Chapter 4 – Passenger Rail Systems

To improve the coordination of the planning, construction, operation and maintenance of a statewide passenger rail system by the Texas Department of Transportation (TxDOT), S.B. 1382 (Section 201.6012-6013, Transportation Code), an act passed by the 81st Texas Legislature and approved by the governor on June 19, 2009, requires TxDOT to prepare and update annually a long-term plan for a statewide passenger rail system. The plan must include the following information useful for the development of the vision, goals, and objectives for the passenger rail system for Texas:

- A description of existing and proposed passenger rail systems;
- Information regarding the status of passenger rail systems under construction;
- An analysis of potential interconnectivity difficulties;
- Ridership projections for proposed passenger rail projects; and
- Ridership statistics for existing passenger systems.

This chapter provides the information required by S.B. 1382, plus additional information pertinent to understanding the obstacles, issues, and opportunities for developing passenger rail services in Texas. Passenger rail services are divided into five categories in this chapter and are defined as follows:

- *High-speed rail* is defined as rail operating at speeds of 110 mph or more non-stop or with limited stops between cities.
- *Intercity passenger rail* is defined as rail serving several cities operating at slower speeds than high speed over long-distances with limited stops.
- *Commuter and regional rail* is defined as rail primarily serving work commuters between communities in an urban area or region.
- *Light rail and trolley* is defined as rail operating within an urban area.
- *Tourism rail* is defined as rail operating generally for entertainment and sightseeing purposes.

Table 4-1 lists the providers of existing passenger rail services in Texas by category. Amtrak, local transit authorities, municipalities, commuter rail districts, and non-profits provide passenger rail services in Texas.

The Texas Rail Plan (TRP) focuses on high-speed rail (HSR), intercity passenger rail (IPR), and commuter and regional rail; however, light rail systems are also covered as referenced by their connectivity with the other types of passenger services (see Table 4-1). Furthermore, tourism rail is included under the broader umbrella of passenger rail because some tourist rail services, such as the Hill Country Flyer and the Grapevine

Vintage, are affected by freight and non-tourist passenger train operations and offer potential as future corridors for non-tourist passenger rail services.

Table 4-1: List of All Passenger Rail Providers and Services in Texas

	Providers	Service Name
High-Speed Rail	No high-speed rail service provided currently.	N/A
Intercity Passenger Rail	Amtrak	Texas Eagle Sunset Limited Heartland Flyer
Commuter and Regional Rail	Dallas Area Rapid Transit and Ft. Worth Transportation Authority	Trinity Railway Express
	Capital Metropolitan Transportation Authority	MetroRail
Light Rail and Trolley	Dallas Area Rapid Transit	DART Rail
	Metropolitan Transit Authority of Harris County (Metro)	MetroRail
	MATA	McKinney Avenue Trolley
	Island Transit (City of Galveston)	Galveston Island Rail Trolley
Tourism Rail	American Heritage Railway (Prior to Sept. 1, 2007, operated by Texas Parks and Wildlife)	Texas State Railroad—The "Official Railroad of Texas"
	Austin Steam Train Association	Hill Country Flyer
	City of Grapevine	Grapevine Vintage Railroad
	Texas Transportation Museum	Longhorn and Western Railroad
	DBR Entertainment Inc.	Jefferson and Cypress Bayou Railway

The primary sources of data for this chapter are the rail and transit agencies operating or proposing rail services. TxDOT does not collect and maintain passenger rail ridership data. Only passenger rail projects using Federal Railroad Administration (FRA) funding require participation from TxDOT. Figure 4-1 shows an example of passenger rail in operation.

Figure 4-1: DART Light Rail Passengers Boarding TRE Commuter Train, Dallas

4.1 – High-Speed Passenger Rail Service in Texas

High-Speed Intercity Passenger Rail (HSIPR) provides the growing Texas population an alternative to driving or flying within the state. Evaluation of the population, automobile, and air transport trends, as well as the economic connectivity of the cities within Texas, points to a need for providing high-capacity, high-quality service and accommodations available through a high-speed rail service.

High and Higher Speed Train Initiatives

Higher speed passenger trains that run frequently could meet much of the demand for travel between urban regions within a short airline distance. Texas currently does not have high-speed rail service; however, the motivation and need that prompted the state of Texas to pursue HSIPR in the 1980s and 1990s still exists. Higher speeds, more advanced systems, and more passenger amenities differentiate HSIPR from current Amtrak and intercity commuter rail. Although demand for intercity travel in Texas may warrant a high-speed passenger rail system, additional improvements to existing track or construction of new, separate facilities are required to create a higher-speed passenger rail service.

Combining speeds faster than 150 mph that drastically reduce travel time with passenger amenities unavailable to auto and air passengers, such as dining cars, meeting rooms, and more passenger space, and the addition of HSIPR would expand travel options. The rail planning process must examine how to incorporate HSIPR into the state's transportation network and the role of private and public entities in bringing HSIPR to Texas.

A summary of the Texas TGV franchise proposal from the 1990s and the state's HSIPR planning efforts thus far are provided to show the progress and issues facing HSIPR implementation in the state.

Past HSIPR Proposals

Research conducted by private entities and the state and federal government in the late 1980s and the 1990s predicted that a system of faster trains serving the state's largest cities would support significant passenger volumes.

In 1989, the Texas legislature created the Texas High Speed Rail Authority (THSRA) as a separate state agency to determine whether high-speed rail in Texas was feasible. THSRA was to determine the best-qualified applicant for award of a franchise to design, build, and operate a high-speed rail service in the state. A 50-year franchise was awarded in 1991 to a consortium of businesses, designated as the Texas TGV (TTGV) Corporation. According to ridership projections generated for the TTGV Corporation, the potential share of high-speed rail in the Texas Triangle between Houston, Austin/San Antonio, and Dallas/Ft. Worth was 11.9 million passengers, or one-quarter of the total intercity travel market.[1] A planned securities offering in the fall of 1993 failed when one of the backers withdrew its commitment, and the franchise agreement with TTGV was subsequently rescinded in 1994. Although demand appeared to justify high-speed rail services in the state, funding issues and other pressures prevented the project from moving forward. The THSRA was formally abolished in 1995.

The TTGV initiative demonstrated the potential for HSIPR, showing that demand existed for high-speed train service between Texas' largest cities. Amtrak officials corroborated the TTGV analysis, believing there is a demand for high-speed passenger rail services in Texas.[2] At the time of the Texas TGV project studies, initial ridership projections for total intercity travel between the metropolitan areas of Austin, Dallas/Ft. Worth, Houston, and San Antonio (the Texas Triangle) using all modes were predicted to reach 45.5 million travelers by 2010.

Since the Texas TGV proposal, other proposals have been submitted to the FRA or the State of Texas. All have indicated operating revenues would exceed operating expenses, and all proposed routes to serve the cities of Dallas/Ft. Worth, Houston, Austin, and San Antonio. Table 4-2 summarizes these estimates.

Table 4-2: Ridership and Operation Revenue and Expenses Estimates for Proposed Texas HSIPR Projects

Entity	Ridership Estimates	Operation Revenue & Expenses Estimates
SNCF 2009	Between Dallas and San Antonio: 3.3 million passengers/year by 2018 12.1 million passengers/year by 2025	Operating revenues would exceed operating and maintenance expenses by 2018 with net income used to contribute to 58% of the funds needed for initial capital investments
TRHC—Triangle Railroad Holding Company 2009	Within the Texas Triangle system, a total of 89,000 passengers per day by 2023 and over 100,000 after 2023: * Between Dallas and San Antonio, 13,000-55,000 passengers per day * Between Austin and Houston, 11,300-51,000 passengers per day * Between Dallas and Houston, 17,900-81,000 passengers/day (Based on projected population growth)	Operating revenues would exceed expenses (exclusive of debt service, depreciation, taxes, and fixed charges) in the fourth year of operation (in 2015), assuming only 3,000 passengers per day. Operating revenues would exceed expenses, inclusive of debt service, in 2025 when construction is complete and ridership is about 108,000 passengers per day.
Federal Railroad Administration 1997	Between San Antonio and Dallas: 3.2-8.1 million passenger trips/year, depending on rail technology with higher levels of ridership corresponding to faster speeds (by 2020)	Operating revenues would exceed operating and maintenance expenses (inclusive of taxes, but unclear if inclusive of interest) by the year 2020 regardless of rail technology selected
Texas TGV 1991	For the Texas Triangle between Houston, Austin/San Antonio, and Dallas/Ft. Worth, 11.9 million passengers.	Specific estimates unavailable, however Texas TGV stated operating revenues would exceed expenses
Fastrak 1991	For the entire Texas Triangle rail system, 8.46 million trips by 2015 Between Houston and Dallas/ Ft. Worth, 4.89 million trips in the year 2015	Fastrak stated operating revenues would exceed expenses

By the late 1990s, the FRA began to encourage the incremental development (largely through safety improvements) of faster passenger train systems through the designation of "High-Speed Rail Corridors" (HSRCs) around the country, including two such corridors in Texas. Currently, the FRA is encouraging states to cooperatively determine and fund planned improvements along their corridors.

Federally Designated High-Speed Rail Corridors

The two rail corridors in Texas that have received federal designation as future high-speed rail corridors, the "South Central" and "Gulf Coast," are depicted in Figure 4-2. These corridors will provide high-speed rail connections within two mega-regions. The high-speed rail designation from the FRA allows states to apply for limited federal funds to make capital improvements to existing rail lines, thereby potentially improving safety and mobility with the long-term goal of improving track speeds for passenger rail. Competition is intense for the limited funds available from this program, and the funds allotted for Texas rail improvements to date have been minimal.

Figure 4-2: Federally Designated High Speed Rail Corridors in Texas
Source: Federal Railroad Administration, 2010

The South Central High-Speed Rail Corridor (stretching from San Antonio through Dallas/Ft. Worth and on to Texarkana and Little Rock on one branch and from Dallas/Ft. Worth to Tulsa on the other) essentially follows the same routes as Amtrak's Texas Eagle and Heartland Flyer services. The Gulf Coast High-Speed Rail Corridor runs east from Houston to Beaumont, New Orleans, and Mobile. A separate branch of the Gulf Coast High-Speed Rail Corridor (GCHSRC) connects New Orleans with Atlanta. In 1999, TxDOT received a $125,000 appropriation from the U.S. Department of Transportation (Section 1103 funds) for the study of the GCHSRC from Houston to the Texas–Louisiana state line. The funds were used to perform an assessment of the existing infrastructure on the Amtrak's Sunset Limited route (on the GCSHRC) to determine the feasibility and costs associated with incremental implementation of higher speed rail services on the corridor.

Modifications to FRA HSR Corridors

In June 2003, TxDOT asked the FRA to designate an extension of the South Central Corridor that would extend from the Houston area through Bryan/College Station to the Killeen/Temple area, connecting the two Texas corridors. This "Brazos Express Corridor" would provide a connection between Texas' populated I-35 corridor and Houston, its largest city, and include communities that do not currently have passenger rail services. The FRA declined to designate the extension based on the agency's vision at the time for the future of intercity passenger rail. The Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) revised the language dealing with high-speed rail corridor development so that program funds will only be available for corridor development versus planning activities. There have also been discussions about connecting the two Texas corridors via an extension from Meridian, Mississippi through Shreveport, Louisiana to Dallas.

Along its designated HSRCs, TxDOT may apply for project funding to improve highway-railroad crossings, which would increase safety for motorists and enhance the movement of both passenger and freight trains. The types of projects potentially eligible for federal funding include adding or replacing signals, changing the crossing gate apparatus to a four-quad gate or similar barrier system, constructing highway-rail grade separations along the rail corridor, or closing lightly-used crossings altogether. It is anticipated that such improvements will yield decreases in travel times and thereby increase passenger ridership. By utilizing existing rail corridors and infrastructure, the "high or higher speed" rail concept offers cost-effective transportation that has relatively low environmental impacts.

4.2 – Intercity Passenger Rail Services in Texas

The National Railroad Passenger Corporation, Inc. (Amtrak) is the sole provider of intercity passenger rail service in Texas. It serves most of the state's major urban areas, although not all major urban areas are directly connected. Amtrak's partnership with motor coach services provides bus connections from Amtrak stations to other areas of the state. Figure 4-3 provides a map of the three current Amtrak routes in Texas: the Heartland Flyer, Texas Eagle, and Sunset Limited. The Texas Eagle (San Antonio to Chicago) and the Sunset Limited (Los Angeles to New Orleans) are the two long-distance trains fully funded by Amtrak. The Heartland Flyer is a corridor train that provides a daily round trip between Oklahoma City, Oklahoma and Ft. Worth, Texas and is jointly funded by Texas and Oklahoma. Texas used to have an extensive intercity passenger rail system, but this has been pared down considerably (see Figure 4-4).

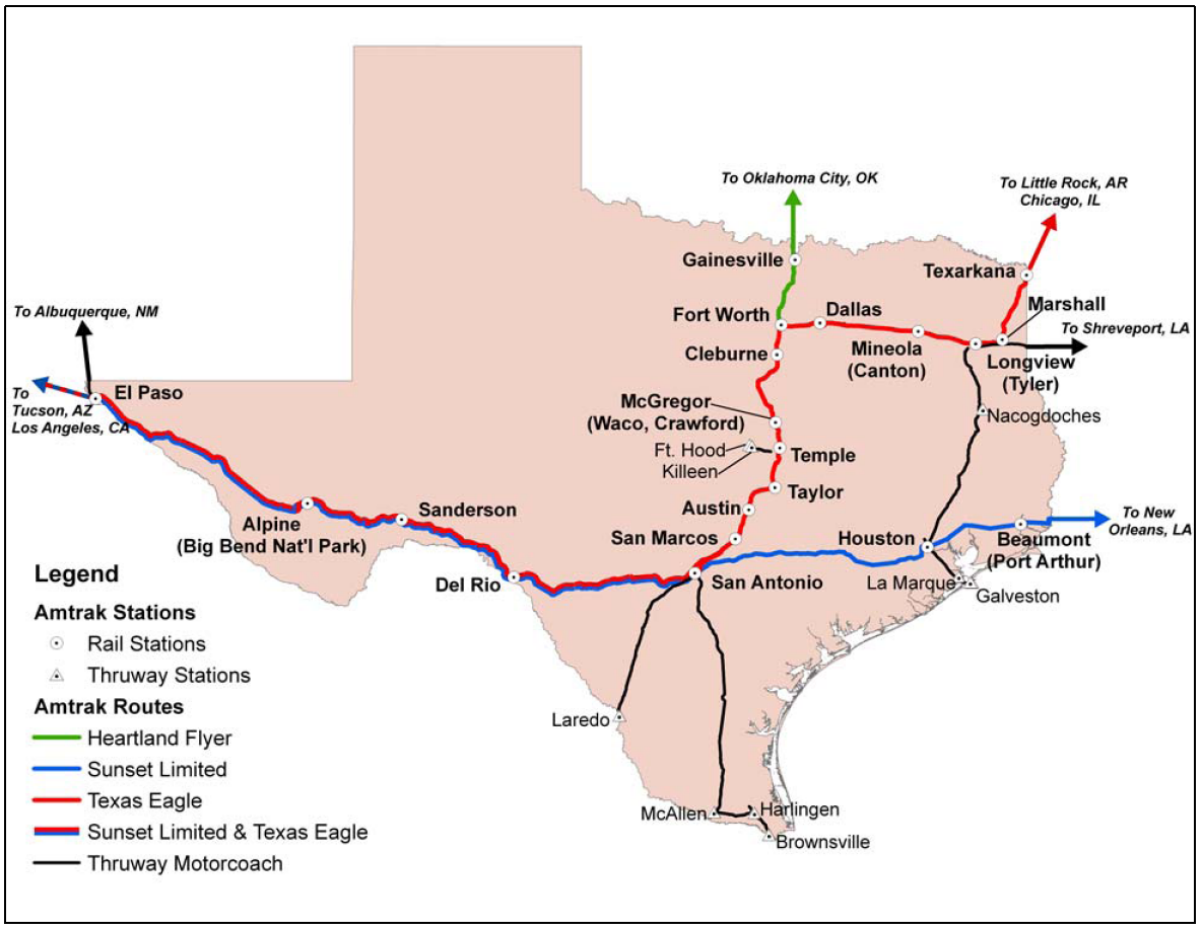

Figure 4-3: Current Texas Amtrak Routes
Source: Texas Transportation Institute, 2007

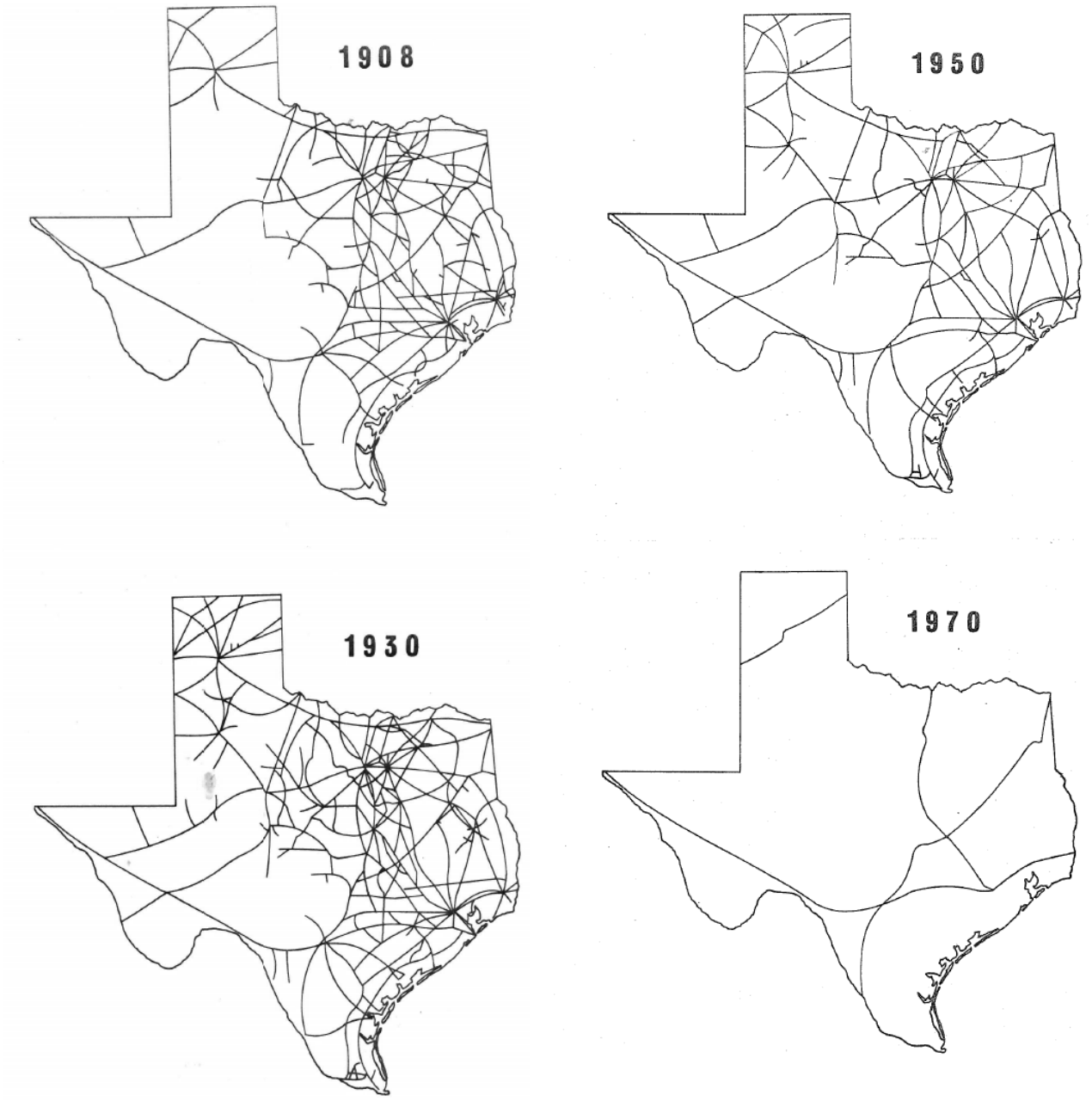

Figure 4-4: Passenger Rail in Texas 1908, 1930, 1950, 1970
Source: Texas Transportation Institute, *The History of Rail Passenger Service in Texas 1820-1970*, 1976

A description of the three intercity services, such as the route, stations, and schedule, along with their performance follows. Measures of performance discussed include the number of boardings and alightings (deboardings) at each station; the on-time performance (OTP), which gives the percentage of time the trains arrive at the endpoint of the route according to the published schedule; and the financial performance.

The Heartland Flyer—Ft. Worth to Oklahoma City

Beginning in June 1999, Amtrak and the State of Oklahoma initiated intercity corridor service on the 206-mile Heartland Flyer route, reinstating passenger rail service in North Texas and Oklahoma for the first time in more than 20 years. The Heartland Flyer, with service between Oklahoma City and Ft. Worth, runs one trip daily in each direction and serves the Texas cities of Ft. Worth and Gainesville, providing connections to the Texas Eagle at Ft. Worth. In Texas, the Heartland Flyer operates on 72.3 miles of BNSF Railway Company tracks (Figure 4-5).

The Oklahoma Department of Transportation (ODOT) approached TxDOT for assistance in providing operational funding for the Heartland Flyer in 2006. TxDOT reviewed ODOT's proposal, as well as Amtrak's performance and costs, and the Texas Transportation Commission (TTC) approved $1.8 million in funding for FY 2007. TxDOT and ODOT have also partnered to continue providing funding for FY 2008 and 2009, with TxDOT's contribution totaling $1.99 million each of those years.

State-supported Amtrak Intercity Corridor service along the Heartland Flyer route was introduced in spite of ridership projections that would give rail only a small share of the total travel between markets on this corridor. In the first year of operation, 25,247 total boardings and alightings were made in Texas; this figure jumped to 60,450 by 2000. The annual number of boardings and alightings in Texas by FY 2009 was more than 69,000.

Figure 4-5: Heartland Flyer Route
Source: Amtrak

By comparison, in 2006, roughly 228,000 air passengers flew between Oklahoma City and Dallas/Ft. Worth, so the Heartland Flyer carried more than 24% of the number of passengers choosing to travel by air or rail between the two regions.

A 2010 study of the Heartland Flyer conducted by the Texas Transportation Institute (TTI)[3] provides several interesting findings about the passengers, trip purpose, and the economic and transportation impacts:

- Passengers cited comfort and cost advantages as the two main reasons why they chose the train for their trip.
- Nearly 30% of Heartland Flyer travelers reported that they would forgo their trip if the service was discontinued.
- In FY 2009, passengers spent $18 million on lodging, meals, shopping, and entertainment, resulting in nearly $1.4 million in sales tax revenue to the communities served by the Heartland Flyer.
- Most passengers traveled between Oklahoma City and Ft. Worth. Passengers were mostly from the central Oklahoma metropolitan region (Oklahoma City/Norman), followed by the Dallas/Ft. Worth Metroplex, and then the Tulsa area.
- About two-thirds of the passengers arrived by private vehicle. Of those, most were dropped off or picked up by a friend or family member. The others parked their private vehicle at the station.
- Most passengers reporting “visit family or friends” or “leisure/recreation” as their trip purpose.
- The median trip frequencies are approximately one round trip per year.
- The Heartland Flyer diverted 39,000 vehicle-trips during FY 2009, resulting in an estimated reduction of 7.9 million vehicle miles traveled (VMT) on corridor roadways.

The Heartland Flyer train consists of one locomotive, one coach, one snack coach, one coach, and one NPCU (cab car), and has 198 to 210 passenger seats. The schedule and ridership are given in Table 4-3 and Figure 4-6, respectively. The annual boardings and alightings by station are given in Table 4-4.

To further increase passenger demand, Oklahoma and Texas are evaluating improvements that could decrease run times on the route. Presently, the Heartland Flyer takes approximately 4 hours and 15 minutes to travel from Oklahoma City to Fort Worth, about 45 minutes longer than the same trip by car. TxDOT received a $3.8 million grant from the first round of HSIPR grants, funded through the American Recovery and Reinvestment Act (ARRA), to upgrade the signals along the Texas portion of the route to allow for an increase in speeds to 79 mph. This upgrade will reduce the

run time by approximately 15 minutes, making train travel more competitive with travel by car.

Additionally, another station has proposed to provide a stop for the cities of Krum and Denton at the cities' request. In March 2009, TxDOT requested that Amtrak start a planning study to determine the feasibility of adding a new station in the area. On August 4, 2010, Amtrak provided TxDOT with ridership, revenue, and operating cost estimates from a profit and loss analysis it performed on the proposed new station. Amtrak has forwarded the request for the station to the host railroad, BNSF. In July 2010, TxDOT requested support and financial assistance from the cities of Krum and Denton for this project.

Also in 2010, TxDOT requested HSIPR funding for a preliminary engineering and National Environmental Policy Act (NEPA) study to determine the best location for the new passenger rail station. This project will increase ridership on the state-supported Heartland Flyer Corridor, improving revenue on the route and providing station access to the City of Denton, TX (Pop. 80,537), and Denton County, TX (615,357).

Table 4-3: Heartland Flyer Schedule (as of May 2010)

Southbound	Southbound Arrival/Departure	City	Northbound Arrival/Departure	Northbound
Daily	8:25 a.m.	Oklahoma City, OK	9:39 p.m.	Daily
Daily	8:49 a.m.	Norman, OK	8:55 p.m.	Daily
Daily	9:06 a.m.	Purcell, OK	8:38 p.m.	Daily
Daily	9:31 a.m.	Pauls Valley, OK	8:12 p.m.	Daily
Daily	10:23 a.m.	Ardmore, OK	7:23 p.m.	Daily
Daily	11:05 a.m.	Gainesville	6:42 p.m.	Daily
Daily	12:39 p.m.	Ft. Worth	5:25 p.m.	Daily

Source: Amtrak

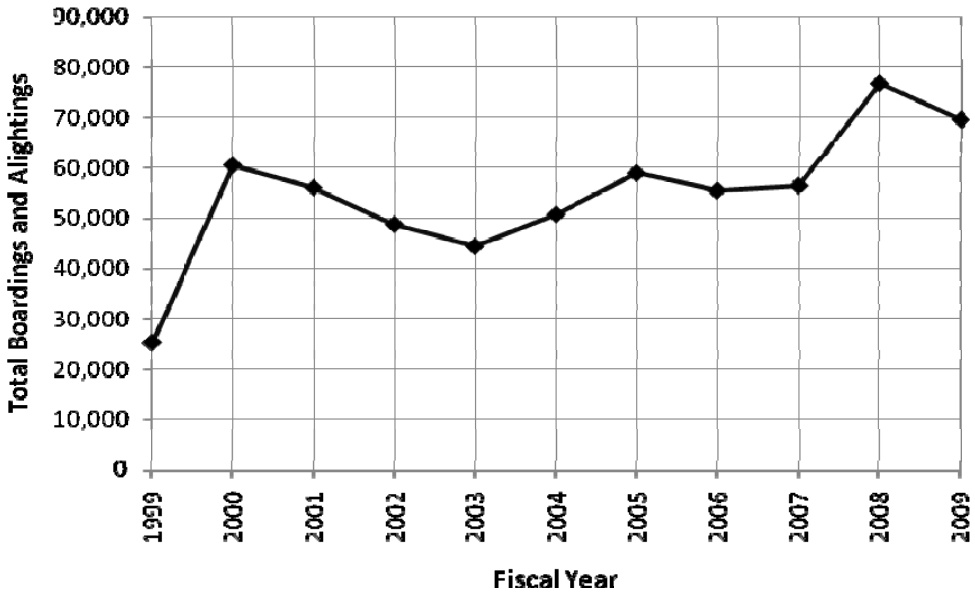

Figure 4-6: Heartland Flyer Total Annual Boardings and Alightings
Source: Amtrak Government Affairs, 2010

Table 4-4: Heartland Flyer Amtrak Station Total Annual Boardings and Alightings

Fiscal Year	Ft. Worth	Gainesville	Total in Texas
1999	19,827	5,420	25,247
2000	44,123	16,327	60,450
2001	40,875	15,118	55,993
2002	36,942	11,798	48,740
2003	35,362	8,981	44,343
2004	40,469	10,240	50,709
2005	47,015	11,823	58,838
2006	44,896	10,505	55,401
2007	46,788	9,589	56,377
2008	67,190	9,249	76,720
2009	61,181	8,018	69,561

Source: Amtrak Government Affairs, 2010

On-Time Performance

The on-time performance for the Heartland Flyer dropped considerably in 2006 to a low of 28.6% in 2007, but has improved since that time, as shown in Figure 4-7.

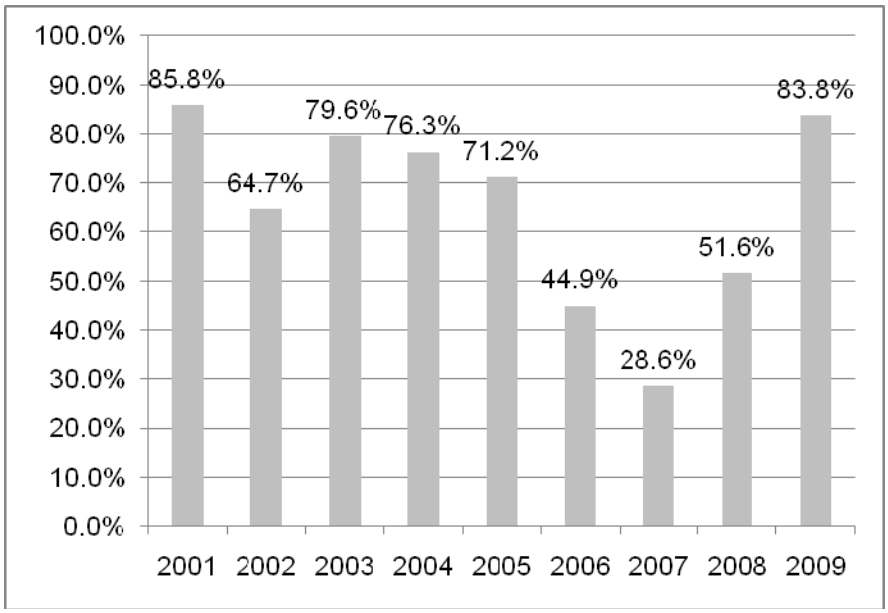

Figure 4-7: On-Time Performance of Heartland Flyer for FY 2001-2009
Source: Amtrak Government Affairs, 2010

As is the case with all of the Texas Amtrak routes, the host railroad, in this case, BNSF, is primarily responsible for the delays (91.5% of the total minutes from 2000–2009) of the Heartland Flyer. The minutes of delay for which BNSF is responsible reached a peak in 2006, followed by a significant, steep decline (Figure 4-8).

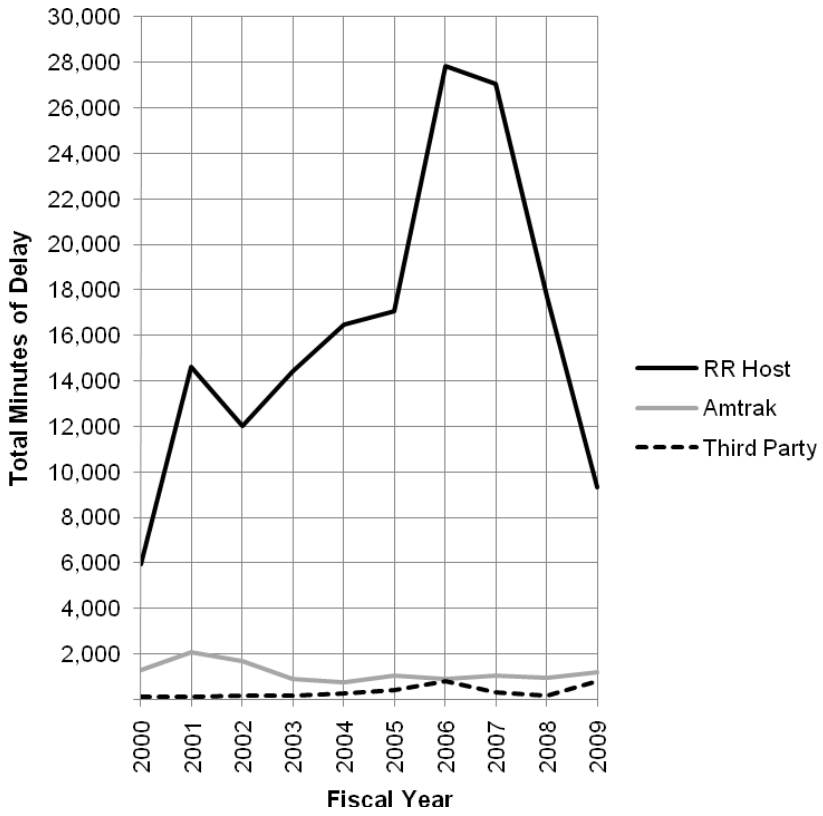

Figure 4-8: Heartland Flyer Annual Minutes of Delay by Responsible Party 2000–2009

Source: Amtrak Government Affairs, 2010

The causes of delay and their contributions to the delay in minutes are listed in Table 4-5 as a total for FY 2000 to 2009. The assignment of responsibility for causes of delay was determined by Amtrak. For the Amtrak-responsible delays, passenger-related (HLD) delays ranked first in total minutes between 2000 and 2009; however, the minutes of delay have been consistently decreasing, from a high of 471 minutes in 2000 to a low of 92 minutes in 2009. Holding for connections (CON), however, has fluctuated tremendously with a low of 13 minutes in 2009 to a high of 909 minutes in 2001 and other years somewhere in between.

Table 4-5: Causes of Delay for Heartland Flyer Route (2000–2009)

Type of Delay	Delay Code	Delay Description	% of Total Minutes of Delay
Amtrak Responsibility			
Passenger Related	HLD	All delays related to passengers, checked-baggage, large groups, etc.	1.64
Hold for Connection	CON	Holding for connections from other trains or buses.	1.36
Total Other		All other delays each causing less than 1% of delays: Delays/Miscellaneous; Crew & System; Locomotive Failure; Car Failure; Initial Terminal Delay; Servicing; Passenger-Related Accessibility; Lake make up; Injury Delay; Mail/baggage work	3.67
		TOTAL Amtrak	**6.67%**
Third Party Responsibility			
Weather-Related	WTR	All severe-weather delays, landslides or washouts, earthquake- related delays, heat or cold orders.	0.80
Total Other		All other delays each causing less than 1% of delays: Police-related; Trespassers; Unused recovery time	1.07
		TOTAL Third Party	**1.87%**
Host RR Responsibility			
Freight Train Interference	FTI	Delays from freight trains	37.36
Slow Order Delays	DSR	Temporary slow orders, except heat or cold orders	30.05
Routing	RTE	Routing-dispatching delays including diversions, late track bulletins, etc.	12.84
Signal Delays	DCS	Signal failure or other signal delays, wayside defect-detector false-alarms, defective road crossing protection, efficiency tests, drawbridge stuck open.	7.66
Maintenance of Way	DMW	Maintenance of Way delays including holds for track repairs or MW foreman to clear	3.05
Total Other		All other delays each causing less than 1% of delays: Passenger Train Interference; Detours, Debris	0.50
		TOTAL Host RR	**91.46%**

Source: Amtrak Government Affairs, 2010

Only 1.88% of the total minutes of delay between 2000 and 2009 were not due to the host railroad or Amtrak. For third-party responsible delays, the highest total cause of delay between 2000 and 2009 was weather (WTR), but the delay each year fluctuated between 15 to 407 minutes and was only 0.8% of the total delay.

The host railroad, BNSF, is responsible for interference by freight trains (FTI), causing the most significant delay (37.36%) for the Heartland Flyer. Each year, except in 2002 and 2009, freight train interference was the largest contributor to delay, considering all types of delay by all parties. However, substantial reductions have been made recently. The delay each year from freight train interference increased steadily between 2000 and 2006 from 2,813 to 13,547 minutes. By 2007, the delay each year started to decrease. By 2009, the delay reached a low of 2,351 minutes, suggesting improved cooperation with the BNSF host railroad.

An analysis of delays by direction of train travel indicates that the northbound train from Texas to Oklahoma experienced 5,475 more minutes of delay than the southbound train between 2000 and 2009. The higher amount of delay from freight train interference (FTI) and holding for connections (CON) for the northbound train accounts for the difference. Because the Heartland Flyer train makes connections with the Texas Eagle and other passenger transport in Ft. Worth, 99% of the delay from holding (HLD) for connections occurs for the northbound trains. Improving connections in Texas would help reduce a major source of delay for the Heartland Flyer.

The southbound Heartland Flyer train exceeds the northbound train in delays caused by signals (DCS), maintenance of way (DMW), slow orders (DSR), and routing (RTE), all delays under the responsibility of BNSF, the host railroad.

Financial Performance

In FY09, Amtrak reported that the Heartland Flyer generated total revenue of $1.75 million in ticket sales and concessions. Total direct costs, including fully allocated overhead were $5.30 million, resulting in a $3.55 million annual loss. The subsidy of $2.06 million shared equally by the states of Oklahoma and Texas reduced the total loss to $499,000. In FY 08, revenues (including the subsidy) exceeded direct costs when route revenues of $5.7 million exceeded total direct costs of $5.6 million.[4]

The Texas Eagle—San Antonio to Chicago

Amtrak provides daily service on the Texas Eagle between San Antonio and Chicago via Ft. Worth, Dallas, and St. Louis, for a distance of 1,305 miles. The Texas Eagle operates on 404.1 miles of UP track, except between Temple and Ft. Worth where the trains operate on 126.4 miles of BNSF Railway Company track; the route is shown in Figure 4-9. Multiple stops are made in Texas (see Table 4-6). The Texas Eagle joins

the Sunset Limited in San Antonio and continues to Los Angeles for a total route length of 2,728 miles between Chicago to Los Angeles.

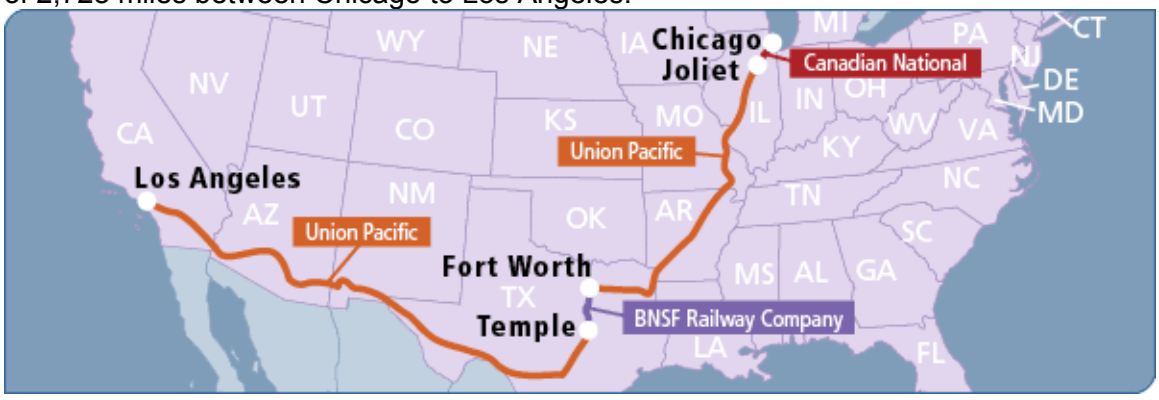

Figure 4-9: Texas Eagle Route
Source: Amtrak

Ridership on the Texas Eagle has grown in the past few years after facing several threats of discontinued service. As of May 2010, the train consists of one locomotive, one transition sleeper, one sleeper, one diner, one lounge, and three coaches (one sleeper and one coach operate to/from Los Angeles as through service three times a week), and has a total of 210 passenger seats.

The schedule of the Texas Eagle is given in Table 4-6. After San Antonio, the Texas Eagle connects with and follows the schedule of the Sunset Limited. Current service between San Antonio and Los Angeles continues as a three-times-per-week connection with the Sunset Limited at San Antonio.

Table 4-6: Texas Eagle Schedule for Texas Cities (as of May 2010)

Westbound	Westbound Arrival/Departure	City	Eastbound Arrival/Departure	Eastbound
Daily	5:58 a.m.	Texarkana	8:43 p.m.	Daily
Daily	7:50 a.m.	Marshall	7:31 p.m.	Daily
Daily	8:28 a.m.	Longview	6:15 p.m.	Daily
Daily	9:25 a.m.	Mineola	5:15 p.m.	Daily
Daily	11:30 a.m. (arrive) 11:50 a.m. (depart)	Dallas	3:40 p.m. (depart) 3:20 p.m. (arrive)	Daily
Daily	1:25 p.m. (arrive) 2:10 p.m. (depart)	Ft. Worth	2:20 p.m. (depart) 1:58 p.m. (arrive)	Daily
Daily	2:52 p.m.	Cleburne	1:00 p.m.	Daily
Daily	4:00 p.m.	McGregor	11:51 a.m.	Daily
Daily	4:43 p.m.	Temple	11:25 a.m.	Daily
Daily	5:36 p.m.	Taylor	10:22 a.m.	Daily
Daily	6:30 p.m.	Austin	9:31 a.m.	Daily
Daily	7:12 p.m.	San Marcos	8:32 a.m.	Daily
Daily	9:55 p.m. (arrive)	San Antonio	7:00 a.m.	Daily

Source: Amtrak

Figure 4-10: Eastbound and southbound Texas Eagle trains at Ft. Worth Intermodal Station

In 1996, Amtrak announced that it would terminate the Texas Eagle, which at the time ran three times a week between Chicago and Los Angeles. Several concerned parties contacted TxDOT to see if the department could do something to retain service. Amtrak pushed the termination date back several times until, in 1997, the 75th Texas Legislature passed acts directing TxDOT to loan $5.6 million in general revenue funds to Amtrak with the provision that Amtrak maintain the Texas Eagle for a specified period. The loan was to be repaid with interest by July 31, 1999. Amtrak repaid the loan in full two months prior to the deadline in May of 1999.

During the period specified in the loan, Amtrak was able to increase the profitability of the Texas Eagle by adding the capability to carry mail and express freight, a practice it later discontinued. Amtrak was also able to increase the number of Texas Eagle trains to daily operations between San Antonio and Chicago.

The efforts in the late 1990s to keep the Texas Eagle Amtrak route alive proved effective. Ridership has steadily increased since 1998 (see Figure 4-11 and Table 4-7), with only three years of slight declines.

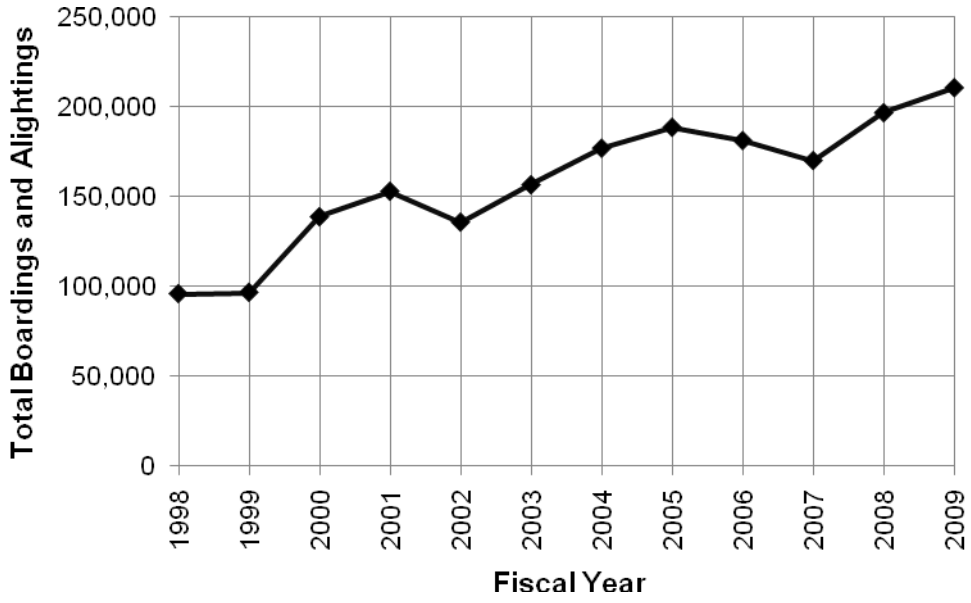

Figure 4-11: Texas Eagle Total Annual Boardings and Alightings
Source: Amtrak Government Affairs, 2010

Table 4-7: Texas Eagle Amtrak Station Total Boardings and Alightings

Fiscal Year	San Antonio	San Marcos	Austin	Taylor	Temple	McGregor	Cleburne	Ft. Worth	Dallas	Mineola	Longview	Marshall
1998	24,310	757	10,245	859	5,487	1,310	545	9,042	22,955	1,473	12,377	2,346
1999	20,712	797	11,052	766	3,773	1,242	717	13,392	23,547	1,470	12,445	2,437
2000	28,608	1,560	15,598	1,575	5,679	2,004	1,279	25,543	30,598	3,093	14,551	3,240
2001	30,277	2,055	18,595	1,944	7,215	2,080	1,524	28,700	34,074	2,902	15,172	3,128
2002	24,651	1,800	15,991	1,648	6,660	2,251	1,398	24,436	29,782	2,440	16,926	3,144
2003	29,281	2,646	18,646	2,590	8,006	1,776	1,531	28,845	31,981	2,308	20,720	3,696
2004	31,440	2,847	20,934	3,248	10,431	2,444	1,614	32,611	33,409	3,923	23,692	5,076
2005	29,790	3,421	21,365	3,235	10,732	2,715	1,849	38,467	35,922	4,068	25,428	5,905
2006	28,266	3,587	20,863	3,896	11,314	2,868	1,948	36,734	32,305	3,577	24,449	5,641
2007	27,408	3,084	19,388	3,464	10,349	2,382	1,831	38,281	27,374	3,888	21,610	5,469
2008	32,120	3,741	23,829	3,981	12,914	3,141	2,135	40,822	35,579	4,376	27,920	6,406
2009	32,525	4,339	25,404	3,908	15,163	4,238	2,455	42,926	39,230	4,952	28,828	6,988

Source: Amtrak Government Affairs, 2010

Figures 4-12 and 4-13 chart the on-time performance and delay by responsible party for the Texas Eagle, respectively and Table 4-8 provides details on the causes of delay. On-time performance was greatly improved for 2009 because of a reduction in delays caused by the host railroad.

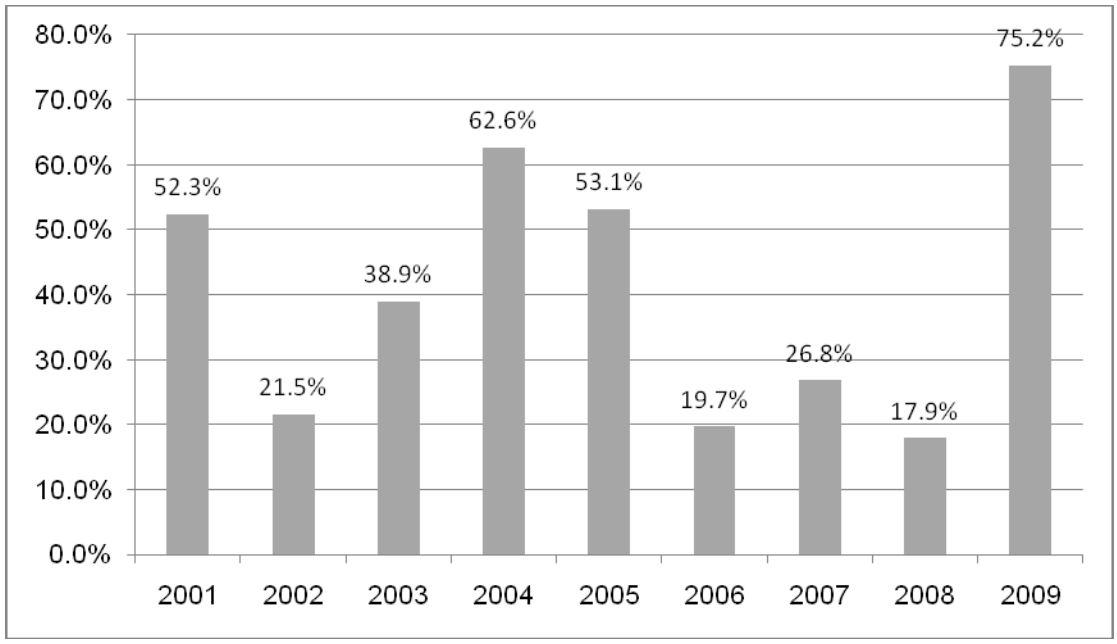

Figure 4-12: On-Time Performance of the Texas Eagle for Fiscal Years 2001-2009
Source: Amtrak Government Affairs, 2010

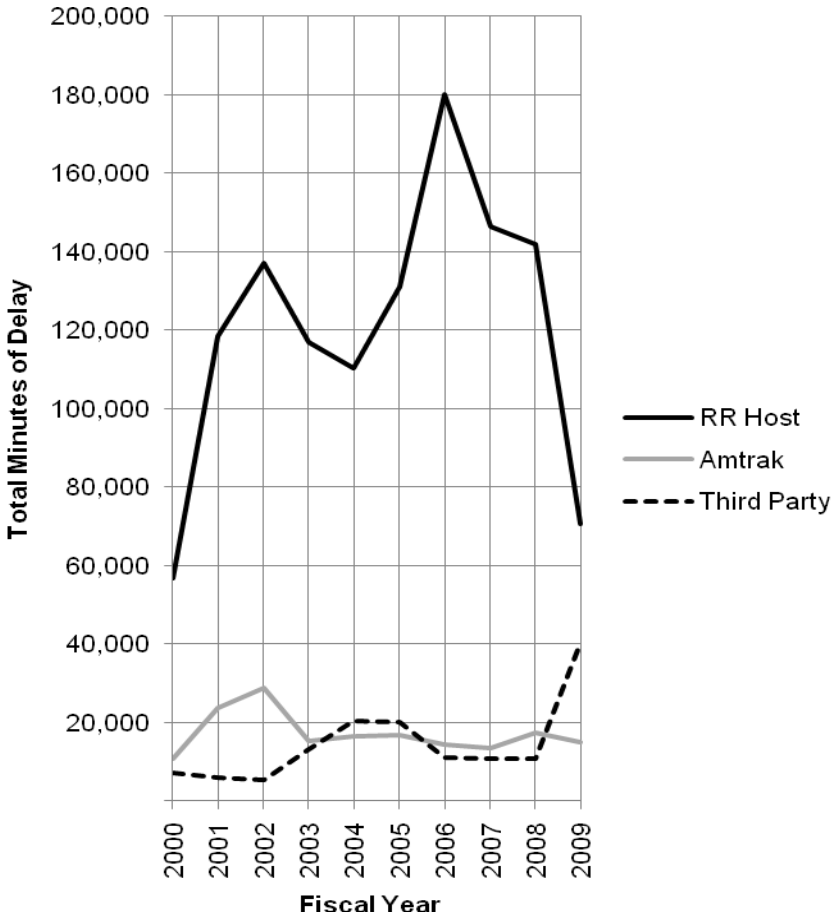

Figure 4-13: Texas Eagle Annual Minutes of Delay by Responsible Party 2000-2009
Source: Amtrak Government Affairs, 2010

Table 4-8: Causes of Delay for Texas Eagle Route (2000–2009)

Type of Delay	Delay Code	Delay Description	% of Total Minutes of Delay
Amtrak Responsibility			
Passenger Related	HLD	All delays related to passengers, checked-baggage, large groups, etc.	3.49
Crew & System	SYS	Delays related to crews including lateness, lone-engineer delays	1.89
Servicing	SVS	All switching and servicing delays	1.42
Locomotive Failure	ENG	Mechanical failure on engines	1.10
Total Other		All other delays each causing less than 1% of delays: Delays/ Miscellaneous; Hold for Connection; Car Failure; Servicing; Lake make up; Mail/baggage work; Passenger Related- Accessibility; Initial Terminal Delay; Injury Delay	3.40
		TOTAL Amtrak	**11.29%**
Third Party Responsibility			
Unused Recovery Time	NOD	Waiting for scheduled departure time at a station	7.85
Weather-Related	WTR	All severe-weather delays, landslides or washouts, earthquake-related delays, heat or cold orders.	1.01
Total Other		All other delays each causing less than 1% of delays: Trespassers; Police-related	0.66
		TOTAL Third Party	**9.52%**
Host RR Responsibility			
Freight Train Interference	FTI	Delays from freight trains	31.34
Slow Order Delays	DSR	Temporary slow orders, except heat or cold orders	25.75
Signal Delays	DCS	Signal failure or other signal delays, wayside defect-detector false-alarms, defective road crossing protection, efficiency tests, drawbridge stuck open.	9.30
Routing	RTE	Routing-dispatching delays including diversions, late track bulletins, etc.	7.63
Maintenance of Way	DMW	Maintenance of Way delays including holds for track repairs or MW foreman to clear	2.59
Passenger Train Interference	PTI	Delays for meeting or following other passenger trains	2.10
Total Other		All other delays each causing less than 1% of delays: Commuter Train Interference; Detour; Debris	0.47
		TOTAL Host RR	**79.20%**

Source: Amtrak Government Affairs, 2010

The minutes of delay from the top three Amtrak-responsible causes fluctuated between 2000 and 2009. For passenger-related delays (HLD), the minutes of delay reached a low of 2,154 in 2000 to a high of 6,968. The most dramatic fluctuations were seen in servicing (SVS) with a range of 690 minutes to 7,714 and in crew and system (SYS) delays with a range of 617 to 5,236 minutes. Though only accounting for 0.20% of the delay over the 9-year period, passenger-related accessibility (ADA) delays have steadily increased from zero, in the years 2000 to 2005, to 1,117 minutes in 2009.

For third-party responsible delays, unused recovery time (NOD) ranked first and fluctuated from a low of 2,779 to a high of 37,436 minutes. Weather (WTR) is a small percentage of delay at 1.01% and, as might be expected, varies unexpectedly from year to year, with a low of 390 minutes occurring in 2004 to a high of 2,696 minutes in FY 2000.

The two highest sources of delay under the responsibility of the host railroad, FTI and DSR, are also responsible together for 57.09% of the delay in minutes experienced by the Texas Eagle between 2000 and 2009. Both of those types of delays peaked in 2006 with a high of 56,729 for DSR and 81,696 minutes for FTI, but have since declined to 24,575 minutes and 21,625 minutes respectively in FY 2009. Both RTE (6,415-15,442 minutes) and DCS (6,799-19,960 minutes) fluctuated.

The minutes in delay also vary by direction of train. The northbound train experienced 11,973 more minutes of delay due to connections (CON) and 6,509 more minutes of delay from slow order delays (DSR) than the southbound train. The southbound train though had almost double the delay from unused recovery time (NOD) and 65,284 more minutes of delay from freight train interference (FTI).

Financial Performance

In FY09, Amtrak reported that the Texas Eagle generated total revenue of $21.3 million; total direct costs (fully allocated overhead) were $42.8 million, for a $21.5 million annual loss. In FY08, route revenues of $21.3 million were exceeded by total direct costs of $46.7 million, a loss of $25.3 million.

Figure 4-14 depicts the Texas Eagle in operation.

Figure 4-14: Texas Eagle entering the Ft. Worth Intermodal Station from Tower 55

The Sunset Limited—Orlando to Los Angeles

The Sunset Limited is an east-west route that traverses Texas for 937.3 miles on Union Pacific (UP) track on its way from Orlando to Los Angeles (depicted in Figure 4-15). Major stops prior to entering Texas from the east include Lake Charles, LA and New Orleans, LA.

Figure 4-15: Sunset Limited Route
Source: Amtrak

Since Hurricane Katrina hit in August 2005, Sunset Limited services east of New Orleans have not yet resumed, but the Southern High-Speed Rail Commission has plans to reinstate service in the future. In Texas, the Sunset Limited provides service to major cities and towns such as Houston, San Antonio, and El Paso, with stops in smaller towns and cities, including Beaumont, Del Rio, Sanderson, and Alpine (as shown in Figure 4-

16). After leaving Texas, the route continues through New Mexico, Arizona, and California before terminating in Los Angeles.

This route is currently scheduled to run three times a week in each direction, providing transportation options for trips within the state as well as to destinations outside of Texas. The Sunset Limited travels a total of some 3,000 miles as it crosses eight states. More than 800 miles of tracks are within Texas. Based on an average operating speed of less than 40 mph, the Texas portion is covered in 21 hours, 12 minutes. It takes three days to travel the entire route. For example, starting the trip in New Orleans, LA on a Monday, the train departs around noon and does not get to Los Angeles, CA until Wednesday morning (see Table 4-9).

Table 4-9: Sunset Limited Schedule for Texas Cities (as of May 2010)

Westbound	Westbound Arrival/Departure	City	Eastbound Arrival/Departure	Eastbound
MoWeFr	6:43 p.m.	Beaumont	7:05 a.m.	TuFrSu
MoWeFr	9:13 p.m. (arrive) 9:50 p.m. (depart)	Houston	5:10 a.m. (depart) 4:40 a.m. (arrive)	TuFrSu
TuThSa	3:00 a.m. (arrive) 5:40 a.m. (depart)	San Antonio	11:55 p.m. (depart) 9:30 p.m. (arrive)	MoThSa
TuThSa	8:35 a.m.	Del Rio	5:42 p.m.	MoThSa
TuThSa	11:10 a.m.	Sanderson	3:16 p.m.	MoThSa
TuThSa	1:24 p.m.	Alpine	1:25 p.m.	MoThSa
TuThSa	4:15 p.m.(arrive) 4:40 p.m. (depart)	El Paso	8:15 a.m. (depart) 7:50 a.m. (arrive)	MoThSa

Source: Amtrak

Figure 4-16: Amtrak's Sunset Limited Near Alpine, Texas

The Sunset Limited consists of two locomotives, one baggage car, one transition sleeper, one sleeper, one diner, one lounge, two coaches, one coach to/from Chicago, and one sleeper to/from Chicago, and has 140 to 210 seats passenger seats in three coaches.

The Sunset Limited experienced a decline in ridership between FY 1998 and FY 2002 and again between FY 2003 and FY 2006; however, it has since shown an increase. The total number of boardings and alightings by station are provided in Table 4-10 and charted in Figure 4-17.

Table 4-10: Sunset Limited Amtrak Station Total Boardings and Alightings

Fiscal Year	El Paso	Alpine	Sanderson	Del Rio	San Antonio	Houston	Beaumont	Total – Route
1998	12,388	1,868	190	1,031	22,413	15,633	2,070	55,593
1999	13,680	2,083	364	1,472	14,636	15,843	2,506	50,584
2000	13,147	2,468	289	1,677	15,782	16,978	2,295	52,636
2001	12,015	2,210	243	1,232	14,766	17,206	2,416	50,088
2002	9,169	1,631	153	970	12,711	16,216	1,678	42,528
2003	10,165	1,796	194	1,135	15,401	19,661	1,708	50,060
2004	9,222	1,665	148	1,140	15,319	16,177	1,519	45,190
2005	9,195	1,651	127	1,137	14,672	12,134	1,209	40,125
2006	8,184	2,027	259	1,453	13,922	10,855	903	37,603
2007	8,672	2,659	157	1,590	13,500	13,214	1,384	41,176
2008	7,908	2,979	140	1,418	16,031	14,891	1,662	45,029
2009	7,552	2,915	171	1,627	16,279	16,191	1,769	46,504

Source: Amtrak Government Affairs, 2010

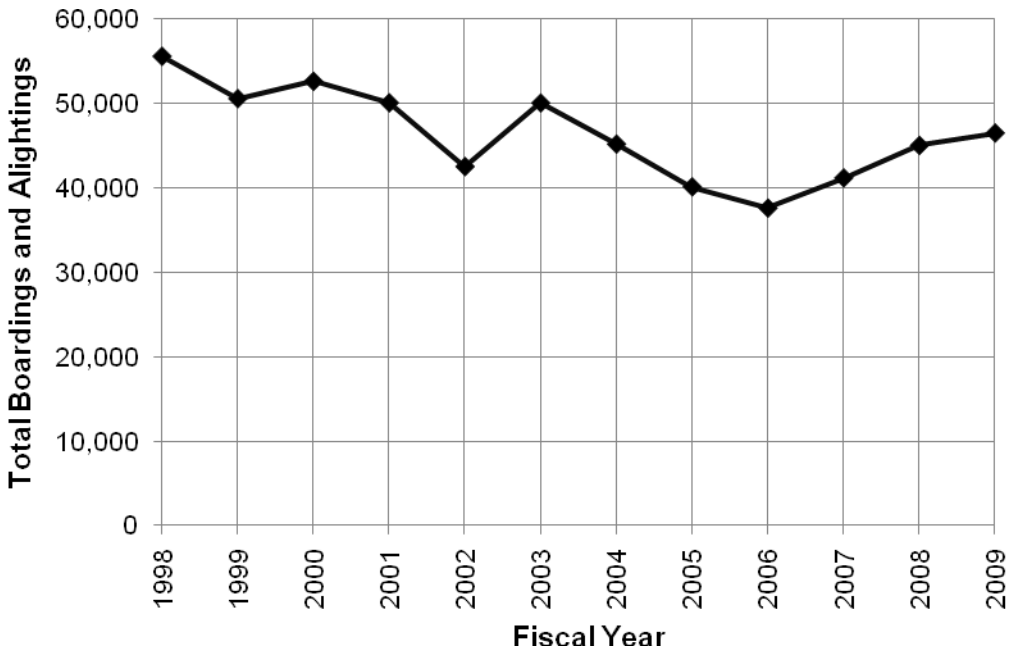

Figure 4-17: Sunset Limited Total Annual Boardings and Alightings
Source: Amtrak Government Affairs, 2010

On-Time Performance

After a very low OTP of 4.3% in FY 2004, the Sunset Limited's OTP jumped to 79.2% in FY 2009 (Figure 4-18). Data on delays by responsible party reveals the improvement occurred because of a decrease in the delays caused by the host railroad, UP (Figure 4-19).

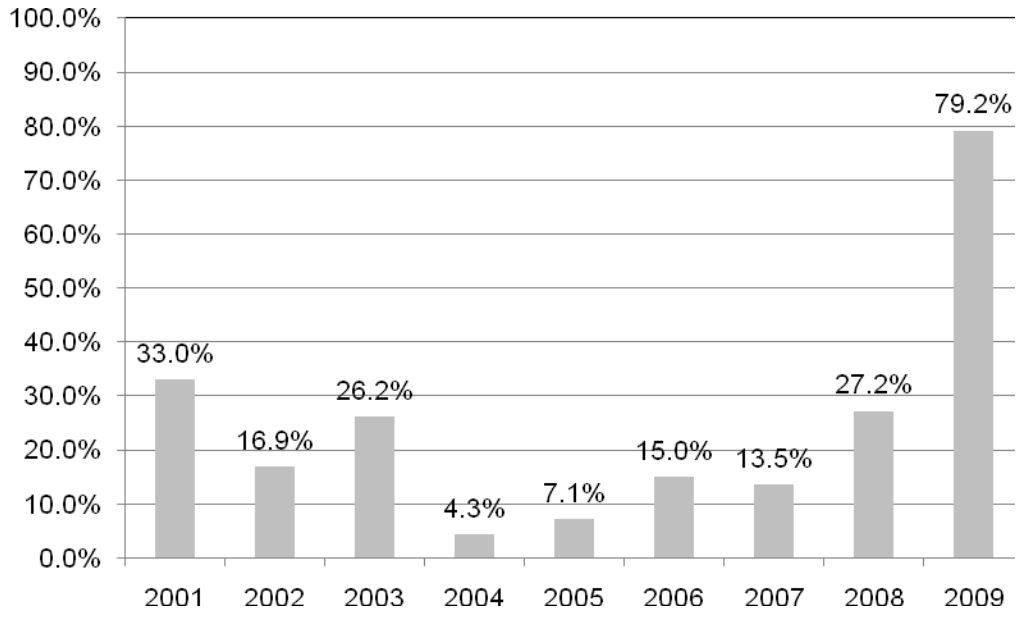

Figure 4-18: On-Time Performance of Sunset Limited for FYs 2001–2009
Source: Amtrak Government Affairs, 2010

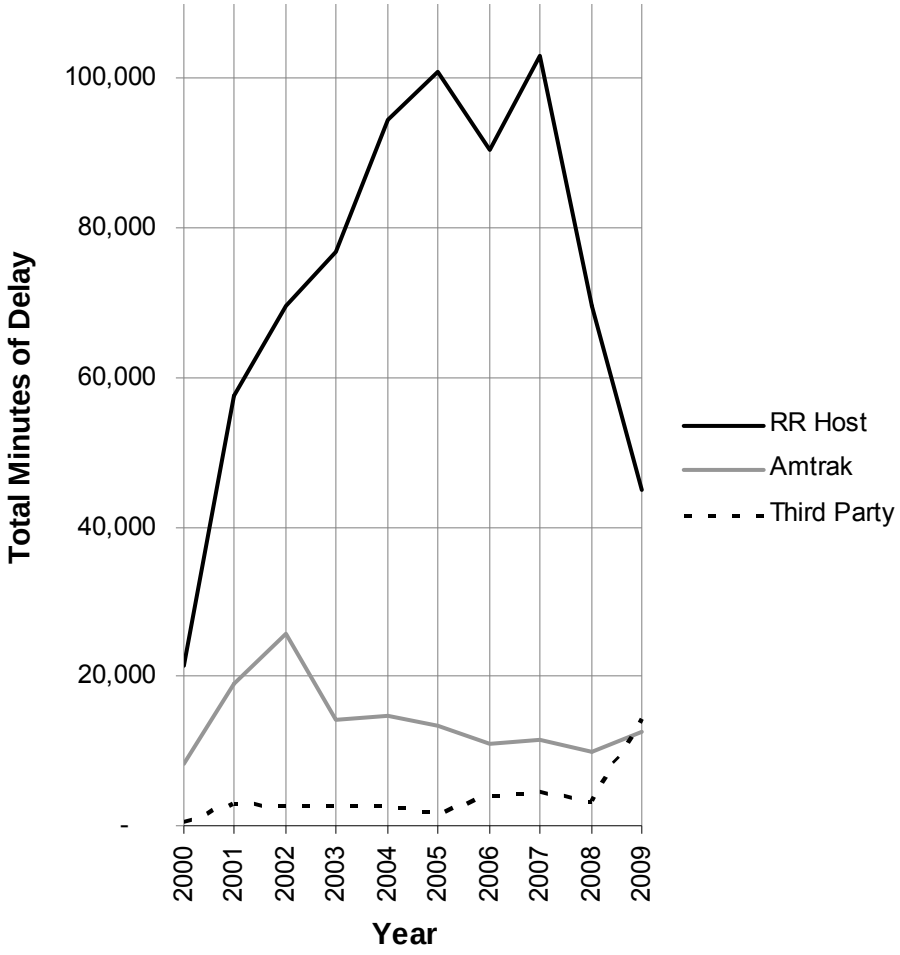

Figure 4-19: Sunset Limited Annual Minutes of Delay by Responsible Party 2000–2009

Source: Amtrak Government Affairs, 2010

The causes of delay for the Sunset Limited in Texas and their contributions to the delay in minutes are listed in Table 4-11 as a total for FYs 2000 to 2009. The assignment of responsibility for causes of delay was determined by Amtrak, and for the Sunset Limited, most (80.28%) of the minutes of delay between FYs 2000 and 2009 were the host railroad's (UP) responsibility. Freight train interference (FTI) ranks first and accounts for 34.62% of the delays, increasing from 4,498 minutes to 53,688 between 2000 and 2005, then decreasing to 13,057 minutes in 2009. The second highest cause of delay, slow order delays (DSR), accounted for 24.26% of delays and fluctuated from a low of 9,408 to a high of 26,740 minutes that occurred in FY 2002. Signal delays (DCS) fluctuated between 4,642 minutes of delay a year to 12,416 minutes, contributing to 10.76% of the total delay between FYs 2000 and 2009.

For the Amtrak-responsible delays, servicing (SVS) delays ranked first in total minutes between 2000 and 2009; however, the minutes of delay have been consistently decreasing since 2005. Passenger related (HLD) and crew and system (SYS) ranked second and third, respectively; both fluctuated from year to year.

Third-party or no responsibility sources of delay comprised only 4.29% of the delays and were typically caused by unused recovery time (NOD), trespassers (TRS), and weather (WTR). For each cause of delay, the eastbound Sunset Limited train has 83% to 100% more minutes of delay than the westbound train (Train 1).

Table 4-11: Causes of Delay for Sunset Limited Route in Texas (2000–2009)

Type of Delay	Delay Code	Delay Description	% of Total Minutes of Delay
Amtrak Responsibility			
Servicing	SVS	All switching and servicing delays	4.22
Passenger Related	HLD	All delays related to passengers, checked-baggage, large groups, etc.	2.95
Crew & System	SYS	Delays related to crews, including lateness, lone-engineer delays	2.82
Delays/Misc.	OTH	Lost-on-run, heavy trains, unable to make normal speed, etc.	2.37
Locomotive Failure	ENG	Mechanical failure on engines.	1.08
Total Other		All other delays each causing less than 1% of delays: Car Failure; Hold for Connection; Mail/baggage work; Passenger Related-Accessibility; Injury Delay; Initial Terminal Delay	2.09
		TOTAL Amtrak	**15.44%**
Third Party/No Responsibility			
Unused Recovery Time	NOD	Waiting for scheduled departure time at a station	2.12
Total Other		All other delays each causing less than 1% of delays: Trespassers; Weather-Related; Customs; Police-Related; Drawbridge Openings	2.17
		TOTAL Third Party	**4.29%**
Host RR Responsibility			
Freight Train Interference	FTI	Delays from freight trains	34.62
Slow Order Delays	DSR	Temporary slow orders, except heat or cold orders	24.26
Signal Delays	DCS	Signal failure or other signal delays, wayside defect-detector false-alarms, defective road crossing protection, efficiency tests, drawbridge stuck open.	10.76
Routing	RTE	Routing-dispatching delays including diversions, late track bulletins, etc.	4.42
Maintenance of Way	DMW	Maintenance of Way delays including holds for track repairs or MW foreman to clear	3.25
Passenger Train Interfere	PTI	Delays for meeting or following other passenger trains	2.62
Total Other		All other delays each causing less than 1% of delays: Detours; Debris; Commuter Train Interference	0.35
		TOTAL Host RR	**80.28%**

Source: Amtrak Government Affairs, 2010

Financial Performance

In FY 2009, Amtrak reported that the Sunset Limited generated total revenue of $9.8 million, while total direct costs (fully allocated overhead) were $36.8 million, for a $27 million annual loss. In FY 2008, route revenues of $9.4 million were exceeded by total direct costs of $38.6 million, a loss of $29.2 million.

Overall Amtrak System and Trends in Texas

The investment in Amtrak has given travelers in Texas choices for intercity travel. The intercity corridor service of the Heartland Flyer has proven to be a successful transportation alternative between Oklahoma and Texas. On long-distance routes, ridership has steadily increased for the Texas Eagle, and the Sunset Limited route continues to recover after a loss in ridership in 2004 through 2006 and the loss of service to states east of Louisiana because of damages from the 2005 hurricanes.[5] This section provides an overview of the overall Amtrak system in Texas, with information on funding, stations, boardings and alightings, and changes considered for the Amtrak system.

Funding

Future plans for Amtrak depend on the funding and system planning decisions made by U.S. Congress. PRIIA authorized the appropriation of about $3.0 billion in operating funding including Amtrak's Office of the Inspector General and $5.3 billion in capital funding not including debt service for the life of the authorization through the end of FY 2013. PRIIA authorized another $1.9 billion to fund the capital grant program for states managed by the FRA.

Section 209 of PRIIA requires states wishing to retain Amtrak service on routes shorter than 750 miles to fully subsidize the routes, to include direct costs, allocated overhead and capital costs. Amtrak will continue to fully fund long-distance routes longer than 750 miles. Additionally, any new Amtrak service will likely have to receive all of its funding from the involved states or local entities wishing to develop them.

As part of the ARRA, Amtrak received $1.3 billion for capital investments, including $446 million for security and life safety improvements and $842 million for rebuilding and modernizing infrastructure and equipment. A total of $2,665,000 was provided to Texas. A new shelter and platform for the Beaumont station received $1,250,000 of that funding, and the remainder will go towards the Mobility First program aimed at improving accessibility to comply with the Americans with Disabilities Act by July 26, 2010.

Stations

Amtrak does not own any passenger rail stations in the State of Texas; stations are usually owned by the cities or by the freight rail operator. Some stations are used by

more than one route, such as the Heartland Flyer and Texas Eagle using the Ft. Worth station. Table 4-12 lists all the stations used by Amtrak and their ownership, services, and intermodal connections.

Table 4-12: Amtrak Station Information

Station	Route*	Station Ownership[6]	Station Type	Staffed Ticket Office	Intermodal Connections
Alpine	TE, SL	UP	Enclosed waiting area with restrooms; in-town	No	None
Austin	TE	UP	Enclosed waiting area with restrooms; in-town	Yes	Local bus
Beaumont	SL	UP	Slab foundation only	No	None
Cleburne	TE	City of Cleburne (facility and parking); BNSF Railway (platform and tracks)	Enclosed waiting area with restrooms; in-town	No	Cleburne Intermodal Depot local bus
Dallas	TE	City of Dallas (facility, parking, platform, tracks); UP (tracks)	Enclosed waiting area with restrooms; downtown	Yes	Union Station: TRE, DART, local bus
Del Rio	TE, SL	City of Del Rio (facility and parking); UP (platform and tracks)	Enclosed waiting area with restrooms; in-town	No	None
El Paso	TE, SL	City of El Paso (facility, parking, platform, tracks); UP (platform and tracks)	Enclosed waiting area with restrooms; in-town	Yes	None

Station	Route*	Station Ownership[6]	Station Type	Staffed Ticket Office	Intermodal Connections
Ft. Hood	Bus	N/A	No shelter; curbside bus stop only	No	None
Ft. Worth	TE, HF	Ft. Worth Transportation Authority (facility, parking, platform, tracks); BNSF Railway (tracks)	Enclosed waiting area with restrooms; in-town	Yes	Ft. Worth Intermodal Transportation Center; TRE, intercity bus, local bus transit, taxi
Gainesville	HF	City of Gainesville (facility, platform and parking); BNSF Railway (tracks)	Enclosed waiting area with restrooms	No	None
Galveston	SL Bus	N/A	No shelter; curbside bus stop only	No	None
Galveston-Bus Station	TE Bus	Moody Railroad Museum (Texas A&M University-Galveston)	Enclosed waiting area only	No	Island Transit local bus and trolley
Houston	SL	UP	Enclosed waiting area with restrooms	Yes	Metro local bus
Killeen	Bus	Arrow Trailways	Enclosed waiting area only	No	Local bus (the HOP)
La Marque	Bus	N/A	No shelter; curbside bus stop only	No	None
Longview	TE	City of Longview owns building; lease grounds from UP (City of Longview maintains and operates station)	Enclosed waiting area with restrooms	Yes	Amtrak Motorcoach service; Longview Transit local bus

Station	Route*	Station Ownership[6]	Station Type	Staffed Ticket Office	Intermodal Connections
Marshall	TE	UP (Marshall Texas & Pacific Depot Inc. maintain and operate through lease)	Enclosed waiting area with restrooms	Yes	None
McGregor	TE	BNSF Railway	Enclosed waiting area with restrooms	No	None
Mineola	TE	City of Mineola (facility, parking); UP (platform, tracks)	Platform with shelter and restrooms	No	None
Nacogdoches	Bus	N/A	No shelter; curbside bus stop only	No	None
San Antonio	TE, SL	VIA Metropolitan Transit (facility, parking, platform); UP (tracks)	Enclosed waiting area with restrooms	Yes	Local bus (VIA)
San Marcos	TE	Capital Area Rural Transportation System (facility, parking, platform); UP (tracks)	Platform with shelter and restrooms	No	Capital Area Rural Transportation System local bus; Greyhound bus station nearby.
Sanderson	TE, SL	UP	Platform with shelter only	No	None
Taylor	TE	UP (parking, tracks); Amtrak (platform)	Platform only	No	None
Temple	TE	City of Temple (facility, parking); BNSF Railway (platform, tracks)	Enclosed waiting area with restrooms	Yes	Local bus (the HOP)

* **TE= Texas Eagle; SL= Sunset Limited; HF= Heartland Flyer** Source: Amtrak

Connecting Services—Amtrak Thruway Motor Coach Service Program

Amtrak's Thruway Motor Coach Service Program facilitates intermodal connections between Amtrak and motor coach services by providing through ticketing, scheduling, and bus/train reservations. Routes for Amtrak's Thruway Motor Coach Service in Texas are limited to Houston-Longview, Houston-Galveston, Galveston-Longview, and Killeen/Ft. Hood-Temple (Table 4-13).

Table 4-13: List of Connecting Bus Services

	Amtrak Stations with Thruway or Intercity Bus Connections	Destinations	Operator
Texas Eagle	Longview	Shreveport, LA	CJ Limo
		Nacogdoches	Lone Star Coaches
		Houston	Lone Star Coaches
		Galveston	Lone Star Coaches
	Temple	Ft. Hood	Southwestern Coaches
		Killeen	Southwestern Coaches
Sunset Limited	Houston	Galveston	Kerrville Bus
		La Marque	Kerrville Bus
	San Antonio: Connecting Services for Both Texas Eagle and Sunset Limited Routes	Brownsville	Valley Transit
		Harlingen	Valley Transit
		McAllen	Valley Transit
		Laredo	Greyhound Lines

Source: Amtrak

Amtrak Thruway Motor Coach schedules are all coordinated with the Amtrak passenger rail schedules so the motor coach arrives before a train arrives and departs after the train departs. The motor coach schedules for the Texas Eagle are given in Figure 4-20 and in Figure 4-21 for the Sunset Limited.

Longview • Shreveport *(CJ Limo)*

6421	Mile		Thruway Number		Symbol		6422
6 45A	0	Dp	Shreveport, LA	(CT)		Ar	7 45P
8 00A	62		Longview, TX–Amtrak Station		●	Dp	6 25P
6121	**Mile**		**Thruway Number**		**Symbol**		**6122**
8 40A	0		Longview, TX–Amtrak Station		●	Ar	5 45P
10 00A	62	Ar	Shreveport, LA	(CT)		Dp	4 30P

Longview • Houston • Galveston *(Lone Star Coach)*

6021	Mile		Thruway Number		Symbol		6022
8 40A	0	Dp	Longview, TX–Amtrak Station	(CT)	●	Ar	5 40P
10 05A	70	Ar	Nacogdoches, TX				4 25P
D 1 15P	214		Houston, TX–Amtrak Station		●		R 1 05P
2 45P	266	Ar	Galveston, TX	(CT)		Dp	11 30A

Reservations must be made at least 24 hours in advance departing Galveston.

Temple • Killeen • Fort Hood *(Southwestern Coaches)*

8821	Mile		Thruway Number		Symbol		8722
3 15P	0	Dp	Fort Hood, TX–Bldg. 108	(CT)		Ar	12 45P
3 45P	4		Killeen, TX			Ar	12 30P
4 15P	33	Ar	Temple, TX–Amtrak Station		●	Dp	11 45A
8721	**Mile**		**Thruway Number**		**Symbol**		**8822**
5 15P	0	Dp	Temple, TX–Amtrak Station		●	Ar	10 45A
6 00P	29	Ar	Killeen, TX				10 00A
6 15P	33	Ar	Fort Hood, TX–Bldg. 108	(CT)		Dp	9 45A

Connecting Services

San Antonio–McAllen
Harlingen-Brownsville
Connecting intercity bus service by Valley Transit is available from Greyhound Bus Station between San Antonio and McAllen, Harlingen and Brownsville.

Figure 4-20: Texas Eagle Amtrak Thruway Motor Coach Schedule
Source: Amtrak

Connecting Services

San Antonio–McAllen
Harlingen-Brownsville
Connecting intercity bus service by Valley Transit is available from Greyhound Bus Station between San Antonio and McAllen, Harlingen and Brownsville.

Houston • Galveston *(Kerrville Bus)*

8701			Thruway Number			
MoWeFr	Mile	▼	Days of Operation	Symbol	▲	
6 45P	0	Dp	Galveston, TX (CT) –3825 Broadway	○	Ar	
7 10P	5		La Marque, TX–725 Oak	○		
8 15P	47	Ar	Houston, TX–Amtrak Station (CT)	●	Dp	

Figure 4-21: Sunset Limited Amtrak Thruway Motor Coach Schedule
Source: Amtrak

Figure 4-22 illustrates Amtrak's thruway motor coach services in Texas.

Figure 4-22: Amtrak Thruway Motor Coach Service in Texas
Source: Amtrak

Ridership

Amtrak ridership in Texas continues to trend upward (Figure 4-23) after a ridership decrease in the mid-1990s resulting from Amtrak reducing services in an effort to cut costs and improve financial performance. During that time period, Amtrak presented to TxDOT a shared funding cost proposal for the Texas Eagle service; however, no state-level funding source was available. The "reduction in service" strategy faltered as revenues decreased more than anticipated and expected cost savings were insufficient to compensate for the decline in revenue.[7] Amtrak's decision to cut back did not help, and eventually train service was returned to a daily service, which resulted in an increase in ridership. The inauguration of the Heartland Flyer from Ft. Worth to Oklahoma City in June 1999 and the expansion of the Texas Eagle to daily service May 2000 helped boost Amtrak ridership figures in Texas.

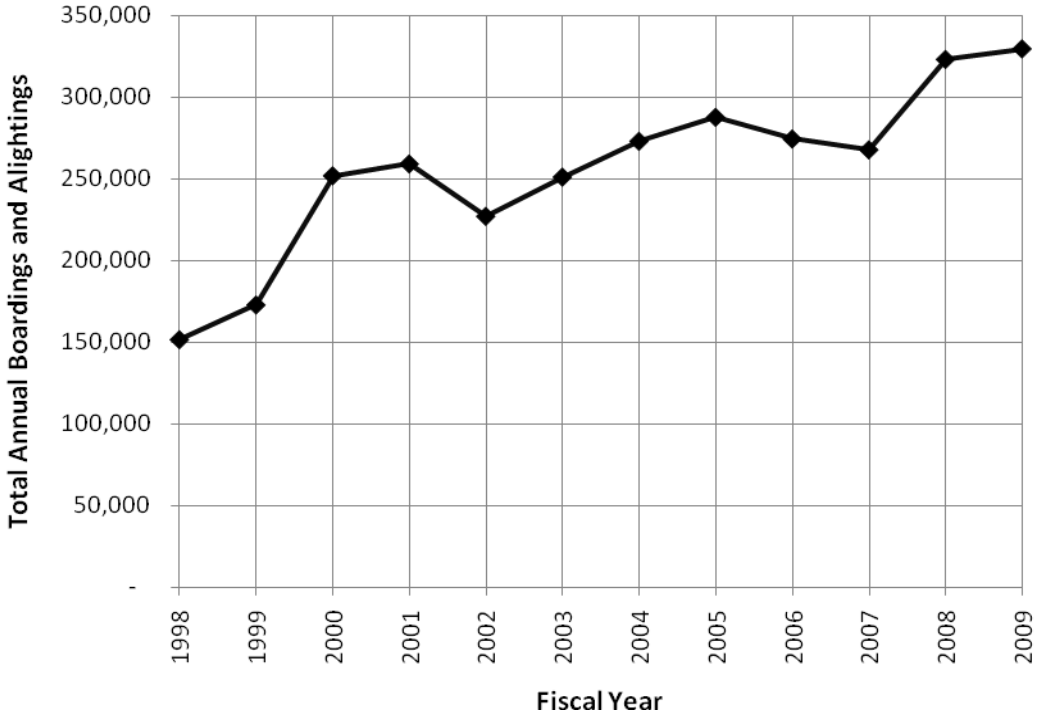

Figure 4-23: Total Annual Boardings and Alightings for Amtrak Stations in Texas
Source: Amtrak Government Affairs, 2010

Proposed Amtrak Changes

Increase Service

Increased service on the Sunset Limited: Daily passenger service on the Sunset Limited would expand the usefulness of this system by providing the convenience of regular daily departures. The initial success of the addition of service on the Texas Eagle, as evidenced by increased ridership at Texas stations, provides support for this type of investment. Additionally, improvements to the tracks to increase speeds from their current average speed of less than 40 mph would significantly improve the viability of this service. Within Texas, the potential to develop a service along this route would rest with either service between San Antonio and Houston (200 miles) or Houston to New Orleans (350 miles).

Re-Route

Re-routing of the Sunset Limited: As mentioned previously, Amtrak has considered plans to re-route the Sunset Limited line between Houston and El Paso via San Antonio to instead run from Houston to Dallas/Ft. Worth before continuing to El Paso. The shift in routes would reintroduce rail service between Dallas and Houston and include new stops in several mid-sized West Texas markets, including Abilene and Midland-Odessa. The potential exists to develop a 240-mile ICS route between Houston and Dallas. ICS corridors that could replace the overly-burdened demand for short airline trips between the two primary air hubs in Texas might be worth consideration as a long-term mobility option.

Add New Routes

Potential service enhancements or changes that have been considered include:

Dallas/Ft. Worth to Meridian, Mississippi: Amtrak would like to strengthen southern rail links to the Northeast by providing connections to Amtrak's Crescent route from New York to New Orleans. The addition of this service would greatly improve passenger rail accessibility from Dallas/Ft. Worth to other urban centers in the southeastern U.S. such as Atlanta and also to East Coast destinations such as Washington, DC. TxDOT is working with Amtrak to develop a portion of this route, which is being promoted by passenger rail advocates in East Texas, who would like to see a route developed between Dallas and Shreveport, Louisiana (190 miles).

Ft. Worth to Denver, Colorado: Several West Texas communities have expressed support in the past for an Amtrak route serving the Panhandle of Texas. The potential service, which was dubbed the "Caprock Express," would run from Ft. Worth through the cities of Abilene, Lubbock, and Amarillo en route to La Junta, Colorado Springs, and Denver, Colorado. The 840-mile distance of this route would make this a long-distance service.

San Antonio to Laredo to Monterrey, Mexico*:* Amtrak considered adding passenger rail service (Aztec Eagle) between San Antonio and Monterrey, which is roughly 375 miles, as part of its 2000 Network Growth Strategy. Amtrak held discussions with Mexican authorities concerning alignment and right-of-way issues. Monterrey is a leading industrial and corporate center in Mexico with strong historic, economic, and social ties to Texas.

San Antonio to Austin*:* TxDOT, working in conjunction with Amtrak, started an investigation of whether an investment in infrastructure improvements would make the creation of additional intercity rail service between Austin and San Antonio feasible along the heavily congested I-35 corridor linking the two cities. Buoyed by the success of the Heartland Flyer service, the potential to develop additional intercity services within the state and possibly into adjoining states is being researched.

4.3 – Planning and Prioritizing High Speed and Intercity Corridors

Both the TTI at Texas A&M and the University of Texas at Austin's Center for Transportation Research (CTR) developed a set of criteria to evaluate high-speed passenger rail investment in the state.

The TTI's May 2009 report titled "Potential Development of an Intercity Passenger Transit System in Texas" used 15 criteria to evaluate potential city-pair corridors for prioritizing rail investments in Texas. The evaluation criteria in the report (shown in Table 4-14) considered the population and demographics, travel demand, and the transportation capacity of the 18 potential city pair corridors. From those criteria, TTI ranked the corridors using different evaluation schemes. In both schemes, the Dallas/Ft. Worth–Houston and Dallas/Ft. Worth–San Antonio corridors performed the best.

The TTI report also discussed the need to determine the best routes. A large lambda, inverted "V" shape ("Λ"), would be similar to the I-35 and I-45 configuration connecting the cities of San Antonio, Dallas/Ft. Worth, and Houston, with a possible extension between Austin or San Antonio to Houston that could create a triangle of high-speed rail service in Texas. A small "t" or small lambda shape ("λ") with a high-speed rail line connecting Houston to a San Antonio–Dallas/Ft. Worth high-speed line somewhere between Austin and Waco has also been proposed.

It is important to note that the Dallas/Ft. Worth–Houston city-pair is currently not a designated high-speed-rail (HSR) corridor, whereas the Dallas/Ft. Worth–San Antonio city-pair forms the southern part of the South Central designated HSR corridor. The TTI report also noted the need for further study to determine the most efficient routes.

Another report[8] prepared by TTI in 1985 at the request of the State Department of Highways and Public Transportation examined the placement of high-speed rail within the I-35, I-45, I-30 and I-10 highway right-of-way, concluding it was feasible. Several plans exist for different high-speed rail systems in the U.S. to utilize existing freeway right-of-way. Florida's high-speed rail system, which recently received over a billion dollars for implementation, will be located primarily within the median of I-4. The DesertXpress high-speed train connecting the Los Angeles area with Las Vegas plans to use the right-of-way of I-15. Use of existing right-of-way avoids many property acquisition delays, objections, and costs associated with securing new right-of-way. Future studies of route alignment should consider the feasibility of using existing right-of-way.

Table 4-14: TTI's Evaluation Criteria for Ranking Passenger Rail Study Corridors

Category	Reference	Criteria
Population & Demographics	P.1	Number of core-based statistical areas[9] (CBSAs) along corridor
	P.2	Total population of CBSA counties along corridor (2000)
	P.3	Growth in total population of CBSA counties along corridor (2000-2040)
	P.4	Total population per mile of the corridor (2000)
	P.5	Percent of total corridor population age 65 or older (2040)
	P.6	Total employees (2005)
	P.7	Total enrollment at public or private universities along corridor (Fall 2006)
Intercity Travel Demand	D.1	Average corridor average annual daily traffic (AADT) (2006)
	D.2	Percent annual growth in average corridor AADT (1997-2006)
	D.3	Air passenger travel between corridor airports (2006)
	D.4	Percent annual growth in air travel between corridor airports (1996-2006)
Intercity Travel Capacity	C.1	Average volume-capacity ratio on subject highways in corridor (2002)
	C.2	Average percent trucks on subject highways in corridor (2002)
	C.3	Load factor on corridor flights, weighted by boarding passengers (2006)
	C.4	Average number of corridor flights per day (2006)

Source: Texas Transportation Institute, 2009[10]

The CTR's evaluation criteria focuses more on examining how potential city-pair corridors meet the goals and optimize the benefits of providing passenger train service in Texas. The goal-oriented evaluation criteria recommended to guide the evaluation of potential city-pair corridors are presented in Table 4-15.

Table 4-15: CTR's Evaluation Criteria for Passenger Rail Corridors

Category	Criteria
TD	**Travel Demand**
TD-1	Generates rail ridership for self-sufficient operations Serves cities with relatively high number of potential rail users Serves areas with population growth, employment centers, and significant metropolitan GDP
C	**Capacity**
C-1	Increases capacity where current or anticipated demand exceed or approach air, rail, and road capacity
C-2	Provides emergency transportation capacity
DI	**Diversified Investment**
DI-1	Diversifies transportation options and public investment
TI	**Travel Time**
TI-1	Offers competitive travel time
RP	**Route Planning**
RP-1	Provides seamless and efficient route alignment that optimizes rail technology and market niche
RP-2	Integrated into metropolitan area and statewide transportation planning
I	**Intermodal**
I-1	Complements and competes with intercity modes and connects with intra-city transit
ELU	**Environment and Land use**
ELU-1	Efficiently uses right-of-way
ELU-2	Serves cities in non-attainment for air quality

Source: Center for Transportation Research, January 2010

Identification of New Corridors

The FRA Rail Corridor Planning Guide makes a number of recommendations that should be considered in development of passenger rail corridors. These are largely based on successful American experiences and examples abroad. According to this guide, a series of essential steps should take place to ensure the success of a potential corridor. These steps, generally, should consider:

1. Preliminary route analysis, including station identification and scheduling fundamentals;
2. Analysis of physical rail line characteristics, both existing and proposed, including track plans, signaling systems, and communication systems;
3. Operations support facilities;

4. A future operating plan, 20-year horizon or greater;
5. Operations modeling analysis;
6. Highway crossings;
7. Environmental and historic impacts;
8. Cost estimates;
9. Prioritization of corridor projects; and
10. A corridor transportation plan report.

National High-Speed Intercity Passenger Rail Strategic Plan

Released in April 2009 by the Obama administration, the national High-Speed Intercity Passenger Rail (HSIPR) Strategic Plan contains strategy, definitions, and guidelines for development of passenger rail corridors across the country. In the near term, this plan proposes investment in infrastructure, equipment, and intermodal connections that will lay the foundation for an efficient high-speed passenger rail network of corridors 100 to 600 miles in length.

The plan offers the following definitions used in identifying corridors:

- **HSIPR–Express:** Frequent, express service between major population centers 200–600 miles apart, with few intermediate stops. Top speed of at least 150 mph on completely grade-separated, dedicated rights-of-way (with the possible exception of some shared track in terminal areas). Intended to relieve air and highway capacity constraints.
- **HSIPR–Regional:** Relatively frequent service between major and moderate population centers 100–500 miles apart, with some intermediate stops. Top speeds of 110–150 mph, grade-separated, with some dedicated and some shared track (using positive train control technology). Intended to relieve highway and, to some extent, air capacity constraints.
- **Emerging HSIPR:** Developing corridors of 100–500 miles, with strong potential for future HSIPR regional and/or express service. Top speeds of up to 90–110 mph on primarily shared track (eventually using positive train control technology), with advanced grade crossing protection or separation. Intended to develop the passenger rail market and provide some relief to other modes.
- **Conventional Rail:** Traditional intercity passenger rail services of more than 100 miles with as little as one to as many as 7–12 daily frequencies; may or may not have strong potential for future high-speed rail service. Top speeds of up to 79 mph to as fast as 90 mph, generally on shared track. It is intended to

provide travel options and develop the passenger rail market for further development.

The near-term investment strategy seeks to:

- Advance new express high-speed corridor services;
- Develop emerging and regional high-speed corridor services; and
- Upgrade reliability and service on conventional intercity rail services.

TxDOT High-Speed Intercity Passenger Rail Corridor Planning Efforts

The FRA announced the availability of up to $50 million for rail planning as a part of the $2.5 billion appropriated for high-speed and intercity passenger rail activities in the FY 2010 federal appropriations act. The planning funds are available for a number of uses, including studies that lead to corridor investment plans and the development of state rail plans. TxDOT's intent with these potential planning grants is to complete feasibility analysis, service level NEPA analysis, and a SDP for identified corridors. TxDOT has prepared and submitted planning fund applications for three corridors roughly in concert with existing prioritized corridors in the Texas Triangle: Austin to Houston; Dallas/Ft. Worth to Houston; and Oklahoma City to South Texas. In October 2010, TxDOT was awarded $5.6 million for the Oklahoma City to South Texas corridor.

Dallas/Ft. Worth to Houston

This corridor parallels I 45, incorporating those cities west of the interstate highway such as Waco and Bryan/College Station in addition to Corsicana, Conroe, and Huntsville. Project funding will be used to complete necessary preliminary corridor service planning studies for new and/or improved high-speed intercity passenger rail along an approximate 240-mile corridor between Dallas/Ft. Worth and Houston. TxDOT estimates that the planning process will take 32 months and cost $4.5 million.

Oklahoma City to South Texas

The 850-mile corridor from Oklahoma City to South Texas includes the cities of Dallas/Ft. Worth, Waco, Austin, San Antonio, Laredo, Corpus Christi, and Brownsville. The planning activities to be funded under the HSIPR Program and related deliverables include conducting a feasibility study, developing a Service Level NEPA document, and finalizing the SDP for the passenger rail corridor from Oklahoma City to South Texas. Included in this study will be the proposed LStar service between Georgetown and San Antonio. This portion of the corridor has been studied for nearly 10 years and will be a key segment of the overall corridor. TxDOT anticipates completing the planning process in 42 months, at a cost of $14 million.

Austin to Houston

This corridor lies roughly parallel to US 290 and incorporates the intermediate cities of Bryan/College Station, Giddings, Brenham, and Hempstead. The proposed plan for the corridor will evaluate operations along the corridor and identify opportunities to implement new or additional passenger service on existing and abandoned freight lines by determining the physical feasibility of improvements. Types of improvements under consideration include track rehabilitation from Austin to Giddings, new track construction from Giddings to Hempstead, passing track installation, track and grade crossing enhancements, and station construction. TxDOT estimates that the planning process will take 32 months and cost $3.6 million.

In advance of federal grant funding, TxDOT's RRD, in February, 2010, began undertaking the initial steps for this corridor analysis by conducting a study to outline the physical feasibility of this corridor. This analysis includes assessing and defining:

- Detailing the physical characteristics of the existing corridor;
- Conducting a conceptual alternative alignment analysis;
- Performing conceptual rail traffic modeling of existing freight and proposed passenger trains; and
- Detailing the physical characteristics of proposed corridors.

The inventory and data collection for the existing corridor included photography, aerials, and track charts and operational information for the existing Capital Metro track from Austin to Giddings. Data for the abandoned Southern Pacific track between Giddings and Hempstead was identified by utilizing old drawings of the track, aerial photography and quadrant maps, and field observations and photos. The field observations included both a visual inspection of the potential passenger rail routes, as well as environmental and historical fatal-flaw evaluations of the existing corridor area.

Potential alignment alternatives were determined by utilizing the data from the existing corridor inventory as well as aerial photography, contours, land use demographics, and floodplain areas. Potential alignments included routes between Austin and Hempstead, Giddings and Bryan/College Station, and Hempstead/College Station. A connection to the Gulf Coast Rail District's (GCRD) commuter rail line undergoing independent analysis at Hempstead was assumed for the end limits of the alignments.

The alignment alternatives were analyzed for environmental fatal flaws, such as public-owned lands, hazardous waste sites, wetlands and water bodies, threatened and or endangered species, historic structures, and archeological sites. Similarly, a fatal-flaw analysis for the potential passenger rail profile was implemented. These were identified in exhibits and used to determine an alignment to be carried forward for railroad operations modeling.

The alignment modeled utilizes the Capital Metro alignment between Austin and Giddings with curve modifications incorporated in order to increase train speeds, and generally follows the abandoned Southern Pacific alignment from Giddings to Hempstead. An additional corridor from Hempstead to Bryan/College Station was reviewed as an optional passenger rail route.

The operational feasibility of implementing the passenger rail system was investigated by utilizing Rail Traffic Controller (RTC) software. The modeling exercise will also assist in establishing a slate of infrastructure improvements that may be required to implement passenger rail, as well as prepare conceptual train timetables.

A base case model has been developed for the entire corridor under review, and, in addition to existing freight rail operations on Capital Metro tracks between Austin and Elgin, includes the addition of 4 intercity passenger train movements between Austin and/or Hempstead and College Station. The intercity passenger trains modeled had AM departures from each end point, with PM returns. The results of this modeling exercise are currently under review, however the passenger rail system modeled is intended to meet a minimum 90% on-time performance while maintaining existing freight operations.

Lastly, a list of corridor requirements, based on the alternative and additional infrastructure defined through RTC modeling, will be prepared for passenger rail implementation. This analysis will also define need for repairs or replacement of existing life-expired assets, trip time improvements, and the maximum frequencies for passenger service on the corridor with existing freight traffic. Order-of-magnitude capital costs estimates for the modeled alignment and additional infrastructure improvements will be prepared as well as order-of-magnitude costs for right-of-way acquisition.

These three studies (i.e., Dallas/Ft. Worth to Houston, Oklahoma City to South Texas, and Austin to Houston) would not only cover the three corridors that link many of Texas' most populous cities, the information gathered would provide further information that would help TxDOT, public officials, and citizens to make informed decisions about passenger rail:

- Detailed ridership forecasts would apply travel demand models to clarify the most promising corridors and outline the revenue implications of shorter trip times made possible by higher speed train services, and allow station locations and service frequencies to be determined.
- Engineering studies (including train operations models) and environmental analyses could specify intercity corridors capable of accommodating higher speed train services, both along current freight rail corridors or within separate green field alignments.

- Cost estimates for capital and operating costs of passenger rail alternatives (different technologies and equipment operating at different speeds on specific corridors) could allow comparisons among alternatives.
- Risk analyses could examine passenger rail alternatives and outline risks for project implementation, list escalation factors for cost elements, and test revenue alternatives.

With this information in hand, Texans could be more clearly informed about the trade-offs among passenger rail alternatives and make decisions about passenger rail investments. This kind of deliberate study has distinguished states that have received more funding from the FRA for HSIPR projects, and such studies would be required if Texas seeks project funding from the federal government for passenger rail improvements.

4.4 – Commuter and Regional Passenger Rail Service in Texas

Commuter and regional rail primarily serves commuters on daily trips between suburban and urban areas and may operate within freight rail corridors. Currently, only two commuter rail services operate in Texas: the Trinity Railway Express between the cities of Dallas and Ft. Worth and the MetroRail Red Line between downtown Austin and the city of Leander. Houston and the cities in the Rio Grande Valley are considering commuter rail. The entities and additional information about the existing and proposed commuter and regional rail services is provided in this section of the TRP. Figure 4-24 shows the interurban (regional rail) system existing in the North Central Texas area from 1901 to 1948, a system the communities hope to recreate, as discussed in this section.

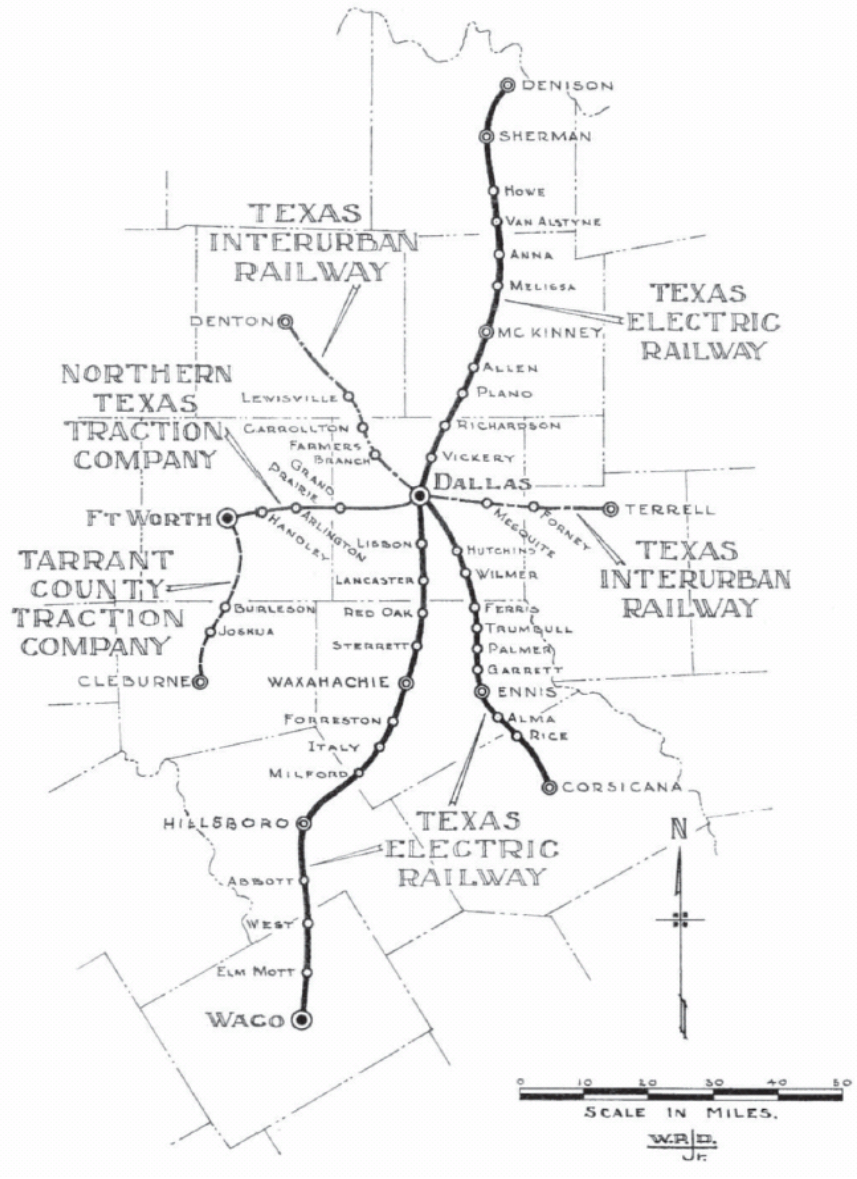

Figure 4-24: Inter-urban Railways 1901–1948
Source: North Central Texas Council of Governments

Operation and Establishment of Commuter Rail

The two existing commuter rail services in Texas are operated by local transit authorities, but other entities may also initiate and operate commuter rail. The state legislature allows for the formation of commuter rail districts, under certain conditions, to facilitate the planning and implementation of rail intended primarily for daily commuting. The 75th Texas Legislature passed the first bill to authorize the formation of an intermunicipal commuter rail district in 1997 (Chapter 173, Transportation Code). In 2007, the 80th Texas Legislature authorized the creation of a commuter rail district in the lower Rio Grande Valley (H.B. 2510; Chapter 174, Texas Transportation Code). The districts are considered public bodies and political subdivisions of the state.

As specified in the 1997 bill authorizing an intermunicipal commuter rail district, a district may be created to provide commuter rail service between two municipalities if each has a population of more than 450,000 and they are located not farther than 100 miles apart as determined by TxDOT. The district may be created by resolutions stating support for the formation of the district from each municipality or county. The bill set forth the steps for creating a district, establishing the board, the powers and duties of the district, and how the district should operate. The district has the power of eminent domain, may issue revenue bonds, and may acquire, construct, develop, own, operate, and maintain the rail facilities. A municipality located within the district that wants to be served by the district is required to pay for construction of a commuter rail station.

The first commuter rail district formed in response to the passage of the bill was the Lone Star Rail District (originally established as the Austin-San Antonio Intermunicipal Commuter Rail District). The district is currently in the planning stages for a commuter rail service between Georgetown and San Antonio called the LStar. More information about the proposed LStar commuter rail service is provided later in this section.

In response to the 2007 bill authorizing the formation of a commuter rail district along the Texas-Mexico border, the Hidalgo County Commissioners Court created the Hidalgo Commuter Rail District to provide passenger rail services between Brownsville and the urban areas of McAllen-Pharr-Edinburg. The district board is in the process of selecting a consultant to complete a Commuter Rail Feasibility Study.[11] The general provisions for the commuter rail district are similar to the intermunicipal commuter rail districts; however, some notable differences are that the commuter rail district may only be created by resolution from a county commissioner's court rather than a municipality, and the commuter rail district may impose any kind of tax except an ad valorem tax, if approved by the majority of voters in an election on the tax proposition.

Why Commuter and Regional Rail?

Commuter and regional rail offer an alternative option for residents in urban areas with travel delays caused by roadway congestion. The TTI's 2007 Urban Mobility Study analyzed roadway congestion in more than 400 U.S. urban areas to the year 2005. In Texas, the Dallas/Ft. Worth region and the Austin urban areas ranked first in their respective categories in terms of annual hours of delay per traveler. Figure 4-25 shows the increasing annual hours of delay for the years of 1982, 1995, and 2005.[12] The more recent 2009 Urban Mobility Study showed no change or a slight decrease in annual delay for the major Texas cities.

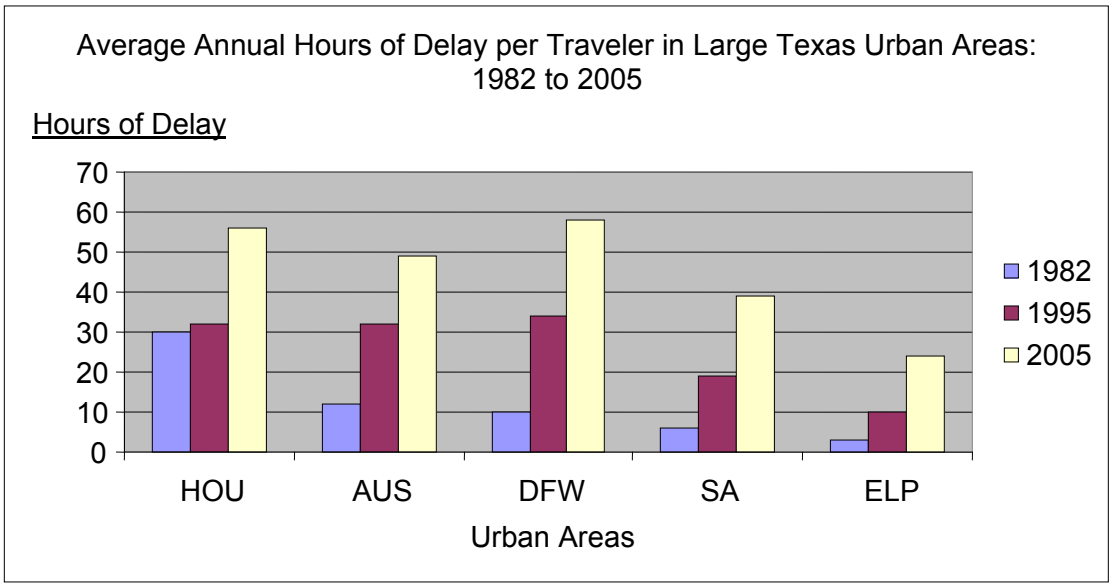

Figure 4-25: Travel Delay
Source: Texas Transportation Institute, *2007 Urban Mobility Report*

Existing Commuter and Regional Rail

Trinity Railway Express—Dallas and Ft. Worth

The Trinity Railway Express (TRE) represents one of the most significant joint services between the two largest metroplex cities since the construction of Dallas/Ft. Worth International Airport in the early 1970s. The TRE diesel commuter rail service is a service provided by Dallas Area Rapid Transit (DART) and the Ft. Worth Transportation Authority (the "T"). The map in Figure 4-26 shows the TRE system. Phase one of the TRE (10 miles) was opened in December 1996, providing service between Dallas and Irving. Five years later in 2001, the TRE service was extended to the Intermodal Transit Center and Texas & Pacific Stations in downtown Ft. Worth. The system now covers

approximately 35 miles serving nine permanent stations and one special event station at the American Airlines Center sports arena.

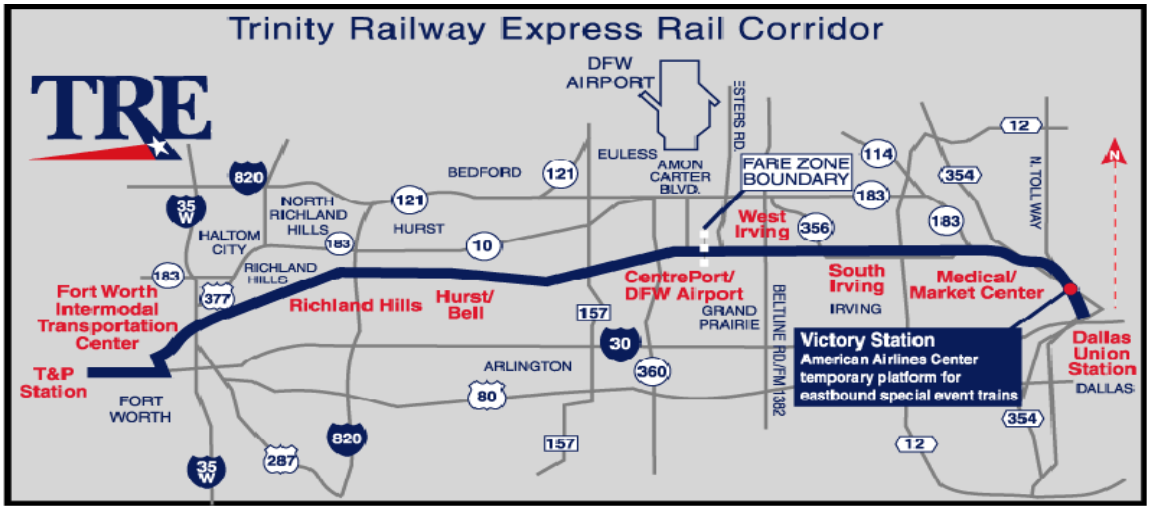

Figure 4-26: Trinity Railway Express Rail Route and Stations
Source: TRE

TRE operates every day except Sundays and holidays.[13] The number of trains increased to provide midday and evening service in December 1997. One year later in December 1998, Saturday service was added. Currently, the TRE schedule offers 23 eastbound trains throughout the day (Ft. Worth to Dallas) and 26 westbound trains (Dallas to Ft. Worth). On Saturday, 12 trains for each direction provide service between Dallas and Ft. Worth. The vehicle fleet consists of 13 rail diesel cars, 6 locomotives, 11 bi-level coaches, and 10 bi-level cab cars.[14]

Except for a slight decrease in 2004 and 2005, the annual ridership has increased since its inception, especially after 2001 when TRE was extended to Ft. Worth (see Figure 4-27). TRE ridership, starting at the beginning of FY 2007 (October 2006), includes the ridership from the "Big Tex Express" weekend shuttle from a remote parking lot to the fair park during the State Fair of Texas.

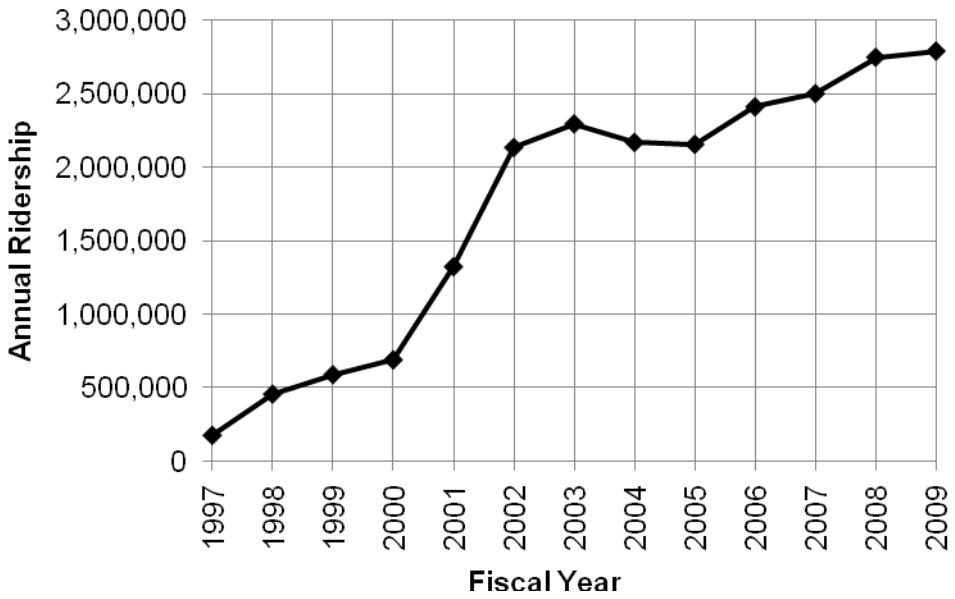

Figure 4-27: TRE Annual Ridership (FY 1997 to FY 2009)
Source: TRE, 2010

TRE owns the rail corridor and allows freight trains to utilize its tracks; therefore, TRE trains must meet the FRA's crash worthiness standards. Because TRE owns the corridor, TRE dispatches passenger and freight trains and ensures that commuter trains receive priority. Tower 55 in Ft. Worth does not impact commuter train schedule except on very rare instances when a long freight train going through Tower 55 gets delayed, blocking the TRE track for a short time until movement is cleared.[15] In addition, problems have been reported with delays in Dallas with the UP-controlled switch at Union Station. Overall, there are few schedule conflicts between the commuter and freight trains.

Projects under development include the extension of a ¼-mile siding near Richland Hills to facilitate train meets at an estimated cost of $7.5 million and double tracking a segment of the rail line near Valley View at a cost of $12 million. The completion of these two projects would facilitate the rerouting of Amtrak trains from the existing UP/BNSF tracks through Tower 55 (a heavily congested rail/rail crossing) to the TRE's line. Additional projects to double track more of the main line and extend sidings are being planned at an estimated cost of more than $120 million.

With expansion of the TRE commuter rail line planned, DART purchased 70 miles of rail lines on which it can expand operations in the future, bringing the right-of-way total to 250 miles. The lines were sold by the UP and could provide links to Denton, Sherman, and Rockwall. DART has no current plans to extend service to these locations, but

maintaining the option to expand their network will become increasingly important as the Metroplex continues to grow. DART already owns lines to Duncanville, Ft. Worth, and Wylie.[16]

In 2005, the North Central Texas Council of Governments (NCTCOG) produced a comprehensive Regional Rail Corridor Study in partnership with DART, the T, and the Denton County Transportation Authority (DCTA). The study's goal was to provide data and recommendations to decision makers on the best way to implement expanded passenger rail and other transit services in 11 corridors around the Dallas/Ft. Worth metroplex[17]. Since that time, NCTCOG has actively pursued regional agreements to advance intercity passenger rail development and connections to and from the Dallas/Ft. Worth area.

Capital MetroRail Red Line—Austin and Leander

On March 22, 2010, Capital Metro's 32-mile MetroRail red line between downtown Austin and Leander opened to the public (route shown in Figure 4-28). Approved by the voters in a 2004 referendum, the MetroRail operates in an existing freight corridor originally established in the late 1800s. Initial service provides morning and afternoon peak hour weekday commute service only, but plans are being developed to increase the frequency and days and hours of operation. For the first week of service, riding the train was free, and daily ridership estimates ranged from a low of 2,353 passenger boardings per day to a high of 2,942. When riding the train was no longer free, ridership declined. By the end of May, ridership was about 900 passenger boardings per day. Each train holds 108 seated passengers and an additional 92 standing passengers. The trains make nine total runs in the morning (six southbound) and 10 total in the evening (six northbound). The schedule for local bus routes serving the stations is coordinated with the rail schedule to provide seamless transfer between the two modes.

Future connections are being considered along existing Capital Metro freight tracks from downtown to Manor and along TxDOT-owned abandoned MoKan corridor.[18] Any extension of the current system would require a referendum.

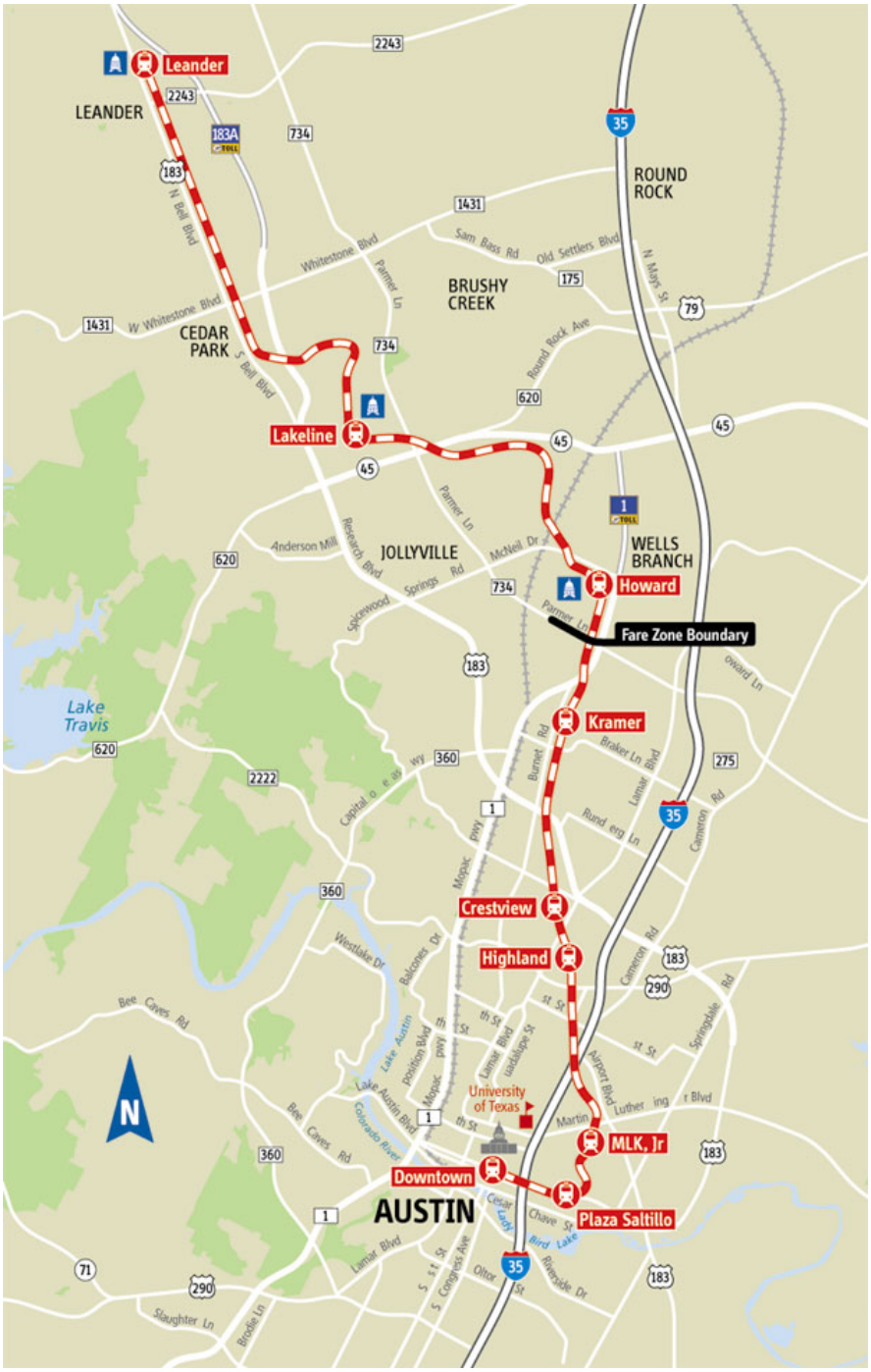

Figure 4-28: Capital Metro's Commuter MetroRail Route and Station Map
Source: Capital Metro

Proposed Commuter and Regional Passenger Rail

Interest in and progress towards increasing the number of commuter and regional rail lines in Texas is evident in the formation of commuter rail districts in the recommendations for passenger rail in metropolitan transportation plans (MTPs) and in the studies completed for new rail projects. The most extensive system of regional commuter rail proposed for Texas is in the Dallas/Ft. Worth (DFW) area. A combination of regional rail and light rail extensions of the DART system is recommended in the Mobility 2030 plan—2009 Amendment Metropolitan Transportation Plan for the DFW metropolitan planning area (see Figure 4-29). The Mobility 2030 plan presented the projected ridership for the proposed new passenger rail segments in the North Central Texas region called Rail North Texas (Figure 4-30). The North Central Texas Council of Governments has completed conceptual engineering and funding studies for the Frisco and McKinney corridors and is in the process of completing studies for the Cotton Belt and Waxahachie corridors. This section provides information about the following proposed commuter and regional rail services in Texas:

- Lone Star Commuter Rail
- The T's Southwest-to-Northeast Corridor
- Denton County A Train
- Cotton Belt Line/Corridor
- Frisco Line/Corridor
- McKinney Line/Corridor
- Waxahachie Line/Corridor
- Houston Regional Commuter Rail
- Georgetown, Round Rock and Pflugerville Commuter Rail

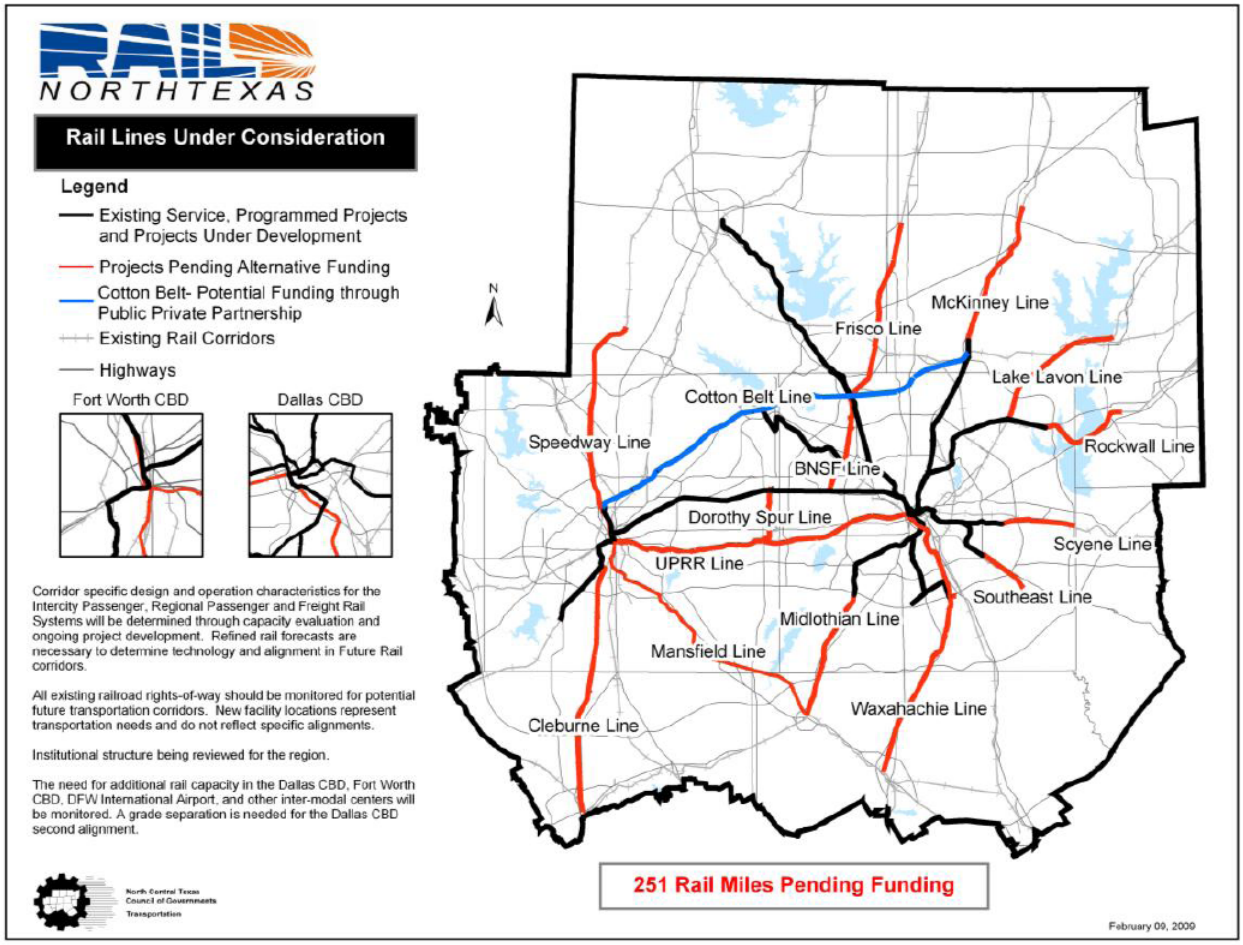

Figure 4-29: Regional Rail Recommendations in the North Central Texas Mobility 2030 Plan

Source: North Central Texas Council of Governments, Mobility 2030—2009 Amendment Metropolitan Transportation Plan

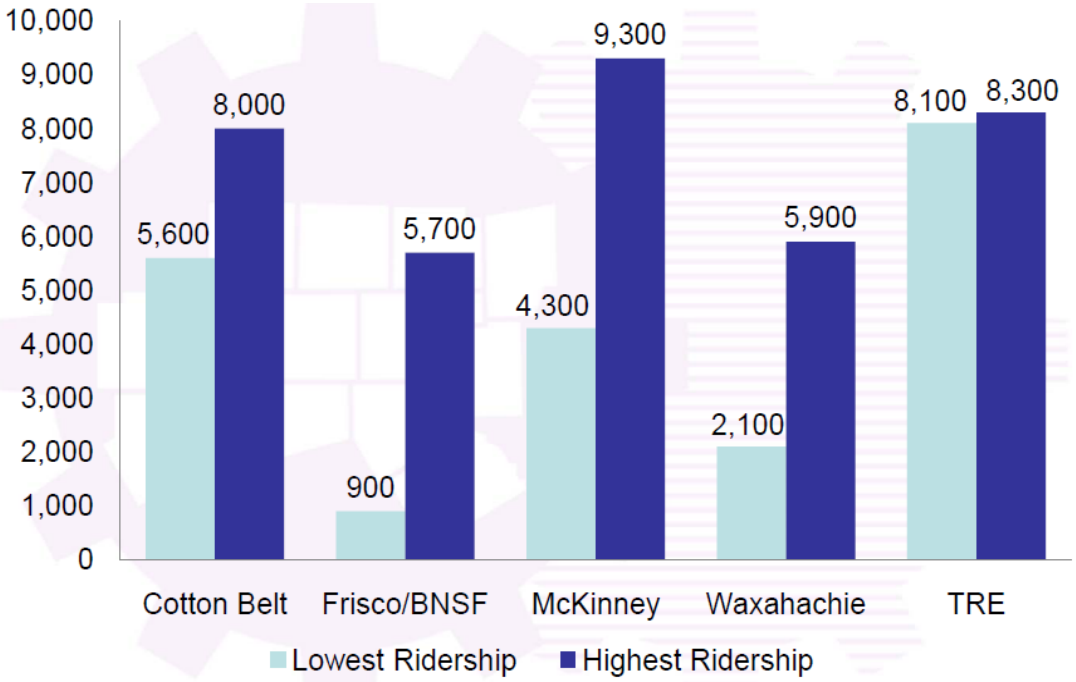

Figure 4-30: Comparison of Projected 2030 Ridership between Proposed North Central Texas Passenger Rail Corridors and the Existing TRE
Source: North Central Texas Council of Governments, Mobility 2030—2009 Amendment Metropolitan Transportation Plan

Lone Star Rail District

Delays from traffic congestion caused by the inherent inefficiencies of automobile use and unpredictability from accidents and weather, coupled with a lack of competitive alternatives to the automobile and injuries and deaths along the San Antonio–Georgetown I-35 corridor, point to a need for a more efficient and safer form of transportation. VMT totals on this corridor are predicted to rise substantially through 2030, further exacerbating these problems.

The Austin–San Antonio Intermunicipal Commuter Rail District (ASA-ICRD) was formed in November 2002, with a 14-member board representing regional transportation planning entities as the entity in charge of providing the safer, more efficient alternative. The district formally changed its name to Lone Star Rail District in October 2009 and named the future commuter rail LSTAR.

Numerous economic, ridership, cost estimate, and feasibility studies for the proposed commuter rail have been conducted. In January 2010, Lone Star Rail started preparing an environmental impact statement and preliminary engineering study that will update project costs, finalize station locations, and present a financial plan.

The project has received $8.7 million in general revenue for FY 2010–2011. The project has also been awarded federal metropolitan mobility funds from Capital Area MPO in the amounts of $5 million in both FY 2009 and FY 2010.

The locally-preferred alternative (adopted by the San Antonio and Austin MPOs in 2005) is a 112-mile regional passenger rail system located in the existing UP rail corridor for most of its length. Fifteen stations are planned along the route, which is anchored by the Austin and San Antonio metropolitan areas with additional stations in Schertz, New Braunfels, San Marcos, Kyle/Buda, Round Rock, and Georgetown (see Figure 4-31). A sixteenth station in south San Antonio is being studied in the environmental clearance process currently underway.

Cooperation with UP for the route proposed is critical, because the route uses the existing UP corridor. The Lone Star Rail District executed agreements with UP Railroad for initial feasibility studies on the freight bypass in 2009 and has entered into a Memorandum of Understanding in October 2010 further refining the studies and potential terms and conditions.

LSTAR's implementation is expected to benefit the economy, users of I-35, commuters, and faculty, staff, and students of the corridor's many universities (such as the University of Texas at San Antonio, Texas State University in San Marcos, St. Edward's University, Huston-Tillotson, and The University of Texas at Austin).

This project is seen as a key segment to the larger intercity corridor between Oklahoma City and South Texas. The study of the corridor was discussed previously in Section 4.3.

Figure 4-31: Proposed Route and Stations for LSTAR
Source: Lone Star Rail District

The T's Southwest-to-Northeast Rail Corridor

The Ft. Worth Transportation Authority (referred to as the T) completed a draft Environmental Impact Statement (EIS) in 2008 for the proposed Southwest-to-Northeast Rail Corridor commuter rail. The proposed commuter route uses existing freight and DART-owned rail lines connecting southwest and downtown Ft. Worth with Grapevine and the north entrance of Dallas/Ft. Worth Airport to the northeast of Ft. Worth (Figure 4-32). A final EIS is expected in 2010 and service is expected to begin in 2013.[19]

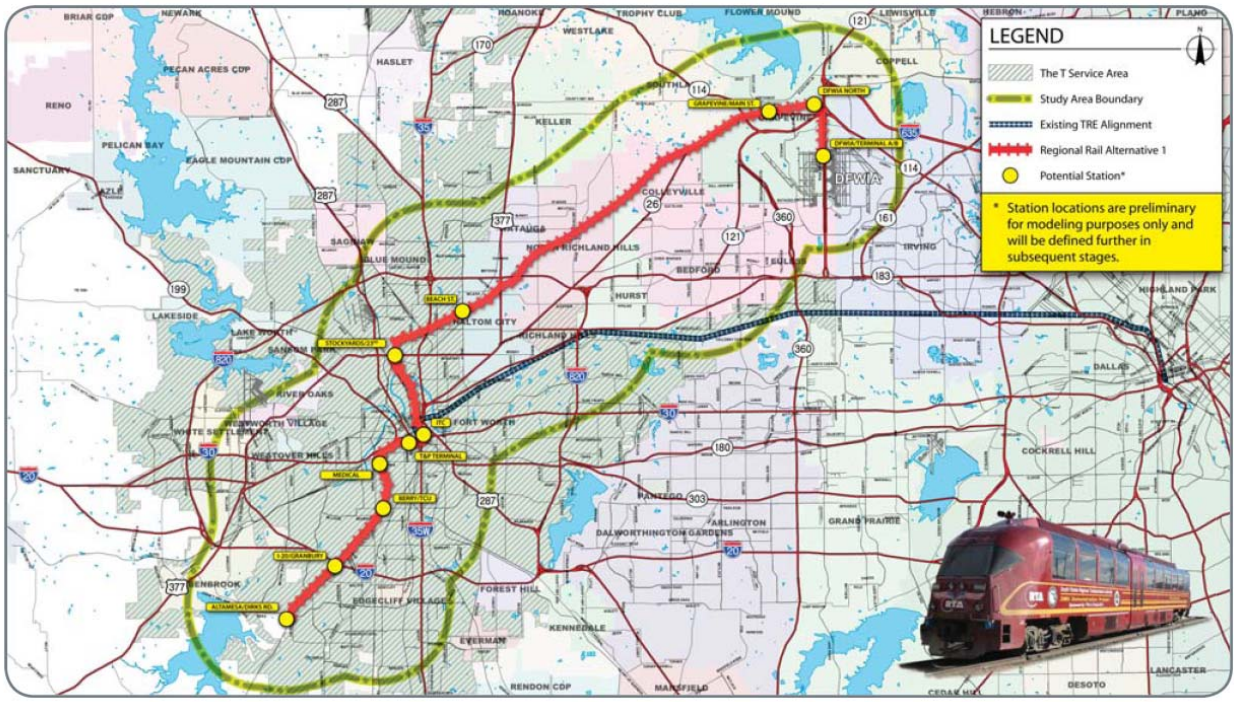

Figure 4-32: Locally Preferred Alternative for Proposed Southwest to Northeast Commuter Rail
Source: Ft. Worth Transportation Authority

Denton County Transportation Authority "A-Train"

The DCTA began construction in the summer of 2010 for the infrastructure needed for the A-train, a 21-mile-long commuter line connecting Denton and Carrollton. The route generally follows the eastern side of I-35 East using existing railroad right-of-way and will have five stations, including a transfer station with the DART Green Line in Carrollton (see Figure 4-33). The rail route was approved by the DCTA Board of Directors in May 2005, the draft EIS completed in 2007, and the final EIS in 2008. The Regional Toll Revenue Funding Initiative (RTRFI) provides 80% of the project funds. The remaining

20% of the funding comes from local sales tax revenues from the cities of Lewisville, Denton, and Highland Village. The Regional Transportation Council approved the RTRFI funding in August 2008.

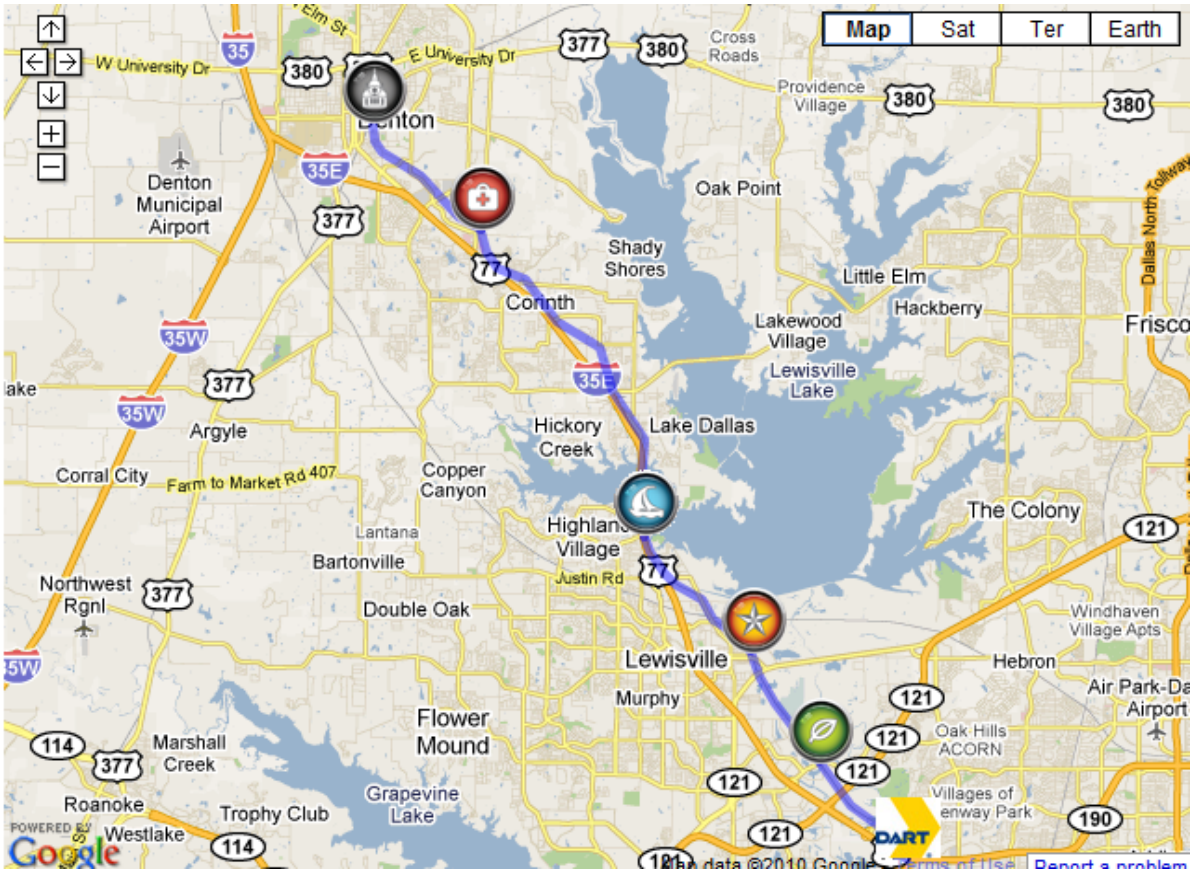

Figure 4-33: Proposed Route for the DCTA "A-Train"
Source: Denton County Transportation Authority

Cotton Belt Corridor Express Rail

The DART 2030 Transit System Plan includes a proposed commuter rail line that links communities northeast of Dallas with communities in the northwest of Dallas and the Dallas/Ft. Worth International Airport (Figure 4-34). The plan estimated capital costs of $515 million for the line, called the Cotton Belt Rail Express. The express service recommended for the 26-mile Cotton Belt would have 20-minute peak headways. DART purchased the Cotton Belt railroad in 1990 in anticipation of future passenger service and currently allows local freight use.

To move the project forward, the DART Board of Directors, the Regional Transportation Council (RTC), and the Ft. Worth Transportation Authority authorized the RTC of the North Central Texas Council of Government to issue a Request for Proposals (RFP) entitled "Cotton Belt Passenger Rail Corridor Innovative Finance Initiative (Planning Services)." Two pre-proposal meetings were held in June 2010, and a contract scheduled to be awarded in late July 2010.

The Cotton Belt Corridor Express rail will connect with the following existing rail services and proposed rail projects:

- DCTA "A-train" (initially, the train will stop 1.5 miles from the DART Green Line)
- Existing DART Red Line
- Proposed DART Green Line service extension
- Proposed Frisco Corridor rail
- Proposed McKinney Corridor rail

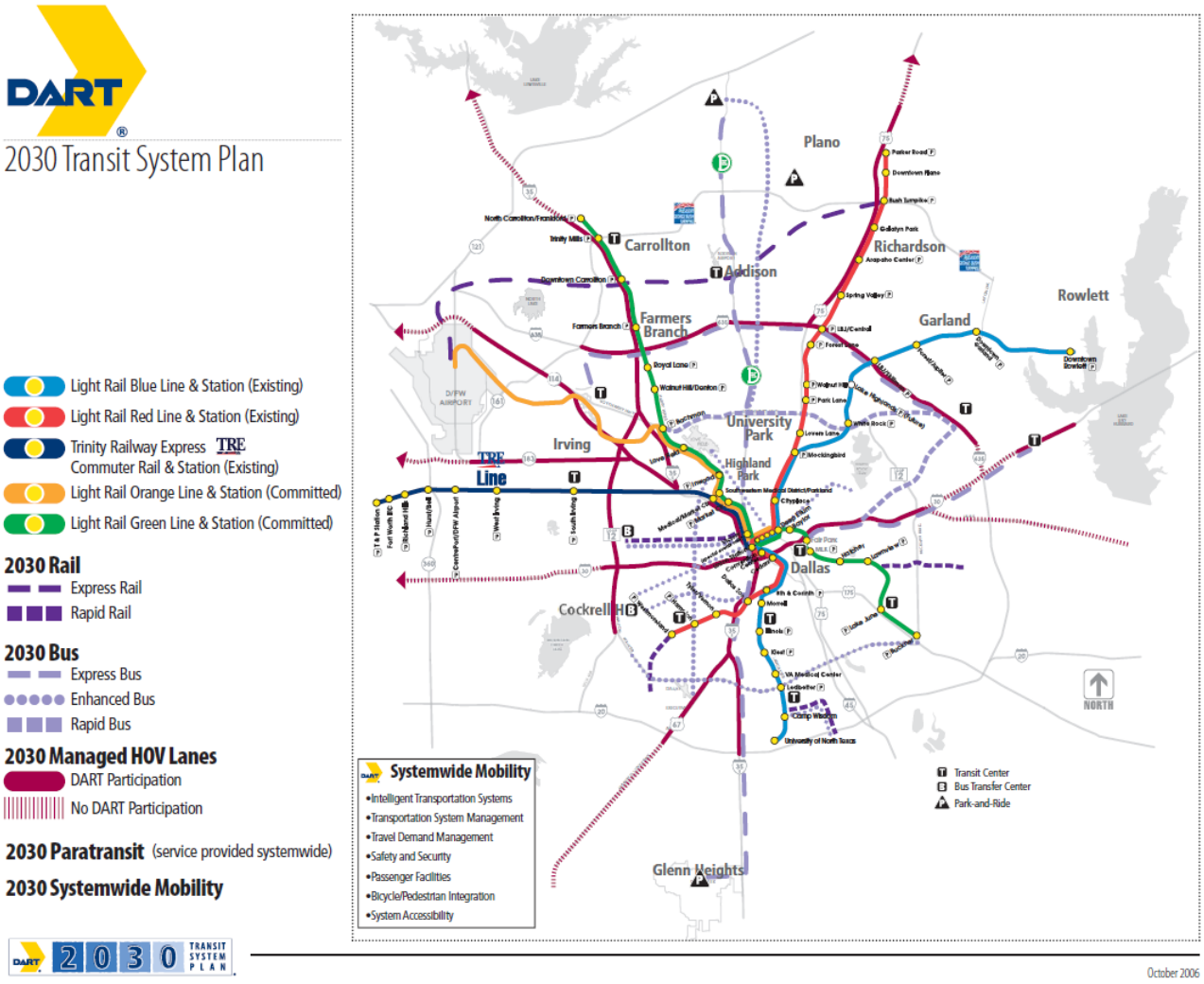

Figure 4-34: DART 2030 Transit System Plan with Cotton Belt Express Rail
Source: DART 2030 Transit System Plan

Frisco Corridor Regional Rail

The North Central Texas Council of Government initiated a Conceptual Engineering and Funding Study[20], completed in May 2010, for a proposed regional rail service in the 30-mile Frisco Corridor, an existing rail corridor terminating in the south at the TRE station in South Irving and at the north in Frisco (Figure 4-35). BNSF owns most of the corridor; however, the City of Dallas and the DART agency own some portions. BNSF considers the corridor an integral part of its national network. On average, 8 to 12 freight trains per day use the corridor. This corridor is included in the long-term MTP Mobility 2030–2009 Amendment.

The Frisco Corridor rail will connect with the following existing rail services and proposed rail projects:

- TRE commuter rail
- Existing DART Green Line light rail service to downtown Dallas
- DCTA "A-train" (initially the train will stop 1.5 miles from the DART Green line)
- Proposed DART Orange Line service at DFW International Airport (currently in Preliminary Engineering and Environmental Assessment)
- Proposed Cotton Belt Corridor rail

The study considered light rail (LRT), light rail new technology (LRNT), and commuter rail, concluding LRT would not be appropriate for the Frisco corridor because freight trains also use the corridor. Therefore only LRNT or commuter rail should be considered. The 2030 daily rail passenger volume expected for the Frisco corridor ranges from a low of 900 for the four-station route alternative using only a portion of the corridor between downtown Carrollton and South Irving and a high of 5,700 for the 10 station full Frisco corridor between South Irving and North Frisco. The conceptual study provides a foundation for future environmental studies required for implementation and identifies funding strategies needed to reach the implementation phase.

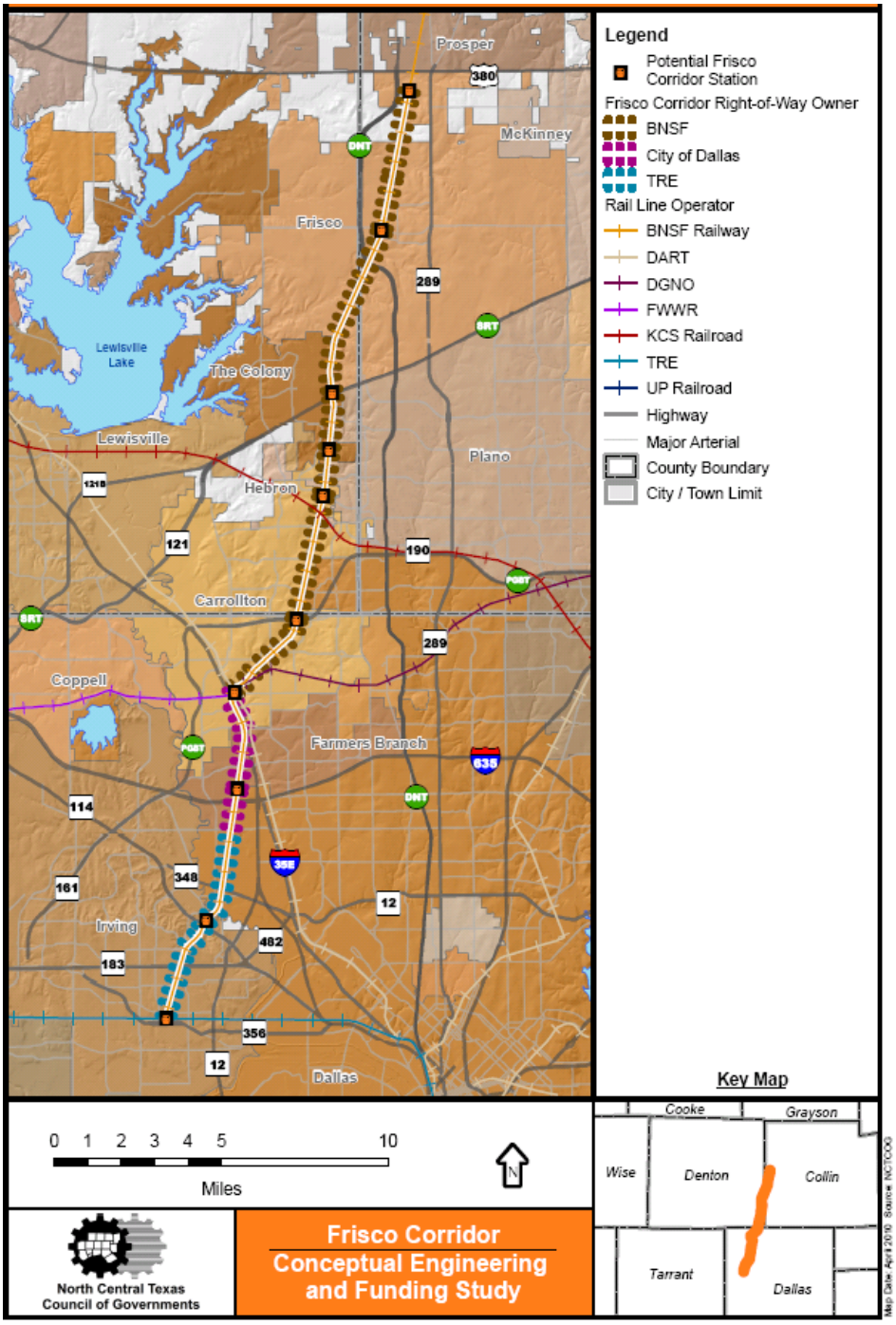

Figure 4-35: Proposed Frisco Corridor Regional Rail Service
Source: North Central Texas Council of Governments[21]

McKinney Corridor Rail

NCTCOG initiated a Conceptual Engineering and Funding Study[22] completed in July 2010 for a proposed regional rail service in the 17.7-mile McKinney Corridor, an existing rail corridor terminating in the south in Plano and at the north in McKinney (Figure 4-36). DART owns the corridor. This corridor is included in the long-term MTP Mobility 2030–2009 Amendment.

The McKinney Corridor rail will connect with the following existing rail services and proposed rail projects:

- Existing DART Red Line light rail service to downtown Dallas
- Proposed Cotton Belt Corridor rail

The study considered light rail (LRT), light rail new technology (LRNT) and commuter rail, with LRT and LRNT considered the most appropriate for consideration for the McKinney Corridor. The 2030 daily rail passenger volume expected for the McKinney Corridor ranges from a low of 3,830 for the eight-station LRNT route alternative that combines service with a Cotton Belt LRNT service and a high of 5,560 for the 11-station LRT route that combines service with the DART Red Line. The conceptual study provides a foundation for future environmental studies required for implementation and identifies the funding strategies needed to reach the implementation phase.

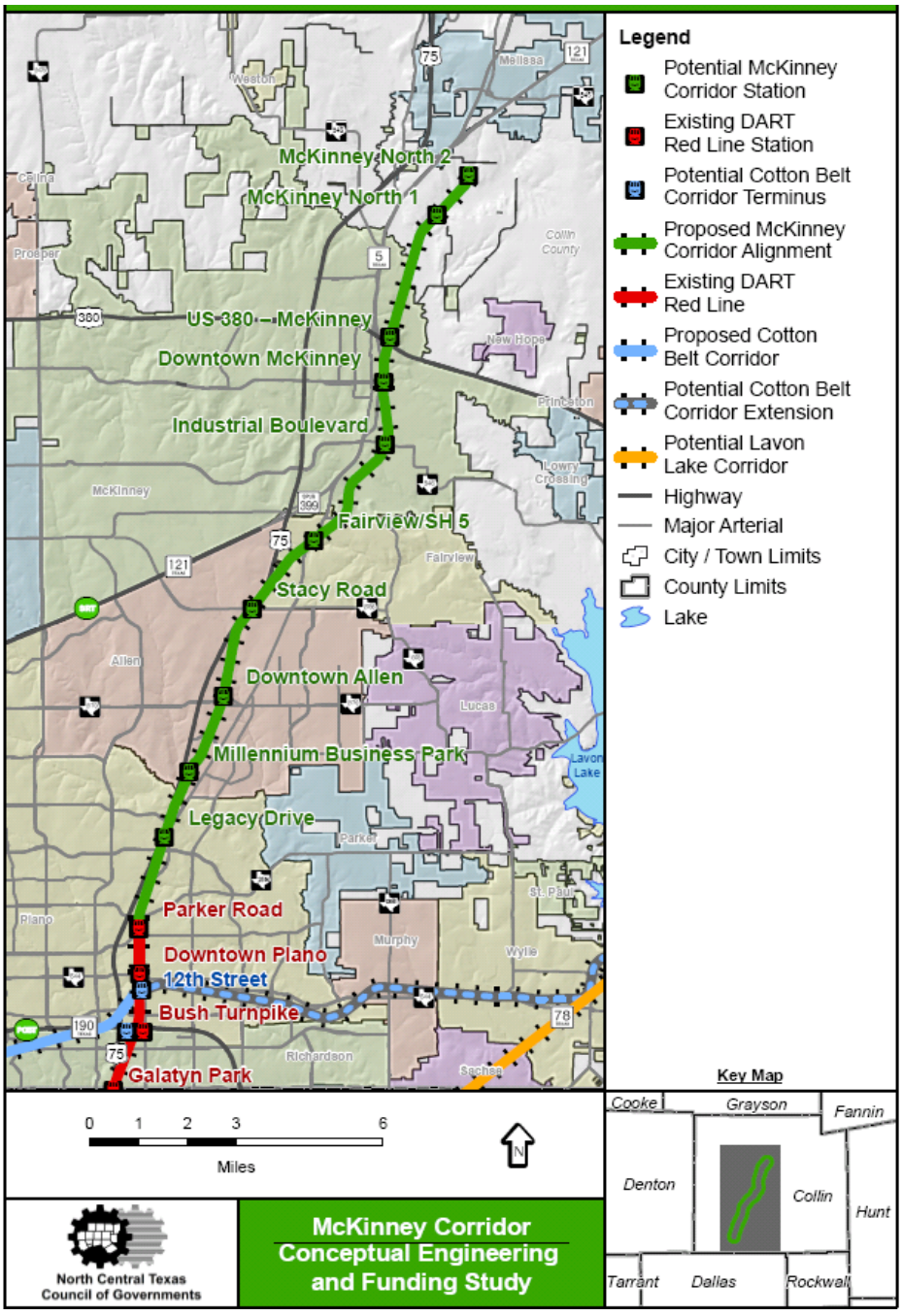

Figure 4-36: Proposed McKinney Corridor Rail Route
Source: North Central Texas Council of Governments[23]

Waxahachie Corridor

NCTCOG initiated a Conceptual Engineering and Funding Study for a proposed regional rail service in the Waxahachie Corridor, an existing rail corridor terminating in the south in Waxahachie and at the north in Dallas (Figure 4-37). The study should be completed sometime in 2010. This corridor is included in the long-term metropolitan transportation plan Mobility 2030–2009 Amendment.

The Waxahachie Corridor rail is expected to connect with the following existing rail services and proposed rail projects:

- Existing TRE commuter rail
- Existing DART lines at Union Station

The study will consider light rail (LRT), light rail new technology (LRNT), and commuter rail. The conceptual study provides a foundation for future environmental studies required for implementation and identifies the funding strategies needed to reach the implementation phase.

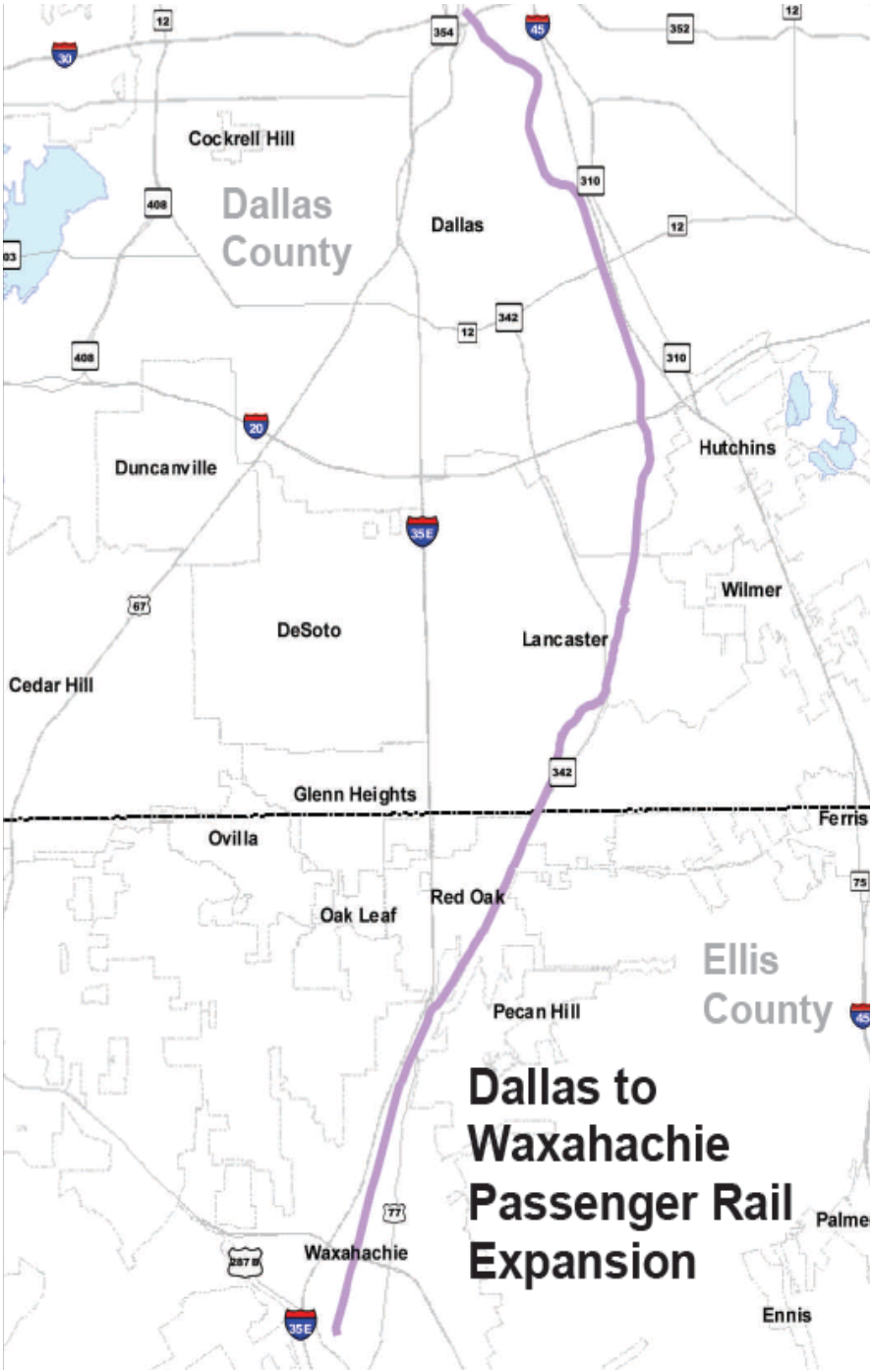

Figure 4-37: Proposed Dallas to Waxahachie Passenger Rail Expansion
Source: North Central Texas Council of Governments

Houston Regional Commuter Rail

In 2004, the Houston-Galveston Area Council (H-GAC), in cooperation with TxDOT, released a commuter rail feasibility study along the US 90A corridor, which travels from Houston into Ft. Bend County. Congestion in this corridor increased dramatically, and the study sought to determine the feasibility of implementing commuter rail services on UP's "Sunset Route" between Houston and Rosenberg. The results of this study prompted H-GAC and local transportation partners to take information from the Houston freight study and undertake a more comprehensive regional commuter rail connectivity study, evaluating the feasibility of implementing commuter rail service along multiple corridors in the eight-county H-GAC region. Five corridors were identified from information gathered from the Houston Freight Study (Figure 4-38).

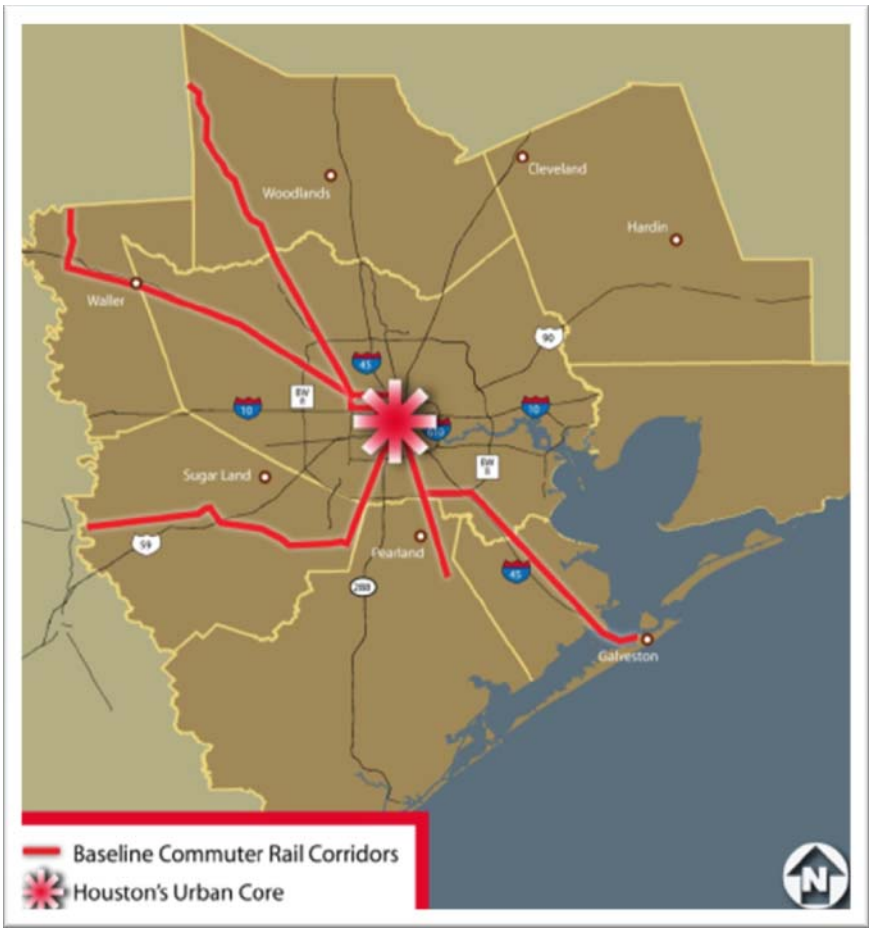

Figure 4-38: Potential Houston Area Commuter Rail Corridors
Source: Houston-Galveston Area Council *Regional Commuter Rail Connectivity Study*, 2008

Potential commuter rail corridors were ranked by factors such as cost, right-of-way availability, and capacities or freight volumes. The H-GAC Regional Commuter Rail Connectivity Study analyzes routing viability along each corridor, potential ridership, potential station locations, and the operability, logistics, and challenges associated with connecting these corridors to the existing and proposed transit network. This study picks up where the previous 2003 and 2004 Harris County commuter rail studies left off, which looked at the potential for development of commuter rail services in the both the southwest area of the region along US 90A and the northwest quadrant of the region along US 290 and SH 249. The corridors shown comprise the minimum proposed Commuter Rail System Plan to be carried forward in ridership forecast modeling tasks.

The Gulf Coast Rail District (GCRD) is currently managing efforts to create commuter rail for the Houston region. The 79th Legislature in 2005 passed HB 2958 authorizing the creation of the Gulf Coast Freight Rail District. Harris County, Ft. Bend County, and the City of Houston passed concurrent resolutions in 2007 to form the district. In 2009, another concurrent resolution was passed in 2009 that changed the district's name to Gulf Coast Rail District to reflect the new responsibility included in the resolution to have power to initiate commuter rail and intercity passenger rail service. The GCRD is studying the feasibility of commuter rail along the UP Railroad Eureka Subdivision, which runs parallel to US 290 and Hempstead Highway. This analysis includes identifying interoperability issues for establishment of a regional commuter rail system as proposed by the H-GAC Regional Commuter Rail Connectivity Study. GCRD also intends to perform a similar study on the Galveston Subdivision.

Georgetown, Round Rock, and Pflugerville Commuter Rail

The Central Texas Regional Mobility Authority (CTRMA) and the City of Round Rock commissioned consultants to perform a fatal flaw analysis of a proposed commuter rail connection between Georgetown and the Capital Metropolitan Transportation Authority (CMTA) MetroRail Red Line's Howard Lane station, with stops in Round Rock and Pflugerville (shown in Figure 4-39).[24] The report, partially funded by the Federal Transit Administration (FTA) and completed in May 2010, found potential fatal flaws, but not necessarily ones that prohibit the project from moving forward. For instance, the estimated travel time on the proposed rail service would be between 45 and 60 minutes in addition to the time to reach the station and final destination. The rail travel time is not significantly better than driving using the existing Loop 1/Mopac or I-35. TxDOT also failed to consider the possibility of co-locating alternatives to the automobile in the design and right-of-way acquisition of State Highway 45; therefore, there is not enough room for both rail and HOV lanes. The report recommended additional alternatives analysis.

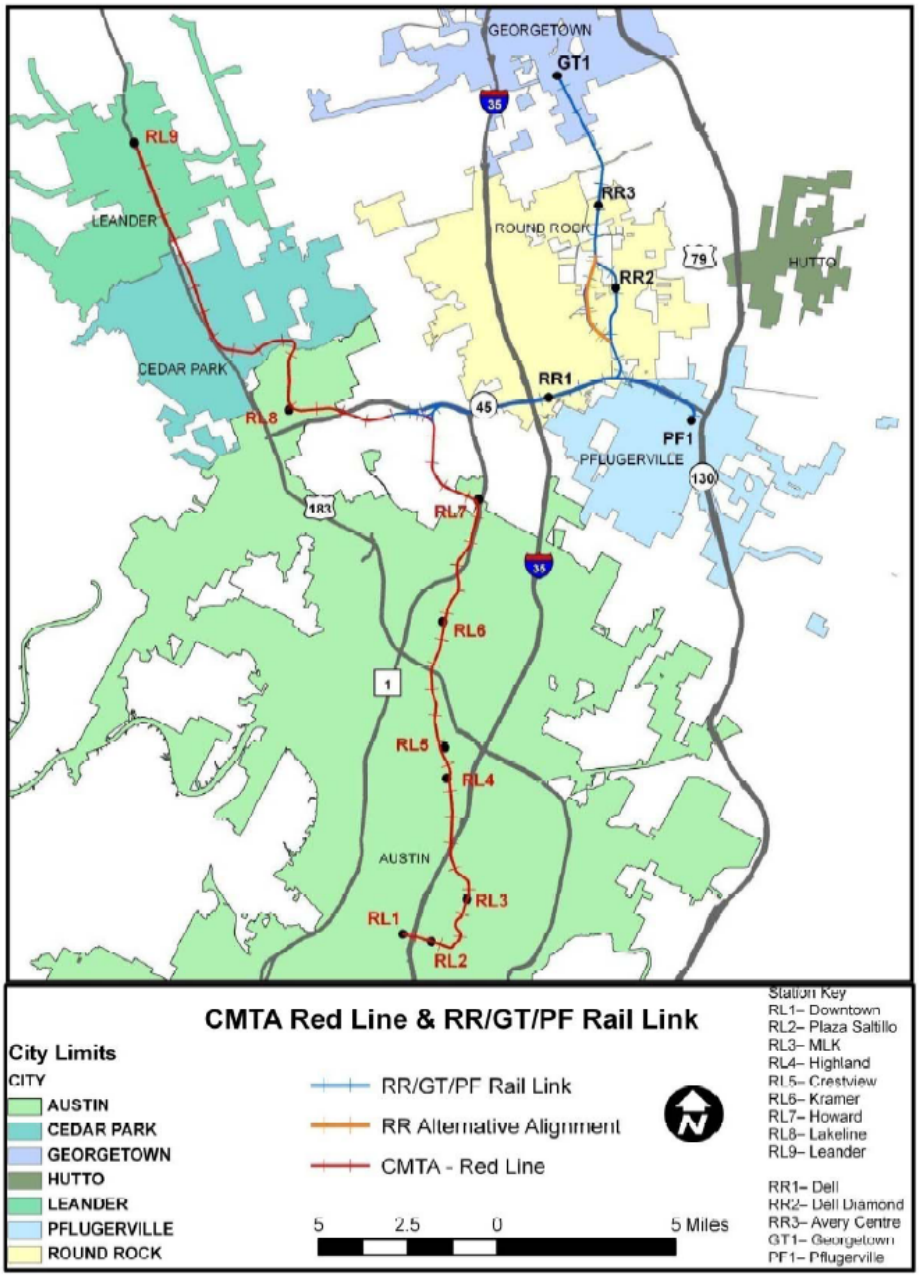

Figure 4-39: Proposed Georgetown, Round Rock, Pflugerville Commuter Rail
Source: Central Texas Mobility Authority and City of Round Rock[25]

4.5 – Local Light Rail and Trolley Service in Texas

Currently, local light rail services in the state are limited to the cities of Dallas and Houston, with passenger rail services in these cities operated by the local transit agencies. Information in this section is provided for informational purposes to illustrate the connections between intercity and regional passenger rail services to municipal light rail transit services. The Dallas passenger rail system is successful, having high ridership, strong community support, and increasing property values in the light rail corridors. Houston's 7.5-mile light rail passenger line opened in January 2004. Other cities have considered light rail or other rail passenger options. Some of these will be discussed in more detail in Chapter 5. Existing and on-going light rail projects within specific urban areas are discussed below.

Existing Light Rail

Dallas Area Rapid Transit (DART)

The DART light rail system is currently comprised of two lines: the Red Line and the Blue Line, with a third (Green Line) under construction and another (Orange Line) under design. The Red Line operates along the North Central Expressway from Plano to Westmoreland in Western Oak Cliff. The Blue Line runs south from downtown Garland to Ledbetter in Southern Oak Cliff. Both lines serve all downtown Dallas stations. Figure 4-40 shows a map of the DART system, as well as its connection to the TRE commuter rail line. DART light rail has completely separate right-of-way from freight traffic.

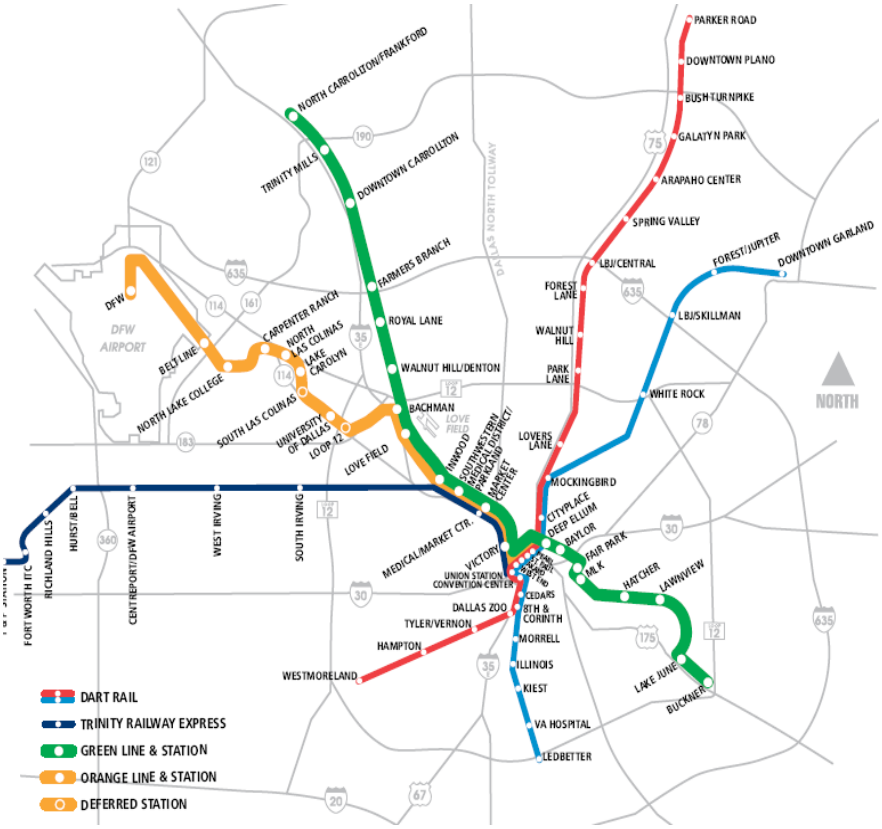

Figure 4-40: DART Rail System
Source: DART, July 2007

DART service operates from approximately 5:00 a.m. to midnight, with trains running about every 10 minutes. With completion of the Green Line, the system will consist of 73 miles of rail serving 55 stations. The fleet is comprised of 115 vehicles.

The 2006 rail system ridership totaled 18.6 million passenger trips per year, with an average weekday ridership of approximately 62,000, representing 38 and 14% increases, respectively, over the 2004 statistics.[26] Ridership shown in Figure 4-41 is from statistical sampling.

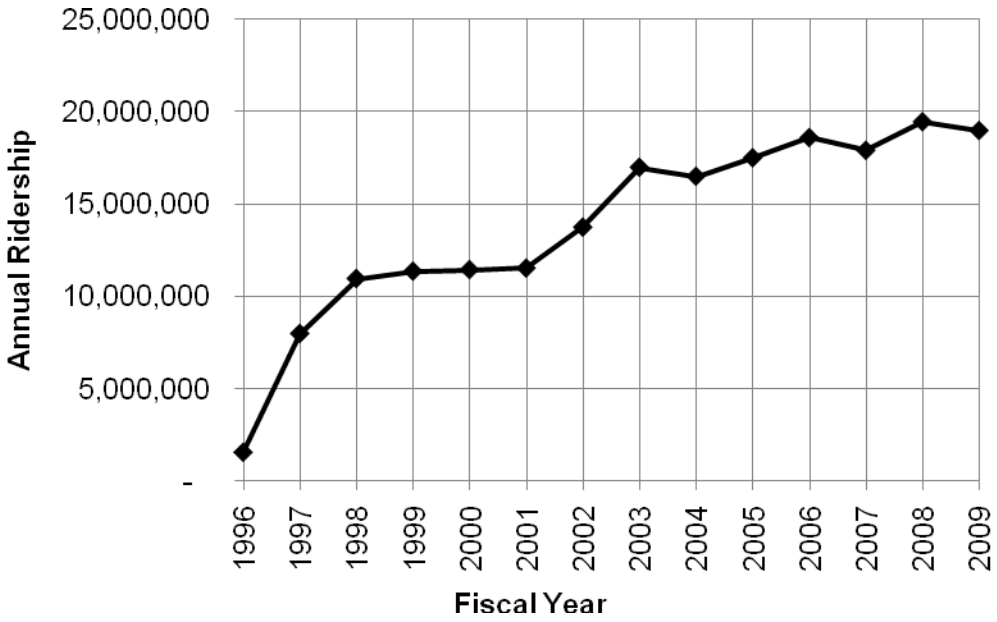

Figure 4-41: DART Rail Total Annual Ridership
Source: DART

DART has expanded to more than 48 miles of track and 39 stations since 1996, and expansion continues. Table 4-16 lists funded expansions currently or soon to be under construction.

Table 4-16: Funded DART Light Rail Expansions

Light Rail Line Expansions	Number of New Miles	Number of New Stations	Expected Opening
GREEN Line (Northwest/Southeast) TOTAL	**27.7**	**20**	
Southeast To Buckner	10.1	8	December 2010
Northwest To North Carrollton/Frankford	17.6	12	December 2010
ORANGE Line (Northwest Corridor) TOTAL	**14**	**6**	
To Irving Convention Center	5.4	3	December 2011
To Belt Line Road	3.9	3	December 2012
To DFW Airport	4.7	0	December 2013
BLUE Line (Northeast Corridor) TOTAL	**4.5**	**2**	
To Downtown Rowlett	4.5	1	December 2012
New Lake Highlands station	0	1	2010

Source: DART, http://www.dart.org/about/expansion/otherprojects.asp

Additional expansions are planned; however, the long-term sales tax projections (for FY 2012 and after) will significantly impact the ability of DART to start additional future expansion projects beyond those listed in Table 4-16. More than 75% of DART's income is from the one-percent sales tax revenue coming from the 13 member cities. According to DART:

> "Updated 20-year sales tax projections show DART receiving approximately $3 billion less in sales tax income than the amount projected as recently as May 2009. However, all estimates confirm DART will be able to continue the routine replacement of fleet vehicles and maintain a state of good repair for its current facilities and those under construction."[27]

Houston/Harris County METRORail

The Metropolitan Transit Authority of Harris County, Texas (METRO) opened a 7.5-mile light rail project in January 2004 that provides service between downtown to just south of the Astrodome and Reliant Park in Houston. Annual ridership is provided in Figure 4-42, and the route for this service is shown in Figure 4-43. The line has 16 stations and uses 18 electric light rail vehicles with a capacity of 200 riders each. The 245,000 employees and 32,000 residents living in proximity to the corridor, as well as those attending sporting events and other visitors to the area, are expected to provide strong ridership demand on the METRORail route.[28] Public acceptance and use of METRORail has steadily increased in the six years since operations started. In FY 2007, METRORail

carried an annual passenger load of 11.7 million riders. Average weekday ridership for this service during September 2007 reached an all-time high of 43,900. Original estimated projections were that weekday ridership would not reach 40,000 passengers per day until 2020.[29] In FY2004, METRORail did not provide service at the start of the FY between October 1 and December 31, 2003.

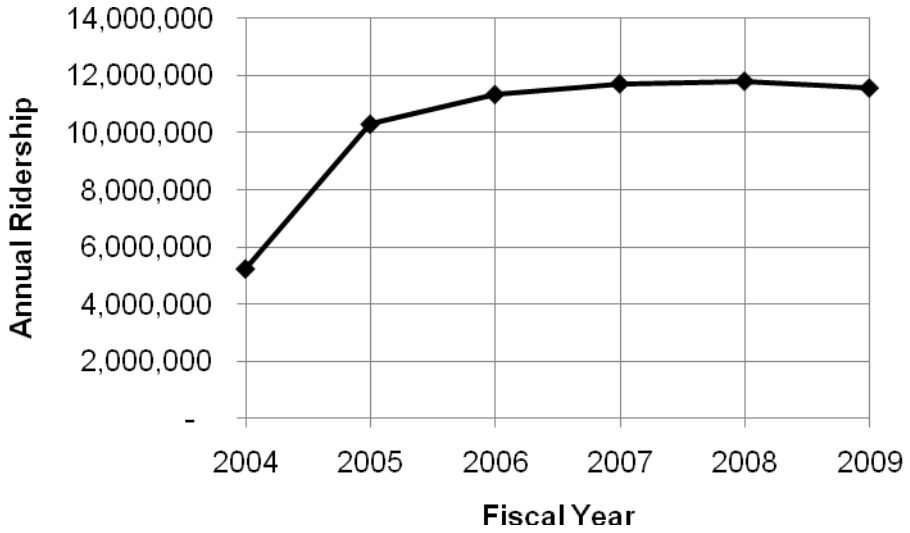

Figure 4-42: Houston METRORail Ridership FY 2004–2009
Source: METRO

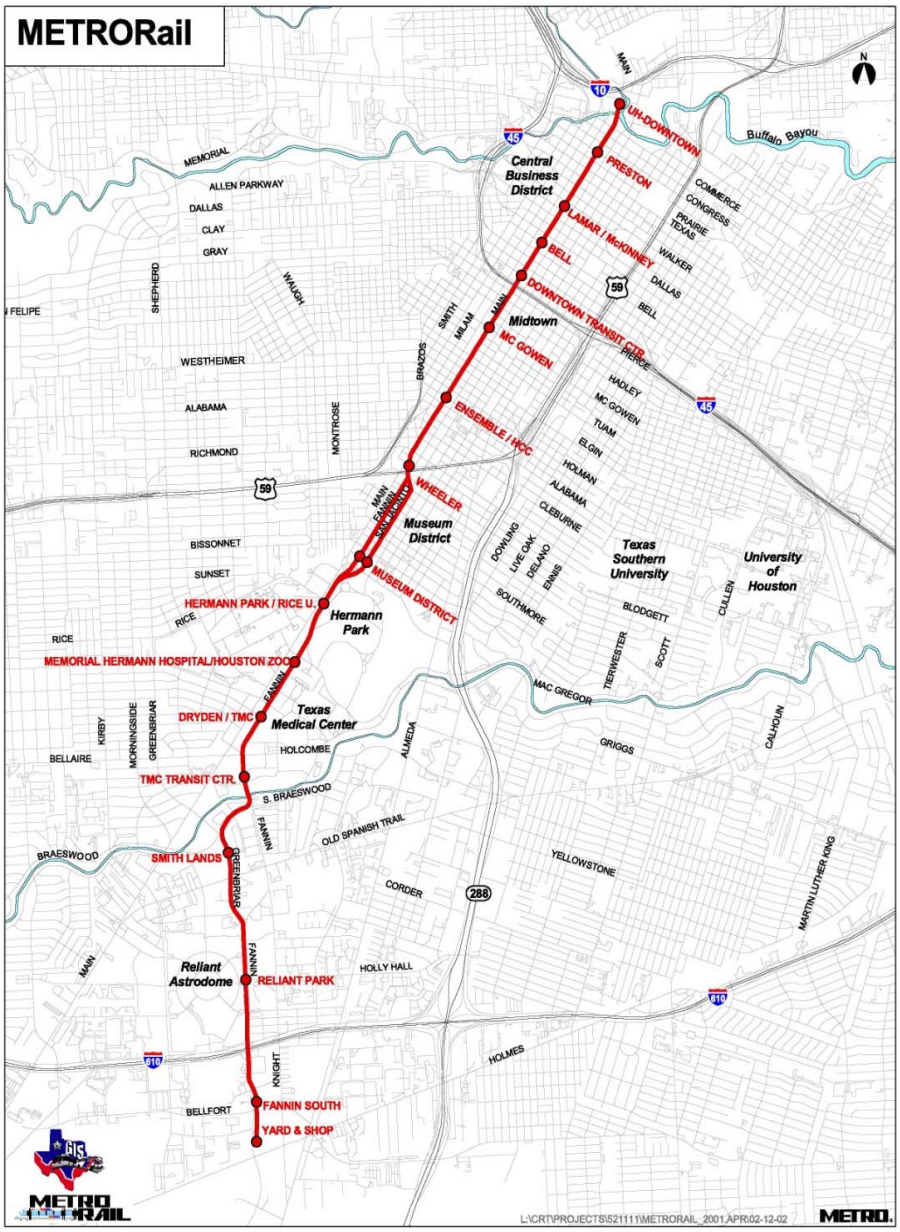

Figure 4-43: Existing Houston METRORail
Source: METRO

To improve safety, add reliability, and increase speeds, the project was built in semi-exclusive or limited access diamond lanes along most of the in-street route and has priority signalization at intersections. After a large number of vehicular-transit accidents

occurred right after initial operations began, METRO evaluated its signaling system and conducted a public awareness campaign that was successful in alleviating the problem. The current system has three bus transit centers to facilitate distribution of passengers to other transit services.

The Houston METRORail continues to expand according to the METRO Solutions Transit System plan approved by Houston voters in 2003. METROSolutions is a long-range, comprehensive and multimodal transit service expansion that includes seven additional light rail lines (the East End, Inner Katy, North, Southeast, Sunnyside, Uptown and University Corridors, additional potential rail corridors (the SH 249, U.S. 59 North, SH 3 and Westpark Corridors), U.S. 90A Southwest Commuter Rail Corridor, Signature Bus implementation, High Occupancy Toll (HOT) lane implementation, additional transit centers and park and ride facilities, and additional local bus service. As part of the implementation of the plan, construction activities began on the East End Corridor in 2008 and on the North and Southeast Corridors in 2009. Additionally, the Federal Transit Administration (FTA) has granted a Record of Decision (ROD) for the University Corridor, and the University Corridor is now in the Preliminary Engineering (PE) phase of FTA's New Starts project development process. Engineering work has been conducted on the Uptown Corridor but the project is currently on hold. Extensions are shown in Figure 4-44.

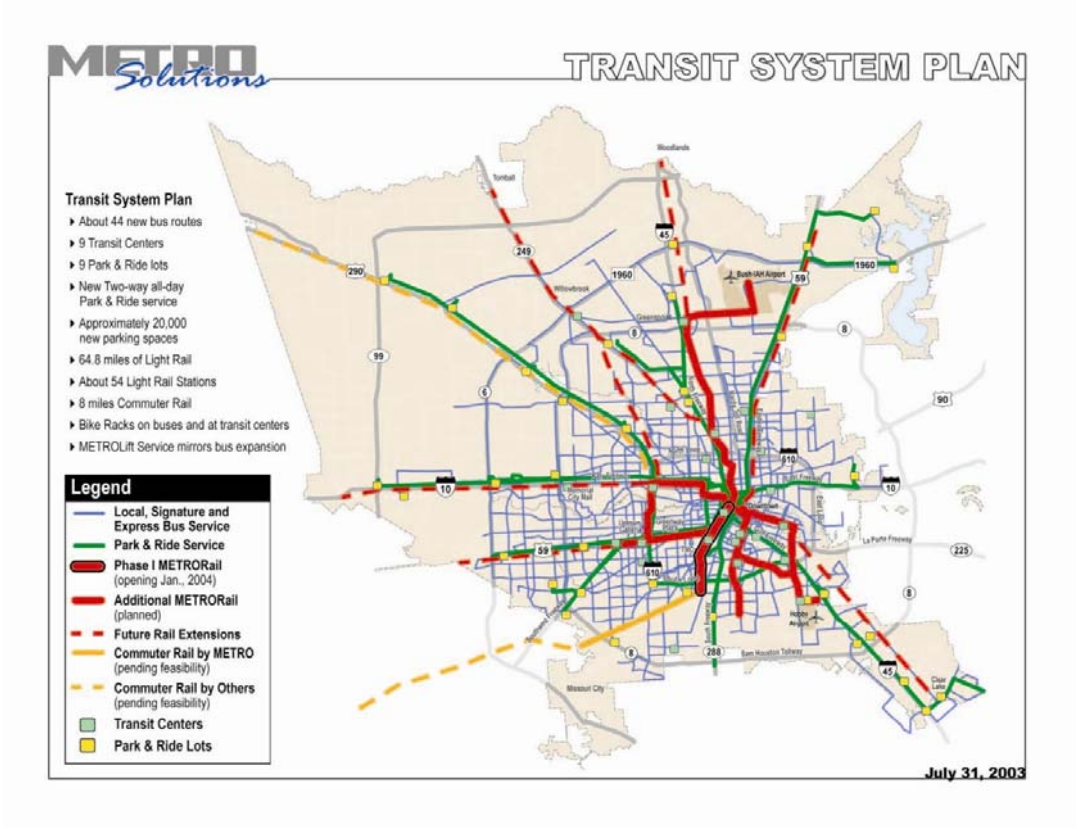

Figure 4-44: Proposed Houston METRORail Extensions (in red) and Other METRO Solutions

Source: Metropolitan Transit Authority of Harris County (METRO)

Proposed Light Rail

Other than the expansions planned for the existing Dallas and Houston systems, there are no plans in the state of Texas for additional light rail projects.

Existing Rail Trolleys

Galveston Island Rail Trolley

Galveston Island transit brought rail trolley service back to downtown Galveston in 1988. The trolley system was expanded in 1995 and 2003 (Figure 4-45). Unfortunately, Hurricane Ike damaged the trolleys; they have not been in operation since September 2008. Ridership in FY 2007 was 33,229 and in FY 2008 was 20,849.

Figure 4-45: Galveston Island Rail Trolley
Source: Island Transit, http://www.islandtransit.net

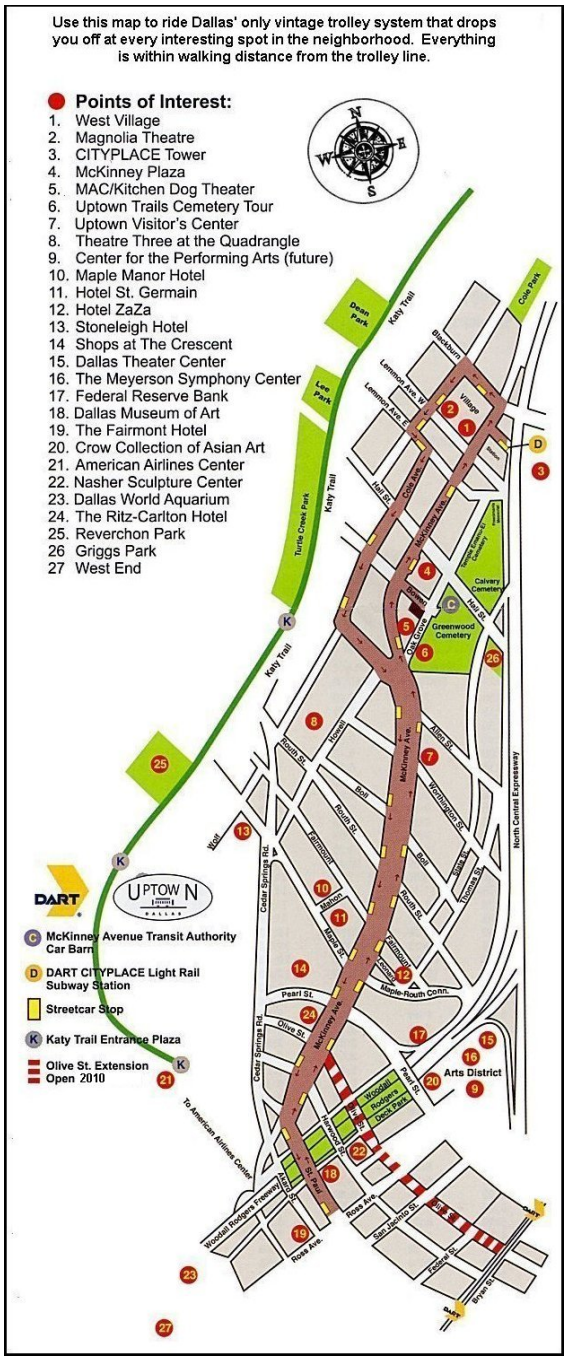

Figure 4-46: McKinney Avenue Trolley
Source: MATA, http://www.mata.org

McKinney Rail Trolley[30]

The McKinney Avenue Transportation Authority (MATA) operates fare-free, air-conditioned and heated rail trolleys every day of the year in Dallas' Uptown Neighborhood. The service started in July 1989 as a tourist attraction but is now integrated with the other transit services offered by DART and referred to as the "M-Line." Figure 4-46 presents the route map.

4.6 – Tourist Trains in Texas

Texas State Railroad Tourist Train

The Texas State Railroad (TSRR) has been in operation as a tourist steam locomotive passenger train since 1976. "The Official Railroad of Texas" operates on 25 miles of historic, dedicated track parallel to Highway 84 through the piney forests between the two East Texas towns of Palestine and Rusk (see Figure 4-47). Operated on weekends and weekdays, a round-trip takes about four hours, including a lunch break.

On September 1, 2007, the Texas Legislature transferred ownership of the TSRR from the Texas Parks and Wildlife Department to the American Heritage Railroad Company, a private company. A bill analysis for the legislation indicated the annual ridership of the Texas State Railroad was 50,000.[31] Enormous amounts of rain in July 2007 caused several wash-outs along the aging scenic line, resulting in temporary cessation of services until repairs could be made. Service was resumed once the repairs were made. The Texas State Railroad has also been used in movies since 1977.[32]

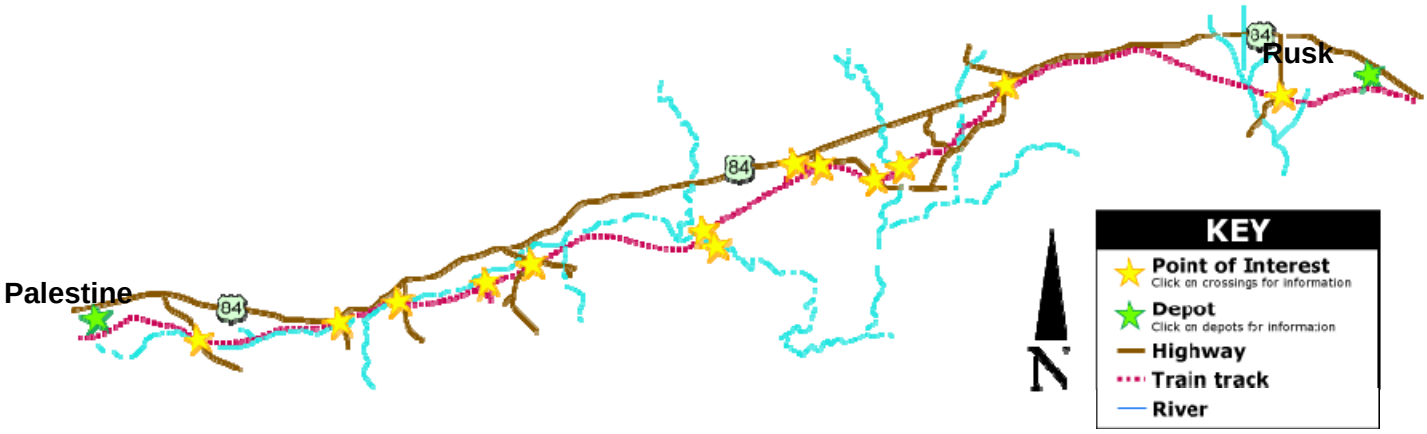

Figure 4-47: Map of Texas State Railroad Route
Source: Texas State Railroad, http://www.texasstaterr.com

Austin Steam Train

The Austin Steam Train Association operates tourist trains called the Hill Country Flyer and the Bertram Flyer on tracks of historical significance and used for freight and Capital Metro's commuter rail operations (MetroRail Red Line). The Giddings to Austin tracks, originally built in 1871, were the first railroad tracks built into Austin. The tracks were extended west to Burnet in 1882, to Granite Mountain in 1885 (where the pink granite from the area was shipped to Austin via railroad to build the Texas Capitol building), and

then finally to Llano in 1892. The City of Austin purchased the 163-mile Giddings-to-Llano line in 1986. It is now owned by Capital Metropolitan Transportation Authority.[33] Austin Western Railroad operates the freight rail service on the Giddings-Llano line (see historic map of line in Figure 4-48). Since the beginning of Capital Metro's commuter rail operations, freight service operates at night. Commodities shipped by the freight rail service include aggregates, crushed limestone, calcium bicarbonate, lumber, beer, chemicals, plastics, and paper.[34]

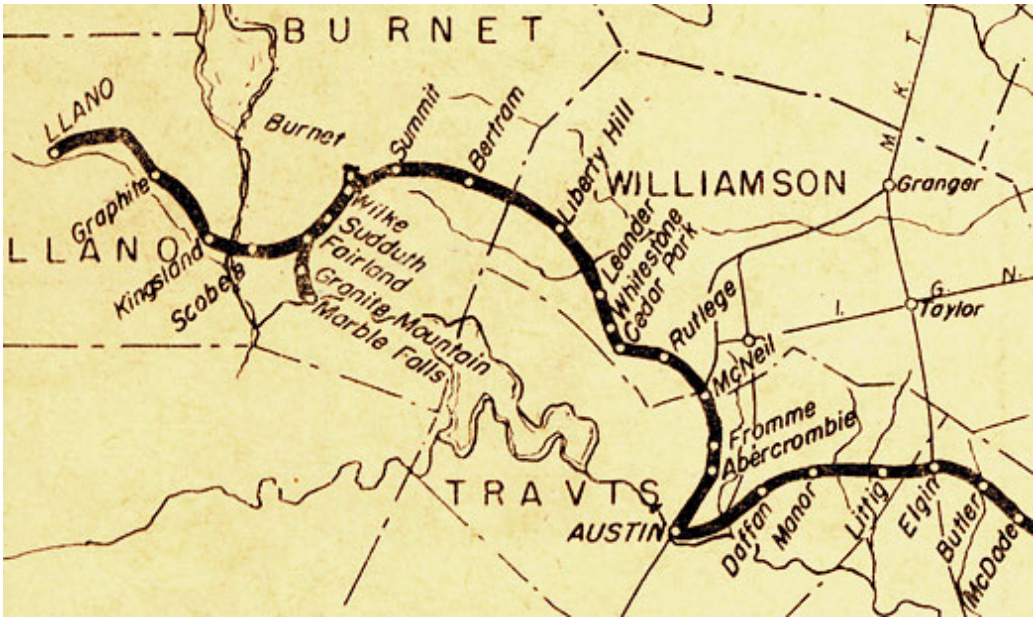

Figure 4-48: Portion of 1956 Timetable Map of Giddings-Llano Line
Source: Austin Steam Train, http://www.austinsteamtrain.org/history.php

Grapevine Vintage Railroad

The Grapevine Vintage Railroad provides tourist rides between the Ft. Worth Stockyards and the City of Grapevine (see Figure 4-49). The Ft. Worth & Western railroad company (FWWR) started the service in 1996. The City of Grapevine subsequently took over and renamed it in December 2000. The train operates on track shared with freight trains and owned by DART. The City of Grapevine reports there are no issues with sharing the track. However, in the Tower 60 area, freight trains on the intersecting tracks owned by BNSF Railway and UP tracks are given priority when there is a schedule conflict, causing delays for the Grapevine Vintage Railroad. Ridership for calendar year 2009 was 70,264 for the longer Grapevine to Ft. Worth Stockyards route and 18,098 for the shorter Trinity River Run route.[35]

In the Ft. Worth Stockyards, the Grapevine Vintage Railroad pulls into the Stockyards Station, now the largest train station in the Southwest with more than 85,000 square feet of shopping, dining, and meeting facilities.

Two trains depart from Grapevine and from Ft. Worth Stockyards in the afternoon according to the following seasonal schedule. The trip takes 1.5 hours one-way. A shorter service called the "Trinity River Run" departs from and returns to the Stockyards in one hour. Between Memorial Day and Labor Day, trains run Thursday through Sunday. Between September and November and February through May 31, they run Friday and Saturday. [36]

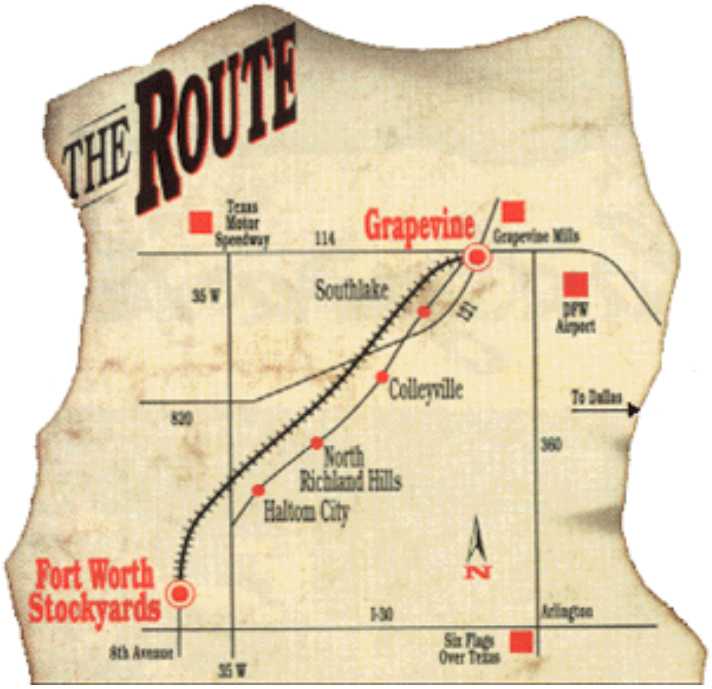

Figure 4-49: Grapevine Vintage Railroad Route Map
Source: https://www.grapevinetexasusa.com/ThingsToDo/GrapevineVintageRailroad/

Longhorn & Western Railroad

The Texas Transportation Museum in San Antonio offers train rides daily on a 3,700-foot track completed in 1991, located adjacent to the Longhorn Siding on the UP's mainline.[37] The LW Railroad operates on a closed loop track and does not share its track with freight or other passenger trains.

Jefferson and Cypress Bayou Railway

Located in Jefferson and operated by a private company, the Jefferson and Cypress Bayou Railway offers 45-minute rides on open car coach seats pulled by a reproduction of a 1870s steam locomotive along three miles of narrow gauge near the Big Cypress River. The Bayou Railway operates on a closed loop track and does not share its narrow-gauge track with freight or other passenger trains.

4.7 – Interconnectivity

Passenger rail service benefits from having connectivity with other rail services as well as intercity bus and local transit services. A thorough review of the existing transit services throughout the state was provided by the TTI in a report produced in February 2010.[38] A map from the report of all the existing intercity bus services is provided in this plan in Figure 4-50.

The description of Amtrak stations in Table 4-12 in Section 4.2 showed which Amtrak stations currently have intermodal connections. Very few stations have direct connectivity with local transit services, however the stations listed in Table 4-13 have intercity connectivity as part of Amtrak's Thruway Motor Coach service that extends the reach of the Amtrak rail service. As shown in the schedules given in Figure 4-20 and Figure 4-21 within Section 4.2, Amtrak motor coach arrival and departure schedules are coordinated with the rail schedule to allow for seamless transfer between Amtrak motor coach and passenger rail services.

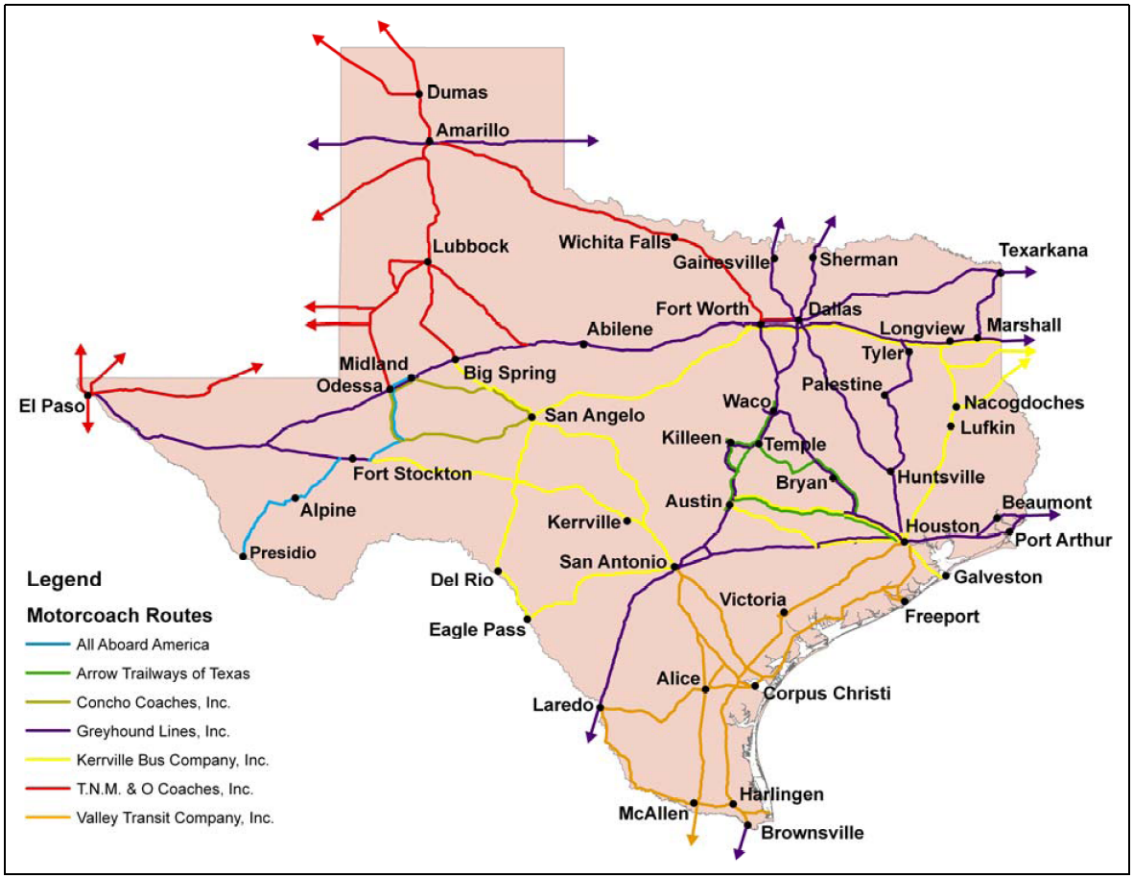

Figure 4-50: Intercity Bus Routes
Source: Texas Transportation Institute, *Potential Development of an Intercity Passenger Transit System in Texas- Final Project Report*, February 2010

Existing and proposed commuter, regional, and light rail services have much better connectivity with other rail services and transit services, as evident in current and proposed connections between rail and buses in the Capital Metro, Houston METRO, and DART systems, as mentioned in sections 4.4 and 4.5, although there is always room for improvement. The development of intermodal stations will help to improve interconnectivity in the state. An inventory of existing and proposed intermodal transit stations from the aforementioned TTI report is provided in Table 4-17 and Table 4-18, respectively.

To improve interconnectivity in the San Antonio area, TxDOT submitted a grant application under the *FY 2010 High Speed Intercity Passenger Rail (HSIPR) Grant Program: Individual Projects* a plan for the proposed San Antonio West Side Multimodal Center. Grant funding will be used to complete final design and construction of the

facility proposed just west of downtown San Antonio, which will be used for local transit, including bus rapid transit, Amtrak, and Lone Star rail services. VIA MTA, the San Antonio transit agency has led the project, evaluating potential sites for multimodal passenger facilities to integrate local transit and future rail services. In 2005, a feasibility study was conducted to determine potential uses for an old train station and identify next steps in design and coordination. The Lone Star Rail District completed an alternatives analysis to develop commuter rail service along the Georgetown–Austin–San Antonio corridor. The locally-preferred alternative would operate commuter rail service within the abandoned Missouri-Kansas Railroad corridor between Georgetown and Round Rock and the currently operational UP Railroad right-of-way between Round Rock and San Antonio. The locally preferred alternative includes a station in downtown San Antonio, which could coincide with the West Side Multimodal Center. Preliminary discussions have taken place to move existing passenger rail service from east of downtown San Antonio to this proposed facility.

Table 4-17: Existing Intermodal Transit Stations in Texas

City/Terminal Name	Transit Providers Served
Austin Central Terminal	Capital Metro CARTS
Round Rock	CARTS Greyhound Arrow Trailways
San Marcos	CARTS Greyhound Amtrak
Bastrop	CARTS Greyhound Kerrville Bus Company
Kerrville Intermodal Facility	Kerrville Bus Company Alamo Regional Transit
Dallas Union Station	DART light rail TRE commuter rail Local bus Amtrak
Fort Worth Intermodal Transportation Center	The T TRE Amtrak
Cleburne Intermodal Terminal	Amtrak Cletran urban bus City County Transportation (regional bus)
Sherman: TAPS intermodal terminal	Local bus (including TAPS) Greyhound
Waco Intermodal Transit Center	Waco Transit Greyhound
Del Rio Multimodal Transit Center	Del Rio Transit Greyhound
Texarkana Greyhound Terminal	Greyhound T-Line (local bus)

Source: Texas Transportation Institute, *Potential Development of an Intercity Passenger Transit System in Texas—Final Project Report*, February 2010

Table 4-18: Planned or Proposed Intermodal Transit Stations in Texas

City/Terminal Name	Transit Providers Served
Taylor	CARTS Intercity (TBD)
Georgetown	CARTS Intercity (TBD)
South Williamson County	CARTS Intercity (TBD)
West Williamson County	CARTS Intercity (TBD)
Hays County	CARTS Intercity (TBD)
San Antonio West Side Multimodal Center	VIA and VIA BRT (later) Greyhound Austin-San Antonio Commuter Rail Amtrak
Houston: Northern Intermodal Facility	Commuter rail Amtrak Freight rail METRORail light rail Intercity bus carriers Local bus
East Texas area (one or more facilities)	Local bus Intercity carriers
City of Krum/City of Denton	Amtrak DCTA TBD
San Angelo – feasibility study conducted	TBD
El Paso Union Plaza (proposed)	Sun Metro (local bus) Amtrak
Abilene – feasibility study conducted	TBD
Victoria – feasibility study conducted	TBD

Source: Texas Transportation Institute, *Potential Development of an Intercity Passenger Transit System in Texas—Final Project Report*, February 2010

4.8 – Summary

Passenger rail service can be categorized as high speed, intercity, commuter, light rail, and trolley and tourism rail. While definitions vary, high speed is generally considered to be greater than 110 mph on a dedicated track. Intercity is service that is not primarily used for commuter service and operates at speeds slower than high speed. Commuter service primarily serves commuters on daily trips between suburban and urban areas and may run on freight corridors. Light rail generally serves commuters but is typically operated within urban areas on dedicated corridors with specialized equipment and is usually electrified. Tourism rail typically serves sightseeing or entertainment purposes.

Texas currently does not have high-speed rail service, and though an attempt in the 1990s to start HSR service failed to reach implementation, interest in offering an alternative to air and auto has continued and grown. Higher speeds, more advanced systems, longer distances, and more passenger amenities differentiate HSR from current Amtrak and intercity commuter rail. The addition of HSR service in Texas would expand travel options. The rail planning process must include how to incorporate HSR into the state's transportation network and the role of private and public entities in bringing HSR to Texas.

In Texas, the National Railroad Passenger Corporation, Inc. (Amtrak) is the sole provider of IPR service. It serves most of the state's major urban areas. Two long distance trains are fully funded by Amtrak: the Texas Eagle (San Antonio to Chicago) and the Sunset Limited (Los Angeles to New Orleans). There is also one corridor train, defined as a route less than 750 miles, in Texas. The Heartland Flyer provides a daily round trip between Oklahoma City, Oklahoma and Fort Worth, Texas. This route is subsidized by TxDOT in equal partnership with the Oklahoma Department of Transportation.

While Amtrak's annual ridership in Texas was more than 320,000 in FY 09, it remains a small component of the Texas intercity transportation network. Despite sizable gains in the state's employment and population base, Amtrak has experienced only moderate growth in its Texas ridership. This indicates that competing modes (i.e., air carriers and motor vehicles) are capturing most of the increases in total demand for intercity travel in Texas. One of the purposes of the TRP is to identify what improvements or changes could be made in Texas for intercity passenger rail to better compete with other modes. Some of those improvements may include additional routes and frequencies and/or improved connections with local rail and bus transit.

Also, local transit systems are critical to the success of a statewide passenger rail system. The system must facilitate the entire trip to meet the expectations of the users. Local transit can be broken down into many different types of facilities and services. Those include commuter rail, light rail, trolley service, and local bus services, which could include normal route service, express bus service, and bus rapid transit (BRT). Many of the largest cities in Texas have studied the need to have intermodal transfer

facilities, where riders could move from one service to the other. The use of these facilities for intercity and high speed rail could provide for the necessary local connections. Working with local planners will help facilitate this discussion and lead to the optimization of the location of these facilities to best serve the users.

For Texas to further develop a statewide passenger rail system, studies of corridors determined to have the highest ridership potential must be conducted. Corridor studies would include public outreach and consider all speeds and types of service. Some portions of the corridors could have multiple service types to best serve specific travel demands. There are also other considerations when a service is envisioned to share track with an existing freight line such as safety, liability, capacity, and increased maintenance costs. UP and BNSF, in conjunction with AAR, have adopted principles addressing use of their freight network for passenger rail purposes.

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[1] Charles River Associates, Inc., "Independent Ridership and Passenger Revenue Projections for the Texas TGV Corporation Higher speed Rail System in Texas," September 1993. Rail ridership forecast based on scenario that encompasses broadest range of high-speed rail service options (e.g., connecting services to airlines at DFW International Airport and stops in university cities, Waco and Bryan-College Station.

[2] This conclusion is based on Amtrak's own experience with introducing high-speed passenger rail services in other densely populated parts of the country such as the Northeast Corridor. Even moderate improvements, such as the introduction of the Acela Regional (this included electrification and the refurbishment of rolling stock prior to the introduction of the Acela Express which uses new rolling stock on the same route) between New York and Boston resulted in dramatic ridership gains. The Acela Regional recorded a 55% jump in ridership in February 2000 compared to the figures posted by the non-improved Northeast Direct service in February 1999.

[3] Sperry, Benjamin R. and Morgan, Curtis A. *Measuring the Benefits of Intercity Passenger Rail: A Study of the Heartland Flyer Corridor*, Texas Transportation Institute Report 169116-1, April 2010.

[4] Amtrak September 2009 Monthly Performance Report, http://www.amtrak.com/

[5] Amtrak Government Affairs, November 2007.

[6] http://www.greatamericanstations.com/station-resources/stations_by_state?state_id=TX; Accessed April 2010

[7] Interview with Amtrak official and General Accounting Office, "Intercity Passenger Rail: Outlook for Improving Amtrak's Financial Health," March 1998.

[8] Peterson, R. L. (1985). *Use of Existing Highway Right-of-Way for High Speed Rail Transportation.* Texas State Department of Highways and Public Transportation, Texas Transportation Institute. Federal Highway Administration.

[9] Instead of using number of cities of a certain size along travel corridor, TTI used the CBSA because of the availability of data.

[10] Morgan, C. A. (2009). *Potential Development of an Intercity Passenger Transit System in Texas.* Texas Department of Transportation, Texas Transportation Institute.

[11] Hidalgo County Commuter Rail District website: http://www.co.hidalgo.tx.us/index.aspx?NID=811

[12] Texas Transportation Institute, 2007 Urban Mobility Report, Table 1.

[13] Trinity Railway Express webpage. http://www.trinityrailwayexpress.org/traininfo.html, accessed March 2010.

[14] DART Agency Overview Report, December 2009.

[15] Email communication with TRE Vice President of Commuter Rail, April 2010.

[16] Dallas Morning News, "DART buys 70 miles of rail lines to expand options," May 23, 2001.

[17] Report can be viewed at www.nctcog.org/trans/transit/planning/rrcs/.

[18] Capital Metro All Systems Go Plan: http://allsystemsgo.capmetro.org/all-systems-go.shtml

[19] Southwest-to-Northeast Rail Corridor http://www.sw2nerail.com/default.asp

[20] North Central Texas Council of Governments, Frisco Corridor: Conceptual Engineering and Funding Study, May 2010.

[21] North Central Texas Council of Governments, Frisco Corridor: Conceptual Engineering and Funding Study, May 2010.

[22] North Central Texas Council of Governments, McKinney Corridor: Conceptual Engineering and Funding Study, May 2010.

[23] North Central Texas Council of Governments, McKinney Corridor: Conceptual Engineering and Funding Study, May 2010.

[24] Round Rock-Georgetown-Pflugerville Rail Link Fatal Flaw Analysis prepared by The Goodman Corporation and Huggins/Seiler & Associates for the Central Texas Regional Mobility Authority and the City of Round Rock, May 2010.

[25] Round Rock-Georgetown-Pflugerville Rail Link Fatal Flaw Analysis prepared by The Goodman Corporation and Huggins/Seiler & Associates for the Central Texas Regional Mobility Authority and the City of Round Rock, May 2010.

[26] The 2006 ridership figure is for DART's 2006 fiscal year, October 1, 2005 through September 30, 2006. Source: DART Agency Overview Report, Planning Information and Analysis, April 2007.

[27] http://www.dart.org/news/news.asp?id=915

[28] Figures are for 1999, provided by the Metropolitan Transit Authority of Harris County.

[29] Jim Archer, Manager of Service Evaluation, Houston Metro, August 2005.

[30] McKinney Avenue Transit Authority http://www.mata.org

[31] House Bill 3113 Analysis: http://www.hro.house.state.tx.us/pdf/ba80r/hb3113.pdf

[32] http://www.texasstaterr.com/press.php, Accessed March 31, 2010.

[33] http://www.austinsteamtrain.org/railroad.html, Accessed March 31, 2010.

[34] http://www.watcocompanies.com/Railroads/AWRR/AWRR%20main%20page.htm Accessed March 2010.

[35] Email communication with Paul McCallum, Executive Director of Grapevine Convention and Visitors Bureau.

[36]https://www.grapevinetexasusa.com/ThingsToDo/GrapevineVintageRailroad/DirectionsSchedule/tabid/273/Default.aspx

[37] http://www.txtransportationmuseum.org/LW.htm

[38] Texas Transportation Institute, Potential Development of an Intercity Passenger Transit System in Texas-Final Project Report, February 2010