
Executive Summary

INTRODUCTION

The Texas Department of Transportation (TxDOT) developed its first rail plan in 2005 after statewide planning authority for rail was transferred from the Texas Railroad Commission (RRC). The plan was known as the Texas Rail System Plan and consisted of an inventory of existing and planned freight and passenger rail projects, but did not establish the state's vision and goals for the system.

The purpose of this rail plan, now known simply as the Texas Rail Plan (TRP), will be to set policy, direction, and vision for the state in compliance with both federal and state regulations. The federal regulations were enacted as a part of the Passenger Rail Investment and Improvement Act of 2008 (PRIIA). The state regulations were enacted by the 81st Texas Legislature in Senate Bill 1382. This amended the Transportation Code to include sections 201.6012 and 201.6013, further defined below.

The TRP will be coordinated with other statewide planning documents. The plan will be guided by the Texas Department of Transportation's (TxDOT) strategic plan and coordinated with the Statewide Long-Range Transportation Plan. Guidance will also be extracted from the recently published "Vision for High-Speed Rail in America: High-Speed Rail Strategic Plan," developed by the Federal Railroad Administration (FRA) and will help to inform the National Rail Plan being developed by the FRA. An additional resource is the "State Rail Planning Best Practices" guidebook published in November 2009 by the American Association of State Highway and Transportation Officials.

While official rules for the development and content of the state rail plans is still pending, the main components of a rail plan include establishing vision, goals, and objectives for the rail system and how it is to be integrated into the state's multimodal transportation system. Other key components are an inventory of the freight and passenger rail infrastructure and performing a needs assessment. The final component is planning for the future by developing prioritized programs and financing strategies to achieve the state's vision, goals, and objectives.

A long-term plan for statewide passenger rail must be developed in accordance with Transportation Code 201.6013 and updated annually. It must include the following:

- description of existing and proposed passenger rail systems;
- information on passenger rail systems under construction;
- analysis of potential interconnectivity difficulties;
- ridership projections for proposed passenger rail projects; and
- ridership of existing passenger rail systems.

Both of these plans must be informed by TxDOT's recently adopted strategic plan for 2011-2015. The goals are:

- Develop an organizational structure and strategies designed to address the future

- multimodal transportation needs of all Texans.
- Enhance safety for all Texas transportation system users.
- Maintain the existing Texas transportation system.
- Promote congestion relief strategies.
- Enhance system connectivity.
- Facilitate the development and exchange of comprehensive multimodal transportation funding strategies with transportation program and project partners.

Rail Division

The development of the TRP is led by TxDOT's Rail Division (RRD) which is responsible for statewide rail planning. The RRD, established on December 1, 2009, is also responsible for the following rail functions:

- Performing infrastructure and operational analysis of both state and privately owned rail facilities to develop needs assessments as part of the project development process;
- Developing and planning for high speed rail and intercity passenger rail;
- Monitoring potential rail line abandonments in Texas, as well as coordinating the state's involvement and response to abandonment filings;
- Administering lease & operating agreements on state-owned facilities and managing construction contracts for state, or federally-funded projects on those facilities, as well as private facilities;
- Implementing rail improvements by entering into public-private partnership agreements to provide investments in freight rail relocation projects, rail facility improvements, rail line consolidations or new passenger rail developments;
- Administering the state rail safety inspection program in conjunction with the FRA, including accident and complaint investigations. Also provides the state safety oversight function as required by the Federal Transit Administration.
- Improving highway-rail grade crossings to reduce accidents;
- Analyzing local, state, and national railroad/multimodal trends, policies, and legislation;
- Performing research to develop more efficient utilization of Texas rail freight systems; and,
- Acting as the departmental liaison to railroad companies, intermodal interests, the FRA, local governments, and the public with regards to rail planning and project development in Texas.

Coordination

As part of the development of the TRP, TxDOT invited rail stakeholders to provide input into the creation of vision statements for both the freight and passenger rail systems in Texas. Those stakeholders included representatives of the railroads operating in Texas, Amtrak, local metropolitan planning organizations (MPO), city and county officials, ports, rail districts, regional

mobility authorities (RMA) and transit authorities, as well as rail advocacy groups. Also included were representatives of economic development corporations and local TxDOT planners. Public meetings were held to seek public review and comment on a draft version of the rail plan. The final comment process took place with a public hearing in Austin in October 2010. In addition, the RRD established the Rail Steering Committee to help review and guide the development and review of the TRP as well as to provide continuity with future studies as the plan moves forward.

Stakeholder Developed Vision for Rail in Texas

The Texas Rail System will provide cost-effective, energy-efficient, sustainable personal mobility and goods movement that connects Texas communities and links Texas businesses with domestic and international markets, minimizing environmental impacts, reducing road congestion, improving air quality, and promoting economic growth.

Stakeholder Developed Vision for Freight Rail

Texas' freight rail network will provide safe, reliable through freight movements as well as movements to and from Texas shippers and receivers, intermodal facilities, and ports of entry on international borders and along the Gulf Coast. Productive use of existing infrastructure will be maximized through the railroads' use of sophisticated train control systems, wayside technologies, and maintenance planning. Public and private sector resources will resolve bottlenecks and congestion points to improve system fluidity. Investments in freight capacity to keep pace with demand can reduce adverse community impacts. Grade separations, grade crossing improvements, and closures will improve highway/rail safety and enhance quality of life for communities bisected by increasingly busy rail lines.

Stakeholder Developed Vision for Passenger Rail

A variety of reliable passenger rail services will be offered to a broad section of the Texas population—regional and intercity, express and local. Passenger rail will be a viable transportation alternative which is cost and time competitive and connected to transit and other modes in city center stations—a product of market-driven studies of most promising corridors, offering the most appropriate service designs for those corridors. Passenger rail services and facilities will complement municipalities creating more livable, sustainable urban activity centers. Incremental expansion of frequency and reliability of passenger rail services on freight rail corridors will reduce environmental impacts of new service, will not inhibit current and future freight volumes, and will not place unmanageable risks on rail owners. As passenger rail traffic increases, new, higher speed rail services will be launched on separated, dedicated rights-of-way.

Transportation System Challenges and Opportunities

The forecasted growth in population will lead to increased vehicle miles and congestion on the highways and will result in environmental, social, and economic impacts on Texas. Increased population also generates additional demand for consumer products and the need for an efficient freight network. Maintenance and expansion of the existing freight network, which

includes freight rail, will be necessary to meet that demand.

Population growth also creates additional demand on the transportation system. Passenger rail could serve to share the demand largely met by highway and air. Three elements in particular point to the need to integrate passenger rail as another option for intercity travelers: the social and economic interconnectivity of many of Texas' urban areas; the increasing interest in rail transportation, as evidenced by the growth in intra-city and intercity rail ridership; and the accessibility rail offers to those not willing or unable to drive or fly.

This is particularly true given the future concentration of Texas population in the state's largest urban areas. Compare the two maps in Figure ES-1, which show the percentage of total state population in each county in 1990 and 2040.

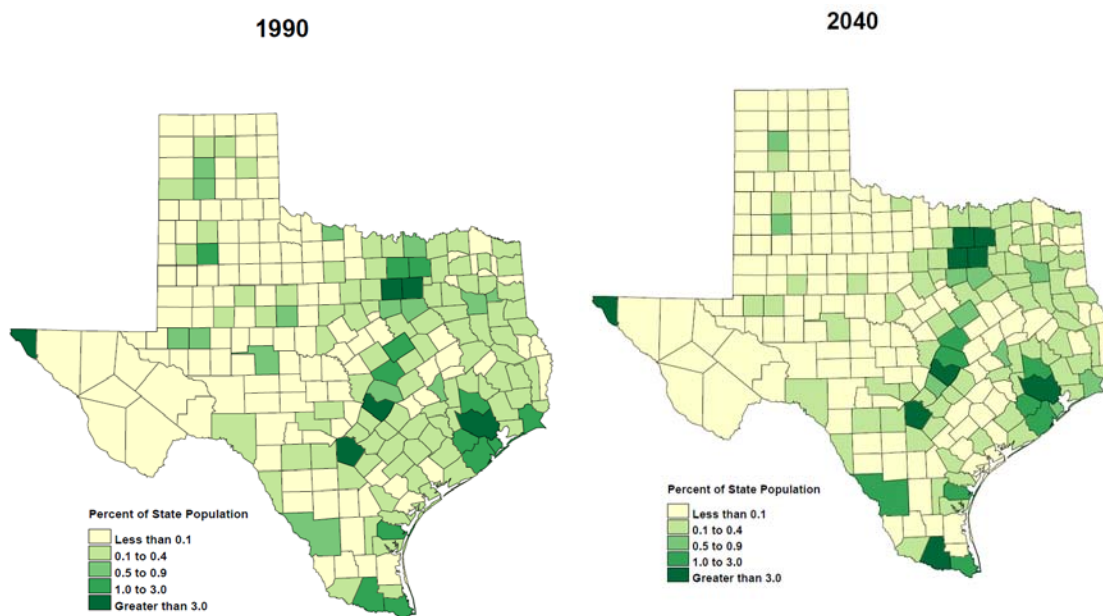


Figure ES-1: Texas County Population Concentration: 1990 and 2040

Source: Texas State Data Center

Note how the population shifts away from counties in East, South, and West Texas to the major urban areas along the Texas-Mexico border, the Gulf Coast, and the I-35 corridor. Freight and passenger rail can be effective in serving mobility needs of a population that grows in size and density.

The freight and passenger rail system offer the following benefits, according to the FRA's Preliminary National Rail Plan:

- **Safety.** Railroads have become safer. As train miles have increased by 27% since 1980, rail accidents per million train miles have decreased by 71% in the same time period. FRA safety data shows that rail safety in Texas exhibits a similar trend. From 2000 to 2009, total rail accidents have decreased by 40%. Train accidents in Texas decreased

30% from 2000 to 2009, while highway rail grade crossing accidents have decreased 54% in that time period.

- Energy efficiency. Passengers using rail are 21% more fuel efficient (as measured by BTUs per mile) than those using automobiles, and 17% more efficient than passengers traveling by short-haul commercial aviation. Freight rail is, depending on the commodity carried and the travel distance, 1.9 to 5.5 times more fuel efficient than trucks.
- Vehicle emissions. EPA standards call for heavy-duty diesel truck engines to emit no more than 15.5 grams per brake horsepower hour of carbon monoxide (CO), while EPA standards for locomotives call for 1.5 grams per brake horsepower hour of CO, a tenth of the truck standard.

Freight Rail

Texas' Freight Rail System

Freight volumes on all modes are driven in part by overall trends in economic activity. Texas maintained a strong economy during the recent national recession and the future outlook for the state's economy is strong. The following factors are leading to increased freight volumes or increased congestion on infrastructure on which freight is moved.

- Overall economic activity in Texas has outpaced the national economic output, as measured by the growth in the gross domestic product and gross state product. Projections from the state comptroller estimate continued Texas growth in the next 25 years.
- Texas is the second most populous state in the nation. The state's population is forecasted to grow an additional 9.4 million people by 2035, a 38.9% increase over projected 2010 levels. The forecast average annual percent per year increase is 1.56%.
- The population growth is not going to be spread evenly across Texas. The Texas State Data Center estimates that 92% of the 2010–2035 population growth will occur in the existing metropolitan counties (over 50,000 population). However, even rural areas will experience growth.
- Texas travel patterns, particularly by motor vehicle, have outpaced the growth in the population and are expected to continue in this trend. Vehicle miles traveled on Texas highways are projected to grow 72% from 2008 to 2035, while population is projected to grow 43% in the same period.

The Texas freight rail system represents a significant component of the national network, in both size and traffic levels. Table ES-1 shows how the Texas rail system ranked nationally in 2006 and 2008 for several key indicators. Figure ES-2 is a map of railroads in Texas, and Figure ES-3 shows density of freight rail traffic on Texas railroads.

**Table ES-1: Ranking Texas on Key Statistical Indicators,
Comparison of 2006 and 2008**

Key Indicator	Statistic-2006	Rank-2006	Statistic-2008	Rank-2008
Number of Freight Railroads	44	2nd	44	2nd
Total Rail Miles				
Excluding Trackage Rights	10,600	1st	10,743	1 st
Including Trackage Rights	14,965	-	14,982	-
Total Rail Tons	395,222,630	5th	384,405,761	5th
Originating	115,132,816	2nd	96,626,971	4th
Terminating	218,294,813	1st	210,282,792	1st
Total Rail Carloads	10,141,437	2nd	9,425,554	2nd
Originating	2,218,220	4th	1,944,989	4th
Terminating	3,245,459	3rd	3,096,548	3rd
Total Railroad Employment	17,394	1st	17,251	1st
Total Wages by Rail Employees	\$1,211,040,000	1st	1,283,800,000	1st

Source: *Railroads and States – State Rankings*, Published by Association of American Railroads, using Surface Transportation Board (STB) Waybill sample data, 2006 and 2008.

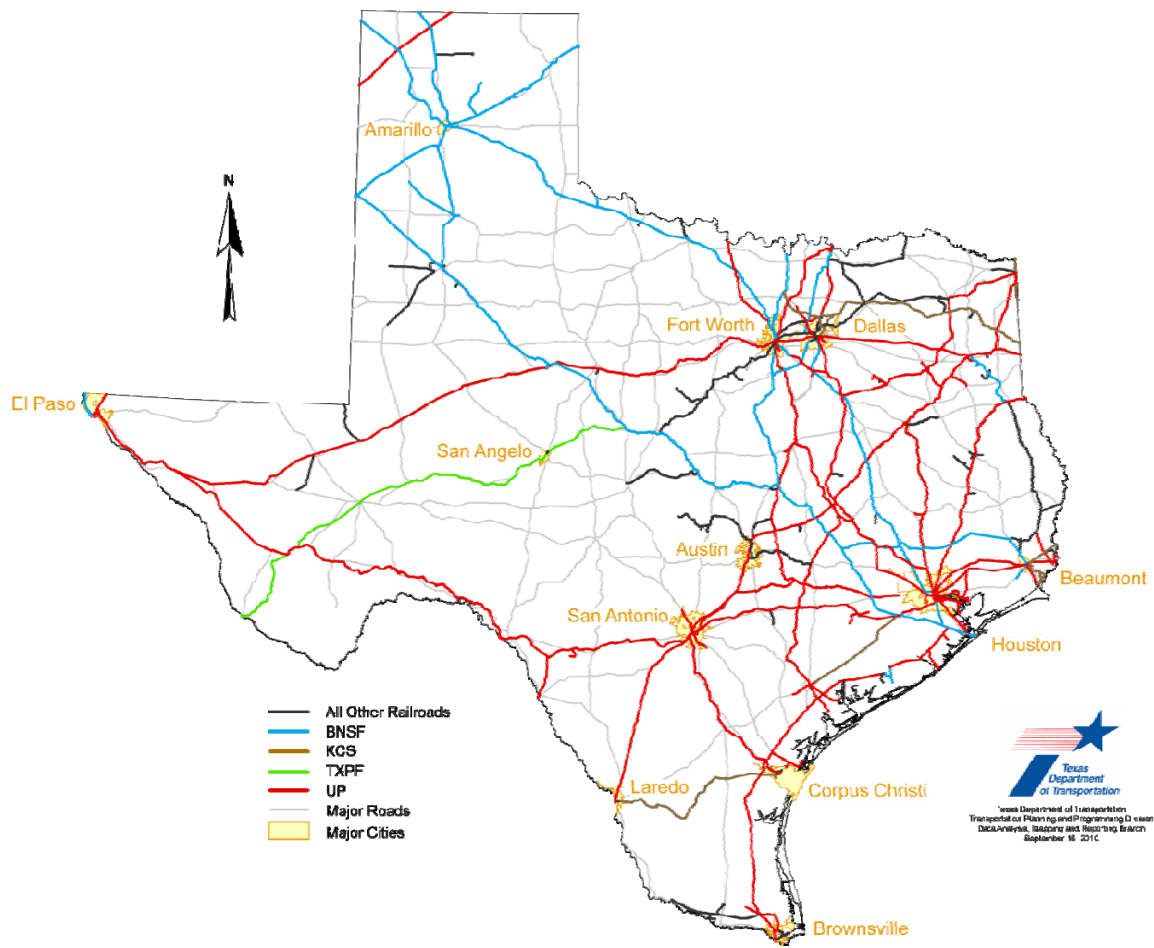


Figure ES-2: Texas Rail Map

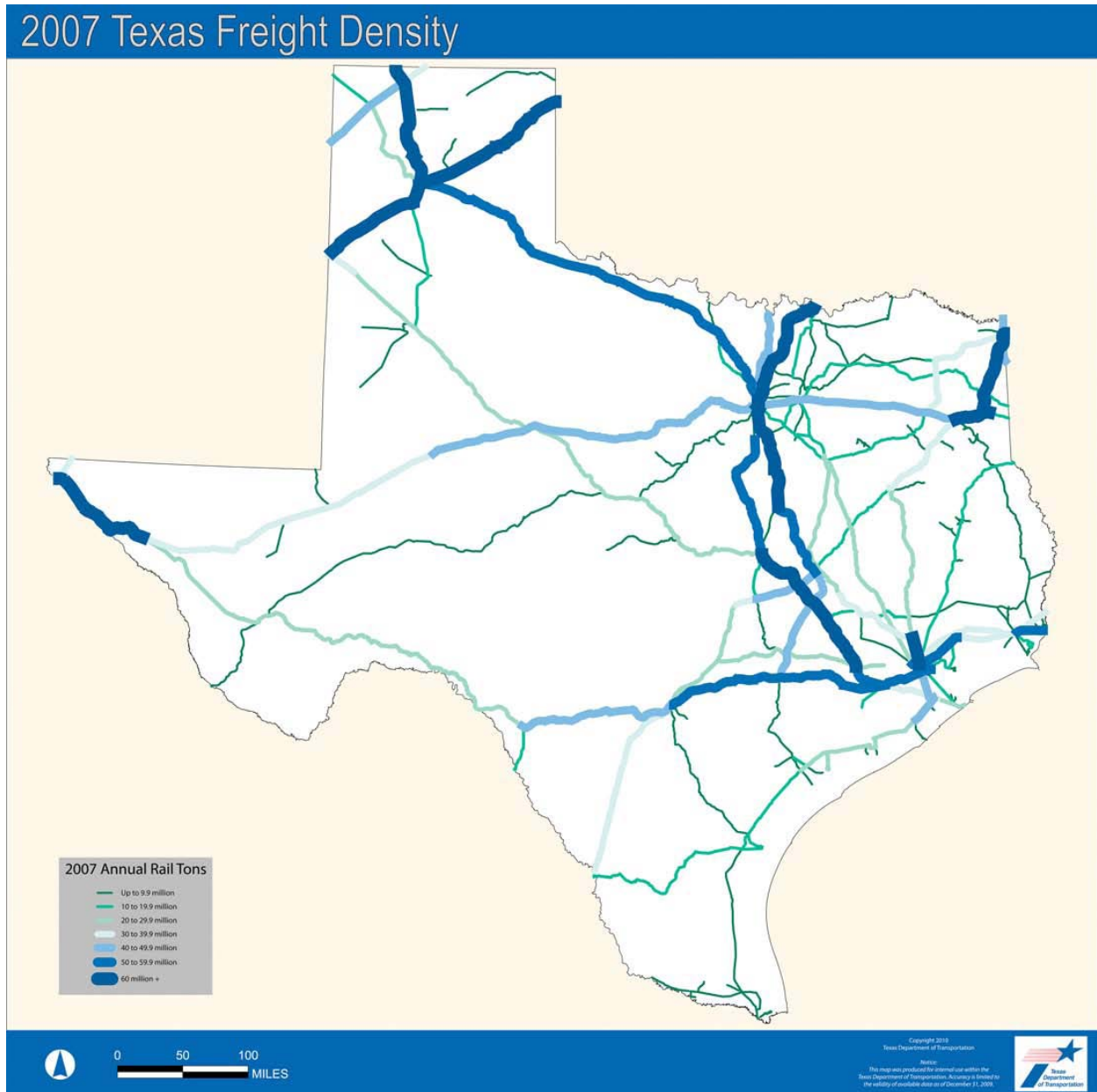


Figure ES-3: 2007 Texas Rail Freight Density Map
Source: Derived from Surface Transportation Board (STB) waybill sample data

The Association of American Railroads compiled a state ranking list for the top 12 rail commodities originating and terminating in 2008, shown in Table ES-2. Texas ranks first among all states in originating and terminating rail tons of chemicals and petroleum products, a fact that also places Texas first in tonnage of hazardous materials moved. Texas is distinct from many states in that it has large amounts of freight both originated and terminated in the state, as summarized for 2008 in Figure ES-4. This fact is driven by the large petrochemical industry, as well as the consumer needs of a rapidly increasing population.

Table ES-2: Top Railroad Commodity Groups Originating and Terminating in Texas, 2008

National Commodity Rank	Tons Originated 2008 Commodity	Texas' Rank	Tons Terminated 2008 Commodity	Texas' Rank
1	Coal	Not in top 10	Coal	2
2	Farm Products	Not in top 10	Chemicals	1
3	Chemicals	1	Farm Products	2
4	Nonmetallic Minerals	2	Nonmetallic Minerals	1
5	Intermodal	3	Intermodal	3
6	Food Products	9	Food Products	2
7	Metallic Ores	4	Primary Metal Products	3
8	Primary Metal Products	9	Metallic Ores	Not in top 10
9	Cement, Stone & Concrete Products	4	Cement, Stone & Concrete Products	1
10	Waste & Scrap Material	4	Petroleum Products	1
11	Petroleum Products	1	Waste & Scrap Material	10
12	Pulp & Paper	9	Pulp & Paper	6

Source: Railroad Statistics by State, published by the Association of American Railroads and derived from STB waybill data

In addition to the origin and destination tonnage, approximately 77.5 million tons of rail freight travels through Texas, with intermodal traffic being the largest commodity group. West Coast intermodal traffic from Asia travels across Texas, along BNSF Railway Company (BNSF) to Chicago, through the Texas Panhandle, and across Union Pacific Railroad's (UP) network through El Paso to New Orleans, Shreveport, and Memphis. Food products, coal, and chemicals are the other major commodities that travel through Texas.

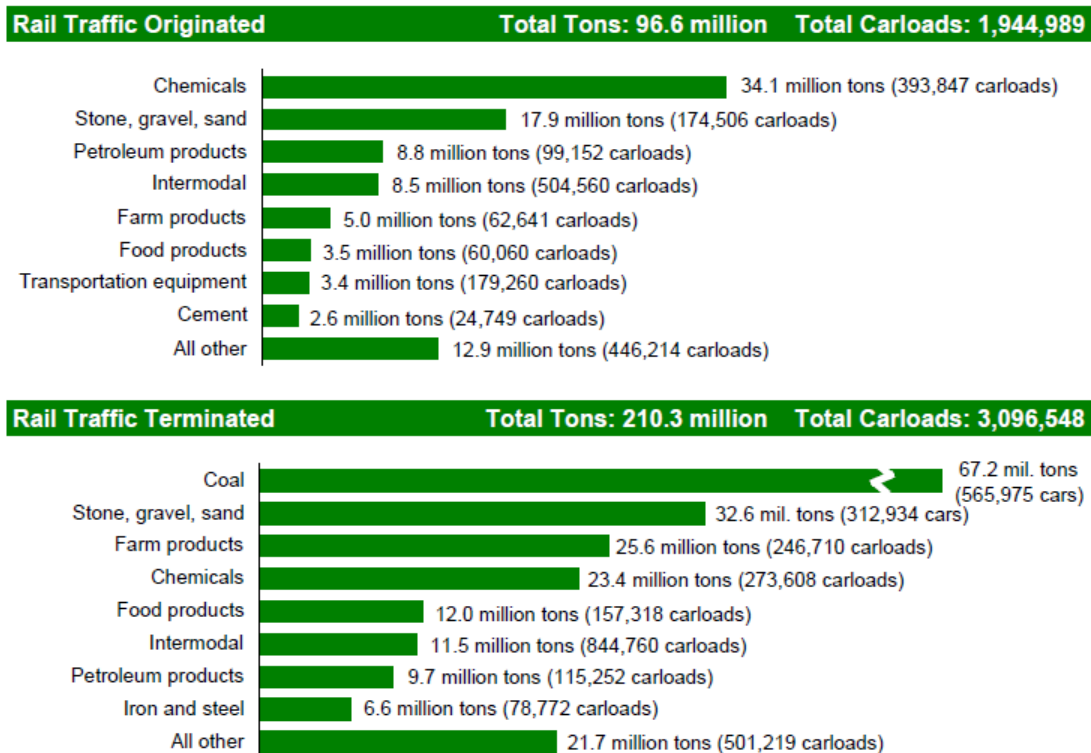


Figure ES-4: Texas Rail Movement Commodity Summary, 2008

Source: Railroad Statistics by State, published by the Association of American Railroads and derived from STB waybill data

Rail Systems in International Border Districts

Five of the seven locations for rail traffic to cross the U.S.-Mexico border are in Texas. The international rail gateways in Texas are in Brownsville, Laredo, Eagle Pass, Presidio, and El Paso (Figure ES-5). Each of these five gateways can transport rail freight over the Rio Grande by way of single-track bridges, with the exception of El Paso, which has two rail bridges. The other two international rail crossings traverse the border in Nogales, Arizona and Calexico, California. UP interchanges with the corresponding Mexican railroad at the border in Brownsville, Laredo, Eagle Pass, and El Paso. BNSF interchanges at El Paso on their own bridge and at Eagle Pass through trackage rights with UP. Kansas City Southern Railway Company (KCS) interchanges with Kansas City Southern de Mexico (KCSM) at the border in Laredo. The crossing at Presidio is currently out of service due to the burning of the bridge in February 2008, but the state owns the facility, which is operated by Texas Pacific Transportation Ltd. (TXPF). Two Mexican railroads connect to the Texas gateways: Ferrocarril Mexicano (Ferromex) at El Paso, Presidio, and Eagle Pass; and KCSM at Laredo and Brownsville.

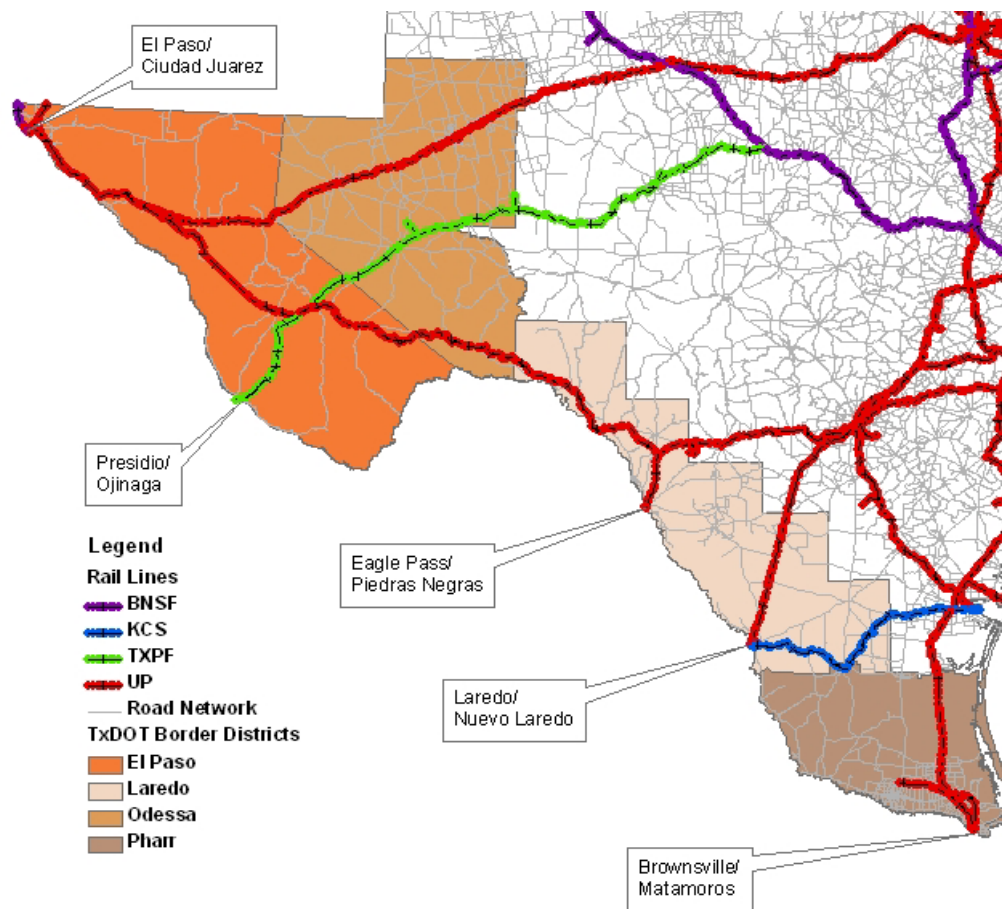


Figure ES-5: Texas/Mexico Rail Border Crossings and Border Districts

Texas Ports and Intermodal Facilities

Houston has one of the busiest ports in the country while Corpus Christi, Texas City, and Beaumont each are also nationally significant. The Texas Gulf Coast includes industry concentrations in machinery, chemicals, and petroleum refining, and is one of the country’s largest population centers. Texas has more than 970 wharves, piers, and docks for freight on 271 miles of deep-draft channels and 750 miles of shallow-draft channels. Table ES-3 lists the Texas ports by tonnage.

Total general cargo tonnage at Texas ports are projected to increase from 530 million tons in 2008 to between 820 million to 910 million tons in 2035. Table ES-3 shows the tonnage handled by Texas deep-draft ports.

Table ES-3: Tonnage Handled by Texas Deep-Draft Ports, 1990-2008

Port	1990	2008	% Change 1990–2008
Beaumont	26,729,000	69,483,539	160
Brownsville	1,372,000	5,669,445	313
Corpus Christi	60,165,000	76,786,173	28
Freeport	14,526,000	29,842,295	105
Galveston	9,620,000	9,781,368	2
Houston	126,178,000	212,207,921	68
Port Arthur	30,681,000	31,752,742	3
Port Lavaca			
Point Comfort	5,097,000	10,317,614	102
Port of Orange	709,000	676,735	-5
Texas City	48,052,000	52,606,030	9

Source: U.S. Corps of Engineers Waterborne Commerce Statistics Center.

Some Texas ports, including Houston, Corpus Christi, and Orange, are served by dedicated switching railroads (Port Terminal Railroad Association, Corpus Christi Terminal Railroad, and the Orange Port Terminal Railway, respectively) that provide rail services in close proximity to the port areas.

The amount of freight being transported by intermodal movements has increased dramatically since the 1990s. In response to the growth and interest in intermodal operations, the Class I railroads—BNSF, KCS and UP—have invested in intermodal facilities. Table ES-4 lists the rail intermodal facilities in Texas. With the expansion of the Panama Canal, larger container vessels could reach Texas ports if improvements are made to deepen the existing ship channels or locate new container terminals. With this ability, post-Panamax ships could have a significant impact on the need for better port connectivity and intermodal facilities.

Table ES-4: Class I Railroad Intermodal Facilities in Texas

Class I Railroad	Number of Intermodal Facilities	Location of Intermodal Facilities
BNSF	5(+1)	Fort Worth, Amarillo, Houston (Pearland), El Paso, Dallas (planned), La Porte (Barbours Cut)
KCS	3	Garland, Fort Bend County (Houston), Laredo
UP	8	Mesquite, Wilmer (Dallas Intermodal Terminal), San Antonio (SAIT), El Paso, Laredo (Port Laredo), La Porte (Barbours Cut), Houston (Settegast), Houston (Englewood)

Studies

As part of a statewide effort, a series of regional freight rail studies have been undertaken by HNTB Corporation and Jacobs Engineering. The goal of these studies is to:

- inventory existing rail systems;
- conduct a study of existing operations;
- identify freight constraints;
- identify safety issues with rail interactions with roadways;
- develop alternatives for improvements; and
- model these alternatives and complete economic analyses for these alternatives.

Each of these regional freight studies contains extensive details on railroad subdivisions, freight movement patterns and creates regional freight rail operation simulations to identify bottlenecks and estimate effects of infrastructure improvements. The level of detail in these studies, including costs and benefit information, can be used by TxDOT for project prioritization information in its short- and long-range rail programs.

To date, studies have been completed in San Antonio, Houston, West Texas, East Texas, Corpus Christi/Yoakum and Dallas/Fort Worth, with ongoing studies in the Rio Grande Valley/Laredo and El Paso regions.

From the aforementioned studies commissioned by TxDOT, a number of needed improvements have been identified throughout much of the state and are summarized in Tables ES-5 and ES-5a. This list of projects is best considered as a plan in progress, as studies have yet to be completed for the San Angelo, Childress, Abilene, Wichita Falls, Waco, Beaumont, Bryan, and Brownwood districts.

**Table ES-5: Estimated Costs of Identified Freight Rail Improvements in TxDOT Districts
(in millions of dollars, no right-of-way costs)**

TxDOT District	Crossing Closure	Crossing Closure and Pedestrian Bridge	Grade Separation	New Rail Connections	TOTAL
Houston	\$5.7	\$7.5	\$605.3	\$1,338.5	\$1,957.0
Austin	0.4	-	205.6	-	206.0
San Antonio	6.6	-	829.7	149.5	985.8
Dallas	1.7	-	147.1	-	148.8
Fort Worth	2.2	-	181.1	168.6	351.9
Corpus Christi and Yoakum	-	-	72.1	73.74	145.74
Amarillo	0.4	-	41.8	-	42.2
Lubbock	0.7	-	31.1	-	31.8
Odessa	-	-	4.8	-	4.8
Atlanta	0.2	-	28.3	-	28.5
Lufkin	0.4	-	-	-	0.4
Paris	0.4	-	6.5	-	6.9
Tyler	0.2	-	19.0	-	19.2
TOTAL	\$18.9	\$7.5	\$2,172.4	\$1,730.34	\$3,929.04

Note: Totals do not include the alternatives for the different planning cases in the Houston, San Antonio, and Austin Districts. Figures should be adjusted appropriately when considering these.

Table ES-5a: Estimated Costs of Identified Freight Rail Improvement Planning Cases

Planning Case	Estimated Cost (millions of dollars, no right-of-way)
Houston	
Houston 1	96.9
Houston 2	351.2
Houston 3	1,147.6
Houston 4	643.6
Austin	
San Antonio Bypass	1,398.1
Austin Bypass (1)	1,629.1
Austin Bypass (2)	1,708.1
Austin and San Antonio Bypass	2,473.9
San Antonio	
San Antonio 1	9.5
San Antonio 2	21.2
San Antonio 3	25.92
San Antonio 4	35.02

Government Involvement in Freight Rail

Other than TxDOT, there are several other entities within the state that have the authority to study, develop, and implement freight rail projects. These include freight rail districts, Regional Mobility Authorities (RMAs), and rural rail transportation districts. Most have the powers of eminent domain but have minimal or no taxing authority.

Passenger Rail

Passenger rail service can be categorized as high speed, intercity, commuter and regional, 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 and regional 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.

Table ES-6 lists the current providers of the rail services in Texas according to type of service.

Table ES-6: Annual Ridership of Existing Passenger Rail Services in Texas

Name of Service	Type of Service	FY 09	FY 08	FY 07
Texas Eagle*	Intercity	210,956	196,964	170,288
Sunset Limited*	Intercity	46,504	45,209	41,176
Heartland Flyer*	Intercity	69,651	76,720	56,377
Trinity Railway Express	Commuter	2,789,030	2,746,992	2,499,928
MetroRail (Austin) ¹	Commuter	na	na	na
Dallas Area Rapid Transit	Light	18,965,249	19,437,603	17,892,530
METRO Rail (Houston)	Light	11,561,633	11,799,700	11,708,959
McKinney Avenue Trolley	Trolley	241,662	282,081	314,528
Galveston Island Rail Trolley	Trolley	out of service	20,849	33,229

*Indicate ridership for boardings and alightings at Texas Amtrak stations only.

¹ Service commenced in March 2010

High Speed Rail (HSR)

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, 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.

Texas does have two federally designated future high-speed rail corridors—the “South Central” and “Gulf Coast,” as shown in Figure ES-6. The high-speed rail designations from the FRA in the late 1990s allowed states to apply for limited federal funds to improve safety and mobility, generally at highway rail grade crossings with the long-term goal of improving track speeds for passenger rail.



Figure ES-6: Federally Designated High Speed Rail Corridors in Texas

Source: Federal Railroad Administration

Intercity Passenger Rail (IPR)

The National Railroad Passenger Corporation, Inc. (Amtrak) is the sole provider of IPR service in Texas. It serves most of the state's major urban areas, though not all major urban areas are directly connected. Amtrak's partnership with motor coach service provides bus connections from Amtrak stations to other areas of the state. Figure ES-7 includes a map of the three current Amtrak routes in Texas. The two long-distance trains are fully-funded by Amtrak and include the Texas Eagle (San Antonio to Chicago) and the Sunset Limited (Los Angeles to New Orleans). There is one corridor train, defined as a route less than 750 miles, in Texas called the Heartland Flyer that provides a daily round trip between Oklahoma City, Oklahoma and Fort Worth, Texas. This route is jointly-funded by TxDOT in equal partnership with the Oklahoma Department of Transportation.



Figure ES-7: Current Texas Amtrak Routes
 Source: Texas Transportation Institute, 2007

While Amtrak’s annual ridership in Texas was more than 320,000 in FY 09—shown in Figure ES-8—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.

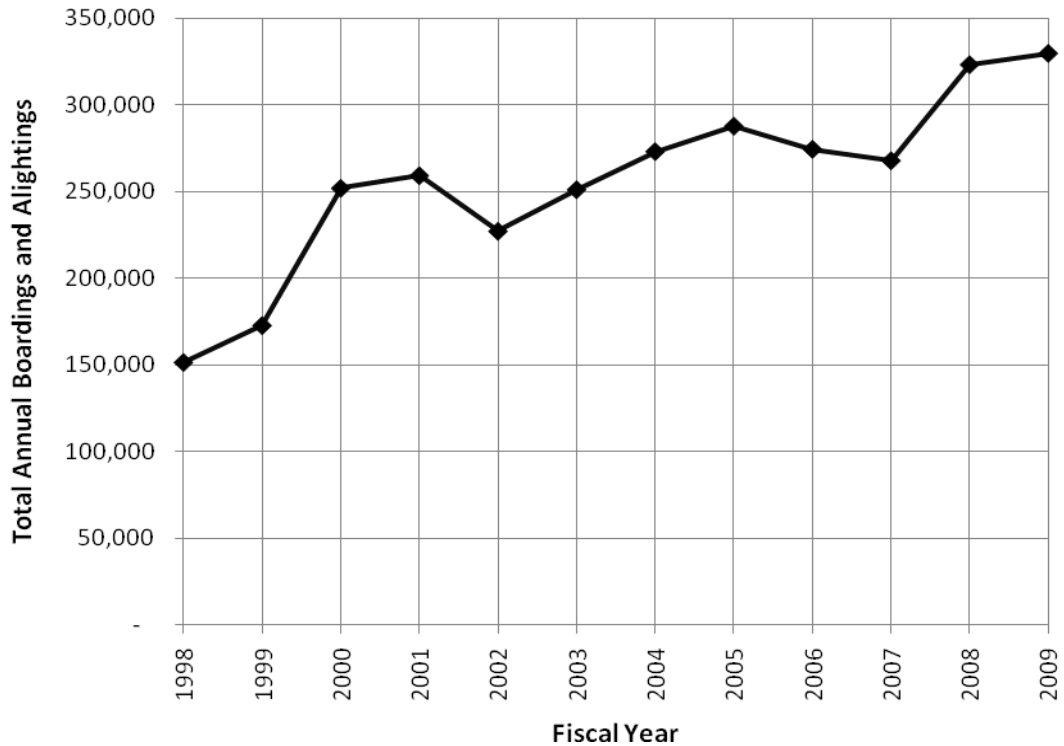


Figure ES-8: Total Annual Boardings and Alightings for Amtrak Stations in Texas

Source: Amtrak Government Affairs, 2010.

Local Transit and Connectivity Issues

While they are not the facilities for providing the intercity or statewide service, local transit systems are critical to the success of a statewide passenger rail system. The system must facilitate the entire trip in order 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.

Studies

In order for Texas to further develop a statewide passenger rail system, studies of corridors determined to have the highest ridership potential must be conducted. A preliminary study was recently conducted for TxDOT by the Texas Transportation Institute.

“Potential Development of an Intercity Passenger Transit System in Texas” used 15 performance measures to evaluate potential city-pair corridors for prioritizing rail investments in Texas. These performance measures, referred to as evaluation criteria in the report, considered the population and demographics, travel demand, and the transportation capacity of the 18 potential city-pair corridors. The two highest-ranking corridors were the Dallas-Fort Worth to San Antonio and Dallas-Fort Worth to Houston corridors. While a detailed ridership analysis is necessary to determine how the population centers in Texas—especially those in the Triangle and Gulf Coast mega-regions—are best connected by passenger rail service, there is opportunity to provide a transportation alternative to a significant amount of Texas’ population.

Corridor studies would include public outreach and consider all speeds and types of service. Some portions of the corridors could have multiple service types in order to best serve specific travel demands. There are also other considerations when a service is envisioned to share track with an existing freight line. UP and BNSF, in conjunction with AAR, have adopted principles addressing use of their freight network for passenger rail purposes. The following are some of the key points:

- Safety should not be compromised.
- Capacity must be provided for current and future freight operations.
- Compensation must be made to the railroads for any additional costs of expanded passenger rail service, including new infrastructure and increased maintenance costs.
- Liability should be capped.

Government Involvement in Passenger Rail

Other than TxDOT, there are other entities within the state that have authority to study, develop, and implement passenger rail projects. These include intermunicipal commuter rail districts, commuter rail districts, regional mobility authorities (RMA) and freight rail districts. Most have the powers of eminent domain but have minimal or no taxing authority with the exception of commuter rail districts.

Rail Safety and Security

Rail Safety

In order to promote transportation safety, both federal and state laws are in place to regulate railroad operations. The FRA of the U.S. Department of Transportation (USDOT) has established federal regulations pertaining to rail safety. These rules set standards that must be observed by all railroads dealing with the interchange of railroad cars and equipment and all passenger-carrying railroads (excluding light-rail and trolley facilities). The rules are built upon the extensive operating rules of each railroad, which cover safety matters in extensive detail. The Federal Railroad Safety Act of 1970 clarified that the FRA had specific authority over all rail safety-related matters and authorized the FRA to establish civil penalties for each violation of the regulations issued under the Act. The Federal Railroad Safety Act of 1970 authorized state

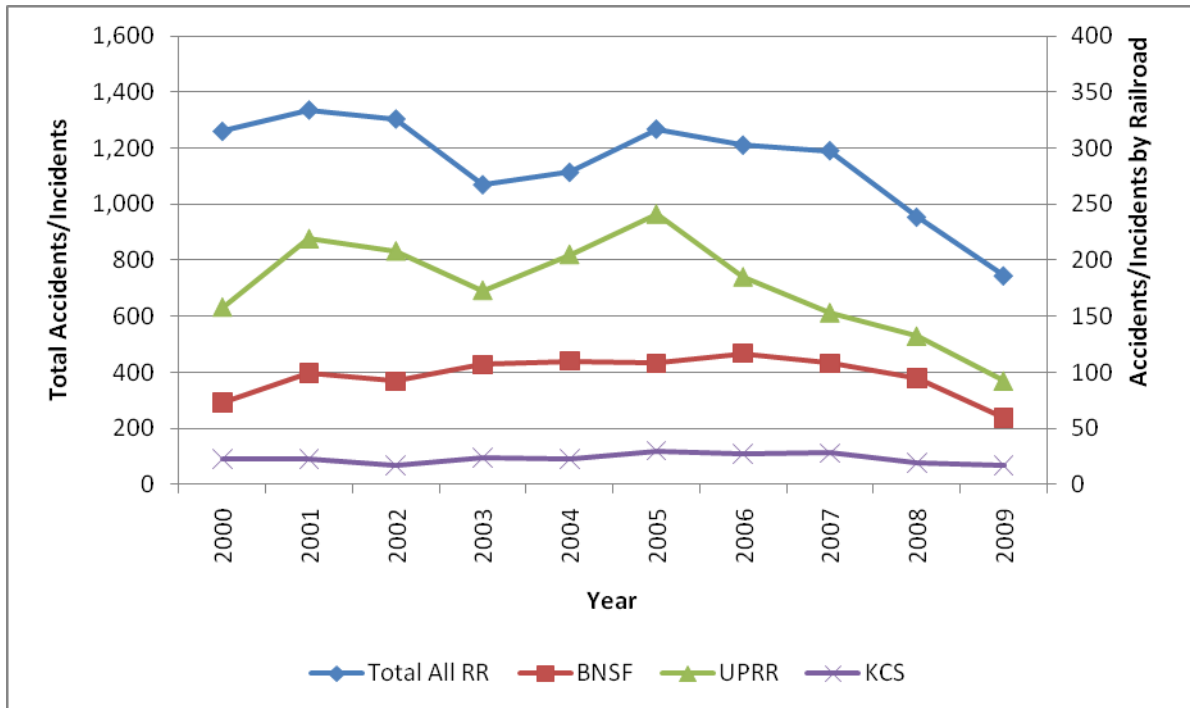
governments to participate in enforcement of federal railroad regulations. In 1980, states were further authorized to enforce rules on motive power, safety appliances, signal and train control systems, and hours of service regulations. Effective September 1983, the 68th Texas Legislature authorized the RRC to implement a railroad safety program in conjunction with the FRA. Transferred to TxDOT in 2005, Texas now has one of the largest state rail safety programs in the nation.

Federal Rules

Some of the more recent rules address issues such as train horn standards, which better define the engineering standards needed at grade crossings in order to implement quiet zones. On the topic of hazardous material transport, the FRA issued rules relating to tank cars carrying hazardous materials, specifically poison inhalation hazards (PIH) such as chlorine. Under the rule, tank cars carrying PIH would have to meet improved design criteria to improve puncture resistance and breakage of valves and would be limited to a maximum speed. Routing of hazardous material through urban areas has also been a recent topic and would require the railroads to evaluate the safety and security of those routes. Positive train control (PTC) is a technology that would make it possible to override manual controls in order to prevent a collision with another train or intrusion into a work zone on the railroad. PRIIA requires installation of such systems by December 2015.

Rail Accident Trends

Rail accidents and incidents in Texas have steadily decreased in the past ten years, similar to national rail safety trends. Figure ES-9 shows total number of rail accidents/incidents for Texas (left axis) and numbers for Class I railroads in Texas (right axis). These rail accidents include train accidents (on average, about 28% of total accidents/incidents), accidents at highway-rail grade crossings (26% of total), and accidents involving pedestrians and trespassers on railroad property (46% of total).



Note: Total accidents include train accidents, crossing incidents and other incidents that result in physical harm to persons.

Figure ES-9: Texas Total Railroad Accidents/Incidents, 2000-2009
 Source: FRA Office of Safety Data

Highway-Rail Grade Crossing Issues

Trends in grade crossing accidents are moving in the right direction, with a significantly steady decrease nationally and in Texas. Grade crossing accidents in Texas have been steadily decreasing in the last ten years, as shown in Figure ES-10.

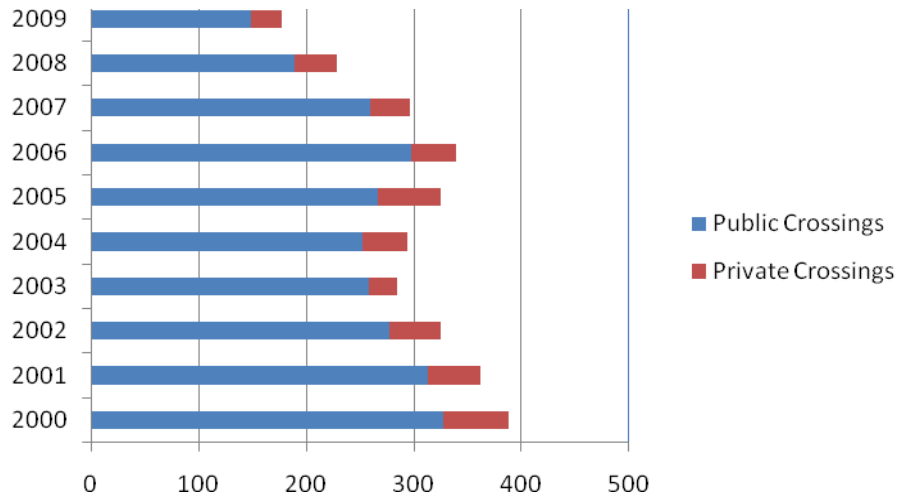


Figure ES-10: Texas Grade Crossing Accidents/Incidents, Public and Private Crossings, 2000-2009

Source: FRA Office of Safety Data

According to a 2004 USDOT Inspector General’s report, 94% of grade crossing accidents are caused by risky driver behaviors. This is just one of the statistics TxDOT is considering during the development of the state’s grade crossing safety action plan. The FRA, to comply with the Rail Safety Act of 2008, is requiring the top ten states with regards to highway-rail grade crossing collisions to submit an action plan by August 2011. The Texas crossing safety action plan will focus on identifying crossings experiencing multiple collisions. Utilizing evaluation, engineering, education and enforcement safety program components, projects will be developed and implemented using existing federally dedicated funding sources to reduce or eliminate collisions at these crossings.

Grade Crossing Safety Education

In order to supplement the effects of improving highway-rail grade crossing safety through facility upgrades and vehicle warning systems, information campaigns are in place to educate drivers on the safe operation of roadway vehicles at these crossings. Operation Lifesaver is a non-profit organization dedicated to reducing the number of collisions, deaths, and injuries at highway-rail intersections and on railroad rights-of-way through public awareness campaigns and programs that emphasize improved engineering, education, and enforcement. These programs are presented to schools, driver education classes, community groups, industry audiences, and professional drivers. Operation Lifesaver has many successful programs that emphasize the enforcement of existing traffic and trespassing laws and are conducted in conjunction with law enforcement efforts. In addition, Operation Lifesaver supports the consolidation and closure of redundant grade crossings and seeks engineering improvements to increase rail safety. RRD's rail safety inspectors are trained to present this program and supplement the efforts of Operation Lifesaver.

Rail Security

Like rail safety, rail security is primarily a federal matter, led by the Department of Homeland Security through the Transportation Security Administration (TSA), in cooperation with the Department of Transportation through the Federal Railroad Administration and the Pipeline and Hazardous Materials Safety Administration. Prior to the increased national attention to security after 9/11, rail security was primarily a concern of the railroads themselves and among the community of first responders responsible for addressing rail incidents involving hazardous materials. The 9/11 Commission Recommendations Act of 2007 establishes requirements for rail security planning, information sharing, and hazardous materials routing.

Final rules for rail security, published in November 2008, established the requirements for protecting security-sensitive information; identifying rail security coordinators at railroads and other hazardous materials shippers and receivers; reporting security incidents; and authorizing inspections of rail network facilities by TSA personnel. These rail security coordinators are required to coordinate security practices with appropriate law enforcement and emergency response agencies. The TSA reports that it has 175 rail security inspectors working out of 54 field offices around the country.

Financial Options

Given the scale and expense of major freight or high-speed and intercity passenger rail (HSIPR) projects, it is unlikely that any single funding source will be sufficient to cover all costs, but a number of federal and state programs may be applicable, as might other public and private funding mechanisms used in other states or other countries. The Funding Programs and Financing Tools Chapter of the TRP explains many of these programs in more detail. The programs are summarized in Table ES-7.

Table ES-7: Programs and Grants Available to Texas

	Program	Description	Funding	Texas-Allocated Funding (not necessarily for rail projects, unless specified)
FRA	Capital Assistance for IPR Service (Section 301 of PRIIA)	For projects included in state rail plan, grants used to finance capital costs for new/improved IPR service. 80/20 state grant program.	\$1.9 billion authorized for 2009-2013; funded through ARRA and FY 2010 Appropriations	
	Congestion Grants (Section 302 of PRIIA)	Grants to states or Amtrak (working with states) for capital costs in high priority rail corridors that reduce congestion or increase ridership.	\$325 million authorized for 2010-2013; funded through ARRA and FY 2010 Appropriations	
	HSR Corridor Program (Section 501 of PRIIA)	For projects included in state rail plan that result in significant improvements to IPR. Designated HSR corridors eligible. Grants used for capital projects.	\$1.5 billion authorized for 2009-2013; funded through ARRA and FY 2010 Appropriations	
	Rail Planning Provisions	Prepare and maintain state rail plan. Will serve as basis for federal and state rail investments.	Funded through FY 2009 and FY 2010 appropriations	
	Additional HSR Projects (Section 502 of PRIIA)	Determines interest through RFEI process.	No funding authorized	
	ARRA - Amtrak Capital Grants	"Shovel-ready" capital improvements to Amtrak.	\$1.3 billion	\$2.7 million to Amtrak for station improvements in Texas
	ARRA - HSIPR Program	"Shovel-ready" capital construction and improvements for HSIPR.	\$8 billion	\$3.84 million granted to Texas for signal improvements
FRA	Swift Rail Development Act	70% corridor development, 30% new technology development, including grade crossing studies and improvements in designated HSR corridors. (Modified in 2008 by PRIIA)	\$100 million per year (FY 2006 through FY 2013)	\$553,860 (2007)
	FY 2008 DOT Appropriations	Capital Grants to States for IPR	\$30 million (10% allowed for planning)	Application submitted; not selected for funding
	FY 2009 DOT Appropriations	Capital Grants to States for IPR	\$90 million (10% allowed for planning)	\$7 million (2010) for TRE/Amtrak improvements
	FY 2010 DOT Appropriations	Continue development of HSIPR corridors, planning for corridors, corridor construction	\$50 million (planning); \$2.125 billion (Service Development Programs); \$245 million (Individual Projects)	\$5.6 million for Oklahoma City to South Texas Study; August 6, 2010 for others

	Program	Description	Funding	Texas-Allocated Funding (not necessarily for rail projects, unless specified)
	Rail Line Relocation and Improvement Capital Grants	Local rail line relocation and improvements that mitigate adverse effects of rail, with eligible entities paying 10% of project costs.	\$1.4 billion authorized for FY 2006-2009 authorized; FY 2009 awards \$14.3 million; FY 2010 \$24.519 million to specific projects	\$4 million for Brownsville Rail Relocation (FY 2009); \$400k for North Rail Relocation Project, Cameron County (FY 2010)
	Credit Assistance Program: Rail Rehabilitation and Improvement Financing	Provides loan and loan guarantees for projects that enhance service and capacity in the national transportation system. Applicable to a wide variety of projects and borrowers.	\$35 billion authorized in 2006	\$50 million loan granted to Tex-Mex Railroad in 2005 (now KCS)
FHWA	National Highway System Funds	Used to improve highway network link on NHS. Selected rail projects eligible for funding.	\$7.6 billion apportioned in FY 2009	\$771 million total for Texas in FY 2009
	Surface Transportation Program	Flexible funding for highway improvements that accommodate rail lines eligible. Federal share is 80%.	\$8.1 billion apportioned in FY 2009	\$818 million total for Texas in FY 2009
	Transportation Enhancement Program	Designated for projects that strengthen various aspects of national intermodal system.	\$833 million required all states in FY 2009	\$80 million required for Texas in FY 2009
	Railway-Highway Crossings Program	Funding for projects that improve safety of at-grade crossings. Federal share is 90%.	\$220 million apportioned in FY 2009	\$17 million for Texas in FY 2009
	ARRA	State allocation was flexible for rail project improvements.	\$27.5 billion	\$2.25 billion to Texas; \$15.25 million for rail
	CMAQ Improvements	Funds available for projects that reduce congestion and/or improve air quality in non-attainment areas. Limited to rail projects linked with highway congestion reduction purposes.	\$2.1 billion apportioned in FY 2009	\$154 million for Texas in FY 2009
FTA	FTA New Starts/Small Starts	Program includes guideway capital investments for major transit projects, based on livability, economic development, environmental benefits, cost, and time saved.	\$8 billion	\$343.7 million
Office of Secretary of Transportation	Credit Assistance Program: Transportation Infrastructure Finance and Innovation Act	Allows federal government to make loans and loan guarantees for major transportation investments, including intermodal facilities.	\$6 billion in funding allocated since 1999	\$2.9 billion to projects in Texas
	Transportation Investment Generating Economic Recovery (TIGER) Grants	Discretionary grants awarded on competitive basis for capital investments in surface transportation projects of national significance.	\$1.5 billion through 9/2011	\$20 million for SH161 in Dallas; \$23 million for Dallas Downtown Streetcar

	Program	Description	Funding	Texas-Allocated Funding (not necessarily for rail projects, unless specified)
	TIGER II Discretionary Grants	Discretionary grants awarded based on long-term economic improvements, energy efficiency, GHG reductions, quality of life, and increased connections.	\$600 million through 8/2010	\$34 million for Tower 55
	Build America Bonds	Created by ARRA, provides states and municipalities with bonds to finance projects with interest subsidies from federal government. Broad investor appeal intended.	\$4.6 billion in federal subsidies; \$97 billion in total BAB debt issued as of May 2010	As of May 2010, 49 BAB issues in Texas, \$8.2 billion total debt
USDC	Economic Development Administration Funds	Grants in distressed industrial sites that promote job creation/retention. Rail spurs and sidings eligible for funds, provided evidence of economic distress relief from project. Covers 50% of project cost, up to 80% in severely depressed areas.	\$138 million allocated to 90 projects nationwide in FY 2009	\$17 million for 12 projects in Texas in FY 2009.
USDA	Community Facility Program	Three mechanisms funding construction and/or improvement of facilities in communities of 20,000 or less. Covers 75% of project cost, including infrastructure for industrial parks.	\$877 million in FY 2009 for nationwide investments in all community facility programs	\$25 million in FY 2009 for Texas community facility projects
EPA	Brownfield Revitalization Program	Funds for Brownfield site cleanup and redevelopment. 20% match required, although hardship waivers exist	\$200,000 per site	
State Programs	Rail Relocation and Improvement Fund	Enables TxDOT to tackle relocation and improvement projects if a revenue stream is implemented.	\$182 million (FY 2010 and FY 2011); appropriated but requires certification by comptroller	
	State Infrastructure Bank	Used to accelerate mobility improvements through financial assistance options. Loans used to leverage projects in the state.	\$375 million in loans granted, leveraging \$3.4 billion in total project costs (none for railroads)	
	Texas Emissions Reduction Program	Available for projects that reduce air pollution and engine idling through congestion relief at rail intersections in non-attainment or near non-attainment areas. Studies relocation of hazmat freight trains.	From FY 2001 to FY 2008, TCEQ funded 4,844 projects, totaling \$712 million	
	Texas Economic Development Bank	Funds can be utilized for rural rail development projects.	\$4.2 million appropriated from the Economic Development Bank account in FY 2009	
	Transportation Reinvestment Zones	Allow metropolitan areas operating rail facilities to diversify funding options through commitment of incremental tax revenues to a revenue stream for transportation.	3 TRZs created	

Potential State Programs

Local Option Transportation Funding. The Texas Legislature has considered proposals for local option transportation funding mechanisms in the last two legislative sessions in 2009 and 2007. States like California and Florida allow local option transportation taxes (sales or gas taxes) at the county level to fund road, transit, and rail improvements. Other funding streams under consideration could be vehicle registration fees, development fees, vehicle sales taxes, or other transportation-related fees.

Value Capture for Rail Investments. Transportation investments increase the value of adjacent property, particularly property in urban areas, according to studies by Dallas Area Rapid Transit and the North Texas Tollway Authority. Various funding and taxing mechanisms can help retain some of this value created by transportation investments and channel those funds to help pay for the transportation projects. These mechanisms include:

- Land value taxes
- Tax increment financing
- Special assessment districts
- Transportation utility fees
- Development impact fees
- Joint development
- Air rights

Tax incentives. A number of states offer property tax or income tax benefits for railroads or shippers making rail investments to bring new rail service to existing businesses or to serve new businesses.

State loan/freight programs. States like Minnesota and Iowa have retained their former Local Rail Freight Assistance revolving funds for railroad development, particularly for short line railroads. Iowa and Kansas continue to apply state funds to recapitalize the funds, and Oklahoma levies a railcar tax to fund its short line railroad development program. Oregon used lottery revenues to fund a multimodal freight transportation program, which awards grants and loans on a competitive basis to freight projects. Oregon also offers state financial assistance to in-state applicants for FRA Railroad Rehabilitation and Improvement Financing loans, paying for credit risk premiums or loan preparation costs.

Public-private partnerships (PPP). Europe and Asia have implemented extensive high-speed rail networks through a variety of public-private partnerships that share infrastructure ownership and maintenance, train operations and stations, with public funding and private firms. Texas' Comprehensive Development Agreement statutory authority, currently limited, could be expanded to offer delivery and operation of high-speed rail services through PPPs. California and Florida are considering PPP approaches to deliver HSR services funded by recent federal grants. PPPs for freight projects on private railroads will require careful assessment of the relative benefits by public and private parties so that costs can be allocated appropriately.

Short- and Long-Term Rail Program

As TxDOT develops its short- and long-range rail programs several factors must be considered which affect freight or passenger rail, or both. These include capacity of the system, impacts of existing and future passenger rail needs, safety, and expected reliability of the system.

Project Prioritization

TxDOT worked with the Texas Transportation Institute to develop a method by which to prioritize rail projects that would be eligible for state funding through the Texas Rail Relocation and Improvement Fund. Criteria for ranking projects and a methodology for ratings based on the criteria has been developed. The Table ES-8 is a summary of the criteria. These criteria would be weighted based on direction from the Transportation Commission with consideration of the particular funding programs.

Table ES-8: Proposed Project Evaluation System

Sustainability	Transportation	Implementation
Economic Impact	Safety and Security	Cost Effectiveness
Environmental/Social Impact	Connectivity	Project Development
Asset Preservation	Congestion Relief	Partnerships
	System Capacity	Innovation

Project Development and Implementation

Texas' short-term program focuses on improvements to passenger corridors and freight rail improvements in Texas over the next five years that are already funded, or have been prioritized and included in a funding request. For passenger rail, this will include key planning studies to identify and prioritize corridor development in the state as well as construction improvements to existing passenger rail service. In freight rail, funding has been identified for grade crossing improvements, grade separations, and rehabilitation on the state-owned South Orient Rail Line. In addition, funding was recently secured for one of the most congested at grade rail intersections in the country, Tower 55. The short-term program will be supplemented with improvements already identified once they are prioritized using the methodology discussed in Section 7.1 and as funding becomes available.

The short-term program will be coordinated with other entities, especially local planning organizations and MPOs for inclusion in short term transportation plans to include the Transportation Improvement Program (TIP) as well as the TxDOT Statewide Transportation Improvement Program.

The goals of the long-term program is to further develop the passenger corridors identified in the short-term program and complete freight studies for the state. As the studies are completed, improvements will be prioritized and added to the list of unfunded improvements identified in Appendix 7A. As funding allows, these improvements will progress to the short-term program.

The long term program will be coordinated with other entities, especially local planning organizations and MPOs for inclusion in their long-range plans and TxDOT's Unified Transportation Plan.

Initiatives to create high-speed rail corridors and accompanying improvements would cut travel times on passenger rail routes, resulting in increased ridership. Due to the distances involved in Texas travel, the greatest impacts would be felt on high-demand intercity trip corridors. The designation of and commitment to upgrading Texas high-speed rail corridors should provide access to resources to improve speeds on key stretches for passenger rail.

It is important to note that at the state level, the Rail Relocation and Improvement Fund (RRIF) plays an integral role in achieving both short- and long-term rail plan goals. The funding and building of the RRIF will establish Texas' ability to address the rail plan goals for which no federal funding is available and will act as a match for any federal funds that are available.

Financial Strategy

Funding sources available to support both freight and passenger rail projects in Texas are limited mainly to federal sources for the near-term. The private nature of most of the existing rail system has restricted the role the state can play in improving rail transportation options, although increasing interest in PPPs for the development and improvement of rail systems is rapidly advancing. The new transportation financing tools provided by the Texas Legislature should help address rail infrastructure needs and constraints in the state. While these new rules and procedures are developed, TxDOT can implement the following:

- **Careful planning:** Allocating public and private cost share for freight rail projects and identifying HSIPR corridors and service designs require deliberate, transparent planning by TxDOT. Such planning is required by many federal grant programs.
- **Accessing federal programs:** TxDOT will take steps necessary to compete for and seek funding from HSIPR rail programs, credit enhancements, and flexible multimodal programs for passenger and freight rail projects. The creation of a distinct Rail Division (RRD) within TxDOT is an important step to develop the program and project management expertise to manage a growing portfolio of rail projects.
- **State and local funding flexibility:** Additional funding mechanisms for local/regional governments to improve freight service and expand passenger rail services, including transit connectivity and station developments, is needed. Flexible state funding programs such as the Rail Relocation and Improvement Fund, the State Infrastructure Bank, and other appropriated funds can leverage federal and private capital for infrastructure and provide support for freight and HSIPR projects.
- **Public-Private Partnerships:** Mutually-beneficial agreements between TxDOT and private railroads are critical to achieve the freight and passenger visions of the Texas Rail Plan. PPP legislation can be tailored to help deliver rail investments in the future.

Continued Coordination

Public entities at the federal, state, and local levels will have to continue to coordinate and integrate their plans with TxDOT for incorporation into the statewide rail plan.