000	
30.11	Property (ROW/Land acquisition) - @ \$44,000.00/AC			W/SCC 60		Included with Category 60
<b>40</b>	<b>SITework &amp; SPECIAL CONDITIONS</b>				<b>\$ 14,339,577</b>	
40.01	Existing Track Removal (Main Trackline only)	TF	\$ 6.00	196,944	\$ 1,181,664	Main Trackline only.
40.02	Turnouts Removal	EA	\$ 5,500.00	47	\$ 258,500	
40.03	Clearing & Grubbing - ROW (light)	AC	\$ 4,300.00	362	\$ 1,555,297	Assumed ROW = 80 LF Wide (Google Earth)
40.04	Subballast	CY	\$ 31.00	178,138	\$ 5,522,280	Assumed Subballast W=28 LF, H= 8" Crushed limestone.
40.05	Subgrade Preparation	SY	\$ 2.00	801,621	\$ 1,603,243	Assumed Subgrade W=28 LF.
40.06	Drainage Improvements -"V" Earth Ditch	LS	\$ 1.00	550,000	\$ 550,000	Assumed earth ditch along both sides of main railtrack . Unit Cost from RS Means, First Qtr. 2011
40.07	Utility Relocation	ML	\$ 60,000.00	37.3	\$ 2,238,000	Unit Cost based on DCTA - Denton County Rail Project Cost data.
40.08	Mobilization (1.5%)	LS			\$ 1,430,593	
<b>50</b>	<b>SYSTEMS</b>				<b>\$ 29,696,500</b>	
50.01	Communications	LS	\$ 4,668,000.00	1	\$ 4,668,000	TBD. If additional is required for the second track
50.02	Fare Collection & Equipment (TVM, DMS, Cameras, Blue Ph	EA	\$ 200,000.00	11	\$ 2,200,000	
50.03	Central Control	LS	\$ 2,500,000.00	1	\$ 2,500,000	
50.04	Automated Rail Crossing Control (Gates, Flashers & Wayside Signals)	ML	\$ 545,000.00	37.3	\$ 20,328,500	
<b>60</b>	<b>ROW, LAND.</b>				<b>\$ 5,287,000</b>	
60.01	ROW/Property (Land acquisition) for Stations	AC	\$ 41,000.00	57	\$ 2,337,000	Station/Parking Lot area per Smart Project, prorated per parking capacity (# of parking spaces)
60.02	ROW/Property (Land acquisition) for Stations	AC	\$ 355,000.00	6	\$ 2,130,000	Station/Parking Lot area per Smart Project, prorated per parking capacity (# of parking spaces)
60.03	ROW/Property (Land acquisition) for Support Facility	AC	\$ 41,000.00	20	\$ 820,000	Property Area based on DCTA O&M Facility. U.Cost from Hidalgo County Appraisal District.
<b>70</b>	<b>VEHICLES</b>				<b>\$ 35,728,000</b>	
70.01	DMU (FRA Compliant)	EA	\$ 3,248,000.00	11	\$ 35,728,000	Smart - The Sonoma Marin Area (CA) Rail System, & Capital Metro.
<b>80</b>	<b>SOFT COST</b>				<b>\$ 33,845,958</b>	
80.01	Preliminary Engineering	%	\$ 130,176,761.78	2.5%	\$ 3,254,419	
80.02	Final Design	%	\$ 130,176,761.78	6.0%	\$ 7,810,606	
80.03	Project Management for Design & Construction	%	\$ 130,176,761.78	8.0%	\$ 10,414,141	
80.04	Construction Administration & Management	%	\$ 130,176,761.78	4.0%	\$ 5,207,070	
80.05	Insurance	%	\$ 130,176,761.78	1.5%	\$ 1,952,651	
80.06	Legal: Permits/Fees	%	\$ 130,176,761.78	1.0%	\$ 1,301,768	
80.07	Surveys, Testing, Inspection	%	\$ 130,176,761.78	1.5%	\$ 1,952,651	
80.08	Start-up and Testing	%	\$ 130,176,761.78	1.5%	\$ 1,952,651	
	<b>Sub-Total</b>				<b>\$ 205,037,720</b>	
<b>90</b>	<b>CONTINGENCY</b>	%		30%	<b>\$ 61,511,316</b>	
	<b>TOTAL BASELINE PROJECT COST</b>				<b>\$ 266,549,036</b>	
	<i>CONSTRUCTION COST PER MILE</i>			MLE 48.8	\$ 5,462,070	

<b>Qualifications</b>					
	<b>Option 2: 30 Minutes Peak Headway</b>				
1	This estimate is based on: Data gathered from "Copy of Report for Hidalgo County Rail Study" (HCMPO), dated February 28, 2005.				
2	Drawing Info.: Preliminary Drawings/Sketches such as: Existing Rail Tracks Hidalgo County Area Hidalgo County Thoroughfare Updates (Amended 12/4/03) Hidalgo County Transit Routes Existing Rail Tracks Hidalgo County Area (Highlighted Stations Location) All At-Grade Rail Crossings Hidalgo County Area All At-Grade Rail Spurs Hidalgo County Area Potential Rail Stations with 2030 Traffic Analysis Zones Hidalgo County Area				
3	This estimate includes: Parametric Unit Costs, developed using data from recent and similar Rail Projects around the country, such as DCTA-TX (Denton County Transportation Authority), Capital Metro - Austin, TX, SMART - CA ( Sonoma-Marin Area Rail Transit District.				
4	This estimate includes: A Trackline Total of 37.3 ML, proposed as follows: West Leg: 6.6 ML., North Leg: 10.5 ML & East Leg: 20.2. Track length increased 2.8 miles on 3/3/11.				
5	This estimate includes costs for removal/replacement of existing Main Trackline.				
6	This estimate includes costs for removal/replacement of 47-ea existing Turnouts No. 9 at Main Trackline.				
7	This estimate includes Cost/Mile Ballasted Track for both, main and second rail alignments.				
8	This estimate includes costs for 12-ea New Turnouts No. 20 at Sidings.				
9	This estimate includes cost for 11 proposed Park and Ride Stations: West Leg: Mission and McAllen Central, North Leg: McAllen North, Edinburg Central and Edinburg 281, and East Leg: McAllen East, Pharr, San Juan, Alamo-Donna, Weslaco-STCC and Mercedes.				
10	This estimate includes cost for Right Of Way -(ROW)/Property acquisition for 11-ea Stations and 1-ea Maintenance Facility, based on Hidalgo County Appraisal District Report, Dated January 19, 2011				
11	This estimate include cost for Station/Parking Lot area based on Smart Project, prorated according with the parking capacity (number of parking spaces).				
12	This estimate includes cost for grade crossings Asphaltic Concrete Pavement and Concrete Panel, based on S&B Infrastructure information.				
13	This estimate includes Cost for Rail Automated Crossing Signals (Gates, Flashers and Wayside Signals with control points and intermediate signals)				
14	This estimate includes cost per LF of earth ditch along both sides of the main track alignment.				
15	This estimate includes cost per mile for utility relocation along the main track alignment, based on DCTA Data Cost information.				
16	This estimate includes Cost for eleven (11) proposed DMU Vehicles, based on parametric unit costs data from SMART - CA - Sonoma-Marin Area Rail Transit District and Capital Metro, Austin, TX				
17	This estimate includes Soft Cost based on TCRP Report "Estimating Soft Cost for Transit Projects"				
18	This estimate includes Cost to Rehabilitate an existing 1,530 LF Bridge. This item was added on 3/3/11. Unit Cost based on DCTA Data Cost Information.				
19	This estimate does not include cost for Sound/Retaining walls.				

# Operating and Maintenance Costs

HIDALGO COUNTY RAIL									
Annually O&M Cost Plan									
Option 1: 15 Minutes Peak Headway									
Based on Smart - Sonoma, CA 35 miles - Initial Operation Segment Jan.27/2011									
Item	Units	Unit \$ 2011	No. Units	Total \$	Remarks	Main Tr-Line	2nd. Tr-EW	2nd. Tr NS	Total
<b>Variable Cost:</b>									
Fuel	Train Miles	4.50	872,820	3,927,690	15 Min headway peak 30 min. offpeak				
Train & Crews	Train Hours	86.24	41,080	3,542,739	15 Min headway peak 30 min. offpeak				
Equip. Maintenance	Units	86240	17	1,466,080	From SMART Avg. mainten. cost per unit per 17-ea vehicles				
<b>Fixed Cost:</b>									
Track & Signal (Maint. Of Way)	Track Mile	41200	57	2,360,760	From SMART Average Track maintenance cost per mile				
Dispatch	No. Staff	176800	13	2,298,400	Assumed 1 operator per station + dispatcher +supv				
Insurance	Lump Sum	1	2,000,000	2,000,000	Average Cost of insurance per year				
General & Administration	Lump Sum	1	1,500,000	1,500,000	Based on SMART Average Administration cost per year.				
Sub-Total				17,095,669					
Contingency (10%)				1,709,567					
Total Estimated O&M Cost				18,805,236					
Option 2: 30 Minutes Peak Headway									
Based on Smart - Sonoma, CA 35 miles - Initial Operation Segment Jan.27/2011									
Item	Units	Unit \$ 2011	No. Units	Total \$	Remarks	Main Tr-Line	2nd. Tr-EW	2nd. Tr NS	Total
<b>Variable Cost:</b>									
Fuel	Train Miles	4.50	446,108	2,007,486	30 min. headway peak 1 hour off peak				
Train & Crews	Train Hours	86.24	21,034	1,813,972	30 min. headway peak 1 hour off peak				
Equip. Maintenance	Units	86240	11	948,640	From SMART Avg. mainten. cost per unit per 17-ea vehicles				
<b>Fixed Cost:</b>									
Track & Signal (Maint. Of Way)	Track Mile	41200	49	2,010,560	From SMART Average Track maintenance cost per mile				
Dispatch	No. Staff	176800	13	2,298,400	Assumed 1 operator per station + dispatcher +supv				
Insurance	Lump Sum	1	2,000,000	2,000,000	Average Cost of insurance per year				
General & Administration	Lump Sum	1	1,500,000	1,500,000	Based on SMART Average Administration cost per year.				
Sub-Total				12,579,058					
Contingency (10%)				1,257,906					
Total Estimated O&M Cost				13,836,964					

## **Appendix C: Transcripts of Stakeholder Interviews**

# THE WARREN GROUP

A R C H I T E C T S I N C .

1801 South 2nd. Street, Ste. 370 McAllen, TX 78505

## Meeting Notes:

**Date:** February 06, 2011  
**Project:** Hidalgo County Commuter Rail Feasibility Study  
**Present:** Phil Dyer Capote International Business Park  
Laura N. Warren The Warren Group Architects, Inc.  
Andrina Garza The Warren Group Architects, Inc.

**Copy:** David Manuel, File.

**Re:** Stakeholder's Interviews – 350 acre Master-Planned Development: Capote International Business Park. Pharr, Texas  
TWG Job No. 911001

- **What transit services does your city currently have and need? (types, locations, who needs it)**  
The city of Pharr currently uses the McAllen Express Bus system which is currently used fairly.  
The Metro currently has approximately five stops.  
VTC Bus line goes thru Pharr which used to have a Bus station within the city limit which is now closed. Reason is unknown as VTC was widely used by Pharr residents.  
The main users of public transportation is the mid to lower income families who only share one vehicle in a household or have no other means of transportation.  
The City currently owns four trolley cars that are successfully used by City Public events and by the local Chamber of Commerce tours.
- **What is the real-estate potential of higher density developments around new stations?**  
High potential for higher density development in the form of single family and multi-family residences. Current development tends to develop around the current Bus stations.  
STC proposed campus is to be located at the south side of the City and will greatly benefit from public transportation.  
Traffic flow along HWY Business 83 and Cage Blvd. (HWY Bus. 281) will also benefit from a station in this area taking advantage of existing rail and previous location of the original rail station.  
The City of Pharr discussed that there is a railway need around the South Side of the city. Back in the day, it was known that the Train Depot was the original key stop for the Rio Grande Valley, located on Business 83. Traffic currently flows from 281 to get to the South side. Current Planning is being made to have a branch of STC College in the North side of Pharr which will benefit from this rail system transportation for students and personnel.  
The city is also currently implementing mix use Community Developments to include Residential, Retail, and Restaurants.  
City is not looking into competing against Metro or Taxi Cabs. The City currently uses the McAllen Express Trolley System for Community Events and/or Historic Tours that are run by the City's Chamber of Commerce. This system is currently not for public use. The CDBG currently pays for the Metro to run through the City and they stated there is a demand for some more stops. The Metro is non-profit and currently a benefit to the City of Pharr.
- **Where do City Employees live?**  
Most of the employees live with-in a 10 mile radius of City Hall.
- **Potential station areas are mostly zoned Commercial/Industrial. What's the feasibility of directing more jobs there?**

Industrial: South side of Pharr has an Industrial Park and other Developments that could benefit from both freight and passenger Rail. If possible, the additions of a rail that will provide product transportation north-south will greatly promote Industrial development in this City. There is no current need for an International passenger rail nor bus crossing as the international bridge is only for commercial use. The natural configuration of the bridge does not allow for pedestrian use. (too long)  
Current neighboring properties along the ROW have a high potential for development. North and South of Pharr have families that would need us to provide transportation for people to get to their place of employment.

- **What types of trips should be served?**  
The creation of a new Campus by South Texas College at the south side of town will greatly benefit from rail-public transportation service. If the Rail is to develop, then STC will have reaction and will focus the development towards the Rail. The City also has a new High School. School district personnel will greatly benefit from public transportation. The existing Rail ROW is with-in walking distance from City of Pharr and Downtown areas this will promote faster and stronger commercial and retail development in this area.
- **Are there areas of increasing congestion in the region where worsening conditions pose a risk to further development?**  
No. They expressed interest that their city is ready to plan for a Commuter Rail Development.
- **What potential is there for public-private partnerships for station-area development?**  
There is the possibility of public and private partnerships. At this time the city would like to have more information and stay involved in the development process to determine types of involvement.
- **Who might participate with implementation costs of the rail system?**  
**If the study makes sense, it will work and will be supported by both public and private entities:**  
Interests were shown as to who will participate in funding so that they could retrofit or preserve existing right of way. They are in hopes that the study shows a transit system to be able to give tools to plan development around the near rail system. This will help municipalities set a funding aside for it and plan ahead.

This concludes the substance of the Interview. If any errors or omissions are found please let me know and I will be glad to correct this document.

We hope you find this information useful. Please feel free to call with any questions or comments, we will be glad to meet with you to further review this at your earliest convenience.

Respectfully Submitted by:

Laura Nassri Warren, AIA  
President  
The Warren Group Architects, Inc.

# THE WARREN GROUP

■ ■ ■ ■ ■  
A R C H I T E C T S I N C .

1801 South 2nd. Street, Ste. 370 McAllen, TX 78505

## Meeting Notes:

**Date:** February 28, 2011  
**Project:** Hidalgo County Commuter Rail Feasibility Study  
**Present:** Jaime Sandoval, Community Planning & Development Director, City of Alamo  
Andrina Garza The Warren Group Architects, Inc.  
Amanda D. Gomez The Warren Group Architects, Inc.  
**Copy:** David Manuel, File  
**Re:** Stakeholder's Interviews – City of Alamo  
TWG Job No. 911001

- **What transit services does your city currently have and need? (types, locations, who needs it)**  
Valley Metro currently serves the city with 2 buses. Service routes and the number of buses are currently being revisited as the city has been approved to add 3 additional bus shelters (stops).
- **What is the real-estate potential of higher density developments around new stations?**  
They believe the Bus-Station locations will promote higher commercial and retail development.
- **Where do City employees live?**  
Half of the city's employees live within the city limits. The major employers are Walmart and the school district in this area.
- **Potential station areas are mostly zoned commercial/industrial. What's the feasibility of directing more jobs there?**  
Alamo is already in the planning stages to develop areas around the existing rail for retail. The city is focusing on two main areas, downtown and on Cesar Chavez Rd.
- **What types of trips should be served?**  
1. Future Downtown Retail area
- **Are there areas of increasing congestion in the region where worsening conditions pose a risk to further development?**  
No. They expressed interest that their city is ready to plan for a Commuter Rail Development.
- **What potential is there for public-private partnerships for station-area development?**  
There is the possibility of public and private partnerships. At this time the city will like to have more information and stay involved in the development process to determine types of involvement.
- **Who might participate with implementation costs of the rail system?**  
If the study makes sense, it will work and will be supported by both public and private entities:

This concludes the substance of the Interview. If any errors or omissions are found please let me know and I will be glad to correct this document.

We hope you find this information useful. Please feel free to call with any questions or comments, we will be glad to meet with you to further review this at your earliest convenience.

Respectfully Submitted by:

Amanda Gomez, Associate AIA  
Senior Project Manager  
The Warren Group Architects, Inc.

# THE WARREN GROUP

A R C H I T E C T S I N C .

1801 South 2nd. Street, Ste. 370 McAllen, TX 78505

## Meeting Notes:

**Date:** February 24, 2011  
**Project:** Hidalgo County Commuter Rail Feasibility Study  
**Present:** Fernando Flores, Director City of Donna Dept. of Planning  
Laura N. Warren, AIA The Warren Group Architects, Inc.  
Amanda Gomez The Warren Group Architects, Inc.  
**Copy:** David Manuel, File  
**Re:** Stakeholder's Interviews – City of Donna Planning Department  
TWG Job No. 911001

- **What transit services does your city currently have and need? (types, locations, who needs it)**  
At this moment no bus system has been established in the City of Donna. Rio Metro Bus System will be offering transit for 2 future planned bus shelters (stops).
- **What is the real-estate potential of higher density developments around new stations?**  
They believe the Bus-Rail Stations will promote higher commercial and retail development in the surrounding areas especially with the opening of the new international bridge, which will offer more opportunities for Mexican nationals to attend special events, or shop in the area.
- **Where do City employees live?**  
Most of the employees live with-in a 5-10 mile radius of City Hall.
- **Potential station areas are mostly zoned commercial/industrial. What's the feasibility of directing more jobs there?**  
The potential for both commercial and industrial jobs are high due to the new international bridge which is currently only used for commercial purposes but will be open for industrial use in the near future. A substantial amount of R.O.W. is still available and not used around the existing railroad which we can use for all different types of stations.  
  
The director emphasized establishing a park and ride system for the public that commutes daily or on the weekends to and from Mexico as well as feeder type of stations for students enrolled at the UT Pan American, STC and general population that works through-out the Valley.
- **What types of trips should be served?**
  2. On Miller St. between Main & 8<sup>th</sup> St. This is the 'main' town area with a large grocery store chain, city park, and banks.
  3. FM 493 and Salinas Rd. FM 493 leads directly to the bridge which is also currently in the planning stage of being widened.
- **Are there areas of increasing congestion in the region where worsening conditions pose a risk to further development?**  
No. They expressed interest that their city is ready to plan for a Commuter Rail Development along with a bus system to promote more use of the newly opened international bridge.

- **What potential is there for public-private partnerships for station-area development?**  
Private sector may be involved for development around the stations. Public for operations and maintenance.
- **Who might participate with implementation costs of the rail system?**  
The county and all municipalities. Some larger retail and education centers who specifically request a dedicated station should participate.

This concludes the substance of the Interview. If any errors or omissions are found please let me know and I will be glad to correct this document.

We hope you find this information useful. Please feel free to call with any questions or comments, we will be glad to meet with you to further review this at your earliest convenience.

Respectfully Submitted by:

Laura Nassri Warren, AIA  
President  
The Warren Group Architects, Inc.

## Meeting Notes:

**Date:** March 10, 2011  
**Project:** Hidalgo County Commuter Rail Feasibility Study  
**Present:** Tomas Reyna, Assistant Director City of Edinburg  
Ponciano Longoria, City Engineer City of Edinburg  
Laura N. Warren, AIA The Warren Group Architects, Inc.  
Amanda Gomez The Warren Group Architects, Inc.  
**Copy:** David Manuel, File  
**Re:** Stakeholder's Interviews – City of Edinburg Engineering Department  
TWG Job No. 911001

- **What transit services does your city currently have and need? (types, locations, who needs it)**  
The city is currently in talks with Valley Metro to add a bus shelter in the city's downtown area. Congestion around the University and courthouse continues to be an issue. Implementing a rail and bus system would help alleviate the situation. Future master plan development by the city is geared towards revitalizing the city's downtown area with plans to implement multi modal stations.
- **What is the real-estate potential of higher density developments around new stations?**  
Higher density will tend to develop close to the stations around the UTPA Campus and Court House areas.
- **Where do City employees live?**  
City employees reside with-in a 10-15 mile radius with about 25% being commuters from various parts of the valley.
- **What types of trips should be served?**
  1. Downtown Area, 6th & 107
  2. UTPA student and employee population
  3. City Hall
- **Are there areas of increasing congestion in the region where worsening conditions pose a risk to further development?**  
No. They expressed interest that their city is ready to plan for multi modal stations to help with current traffic congestion.
- **Who might participate with implementation costs of the rail system?**  
If the study makes sense, it will work and will be supported by both public and private entities: City of Edinburg and Panam may co-participate in the operation and maintenance of the stations.

This concludes the substance of the Interview. If any errors or omissions are found please let me know and I will be glad to correct this document.

We hope you find this information useful. Please feel free to call with any questions or comments, we will be glad to meet with you to further review this at your earliest convenience.

Respectfully Submitted by:

Laura Nassri Warren, AIA  
President  
The Warren Group Architects, Inc.

# THE WARREN GROUP

A R C H I T E C T S I N C .

1801 South 2nd. Street, Ste. 370 McAllen, TX 78505

## Meeting Notes:

**Date:** February 25, 2011  
**Project:** Hidalgo County Commuter Rail Feasibility Study  
**Present:** Mike Perez, City Manager City of McAllen  
Julie Rankin, Planning Director City of McAllen  
Laura Warren, AIA The Warren Group Architects, Inc.  
Amanda D. Gomez The Warren Group Architects, Inc.  
**Copy:** David Manuel, File  
**Re:** Stakeholder's Interviews – City of McAllen  
TWG Job No. 911001

- **What transit services does your city currently have and need? (types, locations, who needs it)**  
McAllen Express currently serves the city with a fleet 7 buses. Modifications are still being made to the routes and stops to improve bus wait and travel times. Most used route currently goes to Doctors Hospital at Renaissance Campus by low and middle income employees.

At this time, it is felt that in order for a rail system to be developed, a higher demand for Bus Transportation needs to be experienced.

- **What is the real-estate potential of higher density developments around new stations?**  
High density developments need to be established primarily within the center of the city. City growth presently is moving outward as opposed to inward or redevelopment of existing inner city neighborhoods. Establishing high density residential areas such as condo high rises would require a lifestyle-culture adjustment by the people of this area. If the municipalities would establish a "green belt" it will generate the need for a higher density development, having parking as a high cost amenity and thus creating more of need for public transportation.
- **Potential station areas are mostly zoned commercial/industrial. What's the feasibility of directing more jobs there?**  
McAllen has a zoned industrial area along Military Hwy, which utilizes the existing freight rail for freight nightly. High employment centers need to be established first within the city to promote a need for a commuter rail. STC is currently a high density center with free parking for their students making it more convenient for student population to continue using their vehicle in lieu of the Bus System.
- **What types of trips should be served?**
  4. McAllen Foreign Trade Zone (Military Hwy. & Ware Rd.)
  5. South Texas College (Bus. 83 & Ware Rd.)
  6. Doctor's Hospital at Renaissance
- **Are there areas of increasing congestion in the region where worsening conditions pose a risk to further development?**  
No but it was advised in order to secure all necessary R.O.W., consideration should be given into purchasing land now and letting it sit until future planning begins.
- **What potential is there for public-private partnerships for station-area development?**  
Depends of what opportunities are available for private developers in the area.

- **Who might participate with implementation costs of the rail system?**  
**If the study makes sense, it will work and will be supported by both public and private entities:**  
Cost to implement and maintain the rail system is a major concern for the city. It was stressed that the current economy and people will not support an additional tax or tax increase at this time to implement a rail system at this time. He does see this as a feasible action in the future of McAllen Public Transportation.

This concludes the substance of the Interview. If any errors or omissions are found please let me know and I will be glad to correct this document.

We hope you find this information useful. Please feel free to call with any questions or comments, we will be glad to meet with you to further review this at your earliest convenience.

Respectfully Submitted by:

Laura Nassri Warren, AIA  
President  
The Warren Group Architects, Inc.

# THE WARREN GROUP

A R C H I T E C T S I N C .

1801 South 2nd. Street, Ste. 370 McAllen, TX 78505

## Meeting Notes:

**Date:** February 25, 2011  
**Project:** Hidalgo County Commuter Rail Feasibility Study  
**Present:** Dianna Tovar, Mayor Pro-Tem City of Mercedes  
Michelle Leftwich, Asst. City Manger City of Mercedes  
Laura N. Warren, AIA The Warren Group Architects,  
Inc.  
Amanda Gomez The Warren Group Architects,  
Inc.  
**Copy:** David Manuel, File  
**Re:** Stakeholder's Interviews – City of Mercedes  
TWG Job No. 911001

- **What transit services does your city currently have and need? (types, locations, who needs it)**  
Presently Rio Metro has 5 stops with moderate use. There is demand and potential high use if a stop would be added to serve the outlet mall.
- **What is the real-estate potential of higher density developments around new stations?**  
High density developments could easily be established with a station located at/near the outlet mall. A large amount of land surrounding the mall is still undeveloped and would be prime location for condo/apartment type developments.
- **Where do City employees live?**  
Most of the estimated 100 employees live within the Donna area. The school district currently is the city's largest employer.
- **Potential station areas are mostly zoned commercial/industrial. What's the feasibility of directing more jobs there?**  
There is a high potential for job attraction. Currently the freight rail is utilized by Hope Lumber and Lily of the Desert for major freight use on the daily basis.
- **What types of trips should be served?**
  7. Rio Grande Valley Premium Outlets, currently has 6 million visitors a year
  8. A stop at the city's municipal area (City library, City Hall, and MEDC)
  9. Feeder station to serve commuter population
- **Are there areas of increasing congestion in the region where worsening conditions pose a risk to further development?**  
No. They expressed interest that their city is ready to plan for a Commuter Rail Development along with a bus system to promote easier access to the outlet mall and live stock show grounds.
- **What potential is there for public-private partnerships for station-area development?**  
There is the possibility of public and private partnerships. At this time the city will like to have more information and stay involved in the development process to determine types of involvement.

- **Who might participate with implementation costs of the rail system?**  
If the study makes sense, it will work and will be supported by both public and private entities.

This concludes the substance of the Interview. If any errors or omissions are found please let me know and I will be glad to correct this document.

We hope you find this information useful. Please feel free to call with any questions or comments, we will be glad to meet with you to further review this at your earliest convenience.

Respectfully Submitted by:

Laura Nassri Warren, AIA  
President  
The Warren Group Architects, Inc.

# THE WARREN GROUP

A R C H I T E C T S I N C .

1801 South 2nd. Street, Ste. 370 McAllen, TX 78505

## Meeting Notes:

**Date:** February 04, 2011  
**Project:** Hidalgo County Commuter Rail Feasibility Study  
**Present:** Paul Curtin, Vice President Hunt Valley Development  
Laura N. Warren, AIA The Warren Group Architects, Inc.  
Andrina Garza, Assoc. AIA The Warren Group Architects, Inc.  
**Copy:** David Manuel, File  
**Re:** Stakeholder's Interviews – 6000 acre master-planned development: Sharyland Plantation, McAllen-Mission Texas  
TWG Job No. 911001

- **What is the real estate potential of higher density developments around stations?**  
In the City of Mission we may have a problem with higher density development around rail as the current Zoning Ordinances require larger lot sizes for single family development. Sharyland Plantation residential area is largely occupied by mid-higher income families with more than one vehicle per household.
- **What is the real-estate potential of higher density developments around new stations?**  
The higher high density residential development potential may be located towards the west side of Mission to Rio Grande City.  
  
Industrial: Sharyland Business Park (with-in Sharyland Plantation) currently has access to existing rail which has not been used thus far.
- **Are there areas of increasing congestion in the region where worsening conditions pose a risk to further development?**  
Congestion is not a big problem in this region. However, a big risk for the development of the commuter rail is the existing lease held by Rio Valley Switching Co. (under Iron Horse Co.) The current relationship between the City of Mission and Rio Valley switching is somehow hostile in nature. Recently, the Anzalduas Bridge Board paid \$500,000 to Iron Horse to get vindication over rail crossings.
- **Station areas are mostly zoned commercial/industrial. What's the feasibility of directing more jobs there?**  
Paul recommends a rail station to be located along the Rail ROW at the intersection of Los Indios and Conway. The area has higher potential for retail and commercial development along the rail for a park and ride station that will serve as a feeder for International users to get to other destinations such as the mall, convention center etc.
- **What potential is there for public-private partnerships for station-area development?**  
There is the possibility of public and private partnerships. If the county is looking to fund the entirety of the project then they should operate the system. Different cities may get involved if economic benefit is offered.

Other notes:

- Suggested interviews with:
  - a. Hidalgo County MPO Andrew Cannon
  - b. HEZTECH Regional Mechanism, Raudel Garza

This concludes the substance of the Interview. If any errors or omissions are found please let me know and I will be glad to correct this document.

We hope you find this information useful. Please feel free to call with any questions or comments, we will be glad to meet with you to further review this at your earliest convenience.

Respectfully Submitted by:

Laura Nassri Warren, AIA  
President  
The Warren Group Architects, Inc.

# THE WARREN GROUP

A R C H I T E C T S I N C .

1801 South 2nd. Street, Ste. 370 McAllen, TX 78505

## Meeting Notes:

**Date:** February 18, 2011  
**Project:** Hidalgo County Commuter Rail Feasibility Study  
**Present:** David Garza City of Pharr Utilities Director  
Edward Wylie City of Pharr Planner  
Laura N. Warren The Warren Group Architects, Inc.  
Amanda Gomez The Warren Group Architects, Inc.  
**Copy:** David Manuel, File.  
**Re:** Stakeholder's Interviews – City of Pharr Planning, Utilities and Engineering Department  
TWG Job No. 911001

- **What transit services does your city need? (types, locations, who needs it)**  
The city of Pharr currently uses the Rio Metro Bus system which is currently used fairly. The Metro currently has approximately five stops.  
VTC Bus line goes thru Pharr which used to have a Bus station within the city limits which is now closed. Reason is unknown as VTC was widely used by Pharr residents.  
The City currently owns four trolley cars that are successfully used of City Public events and by the local chamber of commerce tours.
- **What is the real-estate potential of higher density developments around new stations?**  
High potential. Current development tends to develop around the current Bus stations. STC proposed campus to be located at the south side of the City will greatly benefit from public transportation.  
Traffic flow along HWY Business 83 and Cage Blvd. (HWY bus 281) will also benefit from a station in this area taking advantage of existing rail and previous location of original rail station.  
The city of Pharr is currently Discussion was made that there is a railway need around the South Side of the City. Back in the day, it was known that the Train Depot was the original key stop for the Rio Grande Valley, located on Business 83. Traffic currently flows from 281 to get to the South side. Current Planning is being made to have a branch of STC College in the North side of Pharr which will benefit from this rail system transportation for students and personnel.  
The city is also currently implementing mix use Community Developments to include Residential, Retail, and Restaurants.  
City is not looking into competing against Metro or Taxi Cabs. The City currently uses the McAllen Express Trolley System for Community Events and/or Historic Tours that are run by the City's Chamber of Commerce. This system is currently not for public use. The CDBG currently pays for the Metro to run through the City and they stated there is a demand for some more stops. The Metro is non-profit and currently a benefit to the City of Pharr.
- **Where do City employees live?**  
Most of the employees live with-in a 10 mile radius of city Hall.
- **Potential station areas are mostly zoned commercial/industrial. What's the feasibility of directing more jobs there?**  
Industrial: South side of Pharr has an Industrial Park and other Developments that could benefit from a Commuter Rail and have been benefiting from the Pharr Bridge. The Pharr Bridge is for Commercial use, it is not a friendly pedestrian development.  
Great potential is there as long as a parallel line is provided to keep freight and passenger services at the Industrial Development areas. The ROW for the Rail is abandoned at this time.

- What types of trips should be served?**  
 South Texas College will need service to provide affordable transportation. A number for Students and Personnel have not been determined. If the Rail is to develop, then STC will have reaction and will focus the development towards the Rail. The City also has a new High School at this time, the City has not determined an estimated number of Students and Personnel. The existing Rail ROW is with-in walking distance from City of Pharr and Downtown areas. Service to the new High school will also greatly benefit the community and personnel working at this district.
- Are there areas of increasing congestion in the region where worsening conditions pose a risk to further development?**  
 No. They expressed interest that their city is ready to plan for a Commuter Rail Development.
- What potential is there for public-private partnerships for station-area development?**  
 Current neighboring properties along the ROW have a high potential for development. North and South of Pharr have families that would need us to provide transportation for people to get to their place of employment.
- Who might participate with implementation costs of the rail system?**  
**If the study makes sense, it will work and will be supported by both public and private entities:**  
 Interests were shown as to who will participate in funding so that they could retrofit or preserve existing right of way. They are in hopes that the study shows a transit system to be able to give tools to plan development around the near rail system. This will help municipalities set a funding aside for it and plan ahead.

This concludes the substance of the Interview. If any errors or omissions are found please let me know and I will be glad to correct this document.

We hope you find this information useful. Please feel free to call with any questions or comments, we will be glad to meet with you to further review this at your earliest convenience.

Respectfully Submitted by:

Laura Nassri Warren, AIA  
 President  
 The Warren Group Architects, Inc.

## Meeting Notes:

**Date:** March 10, 2011  
**Project:** Hidalgo County Commuter Rail Feasibility Study  
**Present:** J.J. Rodriguez, City Manager City of San Juan  
Miki McCarthy, Exec. Director San Juan EDC  
Laura N. Warren, AIA The Warren Group Architects, Inc.  
Amanda Gomez The Warren Group Architects, Inc.  
**Copy:** David Manuel, File  
**Re:** Stakeholder's Interviews – City of San Juan & EDC  
TWG Job No. 911001

- **What transit services does your city currently have and need? (types, locations, who needs it)**  
The city's current bus route system is being revised to incorporate more stops. The population bracket in need of transit service is the elderly and low income. A park and ride both rail and bus system in the downtown area would benefit the city.
- **What is the real-estate potential of higher density developments around new stations?**  
They believe the Bus-Station locations will promote higher commercial and retail development. The city's future master plan incorporates retail developments such as a farmers market around future designated stations. Plans are also being developed to populate the south side of San Juan with residential living similar to that of Sharyland Plantation in Mission.
- **Where do City employees live?**  
Within 10 mile radius.
- **Potential station areas are mostly zoned commercial/industrial. What's the feasibility of directing more jobs there?**  
Great potential as businesses like to be close where employees may have access to reliable public transportation.
- **What types of trips should be served?**
  1. Park and Ride for commuters going to Panam or out of town healthcare trips
  2. Basilica of Our Lady of San Juan del Valle National Shrine, currently draws in 1.3 million visitors a year. The city would like to capture these visitors and provide routes to filter them into the downtown area.
- **Are there areas of increasing congestion in the region where worsening conditions pose a risk to further development?**  
No. They expressed interest that their city is ready to plan for a Commuter Rail Development.
- **What potential is there for public-private partnerships for station-area development?**  
There is high potential as station areas planned include commercial/ retail development sites.
- **Who might participate with implementation costs of the rail system?**  
If the study makes sense, it will work and will be supported by both public and private entities: City of San Juan may co-participate in the operation and maintenance of the stations. Steps are being made now to acquire land at point of interest for station locations. The city is also investing in city utility improvements for future downtown revitalization projects.

This concludes the substance of the Interview. If any errors or omissions are found please let me know and I will be glad to correct this document.

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Respectfully Submitted by:

Laura Nassri Warren, AIA  
President  
The Warren Group Architects, Inc.

# THE WARREN GROUP

A R C H I T E C T S I N C.

1801 South 2nd. Street, Ste. 370 McAllen, TX 78505

## Meeting Notes:

**Date:** February 23, 2011  
**Project:** Hidalgo County Commuter Rail Feasibility Study  
**Present:** Rolando Gonzalez, Director City of Weslaco Dept. of Planning  
Jose Pedraza Planning Dept. Code Enforcer  
Laura N. Warren, AIA The Warren Group Architects, Inc.  
Amanda Gomez The Warren Group Architects, Inc.  
**Copy:** David Manuel, File  
**Re:** Stakeholder's Interviews – City of Weslaco Planning Department  
TWG Job No. 911001

- **What transit services does your city currently have and need? (types, locations, who needs it)**  
The City of Weslaco currently uses the Rio Metro Bus system which is currently used fairly.
- **What is the real-estate potential of higher density developments around new stations?**  
They believe the Bus-Station locations will promote higher commercial and retail development.
- **Where do City employees live?**  
Most of the employees live with-in a 5-10 mile radius of City Hall.
- **Potential station areas are mostly zoned commercial/industrial. What's the feasibility of directing more jobs there?**  
More jobs may be created on the commercial side other than the industrial side as only a few of the older Industrial Development use the freight rail system along Business HWY 83.  
They suggest locating a station close to South Texas Vo-tech (college).
- **What types of trips should be served?**
  10. Near college Bus-rail connectivity.
  11. West gate and Business HWY 83.
  12. Future station that will serve users of future Convention Center. (to be located south of the exiting City Hall, along the rail)
- **Are there areas of increasing congestion in the region where worsening conditions pose a risk to further development?**  
No. They expressed interest that their city is ready to plan for a Commuter Rail Development.  
Currently re-working their Developer's guide and Zoning Ordinances that will accommodate the future implementation of a Commuter Rail.
- **What potential is there for public-private partnerships for station-area development?**  
There is the possibility of public and private partnerships. At this time the city will like to have more information and stay involved in the development process to determine types of involvement.
- **Who might participate with implementation costs of the rail system?**  
If the study makes sense, it will work and will be supported by both public and private entities:  
City of Weslaco may co-participate in the operation and maintenance of the stations.

This concludes the substance of the Interview. If any errors or omissions are found please let me know and I will be glad to correct this document.

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# THE WARREN GROUP

A R C H I T E C T S I N C .

1801 South 2nd. Street, Ste. 370 McAllen, TX 78505

## Meeting Notes:

**Date:** March 9, 2011  
**Project:** Hidalgo County Commuter Rail Feasibility Study  
**Present:** Roberto Loredo Donna Independent School District  
Laura Warren, AIA The Warren Group Architects, Inc.  
Andrina Garza The Warren Group Architects, Inc.  
**Copy:** David Manuel, File  
**Re:** Stakeholder's Interviews – Donna Independent School District  
TWG Job No. 911001

- **Where do your employees largely reside? Do they take transit now?**  
Most of the employees (about 75%) currently reside within a 10 mile radius. At this time, the employees are not taking advantage of any Public Transit due to the close proximity to their work location. If a more efficient public transit would be made available, it will make it easier to hire teachers from further areas in the county.
- **What are the major stated issues/complaints about transportation?**  
They currently do not have any problems with Road congestion around the current campuses. Recent complaints are due to increased price of gas.
- **What do your enrollment and staffing level projections look like?**  
Growing at a steady pace but not doubling in the next past 10 years. The new surge in migration from Mexican nationals in the area has increased the amount of student population in the last 5 years.
- **Are there plans for new/expanded campuses?**  
Yes, the district is currently building a second high school on the North side of the City. This campus is to be located in the corner of Minnesota and Valverde Streets. There is also projection for a new Elementary School in the near five years to be located on the South side of the City. There will be an increase of population due to the population growth.
- **Are there heavily attended events that might benefit from being near passenger rail service?**  
The existing High School is located near the Rail. These events may be significantly benefited from having public rail and bus transit: the football games have about 7,000 to 8,000 people and the Pigskin (band competition) is also heavily attended by exceeding 8,000 attendees.

Mr. Loredo would like to be informed of the next public meeting.

This concludes the substance of the Interview. If any errors or omissions are found please let me know and I will be glad to correct this document.

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Respectfully Submitted by:

Laura Nassri Warren, AIA  
President  
The Warren Group Architects, Inc.

# THE WARREN GROUP

A R C H I T E C T S I N C.

1801 South 2nd. Street, Ste. 370 McAllen, TX 78505

## *Meeting Notes:*

**Date:** March 23, 2011  
**Project:** Hidalgo County Commuter Rail Feasibility Study  
**Present:** Mario Salinas Assistant Superintendent, ECISD  
Amanda D. Gomez The Warren Group Architects, Inc.  
**Copy:** David Manuel, File  
**Re:** Stakeholder's Interviews – Edinburg Independent School District  
TWG Job No. 911001

- **Where do your employees largely reside? Do they take transit now?**  
Majority of employee population reside within the school district no more than 10-15 mile radius. There is no transit service offered. Usage of rail would depend on bus service frequency since existing campuses are not located in close proximity to existing rail.
- **What are the major stated issues/complaints about transportation?**  
Staff has no major complaints with traffic around schools. Major congestion occurs at elementary and middle schools during the drop-off and pick-up times for students.
- **What do your enrollment and staffing level projections look like?**  
The district currently has 38 campuses. Population growth has not significantly grown or declined. Staffing population may increase slightly with future expansion but district is mostly relocating existing staff members.
- **Are there plans for new/expanded campuses?**  
The district is adding two more campuses, an elementary and middle school.
- **Are there heavily attended events that might benefit from being near passenger rail service?**  
The district has a general assembly for all employees at the beginning and end of year.

This concludes the substance of the Interview. If any errors or omissions are found please let me know and I will be glad to correct this document.

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Laura Nassri Warren, AIA  
President  
The Warren Group Architects, Inc.

# THE WARREN GROUP

A R C H I T E C T S I N C .

1801 South 2nd. Street, Ste. 370 McAllen, TX 78505

## Meeting Notes:

**Date:** January 06, 2011  
**Project:** Hidalgo County Commuter Rail Feasibility Study  
**Present:** Keith Patridge                      McAllen Economic Development Corporation  
                  Pedro Salazar                      Edinburg Economic Development Corporation  
                  David Manuel                              LAN  
                  Laura N. Warren                      The Warren Group Architects, Inc.  
                  Amanda Gomez                      The Warren Group Architects, Inc.  
**Copy:** David Manuel, File  
**Re:** Stakeholder's Interviews – Economic Development McAllen and Edinburg  
      TWG Job No. 911001

- **What is the real-estate potential of higher density developments around new stations?**  
**McAllen:** Yes. A potential Land Use plan is currently being developed for this City that incorporates a Commuter Rail. Parallel roads are existing at both sides of the existing Rail ROW.  
The higher land cost that will arise around the commuter rail will lead to high rise building development.  
McAllen sees this as an operation that will get better utilization of existing infrastructure:
  - Police Stations
  - Fire Stations
  - Traffic Law Enforcement
  - Utilities
  - Sanitation**Edinburg:** Yes. There is an existing need around the UT Pan American University. The rail will provides transportation for students and personnel. There is an increase of higher density around the Campus by private developers.  
The City of Edinburg has developed a different development Corridor that focuses in Job Creation:
  - Healthcare
  - Education (UT Pan Am – Region One)
  - Government (Hidalgo County Court House)

He feels that the commuter rail will help increase the Development of the existing major job creators but not necessarily create new ones.
- **Potential station areas are mostly zoned commercial/industrial. What's the feasibility of directing more jobs there?**  
**McAllen:**  
Industrial: McAllen has a well developed and growing Industrial area that will benefit from a Commuter Rail. The potential is there as long as a parallel line is provided to keep freight and passenger services at the Industrial Development areas.  
Commercial Zones the key factor is to extend the service to feeder areas to allow people for the entire area to have access to an already very successful retail areas and future planned Developments.  
**Edinburg:**  
Industrial: Has an Industrial Park with new Development. However the ROW for the Rail has been abandoned.

Commercial and other: There is quite a bit of potential for growth as the Development Corridors has been created with a future commuter Rail in mind. The City has retained the ROW in the other development areas such as the Hospital areas, University and Government.

- **What types of trips should be served?**

**McAllen:**

South Texas College will need service to provide affordable transportation to 30,000 + students and personnel.

Need to incorporate the bus system to allow service to South Texas Community College. If the Rail Develops then, STC will have reaction and will focus the development towards the Rail.

The existing Rail ROW is with-in walking distance (5 miles from the rail).

The Federal Court House in Downtown McAllen would benefit as well. It is located in front of the existing Rail ROW

Service to the McAllen Convention Center will help attract more programs and events.

**Edinburg:**

Service will be needed along the previously mentioned Job Creator Corridors.

- **Are there areas of increasing congestion in the region where worsening conditions pose a risk to further development?** No. Both agree that their cities are ready and are planning on Commuter Rail Development.

- **What potential is there for public-private partnerships for station-area development?**

Current neighboring properties along the ROW have a high potential for development.

Further west of McAllen along Shary Road which has prime property along the ROW ready for development.

Both cities agree that feeders located at both east and west of this area are needed to provide transportation for people to come to these Cities and work.

- **Who might participate with implementation costs of the rail system?**

**If the study makes sense, it will work and will be supported by both public and private entities:**

1. Points of sale for development

2. Higher land value as an impact

Need Regional Mechanism to help smaller town entities as smaller towns may not be able to do it alone. A regional program will help.

McAllen hopes that the study shows a transit system to be able to give tools to plan development around the near rail system.

This will help municipalities set a funding aside for it. (Tool to plan ahead) and to plan for the amenities to support it and to preserve the ROW for Rail Corridors.

This concludes the substance of the Interview. If any errors or omissions are found please let me know and I will be glad to correct this document.

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Respectfully Submitted by:

Laura Nassri Warren, AIA  
President  
The Warren Group Architects, Inc.

# THE WARREN GROUP

A R C H I T E C T S I N C .

1801 South 2nd. Street, Ste. 370 McAllen, TX 78505

## Meeting Notes:

**Date:** January 07, 2011  
**Project:** Hidalgo County Commuter Rail Feasibility Study  
**Present:** Pat Townsend Mission Economic Development Authority  
Laura N. Warren The Warren Group Architects, Inc.  
Andrina Garza The Warren Group Architects, Inc.  
Amanda Gomez The Warren Group Architects, Inc.  
**Copy:** David Manuel, File  
**Re:** Stakeholder's Interviews – Mission Economic Development Authority  
TWG Job No. 911001

- **What is the real-estate potential of higher density developments around new stations?**  
Yes. Around the Sharyland School District, it has been directly impacted by growth at the Sharyland Plantation, a 6000 acre development at the south side of the city.
- **Potential station areas are mostly zoned commercial/industrial. What's the feasibility of directing more jobs there?**  
Industrial Mission has two major Industrial Parks located at the South East and South West of the Rail located along Military Highway. Feeders to the west side of town may be ideal to provide affordable transportation to employees who come to work at these areas.  
Pat Townsend stated that at this time development may occur along Shary Rd. and at the Sharyland Plantation Development.  
Mission Hospital is the largest employer in the area. May also benefit and will lead to higher density development.  
The north side zoning indicates low density development at this time. Do not foresee any high density development on the north side of town in the near future.  
High density development (smaller lots) are found at the west of Mission at (Penitas, Alton) where feeders may make sense.
- **What types of trips should be served?**  
To Mission Hospital and feeder areas.  
Sharyland Plantation residential areas are occupied by high income families who prefer to ride a vehicle than to use public transportation. A commuter rail however may create a sense of urban style, living found at larger towns, not in the near future.
- **Are there areas of increasing congestion in the region where worsening conditions pose a risk to further development?** No. A good plan will help to plan around it.
- **What potential is there for public-private partnerships for station-area development?**  
With the right plan the City has the potential to develop partnership to support it. Cannot see how smaller towns will be able to afford it where feeders are suggested-needed.  
Mission Independent School District is the other largest employer in the City. The employee population of MISD is spread out. The campuses are as well.
- **Who might participate with implementation costs of the rail system?**  
If the study makes sense, it will work and will be supported by both public and private entities:  
There is an existing Rail ROW that can serve US-Mexico and may provide great International. Will need Federal Participation to help Marshall it and operate it.

There is great potential if we provide east and west access into the City. He sees in the next 20 years connecting and providing parallel access to 107 (passenger-freight)

This concludes the substance of the Interview. If any errors or omissions are found please let me know and I will be glad to correct this document.

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Laura Nassri Warren, AIA  
President  
The Warren Group Architects, Inc.

# THE WARREN GROUP

A R C H I T E C T S I N C.

1801 South 2nd. Street, Ste. 370 McAllen, TX 78505

## Meeting Notes:

**Date:** March 23, 2011  
**Project:** Hidalgo County Commuter Rail Feasibility Study  
**Present:** Albert Gonzalez Mercedes Economic Development Corporation  
Director  
Laura N. Warren, AIA The Warren Group Architects, Inc.  
Analilia Gaxiola The Warren Group Architects, Inc.  
**Copy:** David Manuel, File  
**Re:** Stakeholder's Interviews –Mercedes Economic Development Corporation  
TWG Job No. 911001

- **What the real estate potential of higher density development around new stations?**  
The City of Mercedes has experienced growth in multi-family development. This can be possible around the new rail stations.
- **What type of trips should be served?**
  - To and from the International Crossings to the Outlet Malls. Has about 20,000 visitors a day. They had a 56% increase in Tour Bus Service to this Mall in 2010. They receive about 6-8 buses on Saturdays and 4-6 Buses on Sundays. Weekdays only two a day. The City of Mercedes' population is about 13,000. They get a lot more than that in one afternoon in visitors alone at this area.
  - To the downtown area (experiences about 20,000 visitors on weekends).
  - Business 83 (park and ride – feeders)
  - From Mercedes to and from UT Pan American and STC Campus in McAllen
- **Are there areas of increasing congestion in the region where worsening conditions pose a risk to further development?**  
Not at this moment. There are some planned unit developments planned around the Outlet Mall and South side of the City that may represent a bigger challenge to acquire ROW once they are fully developed (in about five years)
- **What potential is there for the public- private partnerships for station area development?**  
Yes, especially around the Outlet Mall.
- **Who might participate with implementation costs of the rail system?**  
If the study makes sense, it will work and will be supported by both public and private entities: Believe that both public and private participation needs to participate, especially if places like the Mall or a Hospital request a dedicated station.

This concludes the substance of the Interview. If any errors or omissions are found please let me know and I will be glad to correct this document.

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Respectfully Submitted by:

Laura Nassri Warren, AIA  
President  
The Warren Group Architects, Inc.

# THE WARREN GROUP

A R C H I T E C T S I N C .

1801 South 2nd. Street, Ste. 370 McAllen, TX 78505

## Meeting Notes:

**Date:** March 11, 2011  
**Project:** Hidalgo County Commuter Rail Feasibility Study  
**Present:** Walter N. Watson, Federal Programs Director  
Mercedes Independent School District  
Laura N. Warren, AIA The Warren Group Architects, Inc.  
Amanda D. Gomez The Warren Group Architects, Inc.  
**Copy:** David Manuel, File  
**Re:** Stakeholder's Interviews – Mercedes Independent School District  
TWG Job No. 911001

- **Where do your employees largely reside? Do they take transit now?**  
The school employees are a mixture of local and commuters. Some commute from as far as Brownsville or Mission. They anticipate the amount of commuter employees to increase due to current budget deficiencies more teachers will be applying to out of town positions.
- **What are the major stated issues/complaints about transportation?**  
Traffic congestion to Edinburg is increasing travel time. What used to be a 30 minute commute to Region 1 Office is now on average 45 minutes.
- **What do your enrollment and staffing level projections look like?**  
With the current budget issues, staffing projections will not be increasing at least in the next 3 years, but student population continues to have a small but steady annual increase.
- **Are there plans for new/expanded campuses?**  
No new campuses are planned for the future. The district is focusing on correcting current construction problems on recently built facilities.
- **Are there heavily attended events that might benefit from being near passenger rail service?**  
Mercedes Live Stock Show is a large annual event held in March. Football Season, Friday night football games bring in a large crowd.

This concludes the substance of the Interview. If any errors or omissions are found please let me know and I will be glad to correct this document.

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Respectfully Submitted by:

Laura Nassri Warren, AIA  
President  
The Warren Group Architects, Inc.

# THE WARREN GROUP

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A R C H I T E C T S I N C .

1801 South 2nd. Street, Ste. 370 McAllen, TX 78505

## Meeting Notes:

**Date:** March 23, 2011  
**Project:** Hidalgo County Commuter Rail Feasibility Study  
**Present:** Dr. Cornelio Gonzalez, Superintendent, MCISD  
Andrina Garza, The Warren Group Architects, Inc.  
**Copy:** David Manuel, File  
**Re:** Stakeholder's Interviews – Mission Consolidated Independent School District  
TWG Job No. 911001

- **Where do your employees largely reside? Do they take transit now?**  
Majority of employee population reside within the City of Mission. About 70% percent and the rest of staff travel from other cities. There are currently a few employees that travel by bus due to not having personal vehicle transportation. Usage of rail would depend on bus service frequency since existing campuses are not located in close proximity to existing rail.
- **What are the major stated issues/complaints about transportation?**  
Staff has no major complaints with traffic around schools. Major congestion occurs at elementary and middle schools during the drop-off and pick-up times for students.
- **What do your enrollment and staffing level projections look like?**  
The district currently has about 2,400 employees. Population growth has not significantly grown or declined. They do not foresee staffing population to increase due to economic and budget cutbacks.
- **Are there plans for new/expanded campuses?**  
The district is not planning to expand or add anymore campuses any time soon due to economic and budget cutbacks.
- **Are there heavily attended events that might benefit from being near passenger rail service?**  
Yes, football games and any other school events could benefit from having rail service. Dr. Gonzalez stated he has heard complaints from parents and students that cannot attend late events due to not having transportation. He would also like to see local students attend the local Universities via transit if available due to the lack of parking spaces in the STC and Pan Am Universities. Dr. Gonzalez does not believe we have a culture for the rail service at this time, therefore, he stated it would take some time, however, he is all for it in the near future due to the impact the City's Commercial Growth and its Community could benefit from it.

Dr. Cornelio Gonzalez would like to be kept advised of future public meetings.

This concludes the substance of the Interview. If any errors or omissions are found please let me know and I will be glad to correct this document.

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President  
The Warren Group Architects, Inc.

# THE WARREN GROUP

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A R C H I T E C T S I N C .

1801 South 2nd. Street, Ste. 370 McAllen, TX 78505

## Meeting Notes:

**Date:** March 2, 2011  
**Project:** Hidalgo County Commuter Rail Feasibility Study  
**Present:** Rick Rios, Manager Rio Grande Valley Premium Outlets  
Laura Warren, AIA The Warren Group Architects, Inc.  
Amanda D. Gomez The Warren Group Architects, Inc.  
**Copy:** David Manuel, File  
**Re:** Stakeholder's Interviews – Rio Grande Valley Premium Outlets  
TWG Job No. 911001

- **What transit services does your mall currently have and need? (types, locations, who needs it)**  
The mall does not have a city operated transit service. There is a need to provide bus services from a rail station for both tourist/visitors and employees.

Estimated 95% of business comes from international visitors most of whom travel from the Hidalgo International Bridge. A vast majority of these visitors travel on organized bus trips. Winter Texans make up about 3-5% of the bus tour trips during their peak season.

The mall employs 800 and up to 1000 during the holiday season. Ninety percent of that workforce is hourly which reside within the city of Mercedes. The commuter employees are in management positions, traveling from as far as Brownsville.

- **What is the real-estate potential of higher density developments around new stations?**  
Long term high density residential developments are a possibility for the surrounding land.
- **What types of trips should be served?**  
13. Transit from Hidalgo Bridge to Outlet Mall via combo bus and rail system
- **Are there areas of increasing congestion in the region where worsening conditions pose a risk to further development?**  
No, with the recent highway improvements traffic flow is good.
- **What potential is there for public-private partnerships for station-area development?**  
Depending on the proposed station size, there could be advertising opportunities by store (i.e. GAP) or food brands (i.e. Coca Cola) on panels. Currently the outlet mall receives some funds to provide bus trips to promote the outlets.

This concludes the substance of the Interview. If any errors or omissions are found please let me know and I will be glad to correct this document.

We hope you find this information useful. Please feel free to call with any questions or comments, we will be glad to meet with you to further review this at your earliest convenience.

Respectfully Submitted by:

Laura Nassri Warren, AIA  
President

The Warren Group Architects, Inc.

# THE WARREN GROUP

A R C H I T E C T S I N C .

1801 South 2nd. Street, Ste. 370 McAllen, TX 78505

## Meeting Notes:

**Date:** March 3, 2011  
**Project:** Hidalgo County Commuter Rail Feasibility Study  
**Present:** Raudel Garza, Exec. Director Rio South Texas Economic Council  
Laura Warren, AIA The Warren Group Architects, Inc.  
Amanda D. Gomez The Warren Group Architects, Inc.  
**Copy:** David Manuel, File  
**Re:** Stakeholder's Interviews – Rio South Texas Economic Council  
TWG Job No. 911001

- **What transit services does the Rio Grande Valley currently have and need? (types, locations, who needs it)**  
Rio Metro currently services the Rio Grande Valley.
- **What is the real-estate potential of higher density developments around new stations?**  
Higher density developments are possible provided new stations are located in areas with ample land for large employers. Access to stations must be convenient for commuters.
- **What types of trips should be served?**
  14. Valley Airports in McAllen and Edinburg
  15. Weslaco's Bus Depot
  16. University of Texas Panam
  17. Tourist Destinations/Trips i.e. Historical Sites in the Rio Grande Valley
  18. Large Work Centers i.e. McAllen Foreign Trade Zone
- **Are there areas of increasing congestion in the region where worsening conditions pose a risk to further development?**  
In larger cities such as McAllen, Mission, and Edinburg, land surrounding the existing rail is limited. Areas in cities such as San Juan, Alamo, and Donna do not have an issue with land availability along the existing rail.
- **What potential is there for public-private partnerships for station-area development?**  
Private partnership is a possibility, provided ample land is available for businesses to establish themselves around stations, businesses of everyday necessities of the public such as restaurants, laundry services, post offices, or medical offices.
- **Who might participate with implementation costs of the rail system?**  
If the study makes sense, it will work and will be supported by both public and private entities:  
Private partnership is a possibility, provided ample land is available for businesses to establish themselves around stations, businesses of everyday necessities of the public such as restaurants, laundry services, post offices, or medical offices.

This concludes the substance of the Interview. If any errors or omissions are found please let me know and I will be glad to correct this document.

We hope you find this information useful. Please feel free to call with any questions or comments, we will be glad to meet with you to further review this at your earliest convenience.

Respectfully Submitted by:

Laura Nassri Warren, AIA  
President  
The Warren Group Architects, Inc.

# THE WARREN GROUP

■ ■ ■ ■ ■  
A R C H I T E C T S I N C.

1801 South 2nd. Street, Ste. 370 McAllen, TX 78505

## Meeting Notes:

**Date:** March 7, 2011  
**Project:** Hidalgo County Commuter Rail Feasibility Study  
**Present:** Jesse Muniz, RTSBA Sharyland Independent School District  
Andrina Garza The Warren Group Architects, Inc.  
Amanda D. Gomez The Warren Group Architects, Inc.  
**Copy:** David Manuel, File  
**Re:** Stakeholder's Interviews – Sharyland Independent School District  
TWG Job No. 911001

- **Where do your employees largely reside? Do they take transit now?**  
The school is separated into multiple campus the largest currently being the high school with approximately 3,000 students and the main administration office. This campus is located on Shary Road and Business 83 adjacent to the existing railroad.  
  
There is no transit service in place nor is there a demand. Many employees are parents with child activities to run to and value the convenience of their vehicle.
- **What are the major stated issues/complaints about transportation?**  
Road congestion around the current high school is a major concern. The school would like to see a traffic light at the campuses major entrance/exit. The current traffic congestion also brings up concerns for the future second high school location.
- **What do your enrollment and staffing level projections look like?**  
Growing rapidly over the past 10 years.
- **Are there plans for new/expanded campuses?**  
The district is currently building a second high school on 6 ½ mile and Shary Road. The district is currently in talks with the city to plan for future need of expanding Shary Road from a two lane to four lanes in the future.
- **Are there heavily attended events that might benefit from being near passenger rail service?**  
No, not at this time.

This concludes the substance of the Interview. If any errors or omissions are found please let me know and I will be glad to correct this document.

We hope you find this information useful. Please feel free to call with any questions or comments, we will be glad to meet with you to further review this at your earliest convenience.

Respectfully Submitted by:

Laura Nassri Warren, AIA  
President  
The Warren Group Architects, Inc.



# THE WARREN GROUP

■ ■ ■ ■ ■  
A R C H I T E C T S I N C .

1801 South 2nd. Street, Ste. 370 McAllen, TX 78505

## Meeting Notes:

**Date:** February 24, 2011  
**Project:** Hidalgo County Commuter Rail Feasibility Study  
**Present:** Dr. Shirley Reed, President of the Board South Texas College  
Laura N. Warren, AIA The Warren Group Architects,  
Inc.  
Amanda D. Gomez The Warren Group Architects, Inc.  
**Copy:** David Manuel, File  
**Re:** Stakeholder's Interviews – South Texas College  
TWG Job No. 911001

- **What transit services does the University currently have and need? (types, locations, who needs it)**  
The college currently has no dedicated transit service available. City of McAllen bus does stop at the main campus on Pecan but the route is not usable due to long wait times. The college does have a shuttle for off-site campus parking, which is highly used and must be run every fifteen minutes.  
  
The college has a total of 3 campus's spread throughout the valley, Rio Grande City, Mid Valley (Weslaco) and McAllen. The McAllen Campus is has three site locations, which are the Pecan Campus (Main), Technology Center (Military Hwy), and Nursing & Allied Health. Many students commute between the many college sites as well as to Pan American College.  
  
It is estimated that of the 15,000 students, only 5,000 live within the McAllen area. About 25 percent of the staff live within McAllen, however, some commute from as far as Brownsville.
- **What is the real-estate potential of higher density developments around new stations?**  
The use of rail combined with an increase of bus use will alleviate the need to continue to purchase land for parking use and thus allowing for higher density development with-in the campus and surrounding areas.
- **Are there areas of increasing congestion in the region where worsening conditions pose a risk to further development?**  
No, implementing a commuter rail and bus system would help alleviate traffic congestion.
- **Station areas are mostly zoned commercial/industrial. What's the feasibility of directing more jobs there?**  
The possibility is there as long as space is provided and the right services that would offer convenience for users.
- **What potential is there for public-private partnerships for station-area development?**  
There is, if the right opportunities are there for private developers.  
Public entities can offer Utility Payment Centers.

This concludes the substance of the Interview. If any errors or omissions are found please let me know and I will be glad to correct this document.

We hope you find this information useful. Please feel free to call with any questions or comments, we will be glad to meet with you to further review this at your earliest convenience.

Respectfully Submitted by:

Laura Nassri Warren, AIA  
President  
The Warren Group Architects, Inc.

# THE WARREN GROUP

A R C H I T E C T S I N C .

1801 South 2nd. Street, Ste. 370 McAllen, TX 78505

## Meeting Notes:

**Date:** February 21, 2011

**Project:** Hidalgo County Commuter Rail Feasibility Study

**Present:** Martha Salinas-Hovar, AIA, LEED Project Manager – Dept. Facilities Planning

Marianela Franklin, AIA, LEED AP Director, Department of Sustainability

Pastor Jim Edge, Vice Chair- Hidalgo County Rail Commission

Letty Benavides, The University of Texas Pan American-Dir. Of Auxiliary Services

Jorge Vidal, The University of Texas Pan American- Project Manager for Facilities

Laura N. Warren, AIA, The Warren Group Architects, Inc.

**Copy:** David Manuel, File

**Re:** Stakeholder's Interviews – University of Texas Pan American, Edinburg Texas  
TWG Job No. 911001

- **What transit services does the University currently has and need? (types, locations, who needs it)**

The University student and docent population currently uses pubic transportation (Bus) through Rio Metro Bus system.

A joint agreement has just been signed between the city of Edinburg, UT Pan Am and Metro Bus system to develop a multi-modal type of station that will provide a park and ride Bus-Rail station for population working at the University, the student body, personnel and users of the Hidalgo County Court system, City Hall among others.

What else will be needed?

- Coordination between the bus and rail schedules to assure more frequent stops and usage.
- Smart phone applications for ridership schedules and ticket purchasing
- Access to stations through the use of a smart pass
- Negotiated fee for students
- May need to complement the rail service with street cars to provide inner-campus connectivity.

- **What is the real-estate potential of higher density developments around new stations?**

The use of rail combined with an increase of bus use will alleviate the need to continue to purchase land for parking use and thus allowing for higher density development with-in the campus and surrounding areas.

UT Panam engaged in a study to "Develop a proposed multi-modal station to be located at the east side of the campus that indicates mixed used around the intermodal station.

The study includes ten Catalyst projects that are sited and planned to be successful independent of future rail transit opportunities. Each will be designed "transit-ready" to preserve the best opportunities for commuter rail service and transit-oriented development should the opportunity present itself in the future."

- **Are there areas of increasing congestion in the region where worsening conditions pose a risk to further development?**

Purchasing of abandoned and sold ROW along the north side of the city may represent a challenge for this process.

- **Station areas are mostly zoned commercial/industrial. What's the feasibility of directing more jobs there?**  
The job creation in this case will occur with-in the commercial and university areas. The university personnel is commuter type that will greatly benefit from a commuter rail-bus system. Industrial: The City of Edinburg has an Industrial Park located at the north side of the city. There was an existing rail ROW which is currently abandoned and-or sold to private entities.
- **What potential is there for public-private partnerships for station-area development?**  
University of Texas Pan American is highly interested and currently taking an active role in promoting sustainability and the development and operation of the multi-modal station.

Other notes:

- The University has invested in a more detailed public transportation study that suggest intermodal stations located in key areas through-out the City of Edinburg.
- They stated that UT Pan American also has a campus in Rio Grande City that will greatly benefit from public transportation connectivity with the Edinburg campus.
- The student population is more conscious of living in a more sustainable environment and will not take much promotion of the use of the rail-bus system when it becomes available.
- UT Pan Am feels that the creation of a bus-rail system will allow them to have a better use of their sites for other types of development other than parking areas. This will also allow then to increase the fee to park on site, thus encouraging both the student population and staff to use public transportation.

This concludes the substance of the Interview. If any errors or omissions are found please let me know and I will be glad to correct this document.

We hope you find this information useful. Please feel free to call with any questions or comments, we will be glad to meet with you to further review this at your earliest convenience.

Respectfully Submitted by:

Laura Nassri Warren, AIA  
President  
The Warren Group Architects, Inc.

# Meeting Notes:

**Date:** June 7, 2011

**Project:** Hidalgo County Commuter Rail Feasibility Study

**Present:** **Juan Lerma, Project Manager** Rio Valley Switching Company  
David, W. Clary, P.E. Lockwood, Andrews & Newnam, Inc.  
Laura N. Warren, AIA The Warren Group Architects, Inc.  
Andrina Garza The Warren Group Architects, Inc.  
Amanda Gomez The Warren Group Architects, Inc.

**Copy:** David Manuel (LAN), File

**Re:** Stakeholder's Interviews – Rio Valley Switching Co.  
TWG Job No. 911001

- **Who do you mostly provide services does too?**  
Our company provides services for companies that require large cargo deliveries. With the increasing cost of fuel, we have seen an increase of customers needing our services.
- **What is the extent of Rio Valley Rail territory?**  
We provide services from La Joya east to Harlingen where Union Pacific takes over.
- **Does Rio Valley Switching see any potential to allow both passenger and cargo services with-in the existing line?**  
We don't foresee an immediate potential. We believe that Valley residents currently rely on the use of their personal vehicle. Other challenges are:
  - Legal liability standards that do not allow for progress in this area.
  - Passenger transit will need higher speeds to work. Quite a bit of public awareness and education will be needed to make drivers aware of dangers at rail crossings.
  - Will need quite a bit of schedule coordination for this system to work for the current cargo business.
  - Rio Valley Switching will like to be involved through-out the design process.
- **Other suggestions:**
  - In order for this system to work, the rail will have to extend through Cameron and Starr Counties.
  - Union Pacific has the use of trackage rights beyond Harlingen. UT Brownsville has areas of high density population that will benefit from commuter Rail. UP has three yards in the Lower Rio Grande Valley: Two in Brownsville and one in Harlingen.

**Juan Lerma added that in order for this project to be successful, Rio Valley Switching will have to be included in the design process.**

This concludes the substance of the Interview. If any errors or omissions are found please let me know and I will be glad to correct this document.

We hope you find this information useful. Please feel free to call with any questions or comments, we will be glad to meet with you to further review this at your earliest convenience.

Respectfully Submitted by:

Laura Nassri Warren, AIA  
President  
The Warren Group Architects, Inc.

**LAN Conference Minutes**

<b>Project No.:</b>	150-10167-000	<b>Routing</b>	
<b>Project:</b>	Hidalgo County Commuter Rail Feasibility Study	DVM	
<b>Client:</b>	Hidalgo County	File	
<b>Conference Date:</b>	June 2, 2011		
<b>Conference Location:</b>	Hidalgo MPO 510 S. Pleasantview Dr. Weslaco, TX 78596		
<b>Attendees:</b>	MPO Staff: Andrew Canon, Linda de la Fuente, Fred Villarreal LAN: David Manuel		

**Discussion:**

The following summarizes our understanding of the subject matter covered in this conference. If this differs from your understanding, please notify us in writing within five days.

Purpose of meeting was to update Mr. Canon on the Commuter Rail Study progress and discuss items of interest to the MPO. Below are notes from the meeting.

A comparison of ridership was made between the proposed Hidalgo County system to the existing systems of Trinity Rail Express (Fort Worth) and MET—McAllen Express Transit (buses). Hidalgo County’s system serves a greater proportion of the County’s urbanized area, and the demographics show a higher percentage of no-vehicle households than North Texas. Mr. Canon was satisfied with the proposed ridership, based on 2030 demographics and traffic projections. He noted that the MPO’s model would soon be updated to a base year of 2013, and this next model is expected to be greatly improved compared to the current one.

Mr. Canon noted that one of the MPO’s main areas of concern were the roughly 100,000 commuters entering Hidalgo from Cameron County to the east. Mr. Manuel responded that additional text had been added to the study report to discuss this issue, particularly with regards to the Mercedes Station, which is the proposed eastern terminus and the closest station to Cameron County.

Mr. Manuel noted the most important next steps for the MPO:

1. Encourage other cities to develop station-area planning and zoning documents, akin to San Juan’s Downtown Revitalization Plan

2. Identify the entity to move forward with Rail planning, and to eventually operate and maintain the system, whether it's the County, a newly-created Transit District, or an existing transit provider like MET (by interlocal agreement).
3. Help that entity determine a funding stream for future activities. It was noted that the MPO currently provides funding to LRGVDC for Rio Metro and to MET for their service. The City of McAllen also funds MET.

Mr. Canon noted that the MPO expects to publish their updated Unified Planning Work Program (UPWP) in August 2011. The MPO solicited suggestions from area jurisdictions in January 2011 as to what planning studies should be undertaken and no suggestions were received.

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The preceding summarizes our understanding of the subject matter covered in this conference. If this differs from your understanding, please notify us in writing within five days.

David Manuel

Planning Manager  
Lockwood, Andrews & Newnam, Inc.



## **Appendix D: Full Details of Public Meeting**

# Public Meeting Sign-In Sheet 1 of 2



Hidalgo County  
Commuter Rail Feasibility Study  
Public Meeting - Thursday, March 31, 2011  
SIGN-IN SHEET



Name	Address	Phone	E-Mail
Rebo Salazar		383-7124	Rebo@EdinburgsEdC.com
Beverly Garcia		292-7050	gg@inteqcorp.net
Andrew Canon		969-5778	ACANON@KMD.ORG
Andrew Salinas (Tepsi Infiniti Group)	1201 E. Expressway 83, Mission, TX 78572	952-924-789P	ASALINAS@TEDS1.COM
Fernando Mentana	410 W. Univ. Drive	956-388-8989	
GRACIELA GARCIA	629 S Mission Ave Mercedes, TX 78570	956-532-9195	GGARCIA3@UTPA.EDU
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David Moreno	3827 Joby Edinburg TX 78541	292-5938	David.Morano@gmail.com
Debra Guillen	3901 Joby Edinburg TX 78541	793-6006	dgullenn@gmail.com
Virginia Haynie Gause	517 E. Dallas Ave; McAllen, TX 78501	665-2303	vgause@utpa.edu
Cynthia Rios	800 W. Railroad, Weslaco, TX 78596	447-9473	Cynthia.rios@house.state.tx.us
Mark Perea	3111 W. FREEDY CORRALIZ EDINBURG TX 78539	353-4951	Mark.perea@edwards-tfheo.com
Luis Guajardo	510 S. Pleasantview Drive Weslaco, TX	969-5761	Lguajardo@crjvdc.transit.org
MARLENEA Q. FRANKLIN	1201 W. UNIVERSITY DR. EDINBURG TX 78539	665-7301	FRANKLINM@UTPA.EDU
Eddie Falaris	3310 Lanrelet Edinburg TX 78539	287-1569	NecroFeret@yahoo.com
Liz Suarez	1501 W Hwy 83 Suite 100 McAllen TX 78501	681-3500	esuaraz@mcallen.net
Norma H Zamora	700 Jose Colunga Brownville TX 78521	541-4881	norma2@cob.us
Ed Taylor	P.O. Box 220, McAllen, TX 78505	681-1250	etaylor@medstar.net
Flor FLOLLI	510 S. Pleasantview Dr	969-5122	flor-flolli@herna.org
Carolina D. Segundo	110 Solara Drive Mission, TX 78574	956-583-4244	C_segundo1595@yahoo.com
Juan R. Faj			jllopez@cityofedinburg.com

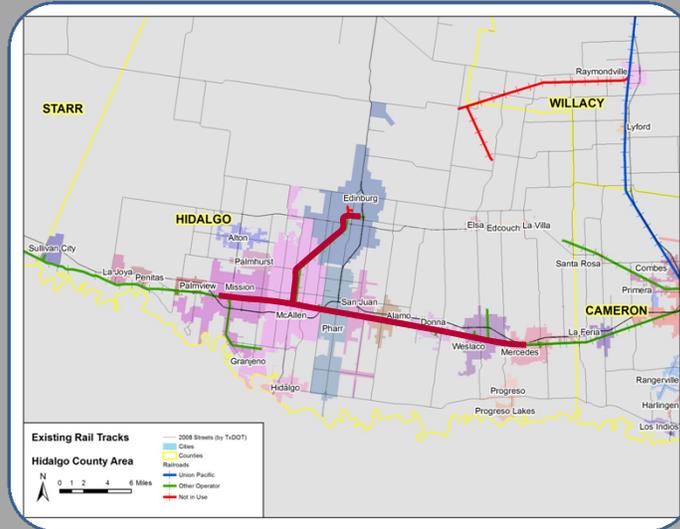




## PROJECT OVERVIEW

- **Purpose and Need**
  - Explosive Population and Employment Growth
  - County Level Commuter Rail Districts Enabled by State
- **Study Funded by U.S. DOE Grant**
- **Feasibility Examines:**
  - Corridors & Stations
  - Modes & Operations
  - Costs & Benefits

## PROJECT OVERVIEW



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## CORRIDORS & STATIONS

- **General Station Location Desires**
  - Employment/Residential Concentrations
  - Retail / Commercial Districts
  - Downtowns / Main Streets
  - Government / Education Uses
  - Adequate Parking Supply
  - Nearby Feeder Bus Routes
    - Extend Catchment Area
    - Reduce Parking Requirements

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## CORRIDORS & STATIONS

- Example: Downtown Weslaco

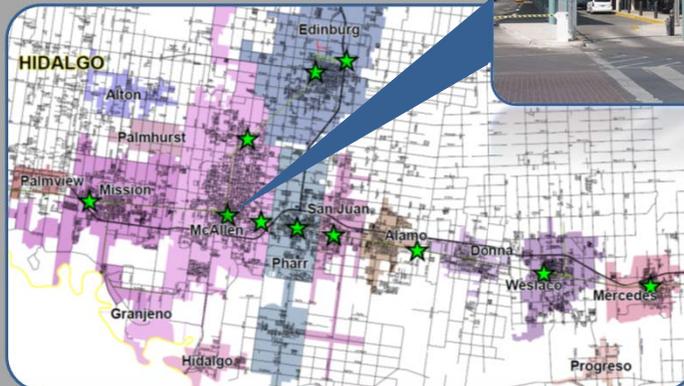


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## CORRIDORS & STATIONS

- Station Locations



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# MODES & OPERATIONS

- Predictive Models of Rail Ridership
  - Other Recent LAN models:
    - San Antonio
    - Tulsa
- "reasonableness check"

TRANSPORTATION RESEARCH RECORD  
ISSUE 1988

### Sketch Models to Forecast Commuter and Light Rail Ridership Update to TCRP Report 16

Dayton Lane, Mary DiCorleone, and Len Usayit

Sketch models are the most widely used method to estimate future rail ridership. This paper updates the methodology and provides a "reasonableness check" for the results. The authors also provide a methodology to estimate the uncertainty in the results. The authors also provide a methodology to estimate the uncertainty in the results. The authors also provide a methodology to estimate the uncertainty in the results.

**LITERATURE REVIEW**

Commuter rail-specific sketch ridership estimating tools have been developed and applied to commuter rail systems for which there are enough through-trip (i.e., through-trip) data to provide a reasonable estimate of the ridership. However, only a limited number of studies have been published that provide a methodology for estimating ridership for commuter rail systems that do not have through-trip data.

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# MODES & OPERATIONS

DMU (Non-Compliant)	DMU/EMU (Compliant)	Light Rail (LRT)
		
<ul style="list-style-type: none"> <li>• 32 miles (Austin)</li> <li>• Holds 200 Passengers / 2 cars (108 seated)</li> <li>• Up to 75 mph</li> <li>• Average speed 34 mph</li> <li>• Station Spacing 5 miles</li> <li>• \$5 million per rail car</li> </ul>	<ul style="list-style-type: none"> <li>• 35 miles (DFW)</li> <li>• 96 seated (per car)</li> <li>• Up to 79 mph</li> <li>• Average speed 45 mph</li> <li>• Station Spacing 5 miles</li> <li>• \$1.8 million each (cost includes engineering, shipment, etc.)</li> <li>• Meets FRA regulations for crash regulations</li> </ul>	<ul style="list-style-type: none"> <li>• 87 miles (DART System)</li> <li>• 160 passengers / 3 cars (76 seated)</li> <li>• Up to 65 mph</li> <li>• Average speed 25-35 mph</li> <li>• Station Spacing 1/2 to 2 mile</li> <li>• \$3.2 million each (includes design, engineering, shipment, etc.)</li> </ul>
<b>Metro Rail</b>	<b>Trinity Rail Express</b>	<b>Dallas Area Rapid Transit</b>

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## MODES & OPERATIONS

- Multiple Rail Modes
- Variety of Demographic and System Characteristics
- Mathematical Formulae Provide Planning Level Estimates of Ridership

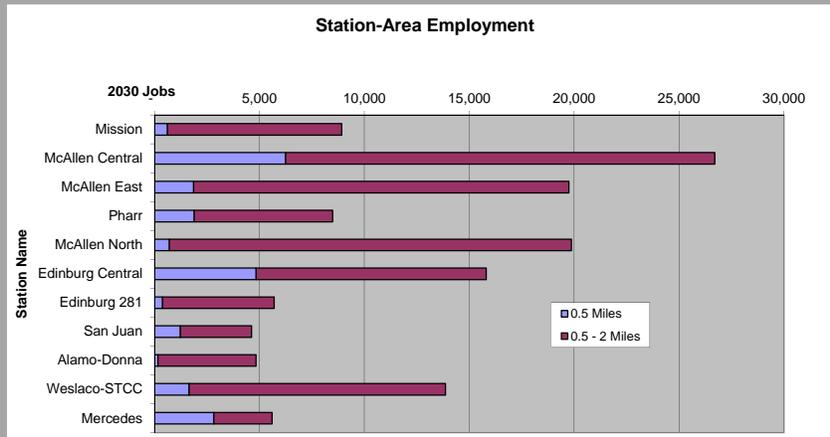
STUDY AREA DATA	Light Rail	Commuter
CBD Area Size	X	
CBD Jobs	X	
Metro Area Jobs	X	
Metro Area Population		X
Total Number of Stations		X
STATION AREA DATA	Light Rail	Commuter
Distance to Nearest Station		X
Speed to CBD		X
Time to TBD		X
Midday Headway		X
Bus Presence	X	
Parking Presence	X	X
Transportation Center Status	X	X
Typical Fare	X	
Nearby Vehicle Ownership Rate		X
Nearby Job Count	X	X
Nearby Population or Households	X	X
Nearby Household Size	X	

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## BENEFIT ANALYSIS

- 2030 Employment Near Stations
- 134,000 Jobs (30% of the 445,000 in County)

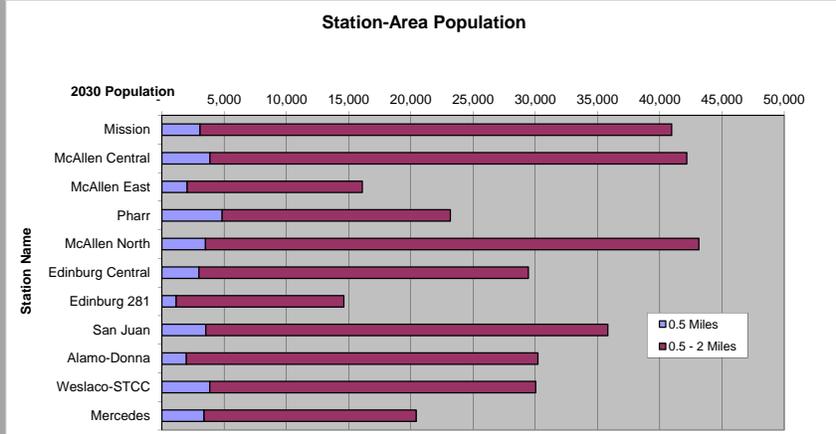


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## BENEFIT ANALYSIS

- 2030 Population Near Stations
- 326,000 People (20% of the 1,644,000 in County)

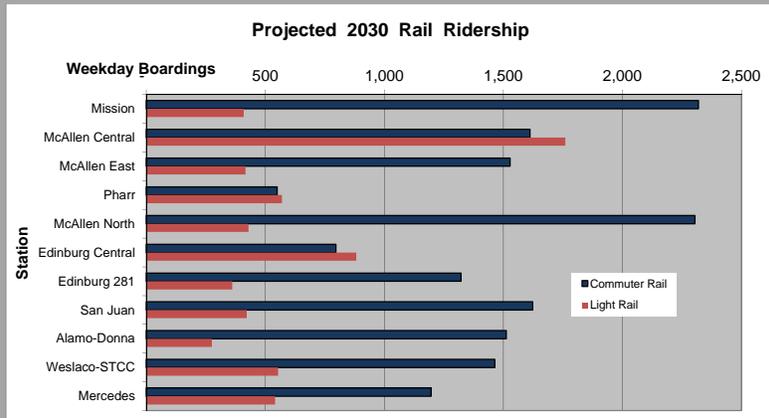


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## BENEFIT ANALYSIS

- Commuter Rail = 16,300 per day
- Light Rail = 6,600 per day

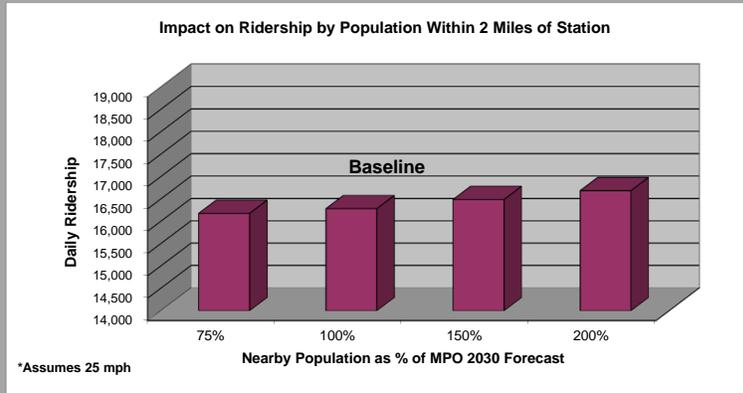


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## BENEFIT ANALYSIS

- Increasing nearby jobs has more impact than increasing nearby residences

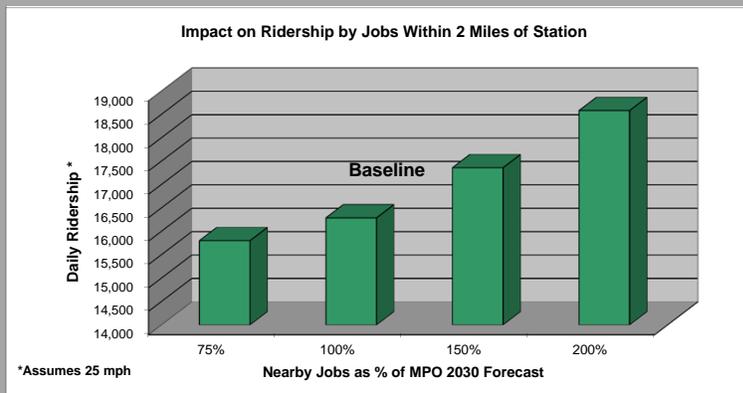


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## BENEFIT ANALYSIS

- Increasing nearby jobs has more impact than increasing nearby residences

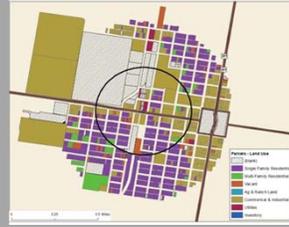


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## BENEFIT ANALYSIS

Station	Possible Job Creation (within 1/4 mile of stations)			Vacant Land (acres)
	Current	Future	Growth	
McAllen Central	4,526	5,028	502	26.7
Edinburg Central	2,454	2,626	172	14.6
McAllen East	1,614	2,318	704	121.0
McAllen North	1,131	1,664	533	67.9
Pharr	1,447	1,907	460	36.4
San Juan	1,196	1,490	294	27.9
Alamo-Donna	49	740	691	290.6
Weslaco	1,635	1,809	174	15.9
Mercedes	1,951	2,364	413	38.3
Mission	456	974	518	131.1
Edinburg 281	329	964	635	266.8
<b>Total</b>	<b>16,788</b>	<b>21,884</b>	<b>5,096</b>	<b>1,037.2</b>



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## BENEFIT ANALYSIS

- Sample Existing Conditions

Some Blocks are Mostly Developed and are Transit-Friendly Now



Less Dense Blocks are Likely to Change / Build Up



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## BENEFIT ANALYSIS

- Transit Routes and Schedules
  - MET (McAllen Express Transit)
  - RioMetro Intercity



San Juan Shrine	6:45 AM	8:40 AM	8:45 AM	10:40 AM	1:40 PM	3:35 PM	3:40 PM	5:42 PM
Nuestra Clinica del Valle	6:47 AM	8:35 AM	8:47 AM	10:35 AM	1:42 PM	3:32 PM	3:42 PM	5:37 PM
Jr's Supermarket	6:50 AM	8:32 AM	8:50 AM	10:32 AM	1:45 PM	3:30 PM	3:47 PM	5:32 PM
HEB - I Rd & Us 83	6:55 AM	8:30 AM	8:55 AM	10:30 AM	1:50 PM	3:25 PM	3:52 PM	5:27 PM
Pharr - I Rd & Bus 83	6:57 AM	8:28 AM	8:57 AM	10:28 AM	1:52 PM	3:23 PM	3:54 PM	5:25 PM

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## COST ANALYSIS

- LAN Experience with Texas Systems
  - Capital Metro, Austin
  - Denton County Transit Authority
  - Trinity Rail Express, Dallas / Fort Worth
  - DART, Dallas
  - METRO, Houston
  - VIA Metro, San Antonio  
(Rail in Planning)



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## COST ANALYSIS

### Peer Group Comparison

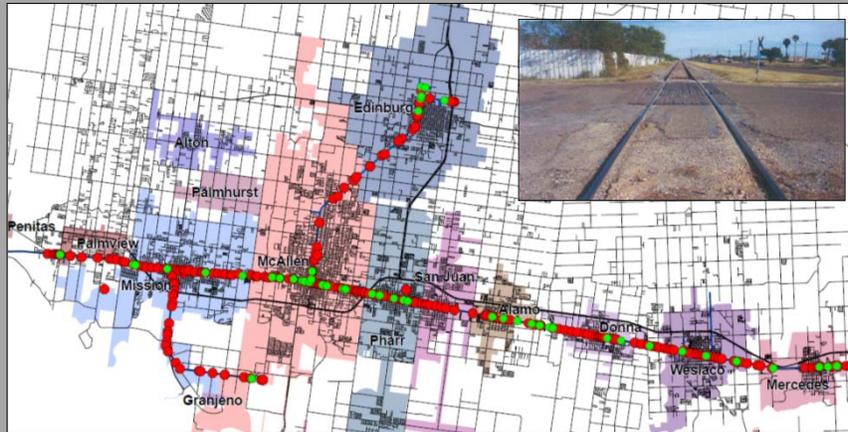
Commuter Rail		
System	Largest City Served	Average Weekday Riders*
NJ Transit Rail	New York/Philadelphia	291,428
MBTA Commuter Rail	Boston	130,800
SEPTA Regional Rail	Philadelphia	120,800
Caltrain (Peninsula Corridor Joint Powers Bd)	San Francisco/San Jose	35,900
VRE	Washington, DC	16,300
TRE	Dallas – Fort Worth	9,400

Light Rail		
System	Largest City Served	Average Weekday Riders*
DMU Lines		
System	Largest City Served	Average Weekday Riders*
SFRTA Tri-Rail (mixed fleet)	Miami	12,400
NJ Transit Riverline	Trenton/Camden	9,771
North County Transit District (NCTD) Sprinter	Oceanside	7,200
Westside Express Service (TriMet)	Beaverton	1,100
Library & South Hills Lines	Pittsburgh	24,800
Metro Rail	Buffalo	20,600
Blue & Green Lines	Cleveland	9,804

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## COST ANALYSIS



● At-Grade Crossings ● Spur Tracks

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## COST ANALYSIS

- System Cost Elements

FTA Code (SCC)	Cost Item	15-Min. Headways	30-Min. Headways
10	Guideway & Track Elements	\$ 65,193,000	\$ 55,774,000
20	Station Platforms	\$ 8,506,000	\$ 8,506,000
30	Support Facilities (Maintenance/Office)	\$ 21,861,000	\$ 21,861,000
40	Sitework for Track and Stations	\$ 15,805,000	\$ 14,340,000
50	Systems (Track Controls & Fare Equip.)	\$ 29,697,000	\$ 29,897,000
60	Right-of-Way Acquisition	\$ 5,287,000	\$ 5,287,000
70	Vehicle Procurement	\$ 55,216,000	\$ 35,728,000
80	Design/Engineering/Construction Mgmt.	\$ 36,681,000	\$ 33,803,000
90	Contingency	\$ 71,496,000	\$ 61,511,000
-	<b>Total Estimated Capital Cost</b>	<b>\$ 309,742,000</b>	<b>\$ 266,707,000</b>
	Annual Operations & Maintenance	\$ 18,800,000	\$ 13,800,000

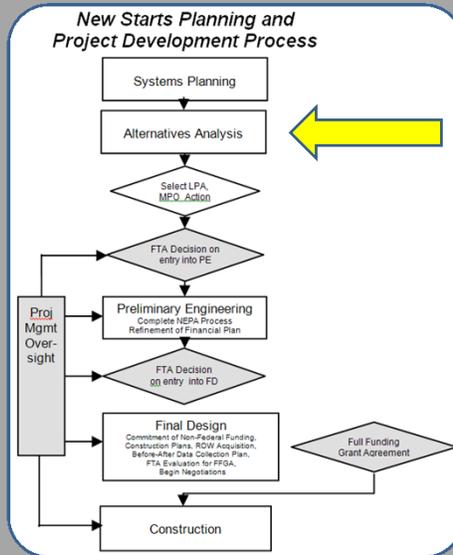


## RECOMMENDATIONS

- Preferred Mode is Commuter Rail
- System is Viable Relative to Forecasted Demographics
- Improve Policy, Financial, Physical, Institutional Environments
- Pursue Federal Funding: "New Starts"



## RECOMMENDATIONS



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## Written Comments Received 1 of 1



Hidalgo County

Commuter Rail Feasibility Study

Public Meeting - Monday, May 9, 2011

### COMMENT SHEET

If you would like to provide written comments, use the space below. Your comments will be included in the final project report.

Please get this project up and running.  
Price of gas is expensive wear & tear of  
trucks is costly.

Excellent idea! Shoot for 3 to 5 yrs  
2030 yr is too long.

Thank you 😊

## **Appendix E: Updated Traffic Counts**

	2005				2009				2005-2009		NOTES
	EB		WB		EB		WB		Actual Growth Rates		
	NB	SB	NB	SB	NB	SB	NB	SB			
<b>Alamo</b>											
FM 907 (Alamo Rd)	6,859	9,274	16,133		6,750	8,550	15,300		NB/EB -0.40%	SB/WB -1.95%	
<b>Donna</b>											
FM 1423 (Valverde Rd.)	1,346	3,763	5,109		1,100	1,100	2,200		-4.57%	-17.69%	
FM 493 (Salinas Blvd.)	7,169	8,253	15,422		7,600	8,650	16,250		1.50%	1.20%	
<b>Edinburg</b>											
FM 2061 (McColl Rd.)	8,296	8,685	16,981		12,590	12,590	25,180		12.94%	11.24%	Used Highest of closest traffic count on 2061
FM 3362 (Jackson Rd.)	5,989	5,434	11,423		6,650	7,995	14,645		2.76%	11.78%	
SH 107 (University Dr.)	12,925	10,508	23,433		12,105	12,105	24,210		-1.59%	3.80%	used same counts for E/W direction (closest count to crossing)
Trenton Rd.	11,112	10,762	21,874		12,595	12,595	25,190		3.34%	4.26%	used 2009 TMC from City of McAllen PM peak hour x 10 for ADT
<b>McAllen</b>											
SH 336 (N. 10th St)			-		15,000	15,000	30,000		n/a	n/a	used TxDOT 2009 closest counts for N/S (closest count to crossing)
FM 2220 (Ware Rd.)	12,753	14,030	26,783		34,460	34,460	68,920		42.55%	36.40%	used 2009 TMC from City of McAllen PM peak hour x 10 for ADT
FM 1926 (23rd St.)	10,581	12,546	23,127		12,830	12,830	25,660		5.31%	0.57%	used 2009 TMC from City of McAllen PM peak hour x 10 for ADT
FM 2061 (McColl Rd.)	8,192	11,603	19,795		9,860	11,000	20,860		5.09%	-1.30%	
FM 495 (Pecan Blvd.)	10,902	7,353	18,255		14,805	14,805	29,610		8.95%	25.34%	used 2009 TMC from City of McAllen PM peak hour x 10 for ADT
FM 3451 (Nolana Loop)	17,759	21,000	38,759		30,935	30,935	61,870		18.55%	11.83%	used 2009 TMC from City of McAllen PM peak hour x 10 for ADT
Bicentennial @ Bus 83	13,508	12,844	26,352		17,445	17,445	34,890		7.29%	8.96%	used 2009 TMC from City of McAllen PM peak hour x 10 for ADT
<b>Mission</b>											
SH 107 (Conway Ave.)	8,634	8,348	16,982		8,550	10,855	19,405		-0.24%	7.51%	changed counts to include N/S counts
FM 396 (Bryan Rd.)	9,824	6,041	15,865		7,715	7,715	15,430		-5.37%	6.93%	used TxDOT 2009 closest counts for N/S (closest count to crossing)
FM 494 (Shary Rd.)	8,530	9,870	18,400		13,500	12,660	26,160		14.57%	7.07%	
<b>Pharr</b>											
FM 3362 (Jackson Rd.)	14,728	13,247	27,975		11,500	11,500	23,000		-5.48%	-3.30%	
US 281 (Cage Blvd.)	14,769	11,621	26,390		11,475	14,360	25,835		-5.58%	5.89%	
I Rd.	4,899	10,368	15,267		12,780	12,780	25,560		40.22%	5.82%	used TxDOT 2009 closest counts for N/S (closest count to crossing)
<b>Weslaco</b>											
FM 1015 (International Blvd.)	9,667	7,527	17,194		8,300	9,600	17,900		-3.54%	6.89%	
Westgate Dr. (Mile 6 Rd. W)	6,384	7,485	13,869		5,325	5,375	10,700		-4.15%	-7.05%	
<b>San Juan</b>											
Nebraska Ave.			-		5,055	8,315	13,370		n/a	n/a	

*Italic Counts are East/West roadways*  
Non-Italic Counts are North/South roadways

## **Appendix F: FTA Requirements for Selected Funding Programs**

**Side-by-Side of Required Information  
for New Starts/Small Starts Evaluation and Rating**

Reporting Item	Required Information	New Starts	Small Starts	Very Small Starts	Exempt
<b>Project Background</b>					
Project Description	Project Description Template				
Make the Case Document*	Narrative, Data, Maps, Graphics				
Certification of Technical Methods and Planning Assumptions	Signed Certification				
Documentation of existing, benefiting transit riders in corridor	Data, methodology, maps of affected routes, evidence of benefit for affected riders				
<b>Project Maps</b>					
Project Site Map	Map				
Vicinity Map	Map				
<b>Capital Costs</b>					
Standard Cost Categories, including schedule, inflation, and funding	SCC Worksheets				
Annualized Cost Worksheets for Build and Baseline	SCC Worksheets				
<b>Travel Forecasts**</b>					
User Benefits Forecasts	Summit				
Thematic Maps and Legend	Summit Output				
Summary of Travel Forecasts	Travel Forecast Template, Narrative, Data (as necessary)				
<b>O&amp;M Costs</b>					
Summary of O&M Cost Productivities	Narrative, Data				

\* Evaluated as an “Other Factor.” Submission of any other “Other Factor” is optional.

\*\* Simplified travel forecasting procedures and results may be acceptable for Small Starts projects. Sponsors should discuss such procedures with FTA.

Reporting Item	Required Information	New Starts	Small Starts	Very Small Starts	Exempt
<b>Project Justification</b>					
Mobility Improvements	Mobility Improvements and Cost Effectiveness Template				
Cost Effectiveness (2030)					
Cost Effectiveness (Opening Year)	Cost Effectiveness for Small Starts Template				
Annualization Factor Justification	Narrative, Data				
<b>Transit Supportive Existing Land Use and Future Patterns</b>					
Quantitative Land Use Information for New Starts	Quantitative Land Use Information Template				
Qualitative Land Use Information for New Starts	Qualitative Land Use Information Template, Narrative, Data, Maps				
Quantitative Land Use Information for Small Starts	Quantitative Land Use Information for Small Starts Template				
Qualitative Land Use Information for Small Starts	Qualitative Land Use Information for Small Starts Template, Narrative, Data, Maps				
<b>Other Factors (Optional)</b>					
Evidence of Economic Development, Congestion Pricing, and other project benefits	Narrative, Data, Maps				
<b>Local Financial Commitment***</b>					
Financial Plan Summary	Finance Template				
Checklist for Financial Submittals	Checklist				
20-year Capital Operating Plan	Financial Plan, 20-Year Cash Flow				
20-year Operating Financial Plan	Financial Plan, 20-Year Cash Flow				
Evidence of Agency Financial Condition	Audited Financial Statements				
Evidence that Project O/M Costs are Within 5% of Systemwide O/M Costs	O/M Cost Analysis				
Supporting Financial Documentation	Narrative, Plans, Data, etc				

\*\*\* Assumes Small Starts/Very Small Starts qualify for streamlined financial evaluation. If not, New Starts financial reporting requirements must be met, but only covering the period up to and including the opening year.