OVERVIEW OF RESEARCH PROJECT 0-5930

TTI recently completed TxDOT Research Project 0-5930 *Potential for Development of a Intercity Passenger Transit System in Texas* which examined 18 intercity corridors within the state to determine current capacity for intercity travel by road, air, and rail. Project 0-5930 examined only long-distance, intercity corridors connecting regions of the state and provided data on estimated travel times for each corridor at a variety of potential high speed rail speeds up to (HrSR) standards (and have subsequently been updated to include high speed rail (HSR) speeds). The study evaluated current employment and population as well as projected population growth for the state to 2040 based on figures developed by the Texas State Demographer. Researchers used the 2035 FHWA Freight Analysis Framework projected traffic levels to estimate segment-by-segment volume-to-capacity (V/C) ratios along existing roadways in each of the corridors. The existing bus and rail transit systems connecting to each potential corridor were documented as were a variety of demographic data along each route. The corridors were then ranked as to their need for future expansion in intercity passenger transportation capacity. These corridor rankings have formed the basis for the advancement of four study corridors being submitted by TxDOT or others in this round of HSIPR applications.

INTRODUCTION

Texas has undergone a quiet transformation over the past several decades, passing New York in population to become the second most populous state in the U.S. behind only California. While much larger than the other two states, the population of Texas is concentrated largely within in the eastern half of the state—along and east of the I-35 corridor. Texas contains three of the U.S.'s top 10 urban areas by population—Dallas-Fort Worth, Houston, and San Antonio—all located within 200-300 miles of one another. The city of Austin, also over a million in population, is located on the I-35 corridor and serves as the state's capital attracting both business and government travelers. Texas and Oklahoma sit at the crossroads, in the middle of the continent, astride trade and travel corridors connecting both north and south NAFTA traffic and the east and west flow of goods from Asia to the eastern U.S.

The Interstate 35 (I35) corridor is one of the state's most heavily trafficked corridors, connecting three of the state's four largest cities and serving as the state's primary international corridor, which provides a critical trade link between Mexico and the U.S. interior. At its southern end, I-35 connects Texas to one of the busiest land ports with Mexico, and at its northern end it connects Texas to distribution centers throughout the United States. Consequently, Texas is a worldwide logistics and distribution hub located within the middle of the North American trade route. Highway demand from international truck traffic competes with highway demand for intercity truck movements between some of the country's largest cities, both of which displace the availability of highway capacity needed for efficient passenger travel.

The State of Texas has long been a leader in the provision of quality transportation infrastructure for its citizens. Along with its federal funding partners, the state has built the most expansive highway system of any state with over 79,000 lane-miles. Texas has also benefitted from an excellent air transportation system that has steadily grown in use as urban airports in Dallas-Fort Worth and Houston have become national and international hubs. Airports in other Texas urban areas have grown to meet the intercity and regional travel demand that is not met by the highway system and as feeders to the hub airports for interstate travel. Over time, Texan's urban and suburban work and travel patterns have shifted, becoming longer and more frequent. Interconnectivity between urban areas throughout the state has grown in importance as centers of both housing and commercial activity have spread along existing transportation routes.

The state's burgeoning population and its rapid transition from a rural state to an urban one have strained elements of the existing transportation system. To meet the need for new intercity transportation capacity will require new financing and operational methods to provide the required infrastructure for continued economic growth and quality of life. High-performance intercity passenger rail systems must be considered as a part of the solution to meeting this challenge. A well-designed intercity rail system with coordinated transit connections in urban areas served by it could improve performance of the existing highway and air transportation systems allowing each mode—highway, air, and rail—to operate more effectively.

Figure 1 demonstrates the relative size of the population centers and the relative distance between these centers. The extensive growth in the major urban centers shows in the Texas Urban Triangle area including Dallas-Fort Worth, Houston, San Antonio, and Austin. The

Dallas-Fort Worth to San Antonio corridor connects two of the nation's largest urban areas, along a corridor experiencing tremendous growth. Additionally, the urban areas along the Texas-Mexico border between Laredo and Brownsville are experiencing tremendous growth. In addition to examining the main corridor between Dallas-Fort Worth and San Antonio along I-35, this study would examine options for linking San Antonio to the urban centers in South Texas along the international border.

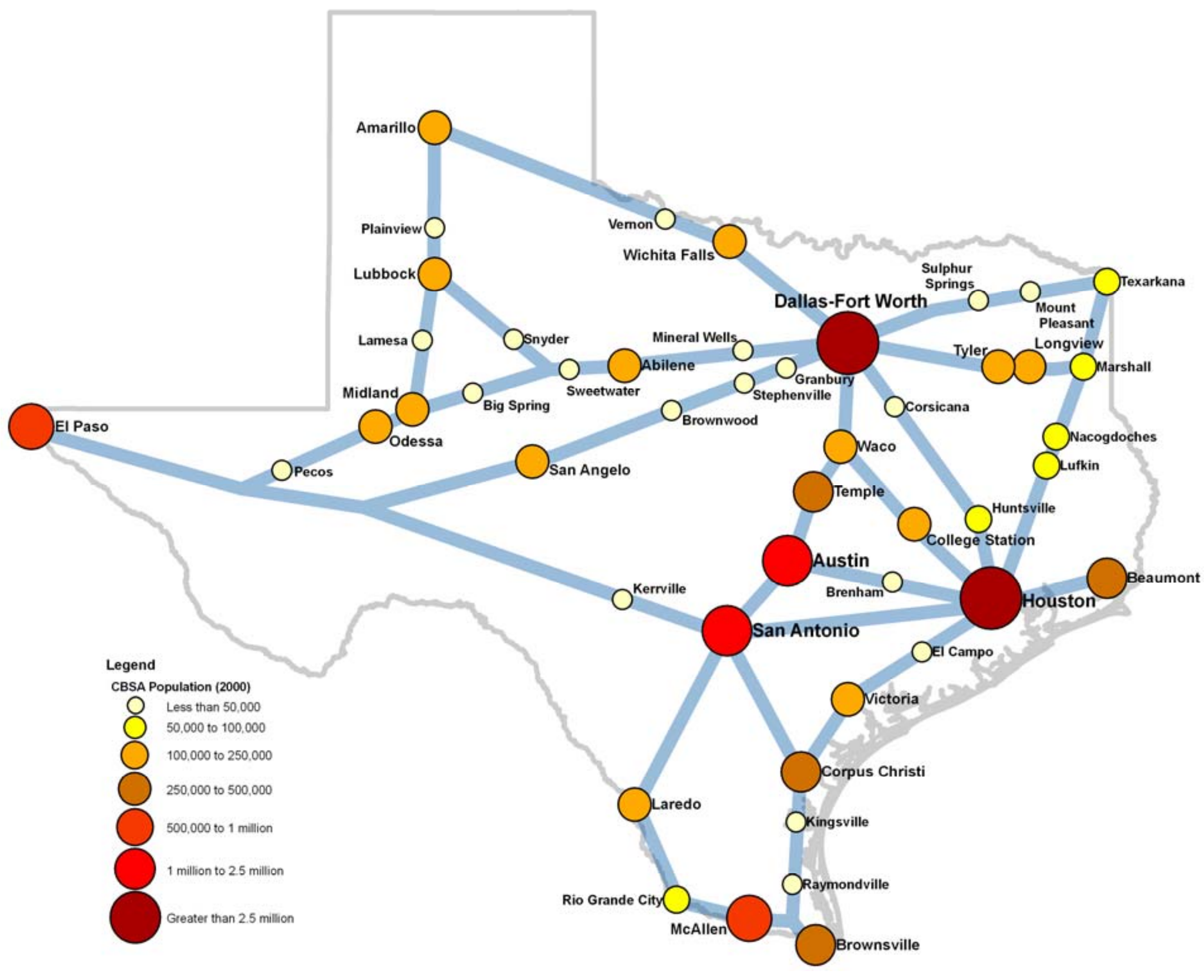

Figure 1. Relative Size and Distance of Texas Population Centers along Study Corridors.

DALLAS TO SAN ANTONIO AND SAN ANTONIO TO BROWNSVILLE VIA LAREDO CORRIDOR OVERVIEW

Figure 2 shows of the CBSA populations along the Dallas-Fort Worth to San Antonio corridor, along with a demonstration of the distance between these urban centers. The corridor is approximately 280 miles in length with a total of five CBSAs, all of which are categorized as Metropolitan. According to the 2000 federal census, over 5.1 million people resided in the Dallas-Fort Worth-Arlington CBSA, while the populations of both the Austin-Round Rock and San Antonio CBSAs exceed 1.2 and 1.7 million, respectively. The Waco and Killeen-Temple-Fort Hood CBSAs added over 500,000 combined population to the along the corridor.

In addition to the 2000 population figures, Figure 2 contains the 2008 population estimates and the expected 2040 population for all five CBSAs along the corridor as forecast by the Texas State Demographer. The major urban centers along the corridor are expected to experience significant population growth by 2040, with the Dallas-Fort Worth-Arlington CBSA expecting to almost double to over 10 million people in 2040. The Austin-Round Rock CBSA is expected to surpass the San Antonio CBSA to over 2.6 million people in 2040. The San Antonio CBSA is expected to grow to 2.5 million, while the Waco and Killeen-Temple-Fort Hood CBSAs are expected to grow to over 286,000 and 554,000, respectively. The Corsicana and Huntsville CBSAs are expected to reach 70,900 and 77,800, respectively, by 2040.

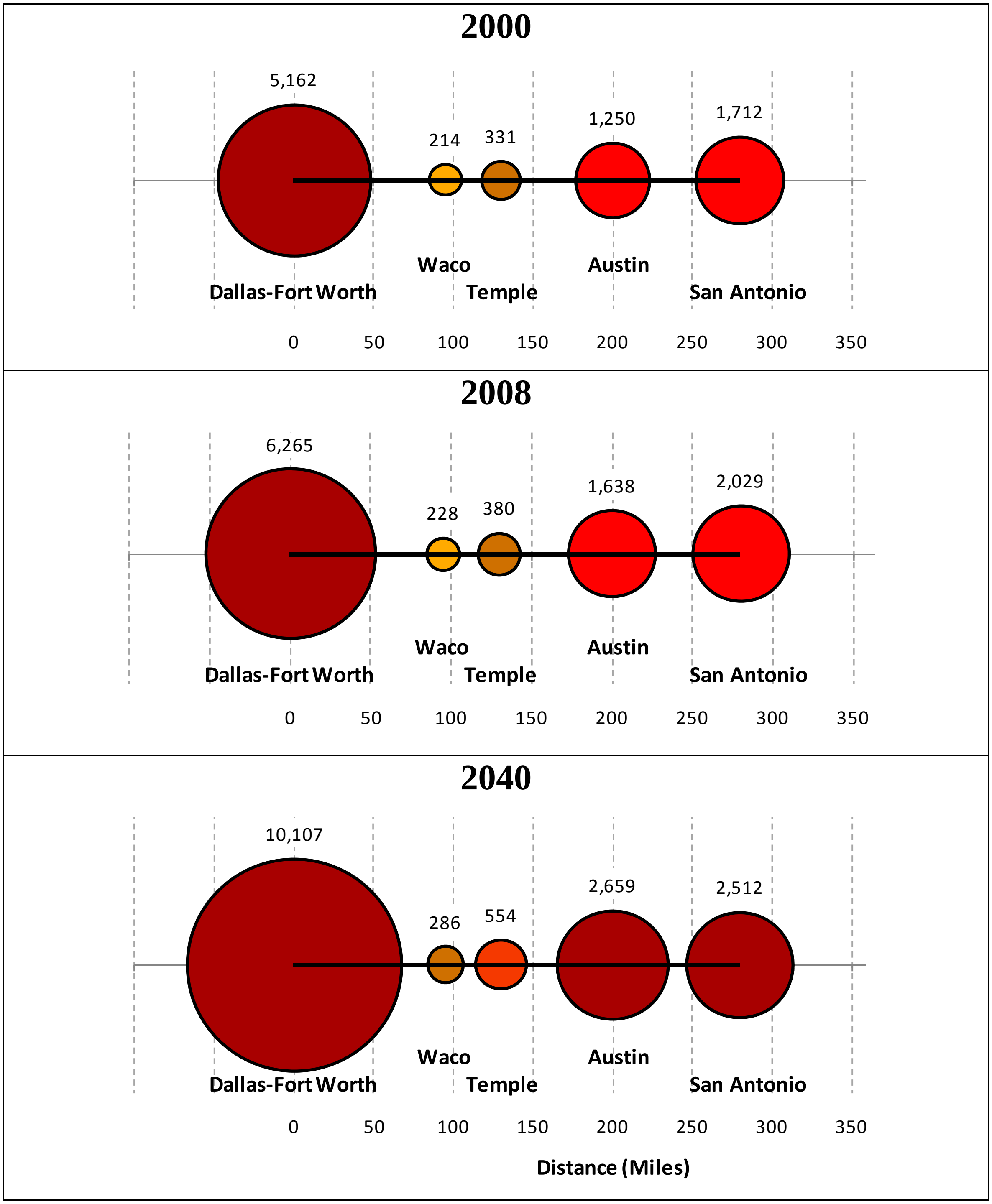

Figure 2. Dallas to San Antonio Corridor Population Distributions (population in thousands)

Table 1 shows the distance between the urban areas along the corridor and estimated travel time at a variety of average passenger rail speeds along the entire corridor.

Table 1. Dallas-Fort Worth to San Antonio CBSA Population, Distances, and Estimated Travel Times

CBSA	Population			Distance		Travel Time (hours:minutes)				
	2000	2008	2040	Segment	Cumulative	60 mph	80 mph	110 mph	150 mph	200 mph
DFW	5,161,500	6,265,000	10,106,800	0	0	0:00	0:00	0:00	0:00	0:00
Waco	213,500	228,500	285,500	95	95	1:35	1:11	0:51	0:38	0:28
Temple	330,700	379,800	553,700	35	130	2:10	1:37	1:10	0:52	0:39
Austin	1,249,800	1,637900	2,658,500	70	200	3:20	2:30	1:49	1:20	1:00
San Antonio	1,711,700	2,028,800	2,512,000	80	280	4:40	3:30	2:32	1:52	1:24

MARKET POTENTIAL

The market potential of a high-speed intercity passenger rail corridor can be measured by the proposed corridor's population, density, economic activity, and travel patterns. This section reports several demographics and travel activity statistics for the Dallas-Fort Worth to San Antonio corridor. Projected population numbers are presented by the Texas State Demographer, while the roadway information comes from the TxDOT Road–Highway Inventory Network (RHiNo) database and FHWA Freight Analysis Framework database.

Population, Economic Activity, and Special Generators

Population and Employment in the I-35 Corridor

The U.S. Census estimated that over 11 million people lived in the 35 counties of the I-35 corridor in 2008, representing over 45 percent of all Texas residents. At that time there were 14 cities with populations greater than 100,000 in the corridor, including two cities (San Antonio and Dallas) with over 1 million residents each and two more cities (Austin and Fort Worth) with over 500,000 residents each. Over 5 million I-35 Corridor residents were employed in 2008, equal to an increase in the 2000 Census of more than 20 percent.

The Dallas-Fort Worth to San Antonio corridor is the most densely-populated and fastest-growing corridor in Texas. The combined corridor population was approximately 8.6 million people in 2000 and is projected to reach over 16 million by 2040, as shown in Table 2. The population numbers translate to a 2000 population per mile value of 32,461 but are expected to almost double to 60,361 people per mile along the corridor by 2040. The high population levels along the I-35 corridor between the Texas-Oklahoma border and San Antonio are shown in Figure 3.

A larger portion of the population along the I-35 corridor in 2040 is expected to consist of individuals over 65 years of age. In 2000, the percentage of population was in this demographic category was 8.5 percent, but that is expected to rise to 18.6 percent (or over 3 million people) by 2040. Table 2 also shows that there were over 3.9 million employees along the corridor working at 219,000 establishments based on 2005 figures. Finally, the combined higher education enrollment at institutions along the route exceeded 280,000 in 2006. Collectively, these three traveler groups - the elderly, business persons, and college students - comprise a large potential market for high-speed intercity passenger rail service in this corridor.

Table 2. Dallas-Fort Worth to San Antonio Demographics

Data Element	DFW to San Antonio
Population	
2000	8,667,241
2040	16,116,530
Population per Mile*	
2000	32,461
2040	60,361
Population - Over 65	
2000	737,059
2040	3,001,173
Employment	
No. of Employees (2005)	3,908,853
No. of Employer Establishments (2005)	219,844
Total Public or Private University Enrollment (Fall 2006)	280,359

*Calculation using corridor length = 267 miles

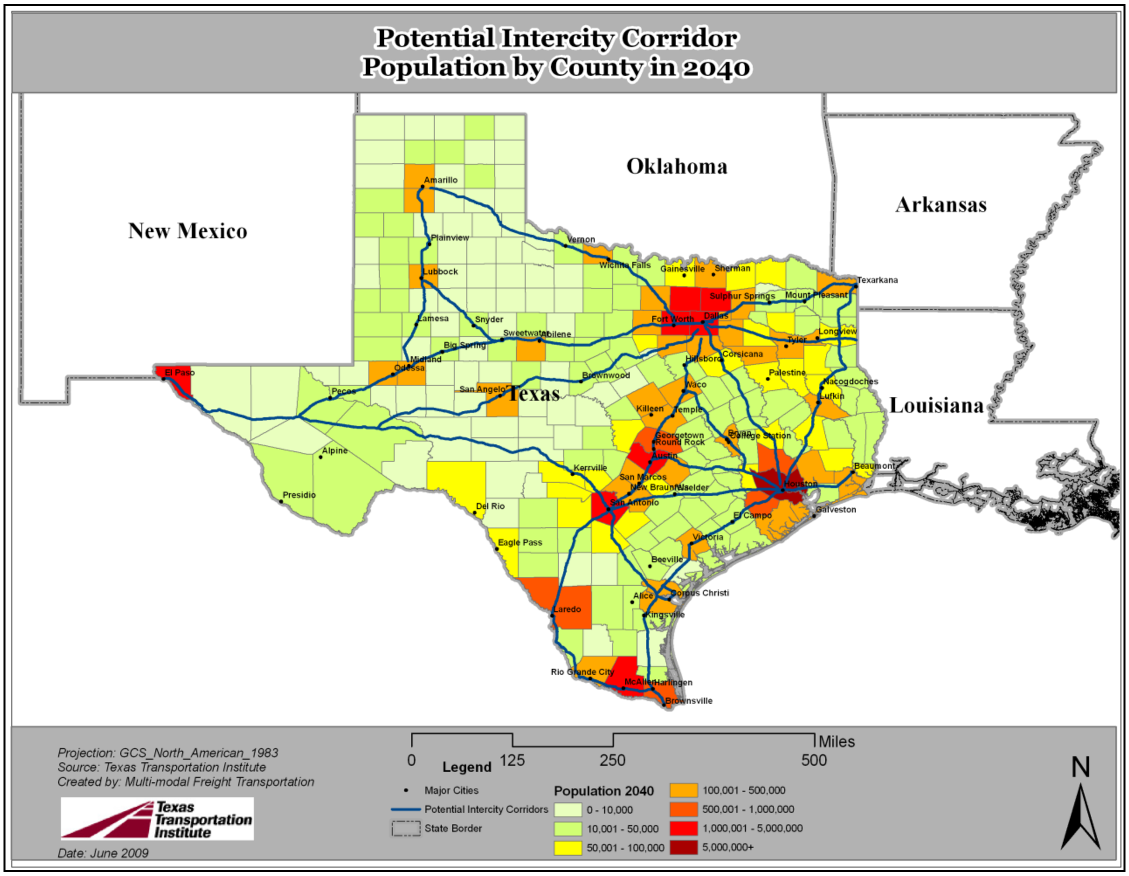

Figure 3. Texas Population by County, 2040

Following I-35 north from Dallas-Fort Worth to the Texas-Oklahoma border would travel primarily through Cooke County, TX, which is a designated Micropolitan CBSA, named the Gainesville CBSA. Although not included in the original 0-5930 research project, considering the Gainesville CBSA as part of the combined Dallas-Fort Worth CBSA adds the following demographic data, as presented in

Table 3.

Table 3. Gainesville CBSA Demographics

Data Element	DFW to San Antonio
Population	
2000	36,363
2040	46,490
Population - Over 65	
2000	5,415
2040	10,427
Employment	
No. of Employees (2005)	10,682
No. of Employer Establishments (2005)	870

Corridor Travel Patterns: Intercity Passenger Rail

Figure 4 shows the Amtrak intercity passenger rail routes in Texas, which includes the two routes that serve the corridor, the *Heartland Flyer* and the *Texas Eagle*. The *Heartland Flyer* line operates between Fort Worth and Oklahoma City, OK, once daily in each direction with southbound in the morning and returning northbound in the evening. The *Texas Eagle* operates daily between Chicago, IL, and San Antonio, and three days per week between Chicago and Los Angeles in conjunction with the *Sunset Limited*. Stations west of San Antonio are served on the same schedule as the *Sunset Limited*. Amtrak Thruway Motorcoach connections are provided to Ft. Hood and Killeen via Temple as well as to Brownsville and Laredo via San Antonio. In addition to the Amtrak services shown in Figure 4, the Trinity Railway Express and Austin Commuter Rail systems provide intercity rail service between Dallas and Fort Worth and Austin and several northern suburbs, respectively. For over a decade, efforts have been underway to develop a commuter rail system between Austin and San Antonio on or alongside the UP freight line connecting the two cities.

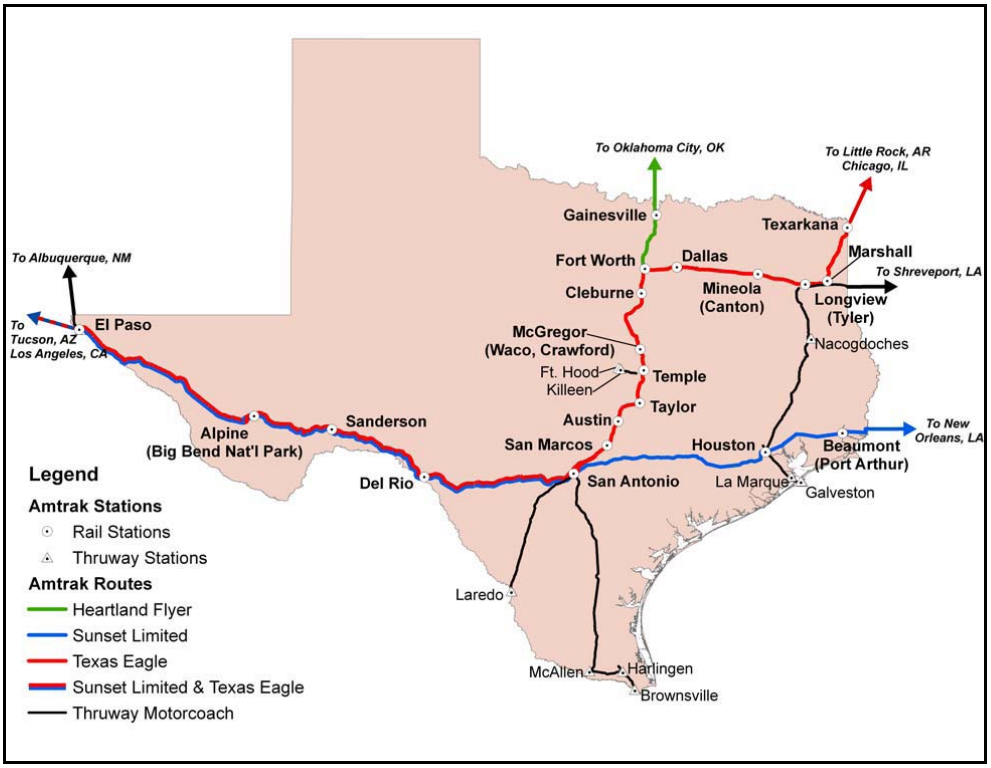

Figure 4. Amtrak Routes and Stations in Texas

Table 4 displays the three-year ridership totals for the three Amtrak routes in Texas - the *Heartland Flyer*, the *Sunset Limited*, and the *Texas Eagle*. Note that the annual ridership totals are reported for the federal fiscal year (FFY), which starts October 1. Ridership on the *Heartland Flyer* in FFY 2009 was approximately 10 percent less than FFY 2008, reflecting a general nationwide trend of lower Amtrak ridership in FFY 2009 due to the economic recession impacting travel patterns. However, ridership on the two Amtrak long-distance routes in Texas, the *Sunset Limited* and the *Texas Eagle*, were opposite of the national trend, with ridership gains realized in FFY 2009 compared with FFY 2008. All three Texas routes realized ridership gains in FFY 2009 as compared to FFY 2007.

Table 4: Amtrak Texas Routes Ridership, FFY 2007-2009

Route	Ridership			Percent Change	
	FFY 2009	FFY 2008	FFY 2007	vs. FFY 2008	vs. FFY 2007
Heartland Flyer	73,564	80,892	68,246	-9.1	+7.8
Sunset Limited	78,775	71,719	63,336	+9.8	+24.4
Texas Eagle	260,467	251,518	218,321	+3.6	+19.3

Table 5 displays the total ridership activity for Amtrak stations along the corridor for FFY 2007, 2008, and 2009. Ridership activity at a given station consists of the count of passengers boarding trains at the station plus the count of passengers alighting trains at the station. During FFY 2009, almost 325,000 passengers connected to Amtrak trains at stations along the corridor, a slight decrease from FFY 2008 but a 20 percent increase from FFY 2007. Passenger activity at corridor stations in Texas increased slightly in FFY 2009 (as compared with FFY 2008) and increased 24 percent compared with FFY 2007.

Table 5: Corridor Amtrak Stations - Boardings and Alightings, FFY 2007-2009

Station	Ridership			Percent Change	
	FFY 2009	FFY 2008	FFY 2007	vs. FFY 2008	vs. FFY 2007
Oklahoma					
Ardmore	9,094	8,607	9,642	+5.7	-5.7
Norman	12,573	13,414	11,033	+-6.3	+14.0
Oklahoma City	48,434	55,015	43,293	-12.0	+11.9
Pauls Valley	5,393	5,942	6,357	-9.2	-15.2
Purcell	2,073	2,086	2,801	-0.6	-26.0
Oklahoma Total	*68,473*	*76,457*	*63,484*	*-10.4*	*+7.9*
Texas					
Austin	25,404	23,829	19,388	+6.6	+31.0
Cleburne	2,455	2,135	1,831	+15.0	+34.1
Dallas	39,592	35,860	27,374	+10.4	+44.6
Fort Worth	104,107	109,012	85,069	-4.5	+22.4
Gainesville	8,018	9,249	9,589	-13.3	-16.4
McGregor	4,238	3,141	2,382	+34.9	+77.9
San Antonio	48,804	48,151	40,908	+1.4	+19.3
San Marcos	4,339	3,741	3,084	+16.0	+40.7
Taylor	3,908	3,981	3,464	-1.8	+12.8
Temple	15,163	12,914	13,349	+17.4	+13.6
Texas Total	*256,028*	*252,013*	*206,438*	*+1.6*	*+24.0*
Grand Total	***324,501***	***328,470***	***269,922***	***-1.2***	***+20.2***

Table 6 reports the five largest city pairs by Amtrak ridership in the corridor for the time period between September 2006 and August 2007. A vast majority of the intercity passenger rail travel patterns flow along the *Heartland Flyer* route endpoints, with more than 35,000 passengers along this segment of the corridor.

Table 6. Five Largest Amtrak Intercity Passenger City-Pairs with at Least one Endpoint in Texas for the Period September 2006 - August 2007

Train	Station Codes	Station Names	Ridership
Heartland Flyer	FTW-OKC	Fort Worth, TX - Oklahoma City, OK	35,663
Heartland Flyer	FTW-NOR	Fort Worth, TX - Norman, OK	7,924
Texas Eagle	FTW-SAS	Fort Worth, TX - San Antonio, TX	7,192
Texas Eagle	AUS-FTW	Austin, TX - Fort Worth, TX	5,721
Heartland Flyer	GLE-OKC	Gainesville, TX - Oklahoma City, OK	3,675

In the late 1990s, the Texas Department of Transportation (TxDOT) and the Austin and San Antonio metropolitan planning organizations (CAMPO and SA-BC MPO), and the Austin and San Antonio transit authorities (Capital Metro and VIA) formed a regional partnership to fund and manage a feasibility study of passenger rail service on the existing Union Pacific freight line that parallels I-35 between Georgetown and San Antonio. The study concluded that a commuter rail system between Georgetown and San Antonio is technically and financially feasible. The study provided basic information on the proposed passenger rail system such as ridership forecasts, capital costs, rail operation costs and revenues, passenger stations and intermodal connections, financing scenarios, and Union Pacific freight demand and possible routes for relocating freight traffic.

Authorized by the Texas Legislature in 1997, the cities of Austin and San Antonio and Travis and Bexar counties voted to create the Rail District in December 2002. The first meeting of the Rail District Board of Directors took place in February 2003 and the name, Austin-San Antonio Intermunicipal Commuter Rail District" was adopted. The name was changed to Lone Star Rail District in 2009.

Lone Star Rail District is a political subdivision of the state focused solely on the mission of providing regional passenger rail service to Central and South Texas along the Austin/San Antonio corridor. The Rail District's governing statute authorizes the district to "acquire, construct, develop, own, operate, and maintain" passenger rail facilities and services.

The Lone Star Rail District Board of Directors is currently made up of elected and private sector officials who represent:

- Member cities and counties
- Capital Area Metropolitan Planning Organization (CAMPO) and San Antonio-Bexar County Metropolitan Planning Organization (SA-BC MPO)

This study will also include work done by the Lone Star Rail District for the Austin-San Antonio Commuter Rail Project. The Rail District conducted a commuter rail study in 1999 which was updated in 2004. In addition to these studies they also conducted studies on the financial and economic impact of passenger rail service and a study on station locations and their economic impact. This work and Lone Star's vision for passenger service in the Austin-San Antonio Corridor will be incorporated into the Service Development Plan to ensure that the final passenger rail plan will be a comprehensive and seamless passenger rail network that meets the needs of the region and state.

Corridor Travel Patterns: Commercial Air Carrier Service

The existing commercial airports within the Dallas-Fort Worth to San Antonio corridor include Dallas/Fort Worth International (DFW), Dallas Love Field (DAL), Waco Regional Airport (ACT), Killeen-Fort Hood Robert Gray AAF (GRK), Austin-Bergstrom International Airport (AUS), and San Antonio International Airport (SAT). While not specifically included in the 0-5930 project corridor evaluation, the airport in Oklahoma City, the Oklahoma City Will Rogers World Airport (OKC), is included in the scope of the proposed high-speed rail corridor. The longest corridor air market distance is between SAT and OKC, at just over 400 miles. The air travel distance between the two DFW-region airports and SAT is approximately 250 miles. In 2006, the total number of air trips between Dallas/Fort Worth and San Antonio was 1,407,110, which is a 1.24 percent decrease compared to 1996. Between 1996 and 2008, specific indices for the air travel demand for Dallas/Fort Worth to San Antonio corridor are shown in Table 7.

Table 7. Air Travel Demand for Corridor Dallas/Fort Worth – San Antonio from 1996 to 2008 (Not Including DFW-OKC)

Year	Number of Flights	Number of Passengers	Number of Seats	Load Factor
1996	66,155	4,779,512	7,016,205	0.68
2008	52,473	4,476,962	6,031,329	0.74
1996-2008 (Annual percent change)	-1.59%	-0.49%	-1.08%	0.69%

In 2006, the average number of scheduled flights per day on the corridor between Dallas/Fort Worth and San Antonio was 155 flights per day. In Texas, nearly 71 million passengers were enplaned in 2007 and the number is expected to grow more than 104 million per year by 2025. Adding estimated air travel activity from OKC to the activity at the other corridor airports, the 2008 traffic patterns total 69,249 flight operations and 5,780,839 passengers carried. Also, it is estimated from 2008 air traffic data that approximately 14 percent of all commercial air carrier flight operations at corridor airports were operating between two airports in the corridor. Development of a high-speed intercity passenger rail system may reduce this percentage by diverting corridor trips from air to high-speed rail, which would in turn increase capacity and operational efficiency at corridor airports.

Corridor Travel Patterns: Highway

Interstate 35 is one of the busiest highways in the U.S. The major urban centers experience high levels of passenger traffic, not only internally but also between urban areas. I-35 is also a vital link for international trade with Mexico, bringing goods from Mexico into the Midwestern U.S. or to the industrial centers of the U.S. East Coast. The highway is the major transportation mode along this corridor, and TxDOT has spent millions of dollars over the past several decades widening and improving safety for its entire length within the state.

Table 8 shows the highway travel statistics. Traffic levels on I-35 between Dallas-Fort Worth and San Antonio grew 2.9 percent annually on a weighted average basis between 1997 and 2006 as shown in Figure 5. The levels are expected to grow from 88,000 in 2006 to over 178,000 vehicles per day in 2035 as shown in Table 8. The overall corridor volume-to-capacity ratio in 2002 was 0.80, with a 1.0 representing a roadway at capacity. The 2035 projected volume-to-capacity ratio worsens to an expected value of 1.90. This is shown in the 2002 and 2035 estimated average speed over the corridor dropping from 55 mph in 2002 to 15 mph in 2035. The percentage of trucks along the corridor is expected to remain relatively steady to 2035. The trend line for growth in AADT from 1997 to 2006 is shown in Figure 5.

Projections indicate that the 38.2 million vehicle miles traveled on I-35 in 2005 will increase 57 percent by 2025, whereas actual highway lane capacity on I-35 will increase nowhere near this amount in the coming decades. Without an increase in highway lane capacity in proportion to this growth in vehicle miles traveled, mobility and safety within the I-35 corridor will be significantly reduced, lessening the region's economic potential and quality of life for business travelers, commuters, tourists and all who rely on the efficient movement of commodities within the region.

According to level-of-service (LOS) projections for 2035, 55 percent of peak period traffic on I-35 between Oklahoma and Mexico will experience a LOS classification of "F", and 83 percent of this peak period traffic will experience a LOS classification of "D" or worse. For the portion of I-35 specifically between DFW and San Antonio, 63 percent of peak period traffic will experience a LOS classification of "F", and 89 percent of this peak period traffic will experience a LOS classification of "D" or worse.

Table 8. Dallas-Fort Worth to San Antonio Highway Travel Patterns

Data Element	DFW to San Antonio
% Annual Growth in Average Corridor AADT (1997-2006)	2.91%
Average Corridor AADT	
2006	88,153 vehicles per day
2035	178,452 vehicles per day
Average Volume-to-Capacity Ratio	
2002	0.80
2035	1.90
Average Speed	
2002	55 mph
2035	15 mph
Average % Trucks	
2002	16.1%
2035	16.8%

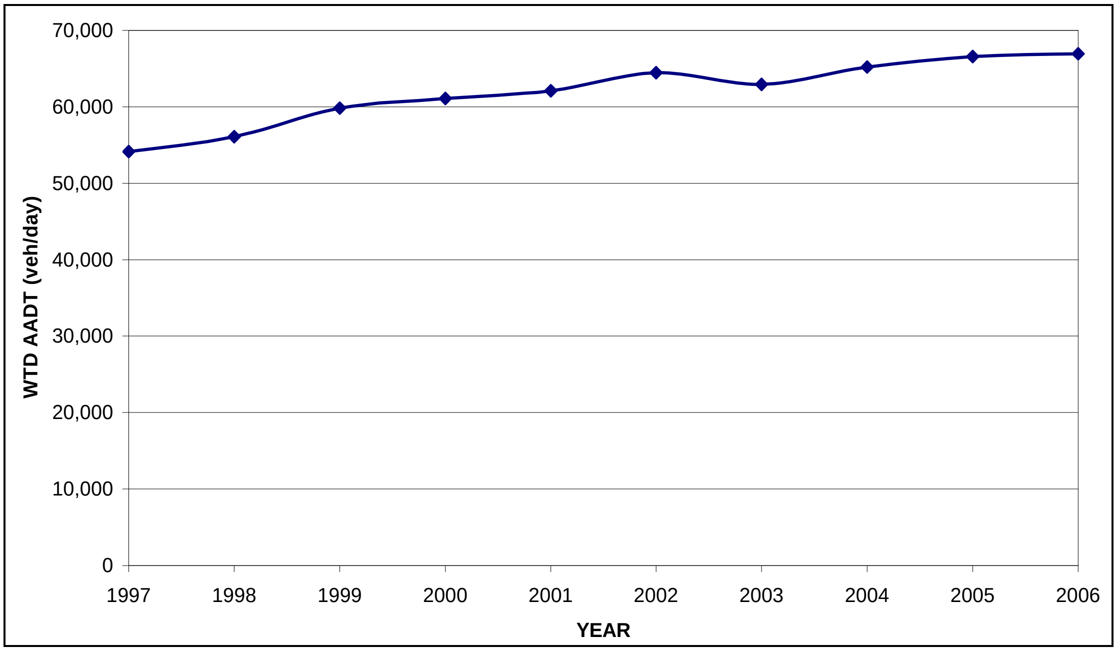

Figure 5. Dallas-Fort Worth to San Antonio 10-year Weighted AADT Trend

EXISTING BUS TRANSIT, INTERMODAL FACILITIES, AND FREIGHT RAIL

The following sections summarize the existing transit and freight rail services and routes in the study corridor area.

Existing Bus Service

Greyhound serves cities along this corridor eight times daily. Greyhound makes several stops in the Dallas-Fort Worth vicinity, including Union Station (where it interfaces with the Trinity Railway Express commuter rail, the DART Light Rail system, and Amtrak's Texas Eagle route) and three additional stops in Dallas and two stops in Fort Worth including the Fort Worth Intermodal Station (where it interfaces with both the Amtrak Heartland Flyer and Texas Eagle routes and with the Trinity Railway Express commuter rail). The Kerrville Bus Company also provides intercity interlined service with Greyhound line one time daily from Fort Worth to San Antonio. Another interlined service with Greyhound line is provided by Americanos USA LLC which runs 10 times daily along the length of the corridor. A map of intercity bus service routes operating in Texas is shown in Figure 7. A listing of the Greyhound stations appears in the following section regarding intermodal facilities. Figure 7 is a map showing intercity bus service routes in Texas.

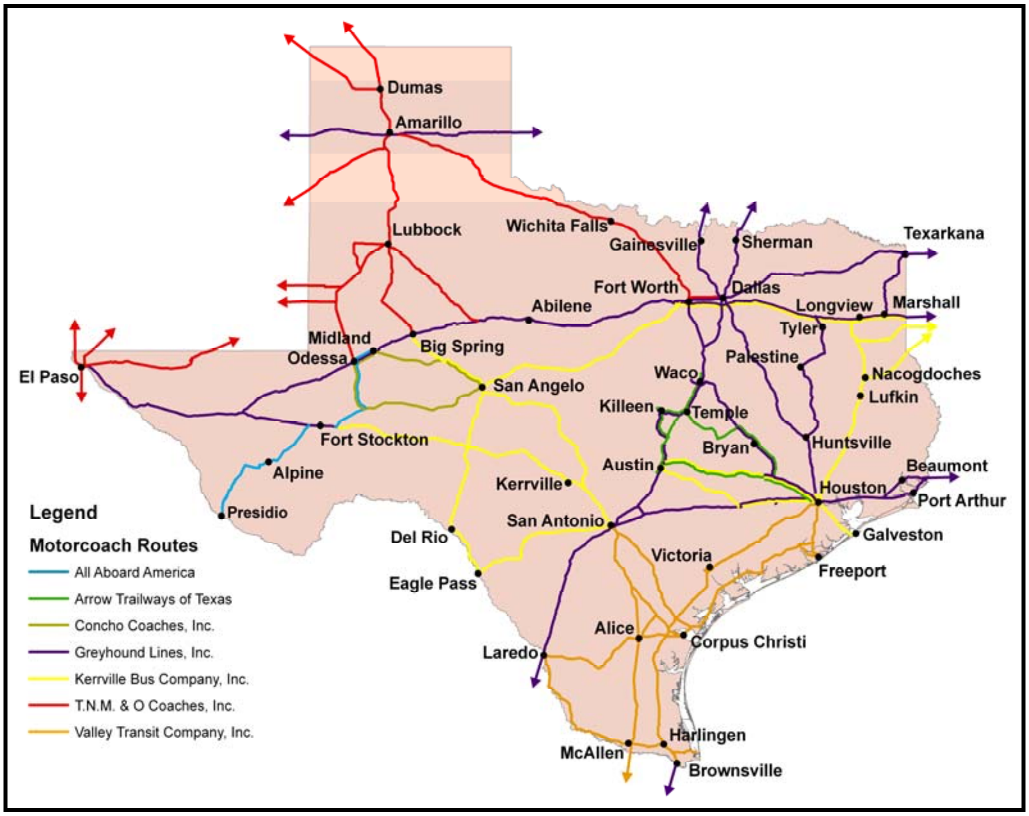

Figure 7. Intercity Bus Service in Texas

Intermodal Facilities

Intermodal faculties include passenger train stations, bus stops/stations, transit centers and other facilities that could potentially become intermodal facilities if market demand and development allows. On the Dallas/Fort Worth to San Antonio Corridor, there are 26 Greyhound Stations/stops, 13 Amtrak stations, as well as others. Specific names are as follows:

Greyhound Stations/Stop (B)

- Arlington
- Austin
- Bastrop
- Carrollton
- Corsicana
- Garland
- Greenville
- Lewisville
- Mesquite
- Richardson

- Dallas
- Dallas Westmoreland
- Dallas South Park & Ride
- Dallas West (B)
- Denton Travel Center
- Dublin Stop
- Fort Worth
- Gainesville
- Round Rock
- San Antonio
- San Marcos
- Sherman
- Stephenville
- Terrell
- Waxahachie
- Weatherford Pilot Travel Center

Amtrak Stations

- Austin Central Terminal
- Cleburne Intermodal Terminal
- Dallas Union Station
- Fort Worth Intermodal Transportation Center
- Gainesville Amtrak Station
- Killeen Arrow Trailways Bus Station
- McGregor Amtrak Station
- San Antonio Amtrak Station
- San Marcos Intermodal Station
- Taylor Amtrak Station
- Temple Amtrak Station

Others:

- Kerrville Intermodal Facility
- Waco Intermodal Transit Center

Transit Agencies

The corridor from Dallas/Fort Worth to San Antonio travels through 6 planning regions in the state of Texas and contains 14 existing transit agencies. They are namely:

- Alamo Area Regional Transit
- Capital Metro (Austin)
- Capital Area Rural Transit System
- Heart of Texas Council of Government Rural Transit
- Hill Country Transit

(CARTS)

- Cletran Transportation (Cleburne)
- Collin County Area Regional Transit
- Dallas Area Rapid Transit (DART)
- Denton County Transportation Authority
- TAPS Public Transit
- The T (Fort Worth)
- VIA Transit (San Antonio)
- Waco Transit
- Waco Streak

Existing Freight Rail Operations

There are two existing freight rail line routes parallel to I-35 between DFW and San Antonio. Table 7 shows these potential rail routes. Route Option one has three Union Pacific-owned segments: from DFW to Waco, from Waco to Austin, and from Austin to San Antonio. Route Option two also has three segments; the first segment from DFW to Temple is owned by BNSF and the remaining two from Temple to Austin and from Austin to San Antonio are properties of Union Pacific.

Table 7. Freight Rail Segment Ownership

Segment Detail	General Description of Rail Lines	Segment RR
DFW to San Antonio (I-35), Option 1		
DFW to Waco	Parallels I-35	UP
Waco to Austin	Parallels I-35	UP
Austin to San Antonio	Parallels I-35	UP
DFW to San Antonio (I-35), Option 2		
DFW to Temple	Parallels I-35	BNSF
Temple to Austin	Parallels I-35	UP
Austin to San Antonio	Parallels I-35	UP

Table represents the current train volumes provided by the Class I railroads and as determined through various freight rail mobility studies conducted by TxDOT. Future train volumes per rail line segment are based on a 3% annualized growth rate.

Table 8. Segment Density and Rail Volumes

Segment	Current Volume (trains per day)	Future Volume* (trains per day)	Growth (trains per day)	Percent Growth	Segment Density (MGTM/ Mi)
DFW to San Antonio (I-35), Option 1					
DFW to Waco***	45-50	95-110	55-60	120	60-70
Waco to Temple Temple to Taylor Taylor to San Marcos	7-12 5-10 25-30	15-25 20-30 60-75	8-13 15-20 35-45	100 200-300 140-150	10-15 10-15 30-35
San Marcos to San Antonio	35-40	85-95	50-55	130-140	25-40 ML1 25-30 ML2
DFW to San Antonio (I-35), Option 2					
DFW to Temple DFW to Waco Waco to Temple	25-30 45-50 7-12	60-75 110-120 15-25	35-45 65-70 8-13	140-150 140 100	50-70** 60-70*** 10-15***
Temple to Taylor Taylor to San Marcos	5-10 25-30	20-30 60-75	15-20 35-45	200-300 140-150	10-15 30-35
San Marcos to San Antonio	35-40	85-95	50-55	130-140	25-40 ML1 25-30 ML2

*as of year 2035, excluding passenger trains
****** on BNSF rail lines
*** on UPRR rail lines

Table 9 represents the current (2007) and future (2035) levels-of-service as indicated by the *National Rail Freight Infrastructure Capacity and Investment Study (2007).*

Table 9. Current and Future Levels-of-Service

Segment Detail	Segment RR	Current LOS	Future LOS - Unimproved	Future LOS – Improved
DFW to Waco	UP	A, B, C	E	A, B, C
Waco to Austin	UP	A, B, C	F	A, B, C
Austin to San Antonio	UP	D	F	A, B, C
DFW to Temple	BNSF	A, B, C	D	A, B, C
Temple to Austin	UP	A, B, C	F	A, B, C
Austin to San Antonio	UP	D	F	A, B, C

ROUTE OPTIONS SOUTH OF SAN ANTONIO

Two route options between San Antonio and the population centers in the lower Rio Grande Valley of the state were examined in TxDOT Project 0-5930. Each is described below in a separate section.

1) SAN ANTONIO TO BROWNSVILLE VIA LAREDO

CORRIDOR OVERVIEW

From San Antonio, there are several routes in which to travel to Brownsville. One route travels south from San Antonio along I-35 to Laredo and then along US 83 south through McAllen, Harlingen, and Brownsville. This route captures the major growing urban areas on the Texas-Mexico border. However, no freight rail line exists between Laredo and Rio Grande City, a distance of approximately 100 miles. Figure 8 shows the San Antonio to Brownsville via Laredo corridor examined in research project 0-5930.

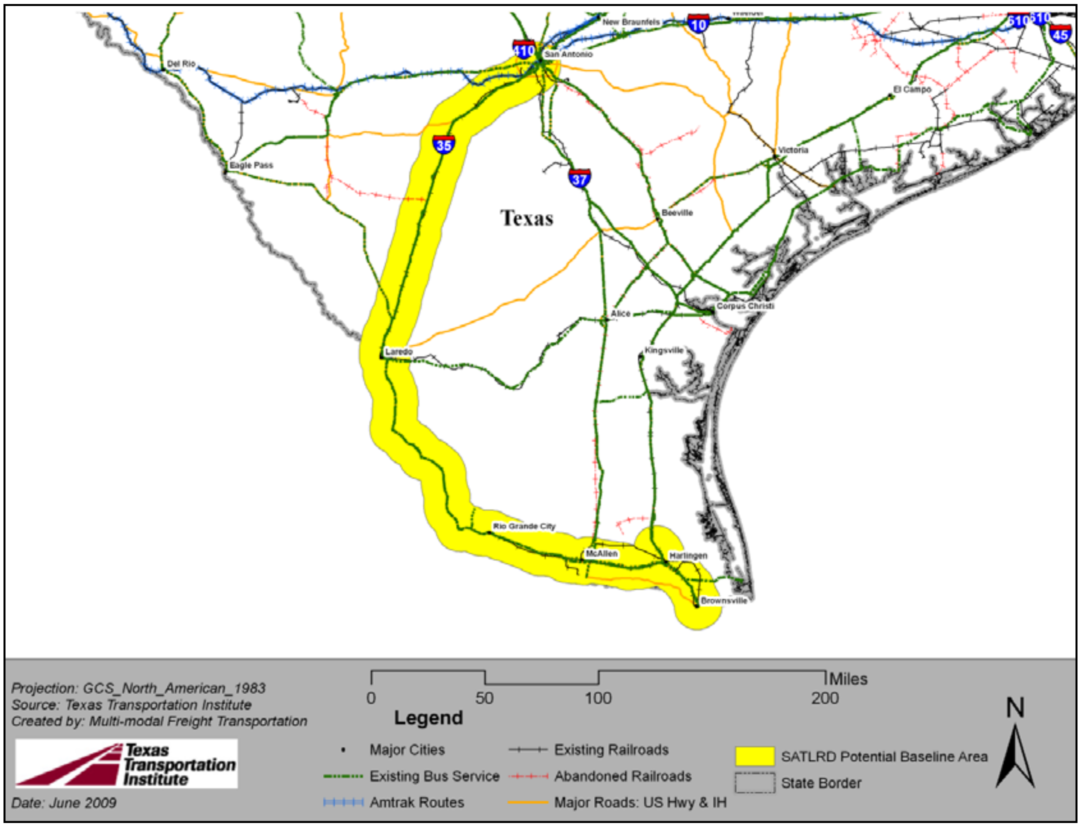

Figure 8. San Antonio to Brownsville via Laredo Corridor Map

Including the San Antonio CBSA, this corridor captures the Laredo Metropolitan CBSA, Rio Grande City-Roma Micropolitan CBSA, McAllen-Edinburg-Mission Metropolitan CBSA, and Brownsville-Harlingen Metropolitan CBSA. Figure provides a view of the CBSA populations along the San Antonio to Brownsville via Laredo corridor, along with showing the relative distance between these urban centers.

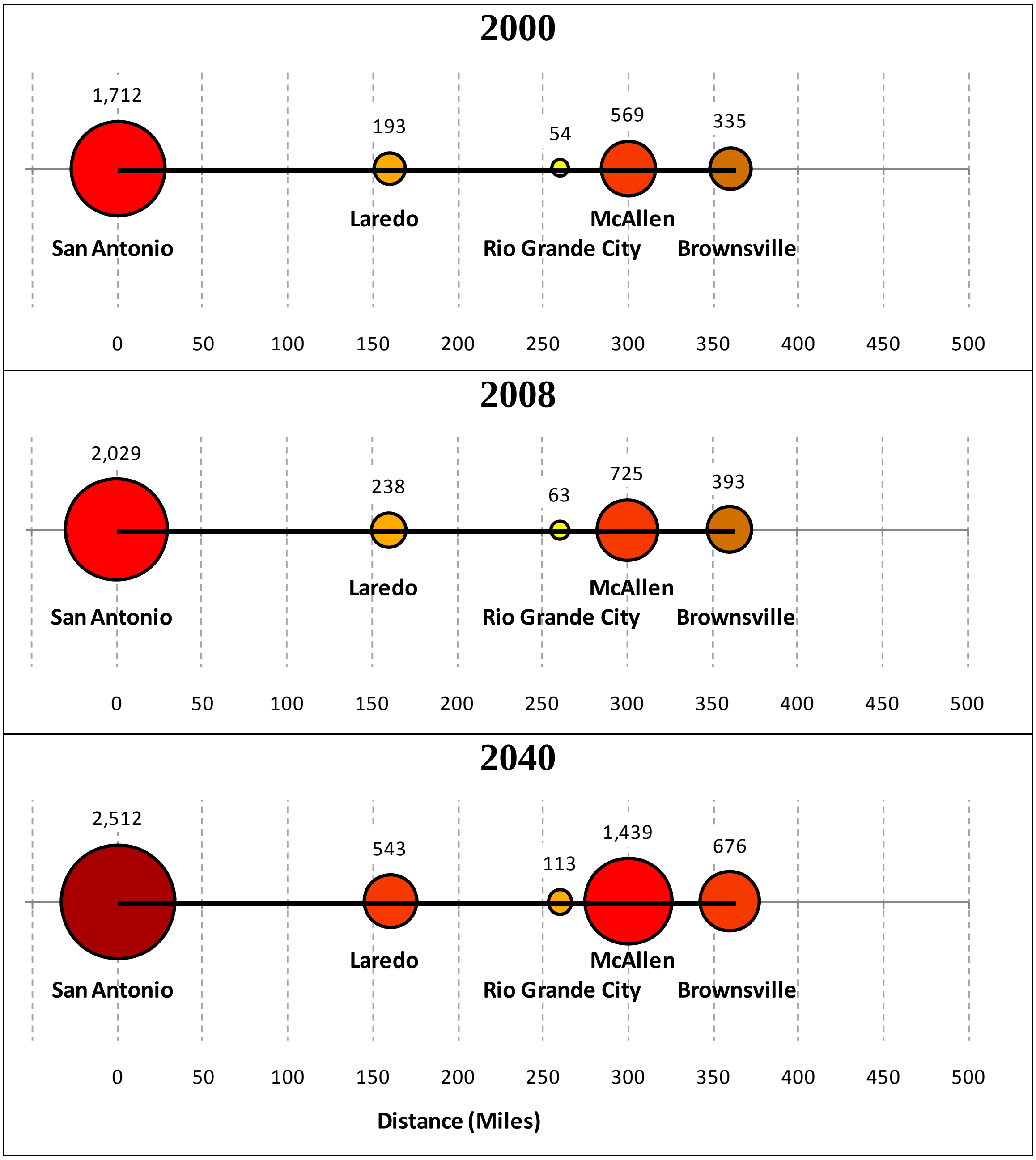

Figure 9. San Antonio to Brownsville via Laredo Corridor Population Distributions (population in thousands)

The corridor is approximately 360 miles in length, with the segment between San Antonio and Laredo making up 160 miles and the segment between Laredo and Rio Grande City making up 100 miles. The portion of the corridor between McAllen and Brownsville is fairly close together with several major urban areas.

Both Figure 9 and Table 10 provide the 2000 and 2040 populations of the corridor CBSAs, along with the distances between the urban areas. The San Antonio CBSA is expected to grow from 1.7 million people in 2000 to 2.5 million people in 2040. A tremendous level of growth is expected for the McAllen-Edinburg-Mission CBSA, with projections of an increase from 569,000 in 2000 to over 1.4 million by 2040. Table 10 also includes estimated travel times based on an average trip speed. Averaging 60 mph the entire trip takes six hours, compared to 1 hour 48 minutes at 200 mph.

Table 10. San Antonio to Brownsville via Laredo CBSA Population, Distances, and Estimated Travel Times

CBSA	Population			Distance		Travel Time (hours:minutes)				
	2000	2008	2040	Segment	Cumulative	60 mph	80 mph	110 mph	150 mph	200 mph
San Antonio	1,711,700	2,028,800	2,512,000	0	0	0:00	0:00	0:00	0:00	0:00
Laredo	193,100	238,300	542,600	160	160	2:40	2:00	1:27	1:04	0:48
Rio Grande City	53,600	62,600	112,700	100	260	4:20	3:15	2:21	1:44	1:18
McAllen	569,500	725,000	1,439,500	40	300	5:00	3:45	2:43	2:00	1:30
Brownsville	335,200	393,400	675,700	60	360	6:00	4:30	3:16	2:24	1:48

MARKET POTENTIAL

This section lists several demographic and roadway travel statistics for the San Antonio to Brownsville via Laredo corridor. Projected population numbers are presented by the Texas State Demographer, while the roadway information comes from the TxDOT Road–Highway Inventory Network (RHiNo) database and FHWA Freight Analysis Framework database.

Population, Economic Activity, and Special Generators

The combined population of the five CBSAs was over 2.8 million in 2000 and is expected to grow to over 5.2 million by 2040 as shown in Table 1111. Using a corridor length of 349 miles, the population per mile in 2000 was 8,203 people, while that value is expected to grow to over 15,000 by 2040. Additionally, the portion of the population over 65 years of age is expected to grow from 296,645 in 2000 to 858,473 people by 2040. This indicates that the portion of persons older than 65 years of age will increase from 10.3 percent in 2000 to 16.2 percent by 2040. Along the corridor there were an estimated 59,605 establishments that employed over 975,000 people in 2005. Finally, the total higher education enrollment in 2006 was 73,451 students.

Table 11. San Antonio to Brownsville via Laredo Demographics

Data Element	San Antonio to Brownsville
Population	
2000	2,863,107
2040	5,282,527
Population per Mile*	
2000	8,203
2040	15,136
Population - Over 65	
2000	296,645
2040	858,473
Employment	
No. of Employees (2005)	975,101
No. of Employer Establishments (2005)	59,605
Total Public or Private University Enrollment (Fall 2006)	73,451

*Calculation using corridor length = 349 miles

Corridor Travel Patterns: Intercity Passenger Rail

No existing passenger rail service is available on this corridor. Commuter rail is being planned for the lower Rio Grande Valley.

Corridor Travel Patterns: Commercial Air Carrier Service

The existing commercial airports within the San Antonio to Brownsville via Laredo corridor include San Antonio International Airport (SAT), Laredo International Airport (LRD), McAllen/Miller International Airport (MFE), Harlingen-Valley Airport (HRL), and Brownsville/South Padre Island Airport (BRO). The air service market distance between SAT and BRO is 233 miles, and between BRO and Dallas/DFW is 482 miles. In 2006, the total number of air trips between San Antonio and Brownsville via Laredo was 77,410, which is a 3.24 percent decrease compared to 1996 figures. Between 1996 and 2008, specific indices for the air travel demand for the San Antonio to Brownsville via Laredo corridor are shown in Table 12.

Table 12. Air Travel Demand for Corridor San Antonio to Brownsville from 1996 to 2008

Year	***Number of Flights***	***Number of Passengers***	***Number of Seats***	***Load Factor***
1996	1,453	125,663	186,552	0.67
2008	1,331	107,729	175,228	0.61
1996-2008 (Annual percent change)	-0.65%	-1.10%	-0.47%	-0.67%

In 2006, the average number of scheduled flights per day on the corridor between San Antonio and Brownsville is three flights per day.

Corridor Travel Patterns: Highway

The 10-year growth in the AADT for the entire corridor is shown in Figure 10. The annual growth between 1997 and 2000 was 5.10 percent, as shown in

Table 1. In 2006 the overall corridor AADT was 28,689 vehicles per day, with the expected 2035 value to reach over 60,500 vehicles per day.

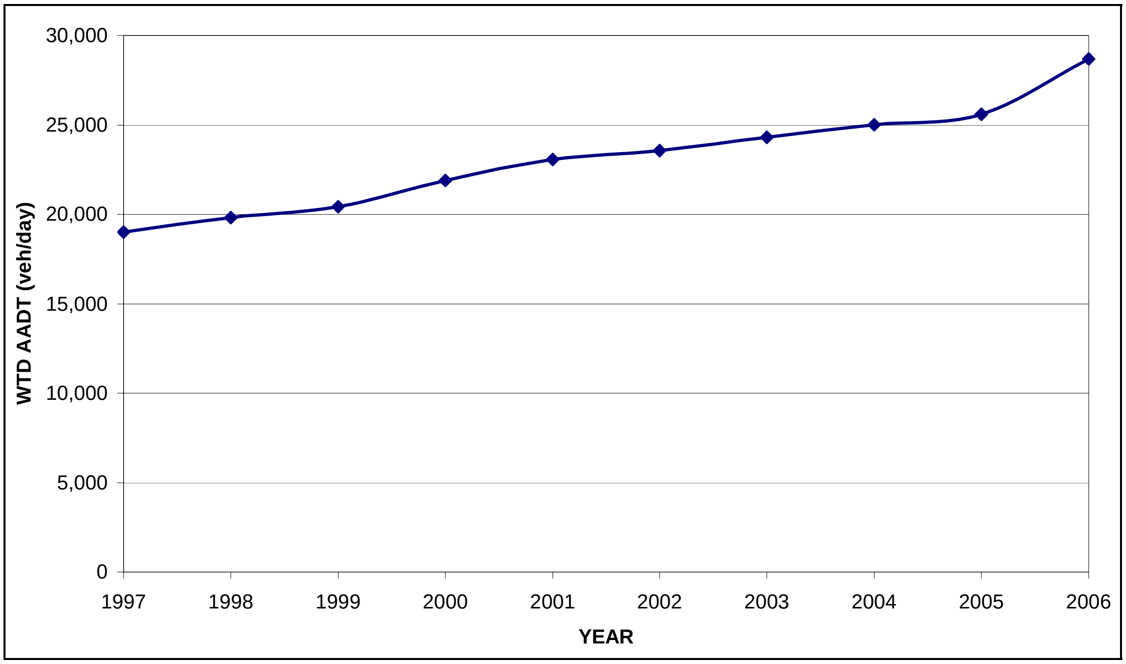

Figure 10. San Antonio to Brownsville via Laredo 10-Year Weighted AADT, 1997-2006

Table 13 shows the highway travel statistics. The overall volume-to-capacity ratio along the roadway corridors in 2002 was 0.44, with a 1.0 representing a roadway at capacity. The 2035 projected volume-to-capacity ratio worsens to an expected value of 1.05. As the corridor exceeds the available capacity, the average speed for the corridor is expected to reduce from 53 mph in 2002 to 37 mph in 2035. Finally, trucks are expected to become a larger portion of the traffic stream, increasing from 14.28 percent in 2002 to 15.45 percent by 2035.

Table 13. San Antonio to Brownsville via Laredo Highway Travel Patterns

Data Element	San Antonio to Brownsville
% Annual Growth in Average Corridor AADT (1997-2006)	5.10%
Average Corridor AADT	
2006	28,689 vehicles per day
2035	60,529 vehicles per day
Average Volume-to-Capacity Ratio	
2002	0.44
2035	1.05
Average Speed	
2002	53 mph
2035	37 mph
Average % Trucks	
2002	14.28%
2035	15.45%

EXISTING BUS TRANSIT, INTERMODAL FACILITIES, AND FREIGHT RAIL

The following sections summarize the existing transit and freight rail services and routes in the study corridor area.

Existing Bus Service

An Amtrak Thruway Connector bus runs once daily connecting Laredo and San Antonio and one time daily from Brownsville to San Antonio via Harlingen and McAllen.

Intermodal Facilities

Intermodal facilities include passenger train stations, bus stops/stations, transit centers and other facilities that could potentially become intermodal facilities if market demands and development allows. On the San Antonio to Brownsville via Laredo corridor, specific facilities are as follows:

- Del Rio Multimodal Transit Center
- Harlingen Greyhound Station
- Kerrville Intermodal Facility
- Laredo Greyhound Station
- Rio Grande City Greyhound Station
- San Antonio Amtrak Station
- San Antonio Greyhound Station

- McKinney Greyhound Station

The San Antonio West Side Multimodal Center has been proposed to be another intermodal center in this corridor.

Transit Agencies

The San Antonio to Brownsville via Laredo corridor goes through four planning regions in Texas. There are in total 12 existing transit agencies along the corridor, namely:

- Alamo Area Regional Transit
- Brownsville Urban Transit
- Capital Area Rural Transportation System (CARTS)
- El Metro Transit
- El Aguila Rural Transportation
- Harlingen Express
- McAllen Express
- Rainbow Lines
- Rio Metro
- Rio Transit
- The Wave-South Padre Island
- VIA Metropolitan Transit

Existing Freight Rail Operations

There is one existing Union Pacific-owned freight rail line parallel to Interstate 35 within the corridor between San Antonio to Laredo. No rail service exists between Laredo and the Rio Grande Valley area where service is provided by shortline rail companies. Table represents the current train volumes provided by the Class I railroads and as determined through various freight rail mobility studies conducted by TxDOT. Future train volumes per rail line segment are based on a 3% annualized growth rate. Table 14. Segment Density and Rail Volumes

Segment	Current Volume (trains per day)	Future Volume* (trains per day)	Growth (trains per day)	Percent Growth	Segment Density (MGTM/Mi)
San Antonio to Laredo	15-25	40-60	25-35	140-170	30-35
Laredo to Brownsville	No freight rail service				

*by year of 2035

Table 15 represents the current (2007) and future (2035) levels-of-service as indicated by the *National Rail Freight Infrastructure Capacity and Investment Study (2007).*

Table 15. Current and Future Levels-of-Service

Segment	Current LOS	Future LOS - Unimproved	Future LOS - Improved
San Antonio to Laredo	A, B, C	F	A, B, C
Laredo to Brownsville	No freight rail service		

2) SAN ANTONIO TO BROWNSVILLE VIA CORPUS CHRISTI

CORRIDOR OVERVIEW

From San Antonio, there are several routes in which to travel to Brownsville. Another route investigated as part of research project 0-5930 travels south from San Antonio along I-37 to Corpus Christi and US 77 south through Harlingen and Brownsville. This route captures the port city of Corpus Christi but does not directly capture the growing areas of McAllen and Edinburg to the west of Brownsville. Figure shows the San Antonio to Brownsville via Corpus Christi corridor examined in Project 0-5930.

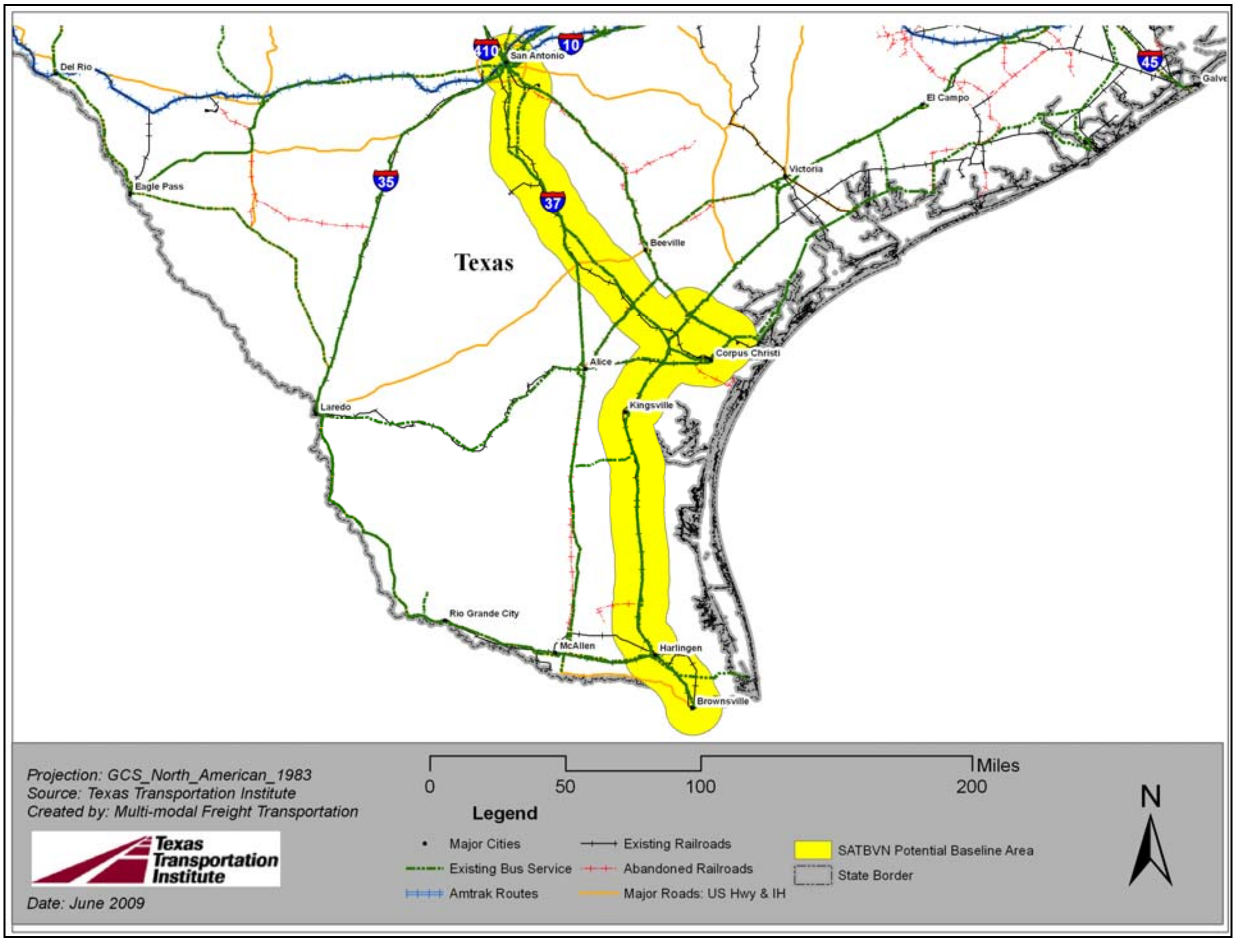

Figure 11. San Antonio to Brownsville via Corpus Christi

Including the San Antonio CBSA, this corridor captures the Corpus Christi metropolitan CBSA, Kingsville micropolitan CBSA, Raymondville micropolitan CBSA, and Brownsville-Harlingen metropolitan CBSA. Figure 12 shows the CBSA populations along the San Antonio to Brownsville via Corpus Christi corridor, along with a view of the relative distance between these urban centers.

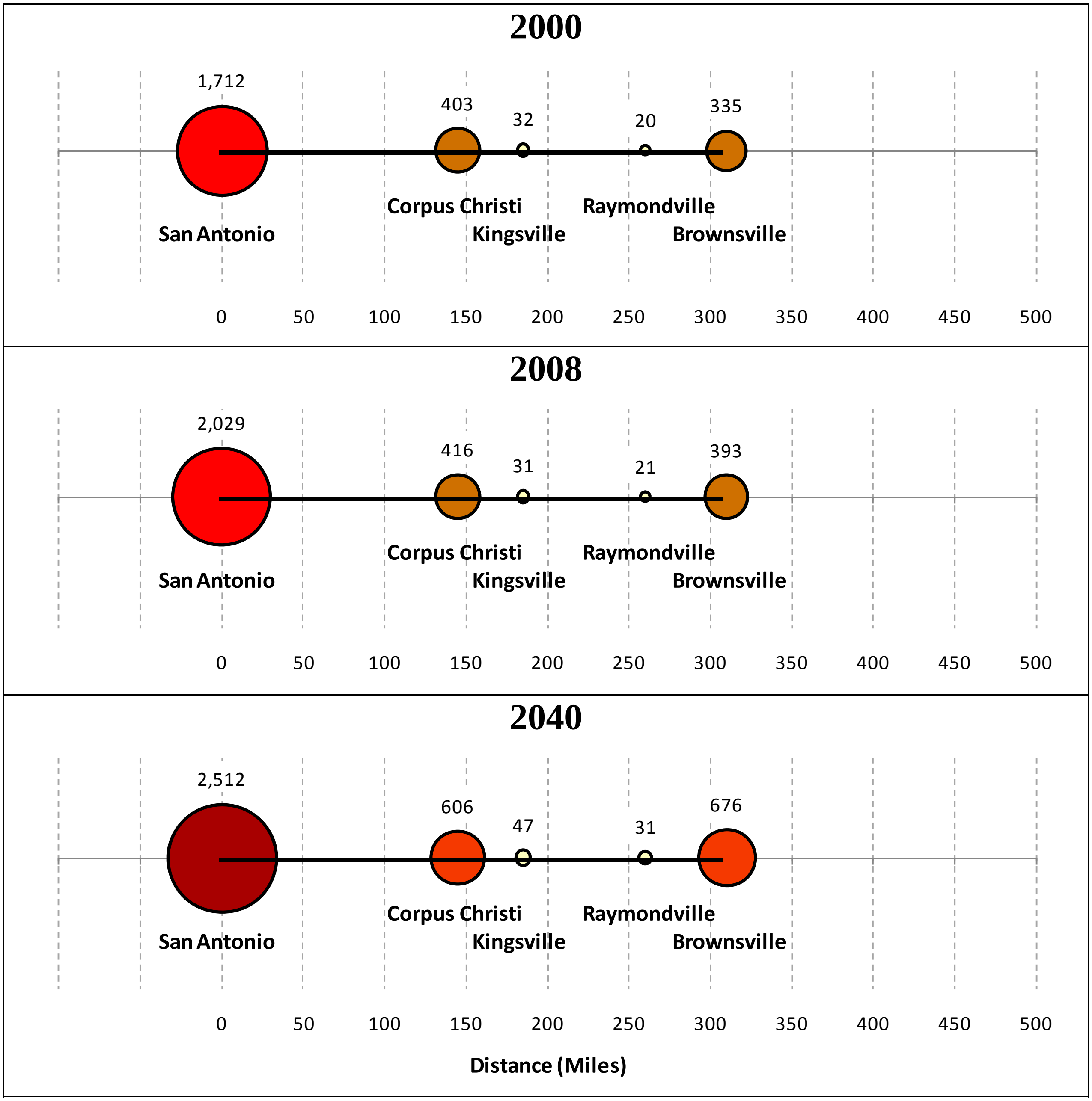

Figure 12. San Antonio to Brownsville via Corpus Christi (population in thousands)

The corridor is approximately 300 miles in length, with the segment between San Antonio and Corpus Christi making up 145 miles. The separations between the other areas are 40, 75, and 50 miles as shown in Table 1.

Both Figure 12 and Table 1 provide the 2000, 2008, and 2040 populations of the corridor CBSAs, along with the distances between the urban areas. The San Antonio CBSA is expected to grow from 1.7 million people in 2000 to 2.5 million people by 2040. The Brownsville-Harlingen CBSA is expected to almost double, from 335,200 in 2000 to over 675,000 by 2040.

Table 16. San Antonio to Brownsville via Corpus Christi CBSA Population, Distances, and Estimated Travel Times

CBSA	Population			Distance		Travel Time (hours:minutes)				
	2000	2008	2040	Segment	Cumulative	60 mph	80 mph	110 mph	150 mph	200 mph
San Antonio	1,711,700	2,028,832	2,512,000	0	0	0:00	0:00	0:00	0:00	0:00
Corpus Christi	403,300	415,882	606,100	145	145	2:25	1:48	1:19	0:58	0:43
Kingsville	32,000	30,978	47,400	40	185	3:05	2:18	1:40	1:14	0:55
Raymondville	20,100	20,975	30,500	75	260	4:20	3:15	2:21	1:44	1:18
Brownsville	335,200	393,355	675,700	50	310	5:10	3:52	2:49	2:04	1:33

MARKET POTENTIAL

This section demonstrates several demographic and roadway travel statistics for the San Antonio to Brownsville via Corpus Christi corridor. Projected population numbers are presented by the Texas State Demographer, while the roadway information comes from the TxDOT Road–Highway Inventory Network (RHiNo) database and FHWA Freight Analysis Framework database.

Population, Economic Activity, and Special Generators

The combined population of the five CBSAs was over 2.5 million in 2000 and is expected to grow to over 3.8 million by 2040 as shown in Table 17Table . Using a corridor length of 280 miles, the population per mile in 2000 was 8,936 people. That value is expected to grow to an average over 13,000 per mile by 2040. Additionally, the portion of the population over 65 years of age is expected to grow from 274,508 in 2000 to 703, 433 people by 2040. The portion of persons older than 65 years of age will increase from 10.9 percent in 2000 to 18.1 percent by 2040. Along the corridor there were an estimated 55,162 establishments that employed over 904,126 people in 2005. Finally, the total higher education enrollment in 2006 was 73,451 students.

Table 17. San Antonio to Brownsville via Corpus Christi Demographics

Data Element	San Antonio to Brownsville
Population	
2000	2,502,255
2040	3,871,808

Population per Mile*	
2000	8,936
2040	13,827
Population - Over 65	
2000	274,508
2040	703,433
Employment	
No. of Employees (2005)	904,126
No. of Employer Establishments (2005)	55,162
Total Public or Private University Enrollment (Fall 2006)	65,965

*Calculation using corridor length = 280 miles

Corridor Travel Patterns: Intercity Passenger Rail

No existing passenger rail service is available on this corridor. Commuter rail is being studied in the Lower Rio Grande Valley area to connect the large population centers.

Corridor Travel Patterns: Commercial Air Carrier Service

The existing commercial airports within the San Antonio to Brownsville via Corpus Christi corridor include San Antonio International Airport (SAT), Corpus Christi Airport (CRP), Harlingen-Valley Airport (HRL), and Brownsville/South Padre Island Airport (BRO). The air service market distance between San Antonio and BRO is 233 miles, between Brownsville and Dallas/DFW is 482 miles, and between Corpus Christi and Dallas/DFW is 354 miles. In 2006, the total number of air trips between San Antonio and Brownsville via Corpus Christi is 74,620, which is a 2.61 percent decrease compared to 1996. Between 1996 and 2008, specific indices for the air travel demand for the corridor between San Antonio and Brownsville via Corpus Christi are shown in Table 18.

Table 18. Air Travel Demand for Corridor from 1996 to 2008

Year	Number of Flights	Number of Passengers	Number of Seats	Load Factor
1996	1,825	131,327	210,115	0.67
2008	1,331	107,729	175,228	0.61
1996-2008 (Annual percent change)	-2.08%	-1.38%	-1.28%	-0.13%

In 2006, the average number of scheduled flights per day on the corridor between San Antonio and Brownsville via Laredo is three flights per day.

Corridor Travel Patterns: Highway

The 10-year growth in the AADT for the entire corridor is shown in Figure 13. The annual growth between 1997 and 2000 was 2.65 percent, as shown in Table 19. In 2006 the overall corridor AADT was 24,829 vehicles per day, with the expected 2035 value to reach over 49,173 vehicles per day.

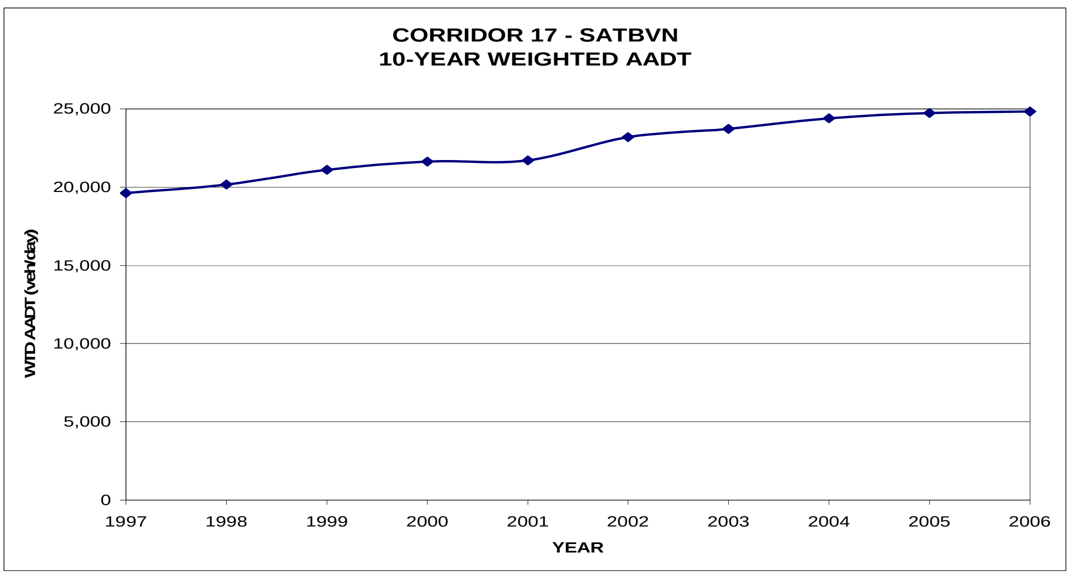

Figure 13. San Antonio to Brownsville via Corpus Christi 10-Year Weighted AADT, 1997-2006

Table 1 shows the highway travel statistics for this corridor route. The overall volume-to-capacity ratio in 2002 was 0.46, with a 1.0 representing a roadway at capacity. The 2035 projected volume-to-capacity ratio weighted over the corridor worsens to an expected value of 1.00. As the corridor approaches the available capacity, the average speed for the corridor is expected to reduce from 58 mph in 2002 to 45 mph in 2035. Finally, trucks are expected to remain slightly under 14 percent of the traffic mix.

Table 19. San Antonio to Brownsville via Corpus Christi Highway Travel Patterns

Data Element	San Antonio to Brownsville
% Annual Growth in Average Corridor AADT (1997-2006)	2.65%
Average Corridor AADT	
2006	24,829 vehicles per day
2035	49,173 vehicles per day
Average Volume-to-Capacity Ratio	
2002	0.46
2035	1.00
Average Speed	
2002	58 mph
2035	45 mph
Average % Trucks	
2002	13.6%
2035	13.9%

PASSENGER RAIL, BUS TRANSIT, AIR SERVICES, AND FREIGHT RAIL

The following sections summarize the existing transit and freight rail services and routes in the study corridor area.

Existing Bus Service

An Amtrak Thruway Connector bus runs one time daily from Brownsville to San Antonio via Harlingen and McAllen. Valley Transit Company, a Greyhound subsidiary in the United States which serves the Texas-Mexico border area, provides bus service to San Antonio in this corridor two times daily and one time daily via Alice and McAllen.

Intermodal Facilities

Intermodal faculties include passenger train stations, bus stops/stations, transit centers and other facilities that could potentially become intermodal facilities if market demands and development allows. On the San Antonio to Brownsville via Corpus Christi corridor, specific facilities are as follows:

- Brownsville Greyhound Station
- Corpus Christi Greyhound Station
- Harlingen Greyhound Station
- Kerrville Intermodal Facility
- Kingsville Greyhound Station
- San Antonio Amtrak Station
- San Antonio Greyhound Station

The San Antonio West Side Multimodal Center has been proposed to be another intermodal center in this corridor.

Transit Agencies

The San Antonio to Brownsville via Corpus Christi corridor goes through three planning regions in Texas. There are in total 12 existing transit agencies along the corridor, namely:

- Alamo Area Regional Transit
- Bee Community Action Agency (BCAA)
- Brownsville Urban Transit
- Capital Area Rural Transportation System (CARTS)
- Corpus Christi Regional Transit Authority (CCRTA)
- Harlingen Express
- Kleberg County Human Services (KCHS)
- McAllen Express
- Rainbow Lines
- Rio Metro
- Rio Transit
- Rural Economic Assistance League (REAL)
- The B (Corpus Christi)
- The Wave-South Padre Island
- VIA Metropolitan Transit

Existing Freight Rail Operations

There are two existing Union Pacific-owned freight rail lines within the corridor: San Antonio to Corpus Christi and Corpus Christi to Brownsville. The former rail line goes parallel to Interstate 37, and the latter parallel to US 77. Table 20 represents the current train volumes provided by the Class I railroads and as determined through various freight rail mobility studies conducted by TxDOT. Future train volumes per rail line segment are based on a 3% annualized growth rate.

Table 20. Segment Density and Rail Volumes

Segment	Current Volume (trains per day)	Future Volume* (trains per day)	Growth (trains per day)	Percent Growth	Segment Density (MGTM/Mi)
San Antonio to Corpus Christi	5-10	20-30	15-20	200-300	10-15
Corpus Christi to Brownsville	4-8	8-16	4-8	100-200	5-10

*by year of 2035, excluding passenger trains

Table 21 represents the current (2007) and future (2035) levels-of-service as indicated by the *National Rail Freight Infrastructure Capacity and Investment Study (2007).*

Table 21. Current and Future Levels-of-Service

Segment	Current LOS	Future LOS - Unimproved	Future LOS - Improved
San Antonio to Corpus Christi	Not included in AAR study		
Corpus Christi to Brownsville	D	F	A, B, C

PLANNING AND PUBLIC INVOLVEMENT

As ODOT prepares to update its State Rail Plan, it will conduct public outreach meetings across the State, building on its round of public meetings conducted in 2009 as part of the ODOT Planning Division's "2035 Long Range Transportation Plan" public outreach efforts. TxDOT is also in the process of updating its state rail plan. TxDOT is currently holding visioning workshops across the state to generate interest and receive input on what Texas should be planning for with regards to both freight and passenger rail. Later this summer, once a draft plan has been prepared, there will be public meetings held to provide further refinement to the plan. Texas is also in the process of preparing its Strategic Plan for 2011-2015 and its Statewide Long

Range Transportation Plan. Both of these plans are multimodal in nature and are being developed in concert with the Texas Rail Plan.

TxDOT is required by state law to coordinate a long term statewide passenger rail plan. This includes coordination with other governmental entities as well as private entities. TxDOT has a history of good working relationships with various rail districts, cities, counties and economic development corporations. TxDOT and ODOT work with the Heartland Flyer Coalition, a publicly-led support organization aimed at increasing and improving Heartland Flyer passenger Rail service and operations. Both departments have financially supported this route for many years.

A recent study of 18 corridors in Texas highlights the potential for intercity rail in the I-35 Corridor in Texas, especially that portion of the corridor connecting the Dallas – Fort Worth metropolitan area (DFW) to San Antonio (Report No. FHWA/TX-09/0-5930-1, May 2009). Evaluation criteria were used to compare corridors in the context of the purpose and need for intercity rail or express bus transit. The criteria incorporated population and demographic data, intercity highway and air travel data, and intercity highway and air travel capacity data. The I-35 Corridor between DFW and San Antonio ranked either first or second in order of intercity transit needs among the 18 corridors.

In November 2008, the Corridor Advisory Committee, in A Citizen's Report on the Current and Future Needs of the I-35 Corridor, made the following recommendations:

- The I-35 Corridor must include rail improvements
- Rail improvements will include both high-speed passenger rail as well as efficient freight service
- The corridor should provide for safety, capacity, and multi-modal transportation choices.

I-35 Corridor Segment Committees

TxDOT facilitated the creation of the MY 35 program as a citizen-driven process to develop a blueprint for improving transportation in the I-35 Corridor. Four Corridor Segment Committees (CSC), each representing a portion of the I-35 Corridor, are developing regional plans for their planning areas. CSC members represent metropolitan planning organizations, counties, cities, chambers of commerce, economic development organizations, and other stakeholders with interests in transportation. The CSCs are identifying transportation needs and potential solutions in their regions, and will lead public involvement and outreach efforts to solicit additional public input. Each CSC will create a regional transportation blueprint for their portion of the I-35 Corridor.

Three of the four committees have identified commuter rail improvements as options for consideration in their planning regions. These regions in combination include all of I-35 from the Texas – Oklahoma boundary to San Antonio. High-speed passenger rail was specifically suggested as possible solutions for that portion of I-35 connecting the Dallas – Fort Worth metropolitan area (DFW) to San Antonio. Committees suggested that high-speed passenger rail could link the DFW, Waco, Austin, and San Antonio metropolitan areas and provide an option for travelers driving between these cities.

I-35 Corridor Advisory Committee

The regional CSC plans will be submitted to the citizen-led Corridor Advisory Committee (CAC). This 18-member committee is made up elected officials, transportation professionals, and interested citizens from cities throughout the I-35 Corridor. The CAC's mission includes:

- study the impact of corridor-wide issues, including economic, political, societal, demographic, population trends, use of existing / new / upgraded facilities, multi-modal solutions, and financing options;
- make recommendations on corridor planning, development, and public involvement; and
- enhance participation and input between TxDOT and affected communities, governmental entities, and interested parties.

Based on the regional plans created by the segment committees, the CAC will create a comprehensive MY 35 plan outlining transportation solutions for the entire I-35 Corridor. The MY 35 plan will serve as TxDOT's blueprint for transportation projects throughout the corridor.

ENVIRONMENTAL QUALITY

Currently Designated Nonattainment Areas in Texas for All Criteria Pollutants

Along the I-35 corridor, as of January 06, 2010, the nine counties in the Dallas/Fort Worth area (Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, and Tarrant) are designated as moderate nonattainment for 8-Hr Ozone by the EPA. A map of these counties is shown in Figure 6 along with other non-attainment areas in the state. In central Texas, the Austin-Round Rock area and the San Antonio area signed Early Action Compact (EAC) agreements with the EPA in 2004 to avoid being designated non-attainment areas. The Austin-Round Rock area demonstrated attainment in 2004 and San Antonio did so in 2008 and, as a result, were not designated as non-attainment. These two areas engage in continuous efforts to maintain air quality conformity while the threat of not achieving it is always looming, especially in light of significant urban growth which is currently taking place and expected to continue in the coming decades. EPA proposals to change the defined limits for measuring various pollutants also put the Austin and San Antonio areas at risk of entering non-attainment status in future EPA designations.

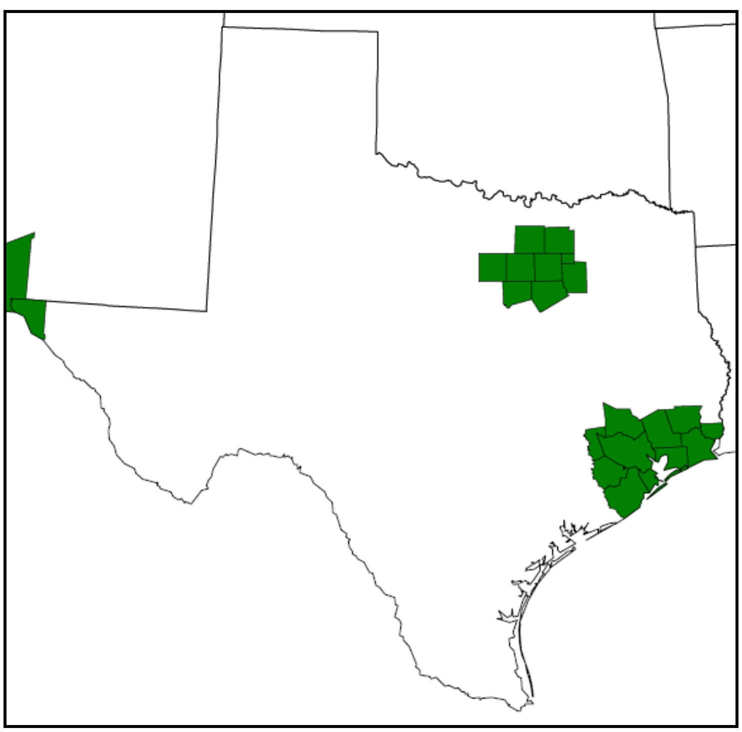

Figure 6. Texas Counties Designated "Nonattainment" for Clean Air Act's National Ambient Air Quality Standards (NAAQS).

There are tangible air quality and congestion management benefits that accrue to the public from the existence of the rail services and to the highway users in the form of improved traffic flow on the existing roadway system. Intercity passenger rail service is shown to have an impact on congestion, and thus pollution, when targeted to areas where roads are at or near their design capacity. As more traffic uses these roads, travel time increases sharply and the delays are felt by all travelers. An intercity rail line that parallels IH-35 would potentially alleviate highway traffic.

Rail adds capacity to the regional transportation system without the disruption and expense of highway expansion. Moreover, increasing rail capacity is as simple as adding another rail car or providing more frequent service. And according to Lone Star Rail, at peak hours Lone Star Rail service can carry the equivalent of two additional lanes on I-35.

According to Will Kempton, Director of the California Department of Transportation, in testimony provided to the House Committee on Transportation and Infrastructure, “Intercity passenger rail is estimated to use at least 15 percent less energy on a per passenger mile basis than the airlines and 21 percent less than the automobile.” Mr Kempton also noted that “the average intercity train produces 60 percent fewer CO2 emissions on a per passenger mile basis than the average auto and about half the green house gas emissions of an airplane.”

A viable intercity rail system would also benefit the environment by limiting urban sprawl and concentrating development in close proximity to the rail lines.

Vehicles are a primary source of ozone-forming and greenhouse gas emissions in Central Texas, a region struggling to comply with federal air quality standards. Intercity high speed passenger rail will benefit air quality in Central Texas by providing a viable, fuel efficient option to automobile or air travel, thereby reducing vehicle congestion, fuel consumption and emissions on interregional highways, as well as air traffic congestion and related emissions at airports. There is considerable passenger travel between cities in Central Texas. There are several universities located in cities on the IH 35 corridor as well as state government and major employers. While alternatives to single occupant vehicle travel are available in the major cities, there are little to no viable alternatives available between cities, leading to increased congestion and air pollution. Intercity passenger rail would remove vehicles from the road, reducing emissions and improving travel conditions for the vehicle trips that remain.

In the San Antonio – Bexar County Metropolitan Planning Organization (SA-BC MPO) region, on-road vehicles are the largest single source of all ozone precursors, the gases that mix and react in the atmosphere to make ozone. Fortunately, improvements in technology have had a considerable effect on the reduction of air pollution (emissions from new vehicles have declined over time as emission controls and fuel efficiency have improved). Further improvements in fossil-fuel burning vehicle emissions will, however, have less significant impacts.

According to the Competitive Enterprise Institute, throughout the metro areas in the nation, vehicle miles of travel are predicted to increase at a much higher rate than population growth. Therefore, in order to reduce criteria pollutants, even though we have cleaner vehicles, we must reduce vehicle miles of travel. Reduction in the growth of vehicle miles of travel requires behavioral changes rather than solely relying on improvements in technology. The challenge is to reduce the length of most trips and to identify and implement strategies to encourage walking, bicycling and transit use, including intercity passenger rail.

In the San Antonio area, vehicle miles of travel are expected to increase. In the next 25 years, population in the area is expected to increase 1.4% annually estimating over 2 million people in the region by 2035. During the same period, employment is anticipated to increase 2% per year with 1.2 million persons employed in the area by 2035. Therefore the area must rely on other alternatives to achieve the emission reductions it needs to improve air quality.

The following reference the reality of the environmental benefits noted by intercity passenger rail on a local level and nationally:

- According to the California based Sonoma – Marin Area Rail Transit's (SMART) Environmental Impact Report, SMART will prevent at least 30 million pounds of greenhouse gases from entering the atmosphere each year by removing 5,300 car trips daily from North Bay roads.

- Nationally, The Center for Clean Air Policy and the Center for Neighborhood Technology estimate that completion of a national high-speed rail network would reduce car travel by 29 million trips and air travel by nearly 500,000 flights annually. Additionally, they estimate that a national high-speed rail network would reduce global warming pollution by 6 billion pounds, the equivalent of taking almost 500,000 cars off the road.
- Concerning energy savings, intercity passenger rail could reduce our dependence on oil. According to a February 9, 2010 article by U.S. PIRG, the federation of state Public Interest Research Groups (PIRGs), “On average, an Amtrak passenger uses 23 percent less energy per mile than an airplane passenger, 40 percent less than a car passenger, and 57 percent less than a passenger in an SUV or pickup truck.”

LIVABLE COMMUNITIES

The following serves as an example of one of the studies that has occurred along this corridor.

The basis of any effective planning effort rests primarily on a determination of the area’s base year demographics (population, household size, employment, household income, and land use) and future projections of these demographics. The San Antonio-Bexasr County MPO used 2005 as the base year for this update of the MTP. For the future years, various federal and state government data sources were used for the population and employment forecast totals in five year increments to the year 2035. For the first time, the MPO engaged the public and policy makers in a discussion of alternative growth plans for the area.

Scenario Planning was initiated to engage residents and policy makers in a discussion of the region’s future growth and development patterns. Scenario planning enhances the traditional transportation planning process by raising awareness of citizens and decision makers of the factors that affect growth and impact our transportation system. Factors include an aging population, land use policies, economics, and environmental concerns. In scenario planning, citizens and policy makers are asked to consider alternative approaches, or “scenarios” to shaping the region and understanding the differences between each approach. The ultimate goal is to create a sustained quality of life for citizens and visitors in our region.

The Federal Highway Administration (FHWA) sees scenario planning as an enhancement of, not a replacement for, the traditional transportation planning process. It enables communities and transportation agencies to better prepare for the future. Scenario planning highlights the major forces that may shape the future and identifies how the various forces might interact, rather than attempting to predict one specific outlook. As a result, regional decision makers are prepared to recognize various forces to make more informed decisions in the present and be better able to adjust and strategize to meet tomorrow's needs.

The Demographic Working Group (comprised of representatives from the Alamo Area Council of Governments, Bexar County, City of San Antonio, CPS Energy, MPO, San Antonio Water System, Texas Department of Transportation, and VIA Metropolitan Transit) began the task of developing the initial framework for the development of scenarios. Generally, the group considered quality of life issues facing the region and expressed those issues in terms of questions:

How far do people want to live from work, school or recreation activities?

- Are people willing to consider other transportation alternatives to travel in their daily life?
- How long are people willing to spend on a daily work commute?

The group also considered:

- the amount of expected growth in the region based on the adopted population and employment control totals;
- development trends over time;
- congestion levels;
- local, regional and world economy;

- expected gas prices;
- air quality, climate change and other environmental concerns;
- future availability of transportation funding, and
- technological improvements.

In generating the scenarios, the Demographic Working Group realistically considered what was achievable and in what timeframe. Plus the scenarios had to differ significantly from traditional growth patterns in order to realize impacts to the transportation system using the available tools. Three development scenarios were considered: Each growth pattern is distinct and represents clear choices. All growth scenarios have the same population growth, job growth, and new households. Differences in the scenarios are shown in where and how the land use in our region occurs. The three growth scenarios are:

- *Current Growth Trends* – the majority of new growth continues outside of Loop 1604.
- *Transit Oriented Development* – beyond year 2015, several high-capacity transit corridors are defined throughout the region and the majority of new, higher density growth is attracted to station locations in these corridors.
- *Infill Development* – by year 2020, new policies and incentives result in all new growth occurring inside Loop 1604.

Although the transit oriented development and infill development scenarios challenge existing thought patterns, basic stories can be created that bring these scenarios to life for residents and policy makers. Gas prices, while not as high as they were in the Fall of 2005, were still higher than they were prior to 2005. State and federal transportation funding is becoming more unreliable and without additional local participation in funding, many large transportation projects supporting single occupant auto driving may not be able to be built. Also there is an increased awareness of alternative fuels, the environment and policies that support a sustainable economy.

Consistent with the emphasis on linking planning and environmental considerations, MPO staff undertook an environmental analysis of the 2005 base year demographic scenario, each of the three potential demographic growth scenarios (Current Trend Development, Transit Oriented Development and Infill Development) and the selected growth scenario (combination of Transit Oriented Development and Infill Development). For this analysis, the year 2035 population and employment distribution, at the traffic analysis zone level, of each of the growth scenarios, was converted to 'area type' for ease of analysis. Area Types used were, in order of highest to lowest density, Central Business District, Urban Fringe, Urban Residential, Suburban Residential, and Rural.

Geographic Information System Screening Tool (GISST) data layers were used to identify high-level environmental encroachment differences between the base year dat1, the three initial growth scenarios and the adopted growth scenario. The GISST data layers used were:

- Edwards Aquifer
- Percent Wetlands
- Percent Wildlife
- Percent Agriculture Lands
- Managed Lands
- Total Maximum Daily Load (water quality), and
- Federal and State Threatened and Endangered Species

The environmental analysis showed the adopted scenario, combination of Transit Oriented Development and Infill Development, had the lowest encroachment on the environmental sensitivities identified above, followed by the Infill Development scenario.

In March 2009, the MPO's Transportation Policy Board adopted a combined Transit Oriented Development/Infill Development scenario for use in the 2035 MTP update with the knowledge that concepts from both scenarios are centered around compact and mixed use development, connectivity, accessibility and walkability. In utilizing the 2035 travel statistics, the combined chosen scenario results in savings of over 1 million total hours of delay each weekday and saves over $15 in cost of lost productivity per day over the Current Trend Development.

In April 2009, the Transportation Policy Board unanimously approved a resolution supporting the adopted combined scenario. The resolution is meant to share with other municipalities and to communicate the desired long-term growth for the region, which ties in nicely with the proposed intercity passenger rail line from Austin to San Antonio.

MULTI-MODAL PLANNING PROCESS

The MPO's typically address all types of transportation modes when considering its long range plan. Planning for the future transportation needs of the MPO regions require a comprehensive look at the current transportation system, future demographics, and the anticipated available funding for the area for transportation projects. For example, the San Antonio metropolitan area's economy and environment depend heavily on the condition and efficient performance of the regional transportation system. Recognizing the mobility needs of the community and addressing those needs will eventually lead to improvements in the economy and quality of life.

The MPO's and their partner agencies look at all modes of transportation, including: bicycle and pedestrian facilities, public transportation systems and roadway needs. See the following as an example in the San Antonio region.

Roadway

As population and employment continue to grow in the San Antonio metropolitan area, a greater burden will be placed on the transportation system. To accommodate traffic increases on the roadway system, additional lanes and operational improvements will be needed. In addition to congestion levels, factors considered when developing the future year roadway network included impacts to neighborhoods, acceptability by the public, environmental concerns and fiscal constraints. Because of this, regional leaders understand the importance of creating and maintaining a multi-modal transportation system.

Bicycling

Bicycling is a cost effective, energy efficient, clean, and a healthy way to travel. With the growing concerns of congestion, air quality and the public interest in promoting alternative transportation modes, the adoption of policies that encourage alternate transportation modes will aid in reducing congestion, improving air quality, and enhancing the community's quality of life. The Regional Bicycle Master Plan and the City of San Antonio's adopted Master Plan and the Bicycle Map publication support this objective. The MPO will continue to work to accomplish these goals and implement the region's Bicycle Master Plan.

Pedestrian

There is a continued awareness and momentum toward improving pedestrian facilities as well. This awareness began to develop in the early 1990s upon passage of the Americans with Disabilities Act (ADA). Roadway construction projects (capacity projects and rehabilitation projects) within the Urbanized Area often include accessible pedestrian facilities. For example, in 2006 an analysis was completed by the City of San Antonio to look at the gaps in pedestrian facilities. As this momentum continues and is extended, we continue to get closer to a comprehensive pedestrian facilities system that will accommodate pedestrian mobility needs. The following goals were established to help meet increasing pedestrian mobility needs.

- Develop a regional pedestrian system.
- Provide a safe pedestrian system.
- Employ accessible, barrier-free, state-of-the-art design.
- Engage the public in the transportation planning process.
- Identify and efficiently use available funding.

Public Transportation

VIA Metropolitan Transit (VIA) is the local public transportation agency. It is a political subdivision of the State of Texas, authorized by State Enabling Legislation to receive locally-generated sales tax income at a rate not to exceed one percent and subject to approval by voters within the VIA service area. VIA currently collects sales tax income at a rate of one-half percent as approved in the November 1977 referendum that established VIA. VIA is also supported, to a much smaller degree, by fare box revenue, Federal Transit Administration (FTA) funding, advertising revenue, and interest income.

As of 2009, VIA serves nearly 7,000 bus stops and nine transit centers and park and ride facilities. VIA's operational fleet consists of 393 full-size buses, 22 small buses, 19 streetcars, for a total of 434 fixed route vehicles. For VIAtrans service, VIA operates 105 vans directly and 121 vans are operated by a private contractor. (Bus Operations Daily Report of Bus Availability for October 7, 2004). Since 1990 all transit vehicles purchased by VIA have been equipped with lifts or ramps to accommodate persons in wheelchairs. VIA has also purchased low floor and kneeling vehicles to accommodate patrons who cannot negotiate steps. VIA's entire bus fleet was accessible by 2008.

The San Antonio region faces many challenges in the area of public transportation. While VIA has long been one of the most financially efficient transit systems in the country, its fiscal constraints and service area characteristics somewhat limit what it can offer. However, VIA is currently working on a long range comprehensive transportation plan for the region that looks at the needs of the region and how the region is best served with different modes of traditional transit and high-capacity transit.

Intercity Passenger Rail

- Capital Metropolitan Transportation Authority in Austin and VIA Metropolitan Transit in San Antonio
- Two rural transit districts Capital Area Rural Transportation System (CARTS) and Alamo Rural Transit (ART)
- Representatives of business communities and the general public

Our region is very interested in this idea, as intercity passenger rail could contribute to our economic growth by making it easier to travel between cities, fostering regional business connections and encouraging an alternative to traveling on congested highways. Investments in passenger rail can moreover reduce the need for costly investments in highways and airport capacity.

Intercity passenger rail can provide convenient, efficient travel, where riders can travel directly from downtown to downtown, even in inclement weather – avoiding the need to drive to outlying airports.

Recently, VIA Metropolitan Transit, along with Lone Star Rail District and other partners, produced feasibility and planning studies for a new facility on the western edge of downtown, to be used not only by the Lone Star Rail, but by VIA's Fredericksburg Road Bus Rapid Transit line, providing service to the very busy South Texas Medical Center complex.

SAFETY

Over 11,400 crashes on the Texas portion of I-35 were reported in 2008. Of these crashes, roadway sections covering approximately 26 percent of the 591-mile corridor experienced crash rates in excess of the statewide average, and another three percent experienced crash rates of more than double the statewide average. By shifting a share of total vehicle miles traveled from automobile to high-speed rail, accident rates can be improved by lessening the interaction among vehicles.