Crossroads of the Americas: Trans Texas Corridor Plan

Trans Texas Corridor

June 2002

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[Transportation] is … of vital importance, and we must all lay our hands to it as a great and mighty work of national interest and concernment, divested of everything sectional or local in its character. If its accomplishment is to be secured, it must be done with united hands and united hearts, with reference alone to the public good and its accomplishment on the most reasonable terms that the national resources will justify.

—Sam Houston, 1858

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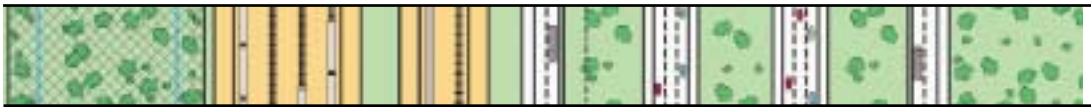


Looking Down the Road

Background

Draw a north-south line from Mexico City to Chicago. Draw an east-west line from Los Angeles to Miami. The two lines intersect in Texas.

Texas has long been seen as the crossroads of North America, but this concept has never been more relevant as trade between North and South America continues to grow.

Most goods and commodities coming into the United States from Mexico and South America cross the Texas border and move north, sometimes all the way to Canada. The reverse is true for exports. In fact, 79 percent of all U.S.-Mexico trade passes through Texas ports of entry. Under the North American Free Trade Agreement, this international traffic will only increase.

A large percentage of the nation's cross-continent traffic also passes through Texas. And then there are the transportation needs of the 21 million people who already live here.

Texas' population has increased a staggering 65 percent since 1988. Growth is projected to continue at a rate of 30,000 new residents a month. The state's existing road and bridge system will not be sufficient to accommodate the increased traffic this growth will bring. Beyond that, much of Texas' transportation infrastructure is nearing the end of its design life.

Texas is at a crossroads.

History

Transportation systems, driven by a simple need to move people and goods from Point A to Point B, are as old as civilization. Well-constructed roads and bridges held the Roman Empire together. The inability to expand and maintain that transportation system was one of the key factors that brought about the empire's eventual collapse.

Native Americans operated Texas' first transportation system. Their paths followed well-worn animal trails leading to sources of water and food. Later, these first Texans developed a network of footpaths and eventually horse trails to connect with trading points and landmarks ranging from strategic to sacred.

After Spain claimed the Southwest, a trace known as the El Camino Real—the King's Highway—cut across Texas from the Sabine River on the east to the Rio Grande on the southwest. For years, this roadway—actually a series of routes that amounted to Texas' first transportation corridor—remained the gateway to Texas and Mexico.

Other routes developed to tie into this Spanish colonial road, a happenstance version of what engineers today call connectivity.

History
(continued)

Connectivity still is an important concept.

A second significant transportation corridor to span Texas was the Butterfield Overland Mail Route. This 2,700-mile stagecoach road began in St. Louis, entered Texas across the Red River north of Dallas and moved through the state to El Paso for an eventual connection to San Diego. The Civil War cut short the route's useful life, but it demonstrated the national importance of being able to move people and goods over long distances. The mail route also foreshadowed development of the nation's first trans-continental railroad.

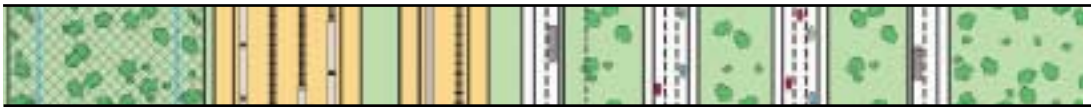
After the Civil War, the Chisholm Trail connected Texas to the railhead in Kansas. Texas cattlemen pushed 5 million head of Longhorn cattle "up the trail" to market, reinvigorating Texas' shattered economy.

Soon railroads began building into and across Texas. With completion of the Texas and Pacific line in 1881, the state had its first high-speed transportation corridor. Of course, high speed is a relative term. Steam engines of the era running full throttle pulled cars about 40 miles per hour. Still, that was faster than anyone had ever been able to move across Texas and speeds soon increased with development of more powerful locomotives. The new rail system, as transportation always has done, extended settlement and created jobs. Abilene, Sweetwater, Colorado City, Big Spring, Midland and Odessa all trace their beginnings to this railroad line.

Rail remained the principal mode of long-distance travel in Texas until the development in the early 1900s of inexpensive and reliable motor vehicles. That brought about the need for paved roads.

The state got into the business of designing and building highways in 1917 with the creation of the Highway Department, now the Texas Department of Transportation. Within a year, Texas' fledgling transportation agency had prepared a map of a proposed statewide highway system. Many of the state's roadways followed or were close to the old trails used by Native Americans and the other cultures which followed them.

Now, at the beginning of the 21st Century, it's time for Texas to look down the road. Texas proposes to build a new type of transportation system, a network of wide corridors designed to move people and goods faster and more safely than ever before. Beyond that, the corridor will feature a wide utility zone for the transmission of oil, natural gas, electricity, data and a substance critical to the future of the state—water.



Looking Down the Road

World-class concept

The Trans Texas Corridor is the largest engineering project ever proposed for Texas, a world-class concept. The planning and work involved in the corridor will far exceed any public works project in the state's history. The first cross-state railroad, the Galveston seawall, Texas' present highway infrastructure, the Astrodome…nothing compares in scope to the corridor.

This is not the first time Texas has started with a vision and transformed it into a useful reality. Texas' pink granite Capitol is a monument to state-of-the-art 19th Century engineering and innovative financing—the state traded 3 million acres of public land to pay for the building. But the best example is our Interstate highway system.

Planning for a "National System of Interstate Highways," first envisioned in 1939 and expedited during World War II because of its importance to national defense, began in 1944. Within three years, the routes had been selected. A Texan, the late Frank Turner, played a key role in the planning process. In fact, the 1929 Texas A&M graduate is considered the "father of the Interstate system." Construction finally began in 1956 after President Dwight D. Eisenhower signed into law a measure creating the National Highway Fund.

Within 14 years, the Interstate system in Texas was essentially complete. A 3,234-mile network of multi-lane highways engineered for speed and safety connected the state's major cities.

But the similarity between Texas' portion of the Interstate system and the Trans Texas Corridor ends there. The Interstate system was a nationwide effort, primarily funded with federal dollars. Though other state transportation agencies also are looking to the future, no other state has proposed such an ambitious and visionary project as the corridor.

The concept is simple. Texas will be connected by a 4,000-mile network of corridors up to 1,200 feet wide with separate lanes for passenger vehicles (three in each direction) and trucks (two in each direction). The corridor also will include six rail lines (three in each direction): two tracks for high-speed passenger rail, two for commuter rail and two for freight. The third component of the corridor will be a 200-foot-wide dedicated utility zone.

The corridor paves the way—literally—to the future of Texas. The Trans Texas Corridor will allow for much faster and safer transportation of people and freight. It will relieve our congested road-

ways. It will keep hazardous materials out of populated areas. It will improve air quality by reducing emissions and provide a safer, more reliable utility transmission system. It will keep Texas' economy vibrant by creating new markets and jobs. Finally, as the King's Highway and the railroad did in previous centuries, the corridor will lead to the development of new cities while increasing the importance of existing cities.

Funding for the corridor will be as innovative as the corridor itself. Texas voters provided the framework on November 6, 2001 when they approved Proposition 15. That constitutional amendment allows Texas more flexibility than it has ever had to pay for transportation projects through a variety of means. These include public-private partnerships called exclusive development agreements, and funding options like toll equity, the Texas Mobility Fund and regional mobility authorities. Beyond these mechanisms, this report outlines other possible sources for funding the corridor.

The Trans Texas Corridor plan sounds futuristic and it is. Nearly a half-century ago, the proposed Interstate highway system seemed as avant-garde. But this new vision is achievable.

Sam Houston, the first elected leader of the Republic of Texas, understood the importance of transportation. After Texas' admission to the Union, the hero of San Jacinto went to Washington to serve the new state as one of its two senators.

In 1858, during debate on what route the nation's first transcontinental railroad should take, the tall Texan rose in the upper house of Congress to put the issue into perspective.

Transportation, he said, "is…of vital importance, and we must all lay our hands to it as a great and mighty work of national interest and concernment, divested of everything sectional or local in its character. If its accomplishment is to be secured, it must be done with united hands and united hearts, with reference alone to the public good and its accomplishment on the most reasonable terms that the national resources will justify."

Houston's words, spoken as an earlier generation looked down the road, are as appropriate today as they were then. ✪

Executive Summary

Quick view

- The Trans Texas Corridor is an all-Texas transportation network of corridors up to 1,200 feet wide. The 4,000-mile corridor will include separate highway lanes for passenger vehicles and trucks, high-speed passenger rail and commuter and freight rail. The corridor also will have a dedicated utility zone.
- Four corridors have been identified as priority segments of the Trans Texas Corridor. These corridors parallel I-35, I-37 and I-69 (proposed) from Denison to the Rio Grande Valley, I-69 (proposed) from Texarkana to Houston to Laredo, I-45 from Dallas-Fort Worth to Houston and I-10 from El Paso to Orange.
- The Trans Texas Corridor will allow for much faster and safer transportation of people and goods. It will relieve congested roadways. It will keep hazardous materials out of populated areas. It will help improve air quality by reducing emissions and provide a safer, more reliable utility transmission system. It will keep Texas' economy vibrant by creating new markets and jobs.
- Based on an estimated cost of $31.4 million per centerline mile, the 4,000-mile corridor would cost $125.5 billion, not including right of way and miscellaneous costs. Factoring in right of way at $11.7 billion to $38 billion and miscellaneous costs at $8 billion to $20 billion, the estimated total cost for the Trans Texas Corridor would range from $145.2 billion to $183.5 billion.
- In 2001, the 77th Legislature provided several new financial tools to help Texas meet its transportation demands. Legislation enabling toll equity, regional mobility authorities and the Texas Mobility Fund will help TxDOT continue its efforts to enhance the existing transportation system. These tools also will help pay for the Trans Texas Corridor.

Executive Summary

Overview

The Trans Texas Corridor plan gives shape to a vision coming into sharper focus every day. The corridor is a way for Texas to expand opportunities, enhance freedom of movement, and provide the good things of life to the ever-growing number of people making Texas their home.

The Trans Texas Corridor is the largest engineering project ever proposed for Texas. The corridor paves the way—literally—to the future of Texas.

Partners in the public and private sectors, by working together early in the process, can develop a 21st Century transportation corridor that will be a model for the nation.

Benefits

The Trans Texas Corridor will allow for much faster and safer transportation of people and goods. It will relieve congestion on existing roadways. It will keep hazardous materials out of populated areas. It will improve air quality by reducing emissions and providing a safer, more reliable utility transmission system. It will keep Texas' economy vibrant by creating new markets and jobs. It will bring economic development to all parts of the state, but especially in economically depressed rural areas. Industrial parks served by multimodal transportation and economic development zones built around connectivity points will foster economic growth. The corridor will lead to the development of new cities while increasing the importance of existing cities.

Planning

The Trans Texas Corridor is an all-Texas transportation network of corridors up to 1,200 feet wide. The corridor will include separate tollways for passenger vehicles and trucks. The corridor also will include six rail lines (three in each direction): two tracks for high-speed passenger rail, two for commuter rail and two for freight. The third component of the corridor will be a protected network of safe and reliable utility lines for water, petroleum, natural gas, electricity and data.

Four routes have been identified as priority segments of the Trans Texas Corridor. These corridors parallel I-35, I-37 and I-69 (proposed) from Denison to the Rio Grande Valley, I-69 (proposed) from Texarkana to Houston to Laredo, I-45 from Dallas-Fort Worth to Houston and I-10 from El Paso to Orange.

Factors weighed in identifying priority corridor segments include:

- Congestion relief for metropolitan areas.
- Existing hazardous material routes.
- Corridors most likely to generate toll revenue.
- Opportunities for economic development.

Planning (continued)

Public involvement will be a key to planning and developing the corridor. During the corridor's route-selection phase, any needed changes will be identified through a detailed, project-specific process of public involvement. The public will have opportunities to comment early and often.

Connection between the corridor and nearby cities will be accomplished with the existing highway system. Proposed corridor segments will require interconnection with additional modes of transportation to enable passengers and freight to reach their final destinations in nearby cities. Privately funded franchises or public-private partnerships will provide transportation from the corridor to destination cities.

Construction of the corridor could allow modification of more than $2 billion in planned statewide mobility projects. Projects along existing major highways paralleling proposed corridor routes may not require as much right of way, could be modified in scope or even delayed. Not included in this estimate are projects the Texas Transportation Commission has previously funded. Most Phase 1, Priority 1 Trunk System projects will continue to be developed.

Expanding the corridor beyond Texas will require a cooperative effort with Mexico, as well as Louisiana, Arkansas, Oklahoma and New Mexico.

Design

Safety, improved travel time, and greater reliability will characterize the Trans Texas Corridor. Planned for phased construction, the system will connect cities across the state with a series of multimodal corridors. These will feature a high-speed, controlled-access tollway with separate lanes for passenger vehicles (three lanes in each direction) and trucks (two lanes in each direction). Additional features include two-way rail (six tracks, three in each direction) with separate commuter/freight and high-speed passenger facilities and a dedicated utility zone for transmission of oil, natural gas, energy, water and data.

Separating passenger vehicle and truck lanes to benefit the traveling public is fundamental to the corridor's overall design. To avoid contributing to urban congestion, the corridor will connect major cities while not flowing directly through them. The corridor also will be designed to take advantage of intelligent transportation systems.

The vision is that the corridor will be developed in phases through several scenarios. For example, the heavy-duty truck lanes (two in each direction) could be built first, to be shared initially by both

Design
(continued)

passenger vehicles and trucks. As traffic volumes increase and additional capacity is warranted, separate passenger lanes will be constructed. This will be accomplished without disrupting the existing roadway.

The rail component also lends itself to phased construction. To make this a more feasible element for the corridor, a single track for freight and commuter lines would be constructed initially. This trackage would be built first along segments most needed to relieve pressing transportation problems. Construction of high-speed passenger rail to connect the largest population areas will be implemented as the need grows for travel alternatives.

The 200-foot-wide utility zone will accommodate large water lines, natural gas and petroleum pipelines, telecommunication fiber-optic cables and high-power electric lines. Because of rapidly changing technologies, utilities will not be installed until needs are clearly identified. The utility zone initially would be leased to agricultural concerns where feasible. Conduit for data transmission would be installed initially for use when needed. Lines for oil, natural gas and water would be constructed as demand occurs.

Although the design and cost analysis reflects construction of all corridor components, individual elements can be phased in as needed. All corridor cost estimates are based on current dollar values.

Pavement cost for a four-lane truck roadway is estimated at $3.1 million per centerline mile. Projected pavement cost for a six-lane passenger vehicle roadway is $1.1 million per centerline mile. Other roadway costs in addition to pavement structures will include mobilization, clearing right of way, excavation, signing and pavement markings, embankment, drainage structures, landscaping and safety features. Total roadway cost per centerline mile is estimated at $7 million.

The average cost of grade-separated bridge structures is estimated at $5.2 million per centerline mile. The average cost of interchanges is estimated at $3.2 million per centerline mile.

The use of freight cars capable of accommodating heavier loads allows for transportation of increased tonnage in a single train. The corridor will have heavier rail for these freight cars. The average cost for conventional commuter and freight rail is estimated at $4.4 million per centerline mile for four tracks. This estimate does not include passenger stations or dispatch control centers. Including costs for mobilization, excavation and embankments as well as incidental expenses associated with construction of new

Design (continued)

track, the cost would be $7.4 million per centerline mile for four tracks.

Based on an estimated cost of $31.4 million per centerline mile, the 4,000-mile corridor would cost $125.5 billion, not including right of way and miscellaneous costs. Factoring in right of way at $11.7 billion to $38 billion and miscellaneous costs at $8 billion to $20 billion, the estimated total cost for the Trans Texas Corridor would range from $145.2 billion to $183.5 billion.

Environment

An extensive environmental review will be an integral part of the process to develop the Trans Texas Corridor. Though all segments are conceptual at this point, avoidance or minimization of adverse environmental impacts will be paramount in developing the corridor. A large-scale ecosystem approach to mitigation will compensate for unavoidable impacts. Keys to ultimate success include cooperation among stakeholders, a new approach to addressing regulatory requirements, improvement of the efficiency and effectiveness of transportation environmental decision-making and successful preservation of the transportation corridor.

Right of way

To preserve the corridor for future generations, acquiring property for all components should begin as soon as possible. Property rights are important to TxDOT and will receive high priority in this process. Through good-faith negotiation, TxDOT will acquire necessary right of way in a single transaction with each owner. Acquisition of right of way will be characterized by public-private investment, including financial participation by utilities, railroads, developers and landowners.

Toll

The toll segments of the Trans Texas Corridor will be developed through a variety of means including low-bid contracts for turnpike improvements coordinated by TxDOT. Another mechanism for toll-segment development would be through low-bid contracts coordinated by regional mobility authorities. Development also can occur through exclusive development agreements (also containing a franchise agreement) with private-sector developers. Administration of such projects would come through TxDOT, a regional mobility authority or a regional toll authority. Proposals for exclusive development agreements would be solicited by requests for proposals or submitted by private entities as unsolicited proposals. Regional toll authorities (such as the North Texas Tollway Authority) or a county toll authority (such as the Harris County Toll Road Authority) also could play a role in development of the corridor's toll segments. Legislative action will be required for full implementation of such options.

Rail

The rail component of the Trans Texas Corridor will give the people of Texas and visitors the ability to travel by commuter and high-speed rail. In turn, this will reduce traffic congestion. Rail also will provide more capacity for freight (both rail and truck), greatly enhancing the state's ability to accommodate the movement of goods to market. In addition, the Trans Texas Corridor will provide rail companies with new markets.

Utilities

The utility component of the Trans Texas Corridor includes infrastructure for the movement of oil, natural gas, water, electricity and data. The corridor's dedicated utility zone will reduce the chances of pipeline damage and the related safety and environmental consequences. It will improve the efficiency of pipeline systems. It will provide more capacity for electrical transmission systems. It will improve cost-effectiveness by providing advanced telecommunications and data transmission to all areas of the state. It will facilitate the long-distance transfer of fresh water to areas of Texas desperately needing this vital natural resource.

Finance

In 2001, the 77th Legislature provided several new financial tools to help Texas meet its transportation demands. Legislation enabling toll equity, regional mobility authorities and the Texas Mobility Fund will help TxDOT continue its efforts to enhance the existing transportation system. These tools also can be used in developing the Trans Texas Corridor. Other possible methods of funding include concessions, the federal Transportation Infrastructure Finance and Innovation Act of 1998, various other federal programs and leasing right of way.

Action Plan

Many statutory tools for corridor development already are in place, but some changes in state and federal law will be needed. This section of the report provides a timeline for action by TxDOT from August 2002 through December 2003. The action plan also sets forth specific congressional and legislative actions needed to move the Trans Texas Corridor off the drawing board and onto the Texas landscape. ✪

Crossroads of the Americas: Trans Texas Corridor
Action Plan

Overview

Governor Rick Perry wrote Transportation Commission Chairman John W. Johnson on January 30, 2002 to outline his vision for the Trans Texas Corridor. The Governor asked the three-member commission to assemble the Texas Department of Transportation's top talent to create and deliver a Trans Texas Corridor implementation plan in 90 days.

This report details what the corridor will look like, identifies four priority segments and discusses how the project can be funded.

Texas needs to move quickly in developing the corridor segments that will generate the highest toll level—revenue that will enable TxDOT to extend the corridor into every section of the state. What follows is an action plan that sets out what needs to be done to transform this innovative transportation concept into reality.

TxDOT actions

August 2002

Designate Trans Texas Corridor Office

The department will designate a central office to oversee the development of the Trans Texas Corridor.

Strengthen and market regional mobility authorities

Regional mobility authorities, created by the Texas Legislature, will have a critical role in the success of the Trans Texas Corridor and other local transportation projects. In addition to steps already taken, TxDOT will enhance these authorities through the following means:

- Inform the public, local governments and private entities of the advantages of regional mobility authorities, toll roads, leveraging funds and the use of surplus revenue as a catalyst for other projects.
- Provide greater responsibilities to regional mobility authorities in the development of Trans Texas Corridor segments.
- Create evaluation tools outlining project development and establish partnering methods TxDOT and regional mobility authorities can use to combine resources.
- Provide information to the private sector on toll equity and exclusive development agreements.

TxDOT actions (continued)

September 2002

Market initial segments

- The department will market and accept proposals for the priority segments. The four priority corridors parallel:
  - I-35, I-37, I-69 (proposed) from Denison to Rio Grande Valley.
  - I-69 (proposed) from Texarkana to Houston to Laredo.
  - I-45 from Dallas-Fort Worth to Houston.
  - I-10 from El Paso to Orange.

Reach out to the public

Exchanging ideas about the Trans Texas Corridor is critical to its development. The first phase of TxDOT's public outreach effort will include:

- Setting up a central clearinghouse for public information about the Trans Texas Corridor.
- Holding numerous public meetings throughout the state.
- Developing a public information campaign. This will include putting up a Web site, producing a newsletter and other outreach efforts.

Reach out to stakeholders

- Meeting with major stakeholders such as local, county and state elected officials, regional governments, surrounding states, Mexico and corporations.
- Involving stakeholders will also rely on public information efforts.

January 2003

- Begin environmental review public meetings.
- The department will begin environmental studies and the records of decision process for the first four corridors. Using the comprehensive public involvement process for I-69 (proposed) as a model, public meetings and hearings will be held in tandem with the work of resource agencies. The public will be engaged throughout the process.
- Right of way acquisition for purposes of corridor preservation will begin as soon as the transportation corridor environmental reviews are completed. Priority will be given to the first segments identified above.

United States Congress

August 2002 through December 2003

In the absence of rising revenues, Congress has gradually turned toward the innovative use of limited funding. The Transportation Equity Act for the 21st Century will be reauthorized in 2003, providing Texas an opportunity for greater flexibility in meeting its transportation demands. Recommended changes to the federal act are listed below. Further detail can be found in individual chapters of this report.

- Establish a schedule for buying portions of federally funded highways for the purpose of tolling by regional mobility authorities.
- Increase the rate of return Texas receives on its fuel tax dollars sent to Washington.
- Permit the movement of funds among federal programs to construct comprehensive transportation systems.
- Streamline the environmental and project review processes.
- Waive the 20 percent state match for federally funded projects. Permit “donor” states (those that contribute more money to the Highway Trust Fund than is returned) to receive 100 percent reimbursement for project expenditures.
- Allow private entities to issue tax-exempt bonds for highway projects. This is common practice for airport, seaport and transit projects and should be for an undertaking like the Trans Texas Corridor as well.
- Increase funding levels for, and guarantee Texas a share of, High-Speed Rail Grants and Railroad Rehabilitation and Improvement Financing.
- Allow toll credits to be derived from projects that include federal funds. This can be accomplished on a pro rata basis gauged by the amount of federal dollars apportioned to a project.
- Seek federal funding for the study and development of new freight, high-speed passenger and commuter railroads.

Texas Legislature

January 2003 through May 2003

Many statutory tools are in place, but changes in state law will be necessary to realize the full benefits of the Trans Texas Corridor. The changes are listed on the following page. Further detail can be found in individual chapters of this report.

Texas Legislature (continued)

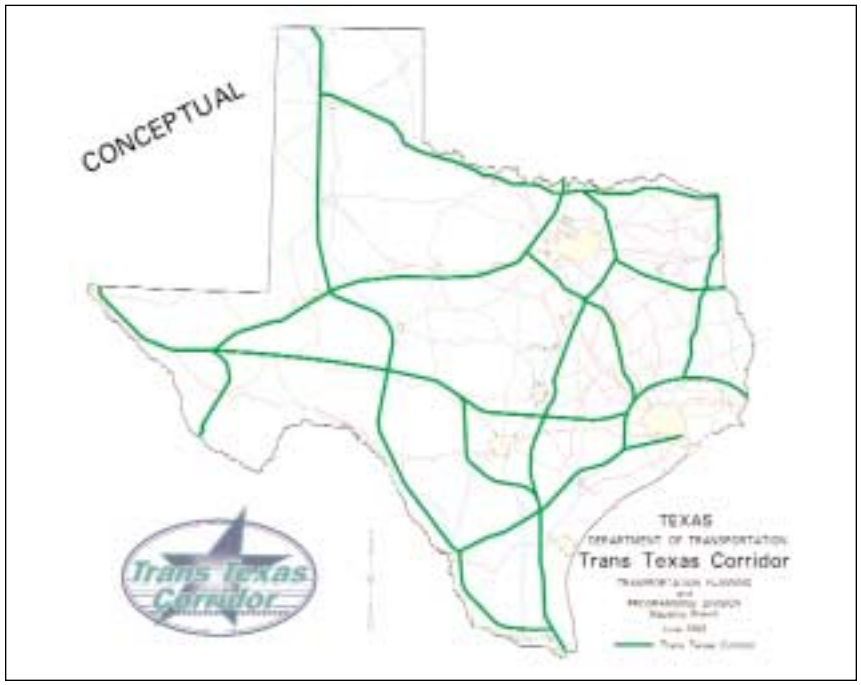
The first segments of the Trans Texas Corridor will advance more rapidly with start-up financing from the Texas Mobility Fund. The fund will require capitalization and the removal of limitations on its ability to provide toll equity financing.

- Create a new chapter in the Texas Transportation Code specific to the Trans Texas Corridor. This chapter would incorporate existing acquisition and funding authority granted to TxDOT and grant additional authorization to expedite the process as well as provide flexibility in dealing with utilities, railroads and private landowners.
- Amend state law to authorize TxDOT and certain other entities to acquire property by purchase or condemnation for rail and utility purposes (including entering into franchise agreements). This will include the authority to acquire additional right of way and lease it to private entities for a profit.
- Clarify and expand TxDOT's authority to enter into contracts with private entities (including exclusive development agreements) for development of all types of transportation projects.
- Remove the restriction that limits the number of projects financed through exclusive development agreements.
- Grant an exception to Chapter 181 of the Texas Utility Code to allow TxDOT to charge public utilities for placement of their facilities within corridor right of way. TxDOT also needs general authority to charge public and private concerns for utility, commodity or data transmission.
- Permit environmental expenditures that will benefit a future need (i.e. land banking) as well as immediate needs caused by a particular taking or improvement.
- Provide an incentive for property owners at the time of purchase by granting a percentage of future toll receipts (in the nature of a royalty interest) in lieu of full cash payment.
- Regional mobility authorities will require the ability to issue debt, condemn property, set tolls, enter into exclusive development agreements, direct utility installations and exercise other appropriate means to fully develop turnpike projects.
- Authorize existing toll authorities to expand their operational and jurisdictional boundaries for purposes of constructing segments of the corridor. ✪

Overview

The Trans Texas Corridor is envisioned as a network of transportation corridors up to 1,200 feet wide. The statewide corridor will include separated lanes for passenger vehicles and trucks, high-speed passenger rail, high-speed freight rail, commuter rail and a dedicated utility zone. (Figure 1, see larger map on page 78).

Figure 1

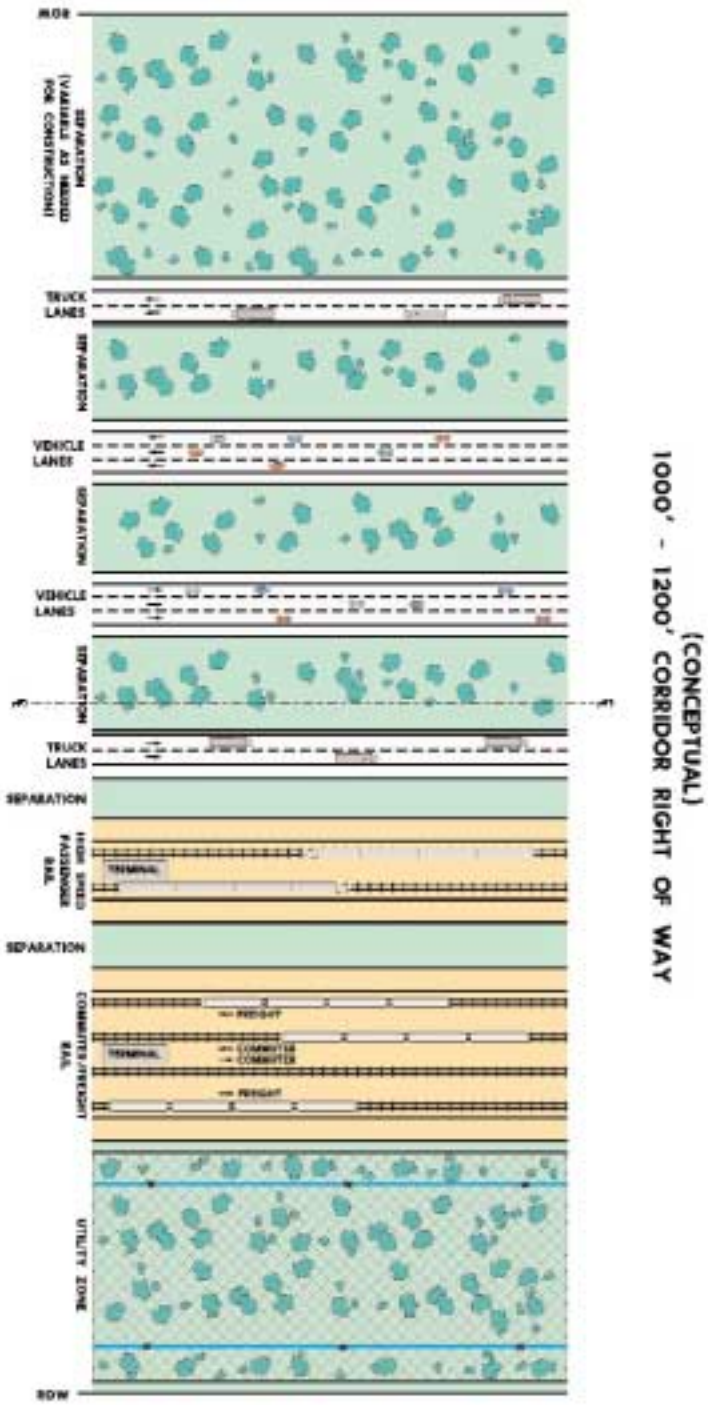


The concept includes separate lanes for passenger vehicles (three lanes in each direction) and trucks (two lanes in each direction). The corridor also will include six rail lines (three in each direction): two tracks for high-speed passenger rail, two for commuter rail and two for freight. The third component of the corridor would be a protected network of safe and reliable utility lines for water, petroleum, natural gas, electricity and data. (Figure 2).

Issues to be addressed in the planning process include assessing the impact on currently planned construction projects, determining facilities needed to connect the corridor segments to nearby cities, connectivity to facilities in Mexico and adjacent states, public involvement, and route analysis and selection.

Figure 2

Corridor layout



Overview (continued)

Impact on currently planned construction projects

Corridor construction could affect more than $2 billion in planned statewide mobility projects. Projects along existing major highways paralleling proposed corridor routes may not require as much right of way, could be modified in scope or even delayed. Not included in this estimate are projects the commission has previously funded.

Most Phase 1, Priority 1 Trunk System projects will continue to be developed.

Connectivity

Facilities needed to connect the corridor to nearby cities

Connection between the corridor segments and nearby cities can be accomplished by using the existing highway system. Proposed corridor routes will require interconnection with additional modes of transportation to enable passengers and freight to reach their final destinations in nearby cities. Privately funded franchises or public-private partnerships will provide transportation from the corridor to destination cities. Though not an exhaustive list, the following most likely would be developed:

- Busways: Exclusive traffic lanes similar to the High Occupancy Vehicle (HOV) lanes used in major urban area. Busways, however, are limited to transit vehicles only. These lanes can have their own roadways or share existing roadways with other vehicles.
- Light rail: Passenger train service using modern day trolley or updated streetcar technology. Electric trains travel on rails within existing railroad rights of way, dedicated right of way, or along right of way also used by vehicles.
- Commuter rail: Passenger train service for short distance travel between a central city such as Dallas and its suburbs, or longer distance travel between cities such as Austin to San Antonio. Trains can be pulled by a diesel locomotive or be self-propelled.

These corridor connections will create investment opportunities for public-private partnerships, utility companies and privately funded franchises interested in providing utility lines, intermodal freight-transfer facilities and passenger facilities at strategically located access points. These facilities also will benefit local economies.

Studies indicate that private entities will invest in intermodal freight facilities, short-line freight rail, light rail, commuter rail, busways or toll roads if the return on investment is greater than the market rate of interest.

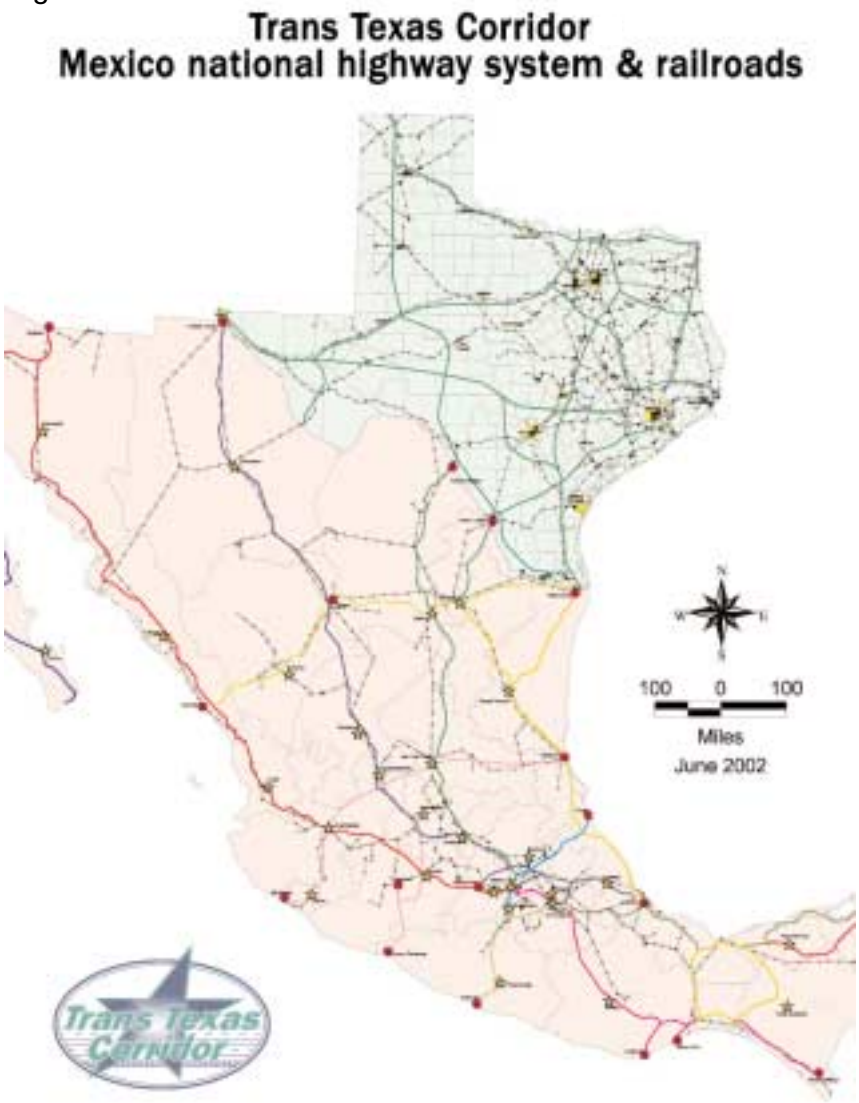
Connectivity
(continued)

Connectivity to facilities in Mexico and adjacent states

The corridor ultimately can be connected to a number of highway and rail facilities in Mexico. (Figure 3, see larger map on page 77).

Expanding the corridor into Mexico, as well as into adjacent states, will require a cooperative effort with Mexico as well as Louisiana, Arkansas, Oklahoma and New Mexico. Meetings with transportation officials already have been held in Mexico.

Figure 3



Routes

Route/segment analysis

The proposed corridor was analyzed with respect to the following criteria:

- Congestion relief in metropolitan areas.
- Rerouting hazardous materials to avoid urban areas.
- Corridors most likely to generate toll revenue.
- Opportunities for economic development.

Route selection

Analysis led to the identification of four priority corridors. (Figure 4, see larger map on page 79). Those corridors parallel:

- I-35, I-37 and I-69 (proposed) from Denison to the Rio Grande Valley.
- I-69 (proposed) from Texarkana to Houston to Laredo.
- I-45 from Dallas-Fort Worth to Houston.
- I-10 from El Paso to Orange.

Some 6.2 million Texans live near the proposed corridors. Of those, 59 percent—approximately 3.7 million people—live near the four priority corridors. Of all workers adjacent to the proposed corridors, 56 percent are employed near the priority corridors. Finally, the priority corridors account for 49 percent of total Trans Texas Corridor mileage.

In addition to TxDOT's studies, private-sector analysis will identify other corridors for immediate development and future investment. TxDOT or the private sector will develop the other corridors as each segment becomes more necessary.

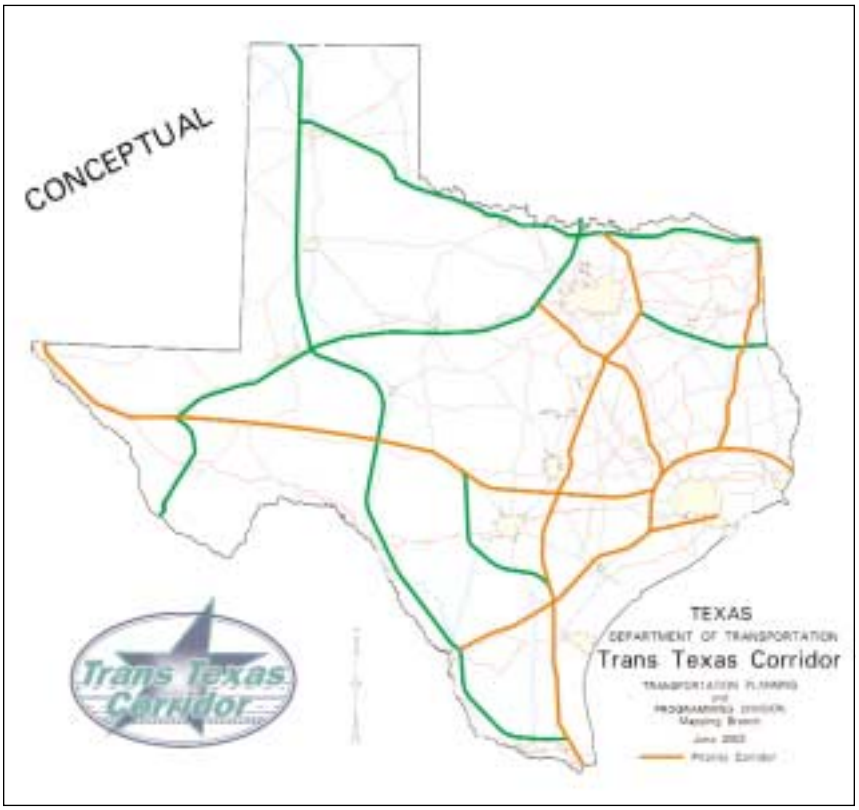
Public involvement

Public involvement will be a key to successful planning and development of the corridor. At present, all segments are conceptual and subject to public comment. During the corridor route-selection phase, any needed changes will be identified through a more detailed, project-specific public involvement process.

The public will have opportunities to comment early and often in the development process. TxDOT also will develop other means to keep the public informed, including a Web site, newsletter for stakeholders and a speaker's network.

Routes
(continued)

Figure 4



The Trans Texas Corridor will have a significant positive impact on the state:

- It will relieve congestion in the major metropolitan areas.
- It will increase safety by routing hazardous materials away from highly populated areas.
- It will generate toll revenue to further improve Texas' transportation system.
- It will stimulate economic growth. ✪

Crossroads of the Americas: Trans Texas Corridor
Design

Overview

Safety, improved travel time and reliability will characterize the Trans Texas Corridor. Planned for phased construction, it will connect cities across the state with a series of multimodal corridors featuring:

- A high-speed, controlled-access tollway with separate lanes for passenger vehicles (three lanes in each direction) and trucks (two lanes in each direction).
- Two-way rail (six tracks, three in each direction) with separate commuter/freight and high-speed passenger facilities.
- A dedicated utility zone for transmission of oil, natural gas, energy, water and data.

Separating passenger vehicle and truck lanes to benefit the traveling public is fundamental to the corridor's overall design. To avoid contributing to urban congestion, the corridor will have connectivity to major cities while not flowing directly through them. The corridor also will be designed to take advantage of intelligent transportation systems.

The vision is that the corridor will be developed in phases through several scenarios. For example, the two truck lanes (each direction) would be built first, to be shared initially by both passenger vehicles and trucks. As traffic volumes increased and additional capacity is warranted, separate passenger lanes would be constructed. This can be accomplished without disrupting the existing roadway.

The rail component also lends itself to phased construction. To make this a more feasible element for the corridor, a single track for freight/commuter line would be constructed initially. Freight and/or commuter rail lines would be built first along segments most needed to relieve pressing transportation problems. Construction of high-speed passenger rail to connect the largest population areas would be implemented as the need for alternative travel modes grows.

The 200-foot-wide utility zone will accommodate large water lines, natural gas and petroleum pipelines, telecommunication fiber-optic cables and high-power electric lines. Because of rapidly changing technologies, utilities will not be installed until needs are clearly identified. The utility zone initially would be leased for agricultural purposes where feasible. Conduit for data transmission would be installed initially and be ready for use. Hydrocarbon products, energy, and water would be constructed as demand for these products occurred.

Overview (continued)

In addition to design recommendations, this section provides cost analyses for the following features:

- Separate lanes for passenger vehicles and trucks.
- High operational speeds.
- Bridge structures.
- Interchanges.
- Special vertical and horizontal grades.
- Special rail features.
- Dedicated utility zone.

Although the design and cost analyses reflect construction of all corridor components, individual elements can be phased in as needed. All corridor cost estimates shown in this report are based on current values.

Design elements

Separate passenger vehicle and truck lanes

In the ultimate design, passenger vehicle and heavy truck traffic will be separated for reasons of safety, economy and user appeal:

- Safety. At high speeds, separating the two types of vehicles is safer because they have differing operational characteristics. At high speeds, these become even more pronounced. Lane separation also will increase visibility.
- Economy. Heavy trucks require thicker pavement, which is more expensive. With the two modes separated, only the truck lanes must have significant load-carrying capacity. The separation also enhances operational efficiency and toll viability.
- User appeal. Passenger vehicles will not have to slow for trucks climbing grades. Separate passenger and truck lanes will reduce stress and fatigue for drivers of both types of vehicles.

The separation is essential to achieving greater speed, efficiency and safety along the corridor.

Design elements (continued)

High operational speeds

The corridor will be designed for the following operational speeds between connections:

- 200 mph for high-speed passenger rail.
- 80 mph for commuter/freight rail.
- 80 mph for tollways (the speed limit will be determined by the Texas Transportation Commission prior to the opening of corridor segments).

Bridge structures

All roadways (excluding unpaved county roads), rails and streams intersecting the corridor are assumed to be grade-separated.

Most crossings will be handled by simple grade-separation bridge structures. These allow existing local highway and rail facilities to cross the corridor but not access it. Grade separations will be provided for farm to market highways, two-lane state highways, rail lines and paved county roads.

The corridor may cut through about 1,200 unpaved county roads. These roads will be reconnected to other facilities to maintain efficient traffic flow. TxDOT will endeavor to assist counties in rebuilding any important intra-county routes affected by the corridor.

Interchanges

Interchanges will allow for planned development and connectivity, making the corridor an efficient ground transportation system. Two basic interchange designs will be used: double-diamond and direct-connection.

Double-diamond interchanges will be used where the corridor intersects a highway serving a significant regional traffic base. These interchanges will provide access to and from the corridor and the crossing facility. Double-diamond interchanges will be necessary for about 60 percent of all state highways and 80 percent of all U.S. highways intersecting the corridor.

Directional interchanges will be used where a corridor segment intersects a major highway serving cross-state traffic. Much of the

Design elements (continued)

traffic from both the corridor and crossed highway facilities will need an interchange between these intersecting routes. Direct-connection interchanges will be provided at all 23 locations where the corridor intersects itself, at all interstate highways intersecting the corridor and at about 20 percent of the U.S. highways.

Horizontal alignments

For roadways, the horizontal curvature within the corridor section will have minimum radii to support the applicable vehicular speed.

Special rail features

All rail lines will be two-way, allowing use in either direction as needed. Because high-speed passenger rail is not compatible with conventional freight rail and commuter rail, the two features will be separated within the corridors.

High-speed passenger rail will not exit the corridor. Depots will be provided within the corridor for loading and unloading long-distance passengers.

Although commuter rail may exit the corridor when feasible, passenger stations will be provided in the corridor for short- and long-distance arrivals and departures.

Dedicated utility zone

The dedicated, separate utility zone is an important part of the corridor concept. This portion of the corridor may initially remain undeveloped, reserved for future need.

Typically, corridor right of way will vary in width up to 1,200 feet to accommodate the vehicular lanes, rail and utility components. Interchanges and areas of unusual terrain will require additional right of way.

Corridor width is based on specific features developed for a typical section. It allows for separation of truck and passenger vehicle lanes with safety zones sufficient to accommodate future roadway expansion. The first phase of corridor structures will allow for this expansion without reconstruction of the individual elements. An operational maintenance zone will separate the commuter/freight

Design elements (continued)

rail from the high-speed passenger rail component. The 200-foot wide utility zone will be sufficiently wide to accommodate both underground and above ground transmission components.

Table 1. Corridor composition

Feature	Description
Roadway	*Truck lanes:* Running in each direction, two 13-foot lanes, 12-foot outside shoulder, and a 4-foot inside shoulder. *Passenger vehicle lanes:* Running in each direction, three 12-foot lanes and two 10-foot shoulders.
Rail	The railroad lines will be positioned between the truck lanes and the utility area, outside the highway median, for the following reasons: ■ To provide better access to the rail corridor for regular maintenance and emergency operations. ■ To support more efficient interchange design. ■ To make the design more environmentally attractive, with the utility area buffering rail noise for adjacent property owners. *High-speed passenger rail:* Two separate tracks will be provided. *Commuter/freight rail:* Four tracks will be provided, two dedicated to commuter rail and two for freight rail. All four tracks can be used by commuter or freight for entering and exiting the corridor, for maintenance, for emergencies or other needs.
Utilities	The utility zone is designed to accommodate water lines, natural gas and petroleum pipelines, telecommunication fiber-optic cables and high-power electric lines. The electric lines will probably be overhead lines because of the high cost of burying high voltage lines. Right of way widths will vary from 50 to 175 feet for different voltage electric lines to increase minimum widths. Except for electric lines, right of way may be shared among the other utilities. Lift stations needed for water lines (5 acres) every 70 to 100 miles and for oil and gas lines (200 by 200 feet) every 100 to 200 miles will need to be accommodated. For more efficient access, all utilities should be situated in the 200-foot strip outside the commuter and freight railroad area. For maintenance, utilities will be accessed from roadways outside the corridor.

Design elements (continued)

Estimated corridor costs are based on a typical section and the projected number of interchanges and grade-separation bridge structures. The typical section may vary from one segment to the next and may result in a different cost per mile than shown in this report. Historical unit bid data for the following corridor features were used:

- Pavement (truck and passenger vehicle lanes).
- Grade-separated bridge structures.
- Interchanges.
- Commuter and freight rail.
- High-speed passenger rail.
- Utilities.

Other items, such as engineering and contingencies, signing, striping, landscaping and drainage, are considered as a percentage of the total cost and are included in these estimates.

Cost estimates

Pavement

Cost estimates for pavement distinguish between pavement for truck traffic and passenger vehicle traffic. Both truck and passenger vehicle roadways should have sufficient structural capacity so that only occasional maintenance overlays to restore ride quality, cross slope, surface friction and texture will be required over the design life. Cost per centerline mile is based on the various widths of each pavement layer.

Truck lanes

The 42-foot-wide truck roadway sections will include:

- 4-foot inside shoulders.
- Two 13-foot travel lanes.
- 12-foot outside shoulders.

Pavement cost for a four-lane truck roadway is estimated at $3,105,000 per centerline mile.

Passenger lanes

The 56-foot-wide passenger vehicle roadway sections will include:

- 10-foot inside shoulders.
- Three 12-foot travel lanes.
- 10-foot outside shoulders.

Cost estimates (continued)

Pavement cost for a six-lane passenger vehicle roadway is estimated at $1,093,000 per centerline mile.

In addition to increased safety and other operational benefits derived from separating passenger vehicles and heavy truck traffic, the design allows significant savings in pavement costs. This is because lanes designed for mixed truck and passenger vehicle traffic would require thicker pavement. With separate roadways for trucks and passenger vehicles, only the truck lanes need the thicker pavement.

Other roadway costs in addition to pavement structures will include mobilization, clearing right of way, excavation, embankment, drainage structures, landscaping, signing and pavement markings, and safety features. These are estimated at $2,799,000 per centerline mile. Total roadway cost per centerline mile is estimated at $6,997,000.

Grade-separated bridge structures

Bridge structure costs include all structures that carry other facilities over the entire corridor or carry the corridor over water. Table 2 shows the cost estimates for grade-separation bridge structures. These reflect current average statewide costs for new construction and do not account for specific terrain.

Table 2. Estimated costs for grade-separation bridge structures

Type of facility	Number	Cost/facility	Total cost
Railroad	106	$11,200,000	$1,187,200,000
Farm to market	471	$3,480,750	$1,639,433,250
State/US hwy. (2-lane)	55	$4,709,250	$259,008,750
Paved county road	697	$2,661,750	$1,855,239,750
River	41	$68,970,000	$2,827,770,000
Stream	371	$34,485,000	$12,793,935,000
Small creek	2,000	$1,301,250	$2,602,500,000
Total	3,741		$23,165,086,750

The average cost of grade-separated bridge structures is estimated at $5,175,000 per centerline mile.

Cost estimates (continued)

Interchanges

Estimates shown in Table 3 for interchanges reflect current average statewide costs for new construction and do not account for specific terrain.

Table 3. Estimated costs for interchanges

Type of facility	Number	Cost	Total cost
Double-diamond	160	$10,143,000	$1,622,880,000
Major hwy. fully directional	46	$202,125,000	$9,297,750,000
Corridor "Y"	16	$79,233,000	$1,267,728,000
Corridor fully directional	7	$301,987,000	$2,113,909,000
Total	229		$14,302,267,000

The average cost of interchanges is estimated at $3,195,000 per centerline mile.

Commuter and freight rail

The corridor is planned to include four conventional commuter and freight rail tracks. Two tracks will be dedicated for commuter rail and two for freight. However, all four tracks can be used by commuter or freight trains to enter or exit the corridor for maintenance, emergencies, or other needs. Commuter and freight tracks will cost the same. Cost estimates for commuter and freight rail are based on the following additional assumptions:

- Double crossovers every 10 miles between each freight/commuter rail pair (crossovers require larger turnouts).
- Two setout tracks at each double crossover required to support train maintenance.
- Train-control signals with a central traffic control system.

Cost estimates (continued)

Table 4. Estimated costs for commuter and freight rail

Item	Cost/mile/ track	Total cost/mile (for 4 tracks)
Embankment	$100,000	$400,000
Subgrade	$175,000	$700,000
Ballast, ties, rail, labor	$590,000	$2,360,000
Double crossovers	$45,000	$180,000
Single crossovers between commuter rail and passenger stations plus miscellaneous items	$2,500	$10,000
Setout tracks	$25,000	$100,000
Upgrade to heavier rail	$30,000	$120,000
Train control signals	$136,000	$544,000
Total		$4,414,000

The use of freight cars capable of accommodating heavier loads allows for transportation of increased tonnage in a single train. The corridor will have heavier rail for these freight cars. The average cost for conventional commuter/freight rail is estimated at $4,414,000 per centerline mile for four tracks. This estimate does not include passenger stations or dispatch control centers. Including costs for mobilization, excavation and embankments as well as incidental expenses associated with construction of new track, the cost is estimated to be $7,357,000 per centerline mile for four tracks.

Of all the corridor components, rail best lends itself to phased construction. One track would serve both directions initially. This would significantly reduce initial capital outlay.

High-speed passenger rail

The estimated cost per centerline mile is $3 million for two tracks. Including additional construction costs, the total estimated cost of this component would be $5 million per centerline mile.

Right of way

Right of way costs are based on the assumption that the corridor will be a new controlled-access facility on a new location, with no

Cost estimates (continued)

existing access. The estimate also is based on the assumption that no major land acquisition in metropolitan areas would be required. Costs include relocation assistance. One hundred percent of any existing utility adjustments should be eligible for state cost participation, and those numbers are included in the total cost for right of way. Upgrade of existing utilities is not included in the cost.

The up to 1,200-foot corridor will require 146 acres of right of way per mile. The total anticipated right of way for 4,000 miles of corridor is 584,000 acres. At a cost range of $20,000-$65,000 an acre for acquisition, right of way costs are estimated to be from $11.7 to $38 billion.

Utilities

Each corridor will include a 200-foot-wide dedicated utility zone. Because of rapidly changing technologies, utilities may not be installed until needs are clearly identified. Initially, the state would lease undeveloped segments of the utility zone back to adjacent landowners. Anticipated costs per mile to construct this portion of the corridor will vary due to terrain and other geological conditions.

Estimated utility zone infrastructure costs are:

- $350,000 per centerline mile for overhead electric transmission lines.
- $800,000 per centerline mile for petroleum pipelines.
- $2.5 million per centerline mile for water lines up to 60 inches.

Miscellaneous

Toll booths and plazas, rail passenger stations, dispatch control centers and maintenance sites also will be required. In addition, new types of vehicles under development or contemplated will require new communications facilities along the corridor.

Also, since the corridor will be all-new construction, environmental mitigation costs may be substantial.

Accommodating new technology and providing environmental mitigation will require about $2 million-$5 million per centerline mile.

Cost estimates (continued)

Total estimated costs

Table 5 shows total average cost estimates for the corridor per centerline mile, excluding right of way and other subordinate costs.

Table 5. Corridor estimated costs/centerline mile

Item	Cost/centerline mile
Roadway: Trucks/passenger vehicles	$6,997,000
Grade-separation bridge structures	$5,175,000
Interchanges	$3,195,000
Commuter and freight rail	$7,357,000
High-speed passenger rail	$5,000,000
Utilities	$3,650,000
Total	$31,374,000

Note: Right of way and miscellaneous costs not included.

Based on an estimated cost of $31.4 million per centerline mile, the 4,000-mile corridor would cost $125.5 billion, not including right of way and miscellaneous costs. Factoring in right of way at $11.7 to $38 billion and miscellaneous costs at $8 billion to $20 billion, total estimated corridor cost would range from $145.2 billion to $183.5 billion. ✪

Environmental

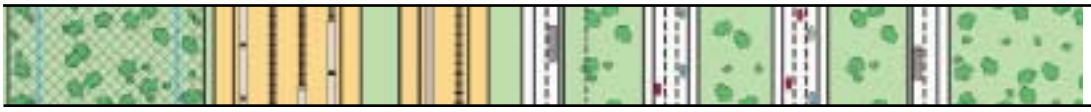
Overview

An extensive environmental review will be an integral part of the Trans Texas Corridor development process. Though all corridor segments are conceptual at this point, avoidance or minimization of adverse environmental impacts will be paramount in developing the corridor.

- TxDOT environmental and public-involvement rules apply to federal or non-federal projects on the state transportation system, respectively.
- TxDOT rules governing development of transportation systems by others (state infrastructure bank, regional mobility authorities, toll authorities, private toll roads and exclusive development agreements) require environmental reviews, government agency coordination and public involvement.
- Federal transportation conformity requirements will apply in areas not meeting air-quality standards. Texas has 16 non-attainment counties and another 25 that may be listed under new standards.
- Corridor preservation will minimize impacts and costs that would otherwise result from development encroaching on desirable segments.
- Keys to ultimate success include early cooperative efforts, a new approach to addressing regulatory requirements, improvements in transportation environmental decision-making and successful preservation of corridor segments.

Benchmarks

- Existing federal and state regulations, including the National Environmental Policy Act of 1969, will ensure environmental compliance while guiding the decision-making process and the proper mitigation for the corridor.
- Existing memoranda of understanding and programmatic agreements between TxDOT and resource agencies will facilitate systematic reviews and effective decision-making.
- Texas has extensive experience in planning and development of complex, high-profile projects including State Highway 130, Grand Parkway, President George Bush Turnpike, I-69 (proposed) and others. Some of these projects involved using streamlined processes in environmental review and compliance strategies.



Benchmarks (continued)

- Texas has extensive experience in engaging the public and developing context-sensitive solutions (Central Expressway, Green Ribbon Project, I-35W/I-30 and others).
- TxDOT has conducted transportation studies (SH 130, Lubbock's East-West Freeway, and others) involving rail issues.
- Extensive inventories and databases (example: geographic information system or GIS) exist for identifying the natural and cultural resources that may be affected by the corridor. Maximizing use of these inventories will streamline establishment of an environmental baseline for the corridor and help in identifying ecosystem mitigation priorities.
- The Environmental Protection Agency already has "fatal flaw" analysis and similar tools in place and has used them in other transportation studies.
- Appropriate models exist for all current air-quality non-attainment areas and for many near non-attainment areas.
- A variety of mitigation tools are available, including in-lieu fees, land banking, contracting with others and conservation easements.
- TxDOT and other governmental resource agencies have experience in partnering with conservation groups, private citizens and each other.
- Through planning, zoning, platting and other means, municipalities have the power to require transportation setbacks and right of way dedications.
- Conducting the proper level of environmental study and impact analysis allows for route selection and right of way acquisition to begin prior to completion of the project-specific National Environmental Policy Act process.

Challenges

- Federal regulations relating to design-build contracting provide that a request for proposal should not be released before completion of the National Environmental Policy Act process.
- TxDOT has limited authority to conduct environmental review and mitigation for non-highway purposes.
- A new, more efficient approach to implementing existing environmental regulations is needed.

Challenges (continued)

- Within existing regulations, new avenues will be needed to address effects on the ecosystem and cultural resources. The focus for such efforts will need to include air quality, water quality, cultural resources, endangered species and environmental review. A full selection of avoidance, minimization and compensation tools will be needed to successfully address resource mitigation in a timely manner.
- In non-attainment areas, corridor projects should be included in a conforming metropolitan transportation plan before compliance with the National Environmental Policy Act can be achieved.

Actions

- An aggressive program to preserve the corridor is needed if the most desirable routes are to be protected.
- Limited federal and state funds will reduce the amount of right of way that can be purchased fee simple. Options to stretch available funding include:
  - Municipal authority for set-backs and dedications.
  - Access management.
  - Purchase of development rights.
  - Options for later purchase.
- In keeping with the spirit and intent of the National Environmental Policy Act, use the process of environmental review for decision-making. Seek early and meaningful public and agency input. Take the necessary actions to protect, restore and enhance the environment and affected communities.
- Coordinate with federal and state agencies having oversight responsibilities for highways, rail, pipeline and utilities.
- Engage local authorities and industries involved in rail, pipelines and utilities.
- Apply lessons learned from other large projects.
- Continue refining and implementing strategies developed in response to Section 1309 of the Transportation Equity Act for the 21st Century.
- Develop a purpose-and-need statement defining goals and objectives. This statement will drive the environmental review and offer alternatives for many project-related decisions.

Actions (continued)

- To maximize effectiveness of the environmental decision-making process, TxDOT and the resource agencies must forge new partnerships and depart from traditional methods of planning, coordination and review. Mitigation (avoidance, minimization and compensation) and compensation through ecosystem mitigation should be important parts of this approach.
- TxDOT and resource agencies must look for "win-win" solutions and work toward fulfilling those objectives to the benefit of the corridor and the environment.
- Strive to avoid or minimize adverse environmental impacts.
- Use databases, existing inventories and other sources to identify tracts of land suitable for acquisition or conservation. This will compensate for unavoidable impacts resulting from the corridor.
- To compensate for unavoidable environmental impacts, develop a mitigation approach based on ecosystems and cultural resources. This approach will promote:
  - Protection, conservation and restoration of important natural and cultural resources.
  - Wise management and sound stewardship of natural, biological and cultural resources, while providing a range of goods and services such as recreation and transportation.
  - Ecologically sustainable development for current and future generations.
- Objectives of the ecosystem and cultural resources initiative must:
  - Establish collaborative interagency relationships to promote healthy ecosystems, preserve historic resources, support safe and efficient multi-modal, multi-use transportation systems and encourage wise economic growth while recognizing Texas' social and cultural diversity.
  - Focus agency programs to establish collaborative approaches that enhance and protect natural and cultural resources while providing better transportation options for the public.
  - Emphasize through public outreach how the successful integration of ecological, cultural and socio-economic values make Texas a better place to live and work.

For the ecosystem initiative to be successful, all parties need to move beyond the traditional project-by-project approach to coordination, impact assessment, and mitigation.

Actions
(continued)

Early in the planning stages of the corridor, TxDOT will identify the segments needing a conformity analysis (See Tables 1 and 2).

Table 1: Texas nonattainment counties and corridor conceptual segments

Nonattainment county	Area	TTC segments in county
Harris	Houston	0
Galveston	Houston	1
Brazoria	Houston	1
Fort Bend	Houston	1
Waller	Houston	1
Liberty	Houston	0
Chambers	Houston	0
Montgomery	Houston	1
Jefferson	Beaumont	0
Orange	Beaumont	1
Hardin	Beaumont	1
Dallas	Dallas/Ft. Worth	0
Tarrant	Dallas/Ft. Worth	0
Collin	Dallas/Ft. Worth	1
Denton	Dallas/Ft. Worth	1
El Paso	El Paso	1

Actions
(continued)

Table 2: Texas near-nonattainment counties and corridor conceptual segments

Near-nonattainment county	Area	TTC segments in county
Nueces	Corpus Christi	1
San Patricio	Corpus Christi	1
Wilson	San Antonio	1
Bexar	San Antonio	0
Guadalupe	San Antonio	1
Comal	San Antonio	1
Victoria	Victoria	1
Hays	Austin	1
Caldwell	Austin	2
Travis	Austin	1
Bastrop	Austin	1
Williamson	Austin	1
Smith	Tyler/Longview	1
Rusk	Tyler/Longview	1
Gregg	Tyler/Longview	0
Upshur	Tyler/Longview	0
Harrison	Tyler/Longview	1

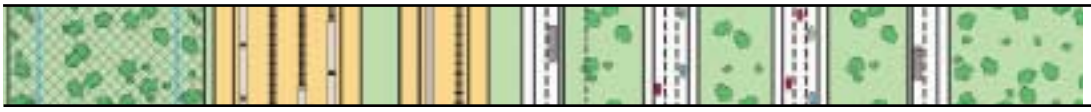
- TxDOT will work with the metropolitan planning organizations to schedule and to conduct the conformity analysis.
- For areas outside of a metropolitan planning organization, TxDOT will conduct the needed conformity analysis.
- Whenever possible, without compromising the project's ability to satisfy the established purpose and need, situate corridor segments in locations that maximize air quality benefits for non-attainment areas.
- Pursue partnerships with state and federal agencies, conservation groups and private citizens for achieving ecosystem mitigation.

Actions
(continued)

- TxDOT rules should specify that environmental review and clearance are completed before the design-build phase proceeds.
- Early project activities (environmental studies, design and public involvement) may be funded and conducted by a regional transit authority, regional mobility authority or private-sector developer. TxDOT will cooperate with other agencies to provide oversight.
- The early project activities may be funded and conducted by TxDOT. TxDOT should consider reimbursable agreements for the early planning and development it undertakes with the transfer of the project to a regional transit authority, regional mobility authority or private-sector developer.
- For rail, pipeline and utility purposes, TxDOT requires expanded authority for conducting the environmental review.
- Work with Federal Highway Administration and resource agencies to develop an effective process conforming to the National Environmental Policy Act. This will allow for early acquisition of priority corridors and at-risk parcels.
- Identify corridor preservation priorities.
- Seek legislation expanding the ability of local jurisdictions to require dedications and setbacks for the corridor.

Table 3: A framework for environmental review and processing of the corridor:

Plan element	Task
Conceptual planning	1. Develop purpose and need statement. 2. Develop concept paper on ecosystem management and preservation. 3. Establish tiered-National Environmental Policy Act process (with Federal Highway Administration). 4. Obtain buy-in from Federal Highway Administration and other appropriate federal and state resource agencies. 5. Conduct “Trans Texas Corridor Summit” with resource agencies culminating in execution of joint memorandum of understanding to establish planning framework and formalize agency partnerships. 6. Work with metropolitan planning organizations to develop conformity process.



Actions
(continued)

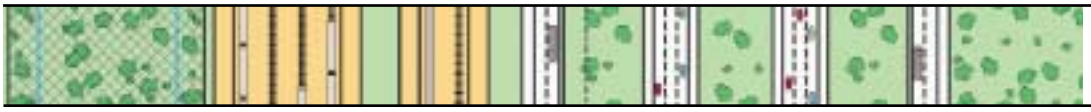
Table 3 continued

Plan element	Task
Early public involvement	1. Publish concept notice. ■ Describes Trans Texas Corridor. ■ Describes ecosystem mitigation initiative. ■ Solicits input/public comment. ■ Texas Register, major newspapers, Web site. 2. Develop Trans Texas Corridor white paper. ■ Macro-scale analysis. ■ GIS-based maps (routes, resources, etc.). 3. Circulate white paper. ■ Metropolitan planning organizations. ■ Counties. ■ Chambers of commerce. ■ Interest groups, other stakeholders. ■ Solicit input. 4. Public meetings - statewide (urban and rural). ■ Present concept and mitigation approach. ■ Begin identifying issues. ■ Solicit input/public comments. 5. Document results.
Corridor studies and identification	1. Refine and adjust corridors. 2. Identify segments of independent utility. 3. Identify early starters (SH 130, I-69, etc.). 4. Prioritize development. 5. Identify priority corridors for transportation preservation.
National Environmental Policy Act and mitigation	1. Prepare overview environmental assessment/first-tier National Environmental Policy Act document. ■ Formalize planning assumptions. ■ Document and establish segments of independent utility. ■ Identify route alternatives/preferred. ■ Identify corridor preservation priorities. 2. Public meetings – statewide (urban and rural). ■ Present refined concept – project and mitigation. ■ Identify transportation corridors and preservation priorities. ■ Present impacts. ■ Solicit input/public comment. 3. Consider input/refine project.

Actions
(continued)

Table 3 continued

Plan element	Task
National Environmental Policy Act and mitigation	4. Seek approval of first-tier National Environmental Policy Act; may authorize acquisition of priority corridors.* 5. Prepare environmental impact statements/second-tier National Environmental Policy Act documents – segments of independent utility. 6. Public Hearings – segments of independent utility. ■ Present segments of independent utility. ■ Present impacts. ■ Solicit input/public comment on segments of independent utility. 7. Consider input/refine project. 8. Seek approval of second-tier National Environmental Policy Act document. 9. Continue tier process, as necessary. * NOTE: Depending on complexities and sensitivities of specific areas, completion of two or more tiers may be required before acquisition of priority corridors.
Corridor preservation	Acquire priority corridors as early as possible in tiered National Environmental Policy Act process.



Crossroads of the Americas: Trans Texas Corridor
Right of Way

Overview

To preserve the corridor for future generations, acquiring property for all components must begin as soon as possible. Property rights are important to TxDOT and will receive high priority in this process. Through good-faith negotiation, TxDOT will acquire necessary right of way in a single transaction with each owner.

Right of way acquisition will be characterized by public-private investment to include financial participation by utility companies, railroad companies, developers and landowners.

Benchmarks

- The Texas Transportation Commission has statutory authority to develop and implement a statewide transportation plan incorporating various modes and funding sources.
- The commission has authority to undertake land condemnation, though lawsuits stemming from this process must be filed and prosecuted by the Attorney General's Office.
- A county or city also has authority within its jurisdiction to proceed with right of way condemnation on behalf of the state.
- With the attorney general's consent, the state may enter into a local cooperation agreement to have a county or city attorney act on its behalf.

Challenges

- TxDOT lacks specific statutory authority to deal directly with private investors and developers for all types of projects. Currently, exclusive development agreements can only be used for toll highways.
- TxDOT does not have authority to acquire right of way for railroad or utility purposes. The agency also lacks statutory authority to acquire right of way for "all modes of transportation." The Texas Transportation Code also limits acquisition to right of way that is deemed "necessary or convenient" to toll highways.
- TxDOT has limited ability to expedite the acquisition process. Constitutional protections, supplemented by federal law, ensure due process and adequate compensation for private property rights. Appraisals, offer letters, and court hearings or trials are part of the required process. These cannot be eliminated, nor can the time frame imposed by those requirements be materially reduced.
- TxDOT has limited authority to acquire property for future needs, including environmental mitigation.

Challenges (continued)

- Utilities currently have statutory authority to place their facilities within the right of way of state highways without charge. To create revenue for the corridor and more incentive for utilities to participate in development, legislation would be required to authorize TxDOT to charge utilities for use of the corridor. In exchange for financial participation, utilities would have access to the protected infrastructure of the corridor.

Actions

- New legislation is needed to expand TxDOT's authority to enter into contracts with private entities for development of all types of transportation projects.
- For railroad and utility purposes, new legislation is needed to grant the Texas Transportation Commission expanded authority for right of way acquisition. Such legislation would need to either specifically add railroad and utility purposes or more broadly authorize acquisition for "all modes of transportation."
- Amend the Texas Government Code to allow local, state and federal government to donate real property to TxDOT for right of way use without requiring compliance with the existing donation statute.
- New legislation is needed to permit environmental expenditures (land banking) to serve a future need. Such legislation also would benefit immediate needs caused by a particular condemnation or improvement.
- To preserve long stretches of the Trans Texas Corridor for future use, while reducing immediate funding demands, TxDOT would use less traditional methods of acquiring property:
  - An option to purchase would reserve land for use by TxDOT while leaving the property in private ownership until needed. The option-to-purchase method of acquisition is permissible under the Texas Transportation Code. New legislation would grant property-tax reductions and other benefits during the option period.
  - To create more revenue potential in the Trans Texas Corridor and more incentive for utilities to participate in development, new legislation would authorize TxDOT to charge utilities for use of the corridor. In exchange for financial participation, utilities would have access to the protected infrastructure of the corridor.

Actions
(continued)

- A purchase and lease-back agreement would maintain private use of the property while generating revenue until the property is needed for development. New legislation would broaden the lease-back provision in the Texas Transportation Code beyond use only for agriculture and ranching. Such legislation would permit additional purposes, and eliminate the surplus requirement for leasing.

- New legislation will need to clarify that the corridor can be used for generating revenue without meeting the traditional surplus requirements for sale and/or lease of highway assets. As opposed to public bids, this legislation would include new and broader standards for negotiating leases, utility easements, agreements for signage and other property interests and licenses within the right of way.

- New legislation would require that local governments pay for any increased costs for acquisition of real property, especially if the costs result from local ordinances, rules and orders that are more restrictive than state or federal regulations. This would include platting, storm-water drainage facilities and requirements regarding outdoor advertising.

- Within the current framework of the Constitution and federal law, some measures need to be adopted to make acquisition of needed right of way more efficient. Some of these include:
  - Enabling TxDOT to go on private property for surveying and environmental investigation. This is similar to the existing authority TxDOT has for toll projects.
  - Granting broader authority to purchase severed property (uneconomic remainders). This also is similar to the toll project authority given to TxDOT.
  - Granting authority for early possession of an owner's property pending litigation, a type of "quick take" similar to existing TxDOT authority in toll projects.
  - Granting authority to move and replace a local road severed or otherwise damaged by a segment of the corridor. Again, this is similar to the authority given to TxDOT.
- Create a new chapter in the Texas Transportation Code specifically dealing with issues related to the Trans Texas Corridor. This chapter would incorporate existing acquisition and funding authority granted to TxDOT and grant additional powers as described above to both expedite the process and provide flexibility in dealing with utilities, railroads and private landowners. ✪

Overview

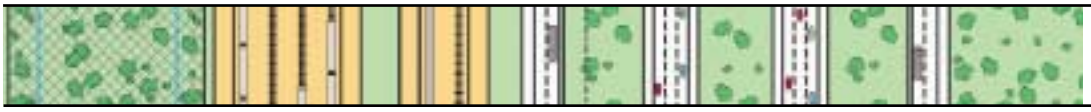
The toll component of the Trans Texas Corridor could be developed in four ways:

- Low-bid contract for turnpike improvements coordinated by TxDOT.
- Low-bid contract coordinated by regional mobility authorities.
- Exclusive development agreement (also containing a franchise agreement) with a private-sector developer. TxDOT, a regional mobility authority, or a regional toll authority could administer the project. Proposals for exclusive development agreements would be solicited by requests for proposals or submitted by private entities as unsolicited proposals.
- Creation of regional toll authorities such as the North Texas Tollway Authority or by a county toll authority such as the Harris County Toll Road Authority.

Benchmarks

General

- The Texas Transportation Code allows TxDOT and a regional mobility authority to develop turnpike projects on the state highway system. The code also gives similar authority to a regional toll authority for projects within its jurisdiction.
- Certain counties also are authorized to develop county toll roads.
- TxDOT has rules in place relating to private participation in turnpike projects through an exclusive development agreement.
- TxDOT has proposed rules for the creation and operation of regional mobility authorities. These rules deal with the conversion of state highways to turnpike projects, transfer of projects to a regional mobility authority and TxDOT financing of toll projects under Proposition 15 and Senate Bill 342 (toll equity), 77th Legislature.
- Existing turnpike authorities in Harris County and the Dallas/Fort Worth area have years of experience in building and maintaining turnpike projects and are good models.



Benchmarks (continued)

Exclusive development agreements

- Statutes allowing for large-scale development of a toll corridor already exist. An example is the authority in the Texas Transportation Code for TxDOT to issue franchises to private concerns to construct, operate and maintain a turnpike project. Some revisions would streamline the process.
- Texas has capable consultants and contractors with which it can form strategic partnerships. These groups can deliver large-scale corridor projects.
- Expertise is available in the Federal Highway Administration to create public-private partnerships for toll project development.

Regional mobility authorities

- Approval of Proposition 15 by Texas voters on November 6, 2001 allowed for creation of regional mobility authorities to build, operate and maintain toll projects within a designated area. Legislation also is on the books providing for the leveraging of fuel-tax dollars with debt financing and toll revenue.
- Partial funding of toll projects by the Texas Transportation Commission, using state and federal highway funds (toll equity) may be available.
- As with an exclusive development agreement, private sector consultants and contractors would facilitate project delivery and the Federal Highway Administration can be a major source of expertise.

Challenges

General

- No statutory authority exists for TxDOT to finance, construct, operate or condemn property for a rail project. Statutory authority does exist in some circumstances to contract for the use, lease or sale of a turnpike project for various purposes, including installation of railroad tracks.
- Public utilities have a statutory right to use right of way on state highways to install utility facilities. Unlike the transportation commission, a regional mobility authority or a franchisee is not authorized to specify a location for installation or to require utility relocations.

Challenges
(continued)

- No statutory authority exists to lease turnpike-project right of way for installing all utilities that would be a part of the proposed Trans Texas Corridor. Further, statutory authority does not exist for TxDOT to enter into franchise agreements with utility providers.
- Under the Texas Government Code, a governmental entity contracting for the construction of a public work is required to obtain performance and payment bonds in the amount of the contract. Such bonds may not be available for large-scale corridor contracts. No statutory authority exists to require alternate forms of security.

Exclusive development agreements

- Familiarizing the public on the exclusive development agreement process.
- Local access and local business impacts need to be handled with utmost regard for property rights.
- Performance and payment bonding for projects of this scope may not be available.
- Expenditures connected with developing detailed designs and the risks of project viability may require some cost sharing among the parties. In addition, payment of stipends to reduce potential losses may be needed to attract private firms willing to develop a project. No statutory authority exists to pay stipends.
- TxDOT rules on exclusive development agreements describe private development of specific projects, rather than a business plan (possibly including environmental clearance) for developing a segment of the corridor.
- Procedure for advertising a request for competing proposals must be sensitive to the protection of proprietary information. Time for reviewing proposals needs to be based on the size and complexity of the project.
- If a contractor is responsible for the environmental review of a project, specific rules and procedures are required to ensure federal and state requirements are followed, particularly those relating to conflict of interest.

Challenges (continued)

- Proposed regulations of the Federal Highway Administration relating to design-build contracting provide that a request for proposal should not be released before the conclusion of the process required by the National Environmental Policy Act. These proposed rules effectively prohibit environmental review and clearance of a corridor project by a contractor under a federal-aid exclusive development agreement.
- Development of mixed-use corridors will require coordination with federal agencies having oversight responsibilities.

Regional mobility authorities

- Public acceptance is needed in regard to the role of regional mobility authorities and tolling as a funding option.
- Regional mobility authorities must plan with a statewide perspective when developing corridor segments.
- Counties must work cooperatively as a regional mobility authority to develop a corridor segment with an independent utility.
- A proposed project must be included in a metropolitan transportation plan and state implementation plan, if applicable.
- Local entities and the private sector will need more information on state and federal requirements applying to development of projects using state and federal funds.

Actions

General

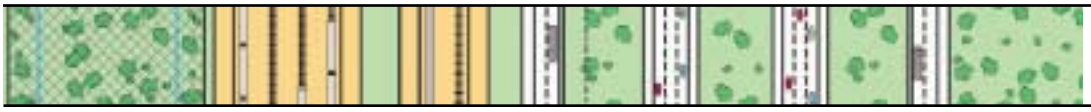
- Seek legislation authorizing TxDOT and certain other governmental agencies to study, develop and contract for development of mixed-use transportation and utility projects, including highways, rail and utilities.
- Seek legislation allowing the leasing of right of way to various utilities and entering franchise agreements.
- Seek legislation authorizing performance and payment bonds in amounts less than the amount of Trans Texas Corridor contracts and to authorize the use of alternate forms of security in corridor contracts. State law could be amended to authorize TxDOT and specified entities to set the amount of bonds based on prescribed criteria.

Actions
(continued)

- Explore the progress of other states developing mixed-use, multimodal corridors.

Exclusive development agreements

- Amend TxDOT rules on exclusive development agreements to delete the financial feasibility certificate requirement. Require TxDOT to review the feasibility and adequacy of a proposal's financial plan.
- Amend TxDOT rules on exclusive development agreements to include requirements imposed on a private developer when environmental review is part of a project proposal. Require a consultant or contractor hired by the private developer to perform the environmental review report directly for TxDOT. Clearance of those requirements and environmental review must come before the final design and construction phases of a project.
- Amend TxDOT rules on exclusive development agreements to ensure adequate competition in projects subject to such agreements. Allow the Texas Transportation Commission to extend the 45-day period to submit competing proposals (when an unsolicited proposal is received) based on the complexity of a project.
- Streamline submittal and approval process for unsolicited conceptual proposals to encourage ideas and competition. Amend TxDOT rules on exclusive development agreement to provide that:
  - TxDOT would accept conceptual proposals for the development of a project. Proposals could be limited to a business plan for developing a corridor segment. TxDOT would determine if a proposed project or business plan would benefit the state.
  - TxDOT would publish notice of acceptable proposals, allowing other interested parties to submit competing proposals. The time for submission of competing proposals would be set based on project complexity.
  - TxDOT would issue a notice requesting detailed proposals from the original proposer and any entities submitting acceptable competing proposals. The notice would be similar to instances when TxDOT issues a request for proposal for a project subject to an exclusive development agreement, with differences relating to business plans for developing corridor segments.



Actions
(continued)

- Seek legislation to remove the restriction limiting the number of projects financed with constitutionally dedicated funds that may use an exclusive development agreement as the means of project delivery.
- Seek legislation to protect proprietary information submitted in a proposal that is subject to the conditions of an exclusive development agreement.
- Work with the Federal Highway Administration to ensure that a project using federal funds and subject to an exclusive development agreement could include the environmental review and clearance of the project by a contractor.

Regional mobility authorities

- Amend state law to authorize a regional mobility authority to issue debt, condemn property, set tolls, enter into exclusive development agreements, direct utility installations, and exercise other powers held by TxDOT to develop turnpike projects.
- Adopt rules that provide greater flexibility to a regional mobility authority in the development of a segment of the Trans Texas Corridor.
- Provide greater responsibilities to regional mobility authorities in the development of Trans Texas Corridor segments.
- Provide information to the public, local governments and private entities on the advantages of regional mobility authorities and toll roads, including leveraging funds and the use of surplus revenue.
- Market toll projects and corridor concept to regional mobility authorities and counties that could form a regional mobility authority. Show the public how projects can be financed by issuance of debt and how bonds can leverage other funding sources.
- Develop a screening tool for use by TxDOT and regional mobility authorities in determining whether a particular project is feasible for development as a turnpike.
- Develop a flow chart for use by districts and local governments in evaluating corridor segments for development by regional mobility authorities.
- Develop criteria for determining which projects would need TxDOT environmental clearance before transfer to a regional mobility authority. ✪

Rail

Overview

Planning for the rail component of the Trans Texas Corridor must be consistent with statewide, regional and urban transportation needs. This section sets out infrastructure recommendations for both high-speed passenger rail and conventional commuter and freight rail service.

Also touched on are partnering, the need for adequate connectivity within the corridor and new technologies that need to be considered.

When completed, the rail component of the Trans Texas Corridor will:

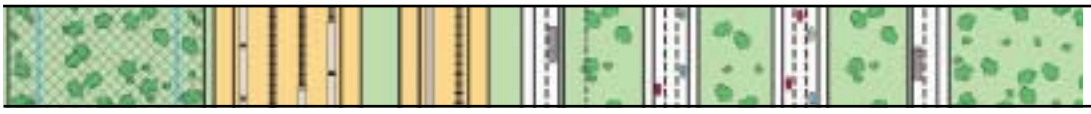
- Give the people of Texas the ability to travel by commuter and high-speed rail. In turn, this will reduce traffic congestion.
- Provide for additional freight (both rail and truck) capacity, greatly enhancing the state's ability to accommodate the movement of goods to market.
- Provide rail companies with new markets.
- Improve safety and air quality in Texas' larger urban areas by diverting freight and hazardous material shipments from densely populated areas.

Benchmarks

- Texas has more railroad track than any other state—11,218 miles.
- Texas ranks second in the number of operating freight railroads.
- Rail infrastructure in Texas generally is owned and operated by private interests.
- Routes carrying the highest volume of freight and passengers between and through Texas cities already have been identified.
- Established working relationships exist between state and local transportation agencies and private transport interests.
- A wealth of public and private intellectual expertise is available for large-scale project development.

Challenges

- Existing policies that may be affected by the corridor need to be identified through regional planning.
- Methods need to be developed for both rail and trucking companies to efficiently use the corridor.



Challenges (continued)

- Adequate connectivity to Mexico and other states' transportation systems must be assured.

The success of commuter rail relates directly to the convenience and economy of the service provided. Links to central business districts, schools, tourist attractions and employment must be established.

To attract freight shipments from private rail lines, the corridor must:

- Offer economic advantages. New trackage would enable railroad operators to divert overflow from crowded trunk lines, improving efficiency.
- Assure equity between rail and truck modes. Both industries should benefit from corridor development.
- Provide opportunities to serve new markets.

Success will require new partnering agreements as well as forward-thinking and comprehensive design elements.

Following development of the corridor, abandoning existing rail lines would be a consideration. Present procedures for abandonment result in short-line rail operators, rural rail transportation districts, or the state having to raise funds to preserve rail lines for local shippers, commuter rail or other transportation uses. Railroads cannot quickly abandon lines without the permission of the Surface Transportation Board.

However, in the end, the Class I railroads (lines with operating revenue exceeding $260 million in 2000) will want to improve their profitability by selling low-volume lines. This could be accomplished by selling them intact to other rail interests or by salvaging the line for the value of the steel rails. Any legislation to implement the Trans Texas Corridor would need to consider the effect this scenario may have on existing shippers, local economies and state funds.

Actions

The rail component of the Trans Texas Corridor requires long-range planning and detailed preparation, all done with vision, ingenuity, cooperation and discipline. To that end, rail development strategies cover planning consistency, infrastructure, partnering, development and systems connectivity.

Planning consistency

Significant public involvement will be needed to implement a project of this magnitude. One of the most important lessons

Actions
(continued)

learned from the Texas High Speed Rail Authority's efforts in the 1990s was that such a project couldn't be accomplished without grass-roots public support. The public must be:

- Engaged early.
- Involved frequently.
- Informed of the benefits of improved passenger and freight rail, including enhanced mobility, safety and economic opportunity.

Infrastructure

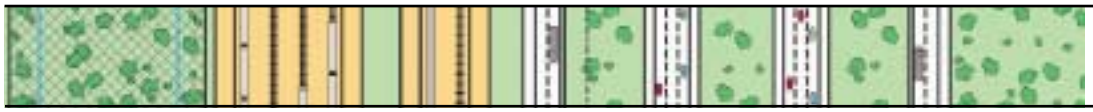
Specific designs for the rail portions of the corridor can only be determined by in-depth traffic volume analyses of the various transportation modes, and the amount of traffic that might be diverted from existing transportation networks. This information then can be used to design and build viable transportation systems while leaving room for future expansion.

In areas not needing dedicated commuter tracks, commuter and freight rail can share infrastructure where scheduling will allow. Crossovers with high-speed turnouts should link all commuter and freight tracks at strategic points to:

- Facilitate dispatching.
- Allow passing of slower trains.
- Reduce bottlenecks.

High-speed passenger rail will:

- Be segregated from freight movements.
- Have fencing along immediate right of way for system integrity and safety.
- Have mediating structures on overhead bridges to prevent anything from falling or being thrown onto the tracks.
- Have passenger stations next to the tracks and provide overhead facilities for transferring passengers and baggage from outside the corridor to boarding platforms.
- Share stations with commuter rail (where stops coincide) to allow the efficient transfer of passengers without interruption or interaction with the freight system.



Actions
(continued)

- Have infrastructure designed to accommodate 200-mph trains to prevent having to re-invest in major improvements for faster trains in the future.
- Use premium rails, ties and fasteners, with electrification for high-speed equipment.
- Be run with "dedicated trainsets," that is, when the trains reach the end of a route they reverse direction and return to the point of origin.
- Have maintenance and repair facilities built at key points along the network to service equipment.

Dual purposes for commuter rail

- Transporting passengers from one suburban or urban area to another along the corridor.
- Linking the high-speed rail stations with communities that are bypassed by that service.

As previously mentioned, commuter rail operations depend on the convenience and economy of the service provided. Achieving a high level of usage will require seamless transportation options to and from commuter stations throughout the urban areas. These will be connected to central business districts and other significant destinations.

Commuter rail

- Stations will be placed along the outside tracks except where commuter and high-speed services intersect. This will make their construction less expensive than those jointly shared with high-speed rail.
- Wherever possible, track will be shared with freight rail to reduce costs.
- Dedicated trainsets, with equipment serving assigned routes and schedules, will be required.
- Equipment maintenance and servicing facilities will be located at strategic points along the corridor segments.

Actions
(continued)

Public-private cooperation

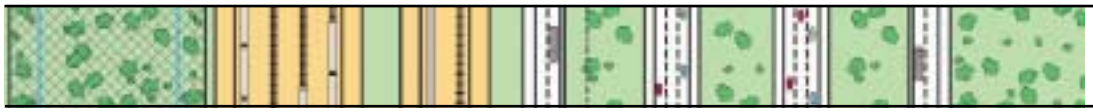
For all parties to work together on this endeavor, the benefits to all sides must clearly outweigh the private benefits of keeping the Texas rail system status quo.

From the perspective of the Class I carriers owning the existing systems, there will need to be:

- Innovative and attractive incentives to use the corridor instead of their own systems.
- Lower user costs for operators with existing parallel lines.
- Reliable timesaving.
- Overall cost saving.
- Access to new markets.

The following situations would attract Class I carriers:

- Ability to maintain optimum speed. This would allow freight trains to move more quickly and efficiently than on existing infrastructure. Due to the performance limitations of rolling stock, current speeds for freight rail generally are limited to 50 mph or less. Tracks designed for high-speed freight would allow trains to operate at 80 mph.
- Discounted user fees for companies with parallel facilities. Note: Usage fees that absorb the gains made in transit times will eliminate the corridor as a viable alternative to existing lines.
- Ability to avoid congested urban areas currently nearing their rail capacity.
- Significant potential increases in the volume of rail cars moved. Note: Diversion of North American Free Trade Agreement freight from the highways could readily increase the need for freight rail capacity. Constructing corridor segments along recognized NAFTA traffic routes with intermodal terminals at originating and destination points, coupled with appropriate user fees, likely will make those corridor routes more successful and more heavily utilized by railroads.



Actions
(continued)

- Adequate interchange systems to get shipments on and off the corridor. Note: Freight loads and empties must be picked up and dropped off where appropriate. A detailed study of rail-freight traffic flow would determine where interchanges could occur, and where interchange yards need to be built to support the freight system.

Designing for the optimal use of competing modes along the corridor will require considerable preparation.

Benefits to be gained from diverting long-distance truck hauls onto freight lines include:

- Improved driver safety. By having long-distance freight sent by rail, truckers would cover the shorter ends of the trips from intermodal pick-up sites to ultimate destinations.
- Retention of current jobs. Truck drivers still would be needed, but they would be making a greater number of shorter trips.
- Implementation of intermodal unit trains. These allow the entire truck and cab to be loaded onto a flat rail car. Switzerland's "rolling autobahn" allows truck drivers to accompany their shipments on night hauls through the Alps. This reduces driver fatigue, vehicle deterioration, highway deterioration and circumvents a prohibition of nighttime truck movements.

Development

Important lessons can be taken from the successful on-time, on-budget development of the Alameda Corridor in California. That $2.4 billion dollar project is a public-private venture touted as one of the nation's most significant transportation achievements. It cuts through 20 miles of urban congestion to relieve a bottleneck between the country's busiest port and the downtown rail yards of Los Angeles. Running through eight cities, it required consensus from two competing ports, rival rail companies, and multiple levels of elected officials. Funding included a $1.6 billion bond issue, a $400 million federal loan, $394 million from the port authorities, and $347 million in grants administered by the county transportation authority.

Actions
(continued)

It is likely that the Trans Texas Corridor will need to be a managed toll facility. Some methods to encourage use of such facilities by trucking are:

- Imposing additional costs to long-distance trucking over highways other than the Trans Texas Corridor.
- Designating the Trans Texas Corridor for trucks and for vehicles hauling hazardous cargo.
- Using computerized tagging systems to provide unimpeded progress.

Finally, Texas port authorities should be included in the design and implementation of the corridors. Assuming diversion of freight to the most environmentally friendly mode of transportation is one of the policies behind corridor development, then freight-barge movements along the Gulf Intracoastal Waterway from Brownsville to Houston might need to be included in the plan.

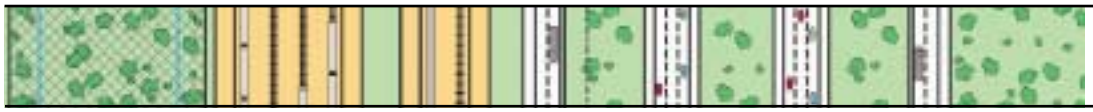
System connectivity

Corridor connectivity to the general railroad systems of Texas, the United States and Mexico is necessary. There will need to be:

- Intermodal transfer facilities at viable connection points. These will depend upon the estimated number of lifts per month.
- Access to the international trade coming through Texas ports and border crossings.
- Off-site customs check points to ease choke points in border communities.

Rail crossings on the Texas-Mexico border handle about 80 percent of the rail traffic between the two countries. These crossings are expected to continue increasing in number because of capital investments and improvements made by the private rail companies on both sides of the border. These improvements will streamline crossing procedures and increase the capacity for rail-freight shipments. Increases in rail's share of NAFTA trade could produce corresponding decreases in the number of trucks on the highways.

At the same time, connectivity to commuter rail, transit and aviation will be needed for passenger traffic, with smooth transitional access to urban business districts and major airports. Connection costs for passengers will need to be more beneficial in terms of



Actions
(continued)

time and cost-savings than would occur if the traveler were to choose to travel by automobile or airline. The Trans Texas Corridor will realize its greatest volume of rail passengers only if the customers can connect easily to other modes of transit to arrive at their ultimate destinations.

Technology options

Perhaps the most promising of the new technologies in high-speed rail development is magnetic levitation, also known as maglev. Here are some characteristics of this technology:

- Levitation, propulsion and guidance systems use magnetic forces.
- Wheels do not contact rails.
- Speeds up to 300 mph.
- Trains are safe and economical.
- High acceleration and continuous operation.
- Low noise, no pollution, and less energy consumption per passenger mile.
- As a supported structure, maglev trains will be compatible with the current corridor design for vertical and horizontal curves.

Table 1: Magnetic levitation trains

	Japan	Germany	Pennsylvania	Baltimore/Wash
Cost/mile	$12.3 M	$28.5 M	$39 M	$82 - 92 M
Speed	Up to 332	Up to 300	Up to 300	Up to 300
Route miles	300	175	47	40

Maglev trains currently operate in both Japan and Germany, and plans are under way for some project implementation in the United States.

Lanes using intelligent transportation systems have the potential to provide hands-off driving systems for cars, trucks, buses, transit and rail freight shipments. Such systems can be built into existing highway lanes, elevated or buried to remove them from traditional traffic streams.

Actions
(continued)

Texas' large cities are not alone as they struggle to determine how they can improve air quality while retaining mobility for people and freight. As an alternative to fossil fuels, electricity can be used to power transit trains connecting the Trans Texas Corridor with the urban cores it bypasses. Example: the C-trains in Calgary, Alberta, Canada. These trains are powered solely by wind-generated electricity from 12 dedicated turbines on a wind farm in southern Alberta. Each three-car C-train represents the equivalent of 545 passenger vehicles. Their use reduces carbon dioxide pollution in the area by an estimated 26,000 tons a year.

All of this technology is something to consider for future improvements to the corridor. Due to significant costs, however, using this technology is not part of the initial corridor plan. ✪

Crossroads of the Americas: Trans Texas Corridor
Dedicated Utility Zone

Overview

The utility component of the Trans Texas Corridor includes infrastructure for the movement of oil and natural gas, water, electricity and data.

When completed, the utility component of the corridor will:

- Reduce the chances of pipeline damage and the related safety and environmental consequences. Third party contractors and individuals unaware of a pipeline's presence cause the majority of these accidents. By placing pipelines in clearly designated utility zones, the likelihood of such incidents is greatly reduced.
- Improve the efficiency of pipeline product movement. Existing systems are irregularly placed, cover short distances and carry relatively low volumes.
- Provide additional capacity for electrical transmission systems. Limitations in existing transmission systems have jeopardized service, affected consumer choice of providers and limited market transactions.
- Facilitate the transfer of vitally needed water over long distances. If Gulf of Mexico desalination systems are developed, the corridor system could carry fresh water to areas of Texas desperately needing this vital natural resource.
- Improve cost-effectiveness of providing advanced telecommunications and data transmission to all areas of the state.

Benchmarks

The existing Texas petroleum and petroleum product pipeline infrastructure

- Includes more than 250,000 miles of oil and natural gas pipelines. Some of these lines traverse proposed corridor routes.
- Has specific volume needs for natural gas or petroleum product delivery.
- Has interstate connectivity on major distribution systems.
- Has the right of eminent domain for utility and common carrier pipelines. Some lines are permitted within TxDOT rights of way.

Benchmarks
(continued)

Existing water line infrastructure

- Has more than 1,200 water conveyance systems with little interconnectivity.
- Provides groundwater sources throughout the state. These supply 51 percent of Texas' demands.
- Includes surface water reservoirs, primarily in East Texas. These supply the balance of the state's water needs.

Electrical and data transmission systems

- Current electrical transmission systems meet Texas' needs, but future demand is expected to exceed capacity.
- While the vast majority of Texans have ready access to basic communication services, access to advanced telecommunications and data transmission services is necessary for economic development and participation in the global economy.
- Development of industrial sites and other businesses is driven by the presence of quality data transmission infrastructure. A recent Public Utility Commission report concluded that agricultural reliance on electronic commerce is expected to approach $70 billion in 2003.

Pipelines

- Petroleum pipelines generate a high level of public concern, due to land-use issues and proximity to large populations. Placing pipelines in a dedicated utility zone traversing unpopulated areas would help alleviate these concerns.
- Current systems would need to be expanded to connect with the corridor.
- More right of way acquisition will be necessary to accommodate other facilities associated with these pipelines. These include compressor and pump stations, aboveground valve stations and above-ground storage facilities.

Challenges

Water lines

- Existing systems are irregularly placed around the state, cover short distances and carry relatively small volumes.
- Numerous local and regional water authorities control existing systems.
- Though long-distance water transfers from Gulf of Mexico desalination systems are discussed in the current Texas water plan, no construction plans have been developed.

Electrical systems

- Limitations in the existing transmission systems have jeopardized service, affected market participants' choice of providers and limited market transactions.
- Some parts of the existing transmission systems are approaching load limits. From 1994 to 2001, while very few bulk transmission facilities were added to Texas' transmission system, peak demand grew 24.6 percent.
- The Electric Reliability Council of Texas reports that putting new electrical generation facilities on line may create additional problems unless existing transmission systems are upgraded to accommodate increased loads.

Telecommunication systems

- Most competitive and innovative services are available only in densely populated areas.
- Service providers have found capacity to move data to and from the Internet is insufficient in some areas.
- New technologies require significant investments to upgrade existing infrastructure or build new infrastructure.

Petroleum and petroleum product lines

- Identifying specific bypass corridors for pipelines would reduce public apprehension regarding construction across private property and near residential development.

Challenges
(continued)

- Capacity issues would be clarified by conducting a survey of large operators.
- Pipeline designs within the corridor would require state agency permitting and regulatory oversight.
- Even with the state as owner, current pipeline operators could lease, operate and maintain the facility.
- With access limited to operators, the dedicated utility zone would reduce, if not eliminate, pipeline incidents.
- In the event of an incident, damage would be limited or controlled within the utility zone.
- Corrosion from atmospheric conditions will be lessened if underground vault systems are used. Underground vaults can accommodate multiple pipelines, providing easier maintenance.

Design specifications for pipelines would vary depending on the number to be placed in a corridor segment. Providing corridor access would exponentially increase the capacity of pipeline infrastructure in the state. Pipelines would have as many connections as needed. Other design recommendations include:

- Distribution or gathering facilities located adjacent to corridor segments.
- Pipelines can be placed above or below ground with as little as 12” clearance between other pipelines or underground structures.

Pipelines are an important transportation link in Texas. While the corridor system would not preclude new pipeline construction elsewhere, it would reduce the number of large transmission lines traversing heavily populated urban areas. Public opposition due to land-use and restriction issues would be reduced by the use of the corridor system. The state would retain the ability to determine that the pipelines are safe. Pipeline operators using the corridor would reduce costs by replacing right of way acquisition with lease and operating agreements.

Actions

Water lines

While current water supply systems meet Texas' needs, demand is expected to overcome the existing system by 2050. To accommodate a projected population growth from 21 million to 40 million in 2050, water lines along the corridor's utility zone will help meet anticipated demand.

- As new water sources are developed, including new impoundments, private sale of water to municipalities, authorities or private interests, and basin transfers, new water lines will be needed.
- The trend toward regional water supply systems will continue, with the corridor likely to be incorporated into future water plans.
- A significant future source is desalinated water from the Gulf of Mexico. The corridor would accommodate a network of pipelines to move those supplies inland.

Electrical transmission lines

- Tie together new electrical generation facilities, substations and connectivity assets built to meet expected needs.
- Provide reliable connections between generating systems and electricity providers to ensure reliable power delivery for the future.
- Provide flexibility for changing electrical-system conditions, allowing interconnectivity to resolve such issues as maintenance-forced equipment outages, higher demands on systems and fuel shortages in generating facilities.

Development and design of high-voltage electrical transmission systems

- Rely on conventional engineering, including transmission towers.
- Use alternative technologies such as underground systems.

As each segment of the corridor is planned and constructed, the Electric Reliability Council of Texas should be consulted in determining current and anticipated infrastructure needs.

Actions
(continued)

Data transmission

From telephone service to high speed Internet connections, reliable communication is an essential part of the economy and culture of Texas. Data transmission lines in the corridor would:

- Become an integral component of the statewide communications infrastructure.
- Provide flexibility, access and connectivity for evolving technologies in both rural and urban areas. This will ensure reliable, efficient communication for citizens, businesses and government.
- Make right of way available for current and future telecommunications providers.

Design and development of data transmission systems must include provisions to supply reliable and affordable services to meet growing demands, while remaining flexible enough to adapt to future technological advances. By partnering with telecommunications providers in the design and construction of the corridor, competitive and modern communications systems can be made readily available to all Texans. ✪

Crossroads of the Americas: Trans Texas Corridor
Finance

Overview

In 2001, the 77th Legislature provided several new financial tools to help Texas meet its transportation demands. Legislation enabling toll equity, regional mobility authorities and the Texas Mobility Fund will help TxDOT continue its efforts to enhance the existing transportation system. These tools also can be used in developing the Trans Texas Corridor.

Other potential corridor funding methods include concessions, the federal Transportation Infrastructure Finance and Innovation Act of 1998, assorted other federal programs and leasing right of way. Some of these methods would require further legislative action.

Toll equity

Toll equity

With loans and grants, TxDOT can participate in the acquisition, construction, maintenance, or operation of a public or private toll facility. The primary purpose of department financial participation is to make the most efficient use of limited funds by leveraging other sources of project funds, particularly proceeds from bonds. This enables toll facilities to be built more quickly.

A public or private entity authorized by state law to construct or maintain a toll facility is eligible to request financing under this new subchapter. A public entity may apply for either a loan or a grant, while a private entity may only request a loan.

Toll equity offers two significant benefits:

- It can accelerate completion of a project that would have taken much longer to develop.
- It can be used to encourage entities such as regional mobility authorities to issue debt to finance the remaining cost of the project. As a result, the department will save funding equal to the amount of debt issued by the public or private entity. The unspent funds could then be used for other needed projects.

Regional mobility authorities

The 77th Legislature also authorized creation of a regional mobility authority to construct, maintain and operate a turnpike project in a region of the state. The law maximizes local control in the development and operation of regional transportation facilities and provides a financing tool for new transportation projects.

Toll equity
(continued)

Through a request to the Texas Transportation Commission, one or more counties may create a regional mobility authority. Generally, approval will be based on sufficient public support and an assessment of how a turnpike project could improve mobility in the region. Another factor is whether a project would benefit local and state governments, and the traveling public.

These regional mobility authorities, with the consent of the commission, have the same power as TxDOT. Counties may either join or withdraw from an authority with approval of the commission. Conversely, the commission may dissolve a regional mobility authority.

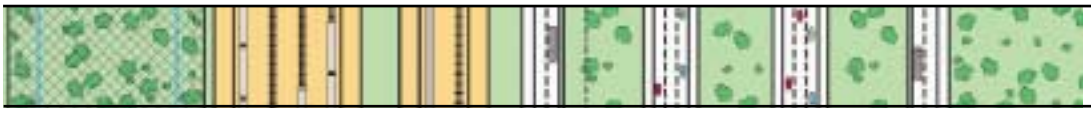
Proceeds from bonds are expected to be the primary funding source for regional mobility authority projects. However, to assist in the development of worthwhile transportation projects, these authorities may seek from TxDOT a loan or grant as outlined in the toll equity section of this report.

Surplus revenue generated by a regional mobility authority project can be used for various purposes. These include reducing tolls, enhancing the Texas Mobility Fund or funding other regional transportation projects. Projects eligible for funding are commercial airports, public transit facilities, the Gulf Intracoastal Waterway, planned state highway projects, passenger and freight rail facilities and pedestrian and bicycle facilities. Use of surplus revenue for construction of local roads, rural minor collectors or converted state highways is not allowed.

Surplus revenue from former state system roads that have been converted to a regional mobility authority project can only be used for improvements to the state highway system until total expenditures have equaled the asset value of the transferred facility. However, the commission has authority to waive this requirement.

Creation of regional mobility authorities can accelerate a project by providing resources not previously available. From a financial standpoint, a regional mobility authority would be the most efficient use of limited available funds since it would leverage other funding sources. It also would reduce TxDOT's maintenance and operation costs while giving local governments more control over highway facilities within their jurisdictions.

A regional mobility authority project will only be viable if there is sufficient traffic to generate revenue. By itself, a loan or grant from TxDOT will not be enough to support a project. Because of this,



Concessions

some counties participating in an authority might be reluctant to assume the obligation connected to a large-scale project such as the corridor.

Concessions

Concessions are long-term contractual arrangements between government and private or quasi-private companies. With a general lifespan ranging from 10 to 35 years, concessions can be used to build and operate highways and bridges.

In Europe, the concession model has been an effective alternative to conventional contracting techniques for several decades. Concessions were used in France from 1960 and 1997 to build a 6,500-kilometer expressway network. Portugal is using 16 concessions to complete its primary national transportation network. Concessions have been used extensively in Mexico and South America to construct and operate toll roads, bridges and airports.

Companies receiving a concession agree to perform one or more components (designing, building, operating, financing or maintaining) on a given project over the term of the contract. At the end of that term, the contract is either extended or the underlying transportation facility is turned over to the government. Concessionaires bear project risks, including those inherent in construction and traffic projection. Payments to concessionaires are based on either facility usage/availability or on a negotiated payment schedule.

Concessions offer several advantages over traditional contracts for construction and operation of transportation facilities:

- Reduced project costs.
- Accelerated project completion dates.
- Concessionaires assume project risks.
- Government benefits from private-sector efficiencies, innovation and expertise.
- Private-sector financing augments capital available to government.

These advantages have been documented. In Portugal, the national concession program allowed the government to complete its primary national transportation system up to eight years faster than would have been possible if conventional processes had been used.

Concessions (continued)

Concessions have been successful in Europe because private-sector firms can borrow at low interest rates similar to those rates paid by governments. A challenge in implementing a concession program in the United States is the gap between the cost of public and private financing. For example, in mid-2001, states could issue bonds with 10 to 12-year maturity rates of four percent or less, depending on their overall credit rating and collateral. Private-sector borrowing, however, carried substantially higher rates. In mid-2001, private-sector borrowers often paid seven percent or more for the same 10 to 12-year instrument.

A way to bridge this interest-rate gap and marry the efficiencies of concessions to the benefits of tax-exempt, low-interest rate borrowing would be to have the financing phase of the corridor project undertaken by an entity authorized to issue tax-exempt debt. However, all other project elements could be the concessionaire's responsibility. This differs from the European model, where concessionaires typically agree to finance all or part of a project. Also, it would not provide needed additional private-sector funding for the corridor.

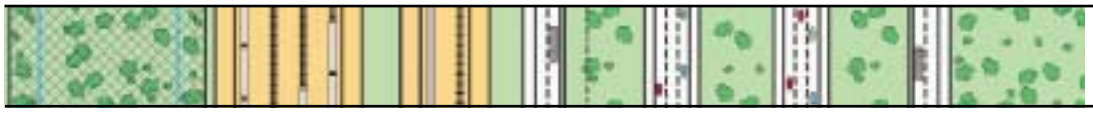
In 1995, the Commonwealth of Virginia General Assembly enacted the Public-Private Transportation Act to allow public entities such as the Virginia Department of Transportation to authorize private entities to acquire, construct, improve, operate and maintain qualifying transportation facilities. One of the goals of the Virginia legislation was accelerating the delivery of needed transportation facilities by providing new sources of capital.

To finance the Pocahontas Parkway, a not-for-profit corporation known as the Pocahontas Parkway Association was established. The association attracted investors for a $354 million bond, to be repaid solely by tolls from parkway users. More project funding was provided through a state infrastructure bank loan ($18 million) along with federal funding for roadway design ($9 million).

Transportation Infrastructure Finance and Innovation Act of 1998

TIFIA

Under the Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA) the U.S. Department of Transportation may provide three forms of credit assistance—direct loans, loan guarantees and standby lines of credit—for surface transportation projects of national or regional significance. The program's goal is to lever-



TIFIA
(continued)

age federal funds by attracting substantial private and other non-federal co-investment in critical improvements to the nation's surface transportation system. Project sponsors may include state departments of transportation, transit operators, special authorities, local governments and private entities. Eligible projects include highways and bridges, intelligent transportation systems, intermodal connectors, transit vehicles and facilities, intercity buses and facilities, freight transfer facilities and passenger rail vehicles and facilities.

The act may provide up to a third of eligible project costs, with no ceiling per project. Six requirements must be met:

- Projects must cost at least $100 million (or 50 percent of the state's annual federal-aid highway funding, whichever is less).
- Intelligent transportation system projects must be at least $30 million.
- Senior debt must be investment grade.
- Projects must comply with National Environmental Policy Act, Title VI of the Civil Rights Act, Uniform Relocation Assistance and Real Property Acquisition Policies Act, Titles 23 and 49 and all other applicable federal statutes.
- Projects must receive the necessary state/local approvals (transportation plans and policies).
- Dedicated revenue streams must support the projects.

One major Texas project already benefiting from this act is the Central Texas Turnpike. With an estimated cost of $3.2 billion, the turnpike project has been approved for a $916 million TIFIA loan.

Using this financial tool has several benefits. It accelerates projects, avoids future increases in right of way and construction costs, promotes economic growth and takes advantage of economies of scale in construction.

Challenges include the additional cost of interest payments, an extended application and evaluation process and significant issuance costs. Some capacity constraints also may exist, such as the ability of public agencies to manage additional projects, availability of contractors and consultants, and availability of construction materials and labor.

Other federal funds

Transportation Equity Act for the 21st Century

When Congress reauthorizes the act in 2003, several changes could benefit Texas in the execution of the corridor plan. These include:

- Increasing the rate of return Texas receives on its fuel tax dollars sent to Washington.
- Waiving the 20 percent state match for federally funded projects. Permit "donor" states (those that contribute more money to the Highway Trust Fund than is returned) to receive 100 percent reimbursement for project expenditures.
- Allowing toll credits to be derived from projects that include federal funds. This can be accomplished on a pro rata basis gauged by the amount of federal dollars apportioned to a project.

High-speed rail grants

The Federal Railroad Administration, U.S. Department of Transportation, could help finance the rail portion of the corridor. For fiscal 2002, nearly $20 million will be obligated nationally in project grants to stimulate high-speed passenger rail systems. Grants in fiscal 2000 ranged from $100,000 to $6 million and averaged $250,000.

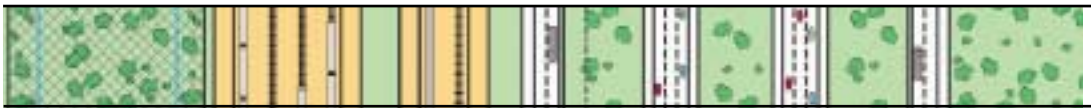
Grants for public works and economic development (Economic Development Administration, U.S. Department of Commerce)

Project grants are available to promote long-term economic development and assist in the construction of public works and facilities to support the creation or retention of permanent private sector jobs in areas experiencing substantial economic distress.

For fiscal 2002, an estimated $250 million is available. Average grant is $904,920.

Railroad Rehabilitation and Improvement Financing

The Railroad Rehabilitation and Improvement Financing program is intended to provide funding for railroad capital improvements through loans and loan guarantees.



Other federal funds (continued)

No direct federal funding is authorized in the Transportation Equity Act for the 21st Century (TEA-21). However, the Secretary of Transportation may accept a commitment from a non-federal source to fund the required credit risk premium. The aggregate unpaid principal amounts of obligations for direct loans and loan guarantees cannot exceed $3.5 billion at any one time. Of that, not less than $1 billion must be available solely for other than Class I (major) carriers.

Funds made available through this program may be used for direct loans and loan guarantees to state and local governments, government-sponsored authorities, corporations, railroads, and joint ventures that include at least one railroad. Loans, which may not exceed 25 years, are to be used to acquire, improve, develop or rehabilitate intermodal or rail equipment or facilities, including track, bridges, yards and shops.

Priority is given to projects that would enhance public safety and the environment, promote economic development, or enable companies to be more competitive in international markets. Projects endorsed in state and local transportation plans, or projects that would preserve or enhance rail or intermodal service to small communities or rural areas also receive priority.

At current funding levels, any assistance from these federal programs would be minimal.

Leasing

Leasing right of way

Leasing TxDOT right of way to local governments or private businesses for utilities or concessions is another revenue option.

Several states use various forms of these options to generate revenue. Most states consulted for this report have statutory authority to use these options only on toll roads or turnpikes.

Selected innovations in right of way leasing

- Delaware: The state's toll authority leases fiber optic space along the five-mile-long Delaware Memorial Bridge for public agency use at $1 a year. However, future utility leases are anticipated to produce an estimated $200,000 in annual revenue.

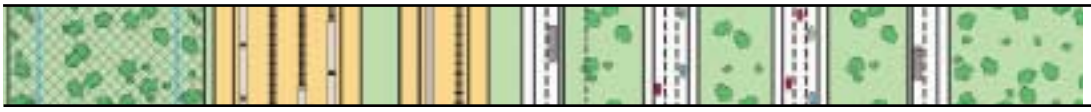
Leasing
(continued)

- Oklahoma: The state turnpike authority has established concession areas along toll roads such as the 88-mile Turner Turnpike. Most of these areas were built and leased 20 years ago. Two gasoline companies and a fast-food chain currently have leases. The state offers one-directional and bi-directional concession areas but believes that bi-directional areas maximize service. The intent in creating these areas was for the safety and convenience of the traveling public, not profit. In fiscal 2000, gross income off the leases was $1.3 million. That dropped slightly in fiscal 2001 to $1.1 million. Aside from utility costs and parking lot maintenance, few expenses are associated with these concessions. Most leases are for 20 years with a 3-5 year renewal option. However, the state has decided that any new leases will be for shorter terms.

  Interested service providers are asked to bid on the basis of the design of their proposed facility and other factors. Oklahoma uses what it calls a triple net lease, where the turnpike authority owns the concession area and pays taxes on it, but gets reimbursed. The agreement with the concessionaire determines building design and the food/gas providers. The lessee also agrees to manage the facility, and maintain the property except for minor utilities and parking lot maintenance.

- Kansas: The state transportation department builds the concession facilities in its right of way. The agency currently maintains six service areas containing convenience store and restaurants on turnpikes. Convenience stores have five-year leases; restaurants operate under 15-year leases. Kansas also has a few right of way leases for fiber optics. Gross income for 2001 was $2.1 million for all service areas. Yearly expenses are minimal since everything has been paid up front and the maintenance area is held to a minimum. Kansas will be opening four new facilities this year. An additional source of revenue associated with right of way is light-box advertising. Light boxes are 2 by 3-foot illuminated commercial signs. These boxes cost $600 per box to make, and $1,000 per year is charged to advertise. Current annual revenue from this program is $15,000.

- Maryland: The Maryland Toll Authority was granted a waiver by its legislature to lease space at rest stops to generate revenue. Leases have been signed with gasoline companies, hotels and restaurants. The state plays a very active part in the administration of these facilities, including input on gasoline pricing. The authority gets a percentage of the income from products sold.



Leasing
(continued)

The contracts, awarded on the basis of competitive bids, are very specific regarding the qualifications of the lessees and the management. In the past, contracts have been for five years, but the authority is looking at 10-year leases. Average annual revenue during the last five years has been $6.9 million.

Leasing right of way to utilities and other concerns would require new legislation to revise the Texas Transportation Code. Currently Chapter 181 of the Utilities Code provides only municipal utilities permission to be in TxDOT right of way. However, the transportation code does allow TxDOT to lease right of way not needed for transportation or "during the term of lease."

Texas Mobility Fund

The 77th Legislature established the framework for the Texas Mobility Fund. Voters approved the necessary constitutional amendment in November 2001. The amendment allows the state to issue bonds to accelerate construction of major transportation projects.

While the mobility fund will be a valuable tool, at this time it is only a financing mechanism. Legislative action is still required to put money into the fund. A number of revenue options exist, but constitutionally dedicated funds such as motor-fuel tax revenue and vehicle-inspection fees cannot be used. However, several existing transportation fees not used to fund transportation at present could be dedicated to the Texas Mobility Fund.

These fees, and the annual amount generated in millions of dollars, include:

- Motor Vehicle Inspections 67
- Driver Licenses 122
- Driver Record Information 49
- Motor Vehicle Certificates 27
- Special Vehicle Registrations 25
- Motor Vehicle Rental Tax 176
- Motor Vehicle Sales and Use Tax 2,700

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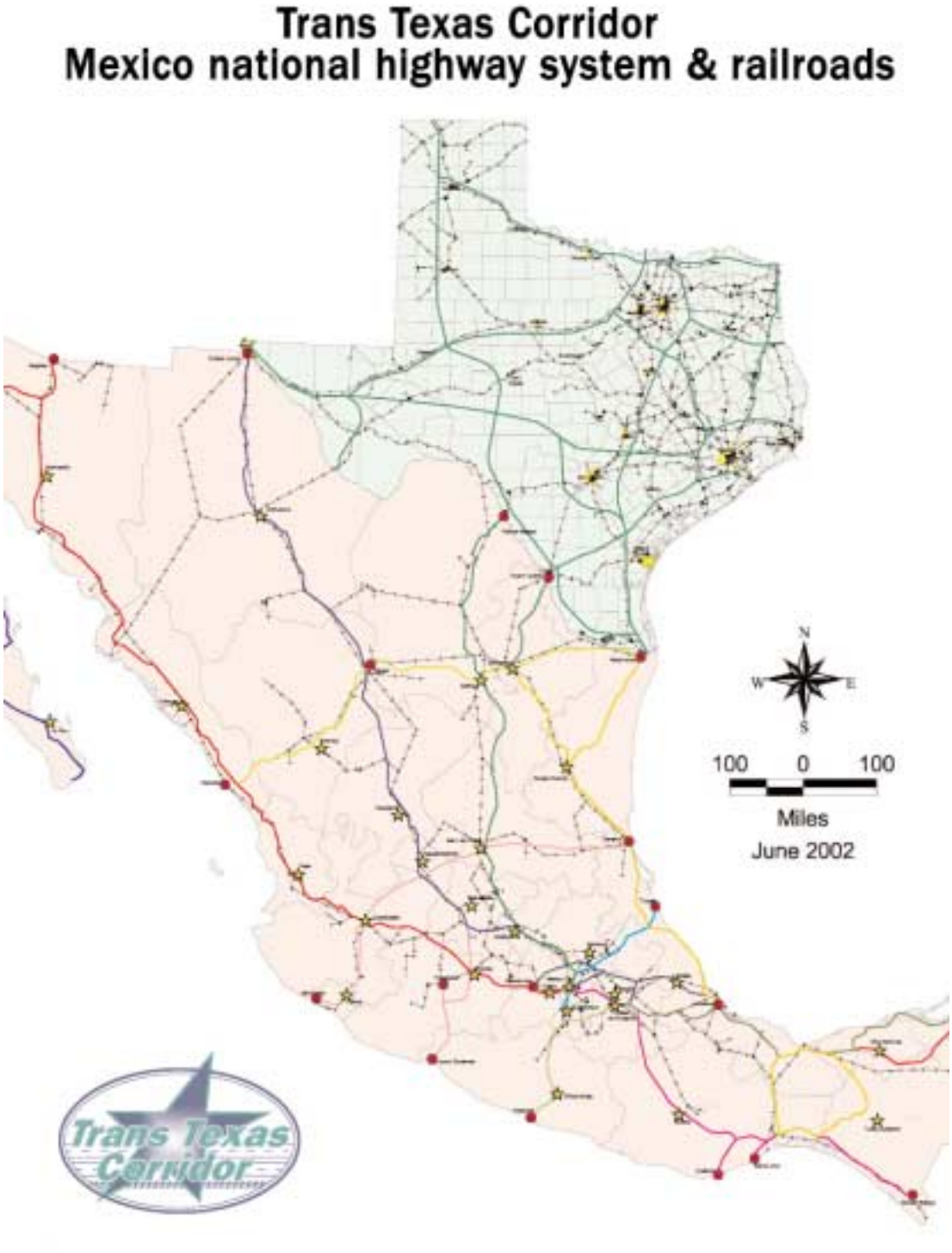
Trans Texas Corridor
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Maps

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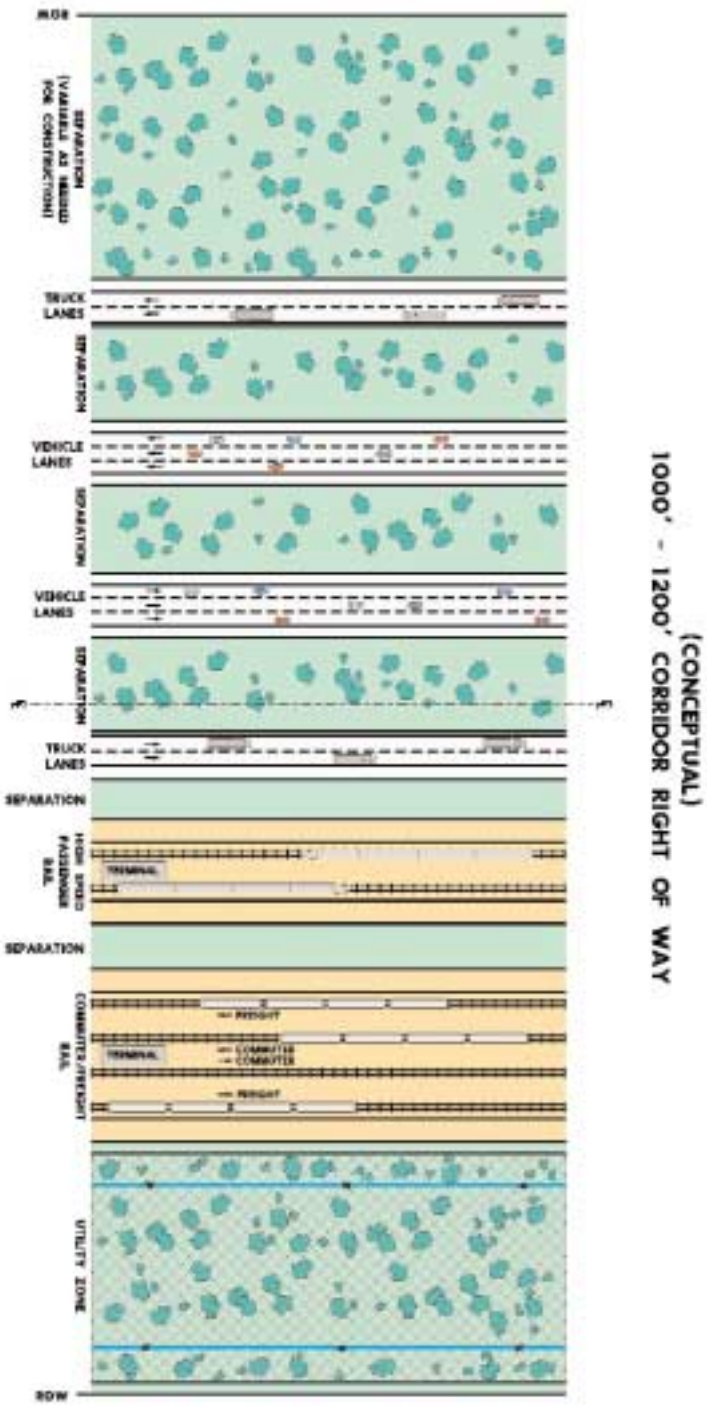
Priority corridors

Drawings

Rail component

Roadway component


MOW
SEPARATION (VARIABLE AT BRIDGE FOR CONSTRUCTION)
TRUCK LANES
SEPARATION
VEHICLE LANES
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TRUCK LANES
SEPARATION
HIGH SPEED PASSENGER RAIL
TERMINAL
SEPARATION
COMMUTER/FREIGHT RAIL
FREIGHT
TERMINAL
COMMUTER
COMMUTER
FREIGHT
UTILITY ZONE
ROW
(CONCEPTUAL)
1000' - 1200' CORRIDOR RIGHT OF WAY

Glossary

A

access right
The right to enter or exit property that abuts a street or highway. Access is a private right, as distinguishable from rights of the public. It is well-established law in Texas that the right of access cannot be denied or unreasonably restricted without compensation unless other reasonable access is available or provided.

acquisition
The process of obtaining right of way by negotiation or eminent domain proceedings. Negotiation involves voluntary conveyance to the public agency. Just compensation must be paid in all takings.

adverse effect
A determination reached as part of the process of reviewing possible historical sites. An undertaking or project is considered to have an "adverse effect" on a historic property if it diminishes the integrity of the property's location, design, setting, materials, workmanship, feeling or association. An adverse effect may be direct or indirect. This determination is reached in consultation with the State Historic Preservation Officer.

annual average daily traffic (AADT)
The total traffic for a year divided by 365. Usually AADT is adjusted for day of the week, seasonal variations, and/or vehicle classification. TxDOT records contain information for AADT for all highways on the state-maintained system, except frontage roads.

appraisal
A written statement independently and impartially prepared by a qualified appraiser. It sets forth an opinion of defined value of an adequately described property as of a specific date, supported by the presentation and analysis of relevant market information. Appraisals of property involve determining fair market value of property interests by a professional appraiser.

at-grade crossing
Any intersection of two or more flows of traffic at the same elevation (possibly involving more than one mode of transportation).

attainment area
As defined by the U.S. Environmental Protection Agency, this is an area considered to have air quality as good as, or better than, the national ambient air quality standards as defined in the Clean

Air Act. An area may be an attainment area for one pollutant and a nonattainment area for others. Attainment area is a designation given to urban areas that comply with the Clean Air Act amendments of 1990.

A (continued)

average daily traffic (ADT)
The average 24-hour volume, usually the total volume during a stated period, divided by the number of days in that period. Usually, ADT is not adjusted for day of the week, seasonal variations, or vehicle classification. TxDOT records include ADT volumes for off-system roads.

benefit/cost ratio
Compares the benefit versus the cost of proposed alternatives. For highway projects, benefits may include reduced fuel consumption, travel time, and air pollution; costs may include construction, right of way, and maintenance.

B

bond
A certificate of debt issued by a government or corporation guaranteeing payment of the original investment plus interest by a specified future date.

busway
Exclusive traffic lanes similar to the high-occupancy-vehicle lanes used in major urban areas. Busways, however, are limited to transit vehicles only. These lanes can have their own roadways or share existing roadways with other vehicles.

centerline
A line dividing the roadway from opposite moving traffic. It is a survey line with continuous stationing for the length of the project. Construction plans and right of way maps refer to this line. Horizontal alignment is the center of the roadbed.

C

centerline mile
A measure of the total length (in miles) of a highway facility in-place or proposed, as measured along the highway centerline.

commuter rail
Passenger train service for short distance travel between a central city such as Dallas and its suburbs, or longer distance travel

C
(continued)

between cities such as Austin to San Antonio. It is the rail transit mode designed to operate on the general railroad system, sharing tracks with freight trains and intercity passenger trains and in compliance with federal regulations applicable to the general railroad system. Commuter rail trains can be electric or diesel and can be composed of coaches hauled by locomotives or self-propelled coaches. They are typically staffed with an engineer to operate the train and one or more additional employees to collect fares and assist passengers.

concession
Long-term contractual arrangement between government and private or quasi-private companies. By such arrangement, the private concessionaire may be authorized to design, construct, operate, and maintain a project. Also referred to as "franchise agreement," as in the Texas Transportation Code (Section 361.303), relating to exclusive development agreements that may be entered into by TxDOT. With a general lifespan ranging from 10 to 35 years, concessions can be used to build and operate highways and bridges.

connectivity point
Where transportation modes intersect, a connectivity point permits the people using a particular transportation mode to change to a different mode. Example: a depot at which train passengers may elect to use a private vehicle, bus, airplane, etc.

consortium
An association, as of businesses, for the purpose of engaging in a joint venture. Plural form is "consortia."

corridor
A broad geographical band with no predefined size or scale that follows a general directional flow connecting major sources of trips. It involves a nominally linear transportation service area that may contain a number of streets, highways, and transit route alignments.

corridor preservation
Involves the coordination and application of various measures to obtain control of or otherwise protect the right of way for a planned transportation facility.

D

design speed
A speed determined for design and correlation of the physical features of a highway that influence vehicle operation. It is the maximum safe speed that can be maintained over a specific section of highway when conditions are so favorable that the design features of the highway govern control of the vehicle.

draft environmental impact statement (DEIS)
Initial stage in the NEPA process to document and analyze environmental impacts when a major federal or state action is proposed. The draft environmental impact statement is prepared to present agencies and the public a scope of findings for review and comments. (See FEIS.)

E

ecosystem
An ecological community together with its environment, functioning as a unit.

eminent domain
The governmental power to take private property for public use without the owner's consent and upon the payment of adequate (just) compensation. Within TxDOT, the term "eminent domain proceeding" includes steps that must be taken and requirements that must be followed as required by the Texas Property Code to properly exercise the eminent domain authority granted to TxDOT under the law.

environmental impact statement
A document prepared when significant influences resulting from or associated with a project are evident or identified after analysis in the environmental assessment. The environmental impact statement requires both a draft and final statement and extensive public involvement.

environmental justice
Defined by the U.S. Environmental Protection Agency as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

Environmental Protection Agency (EPA)
A federal agency responsible for developing and administering reg-

E
(continued)

ulations regarding the environment. The EPA is the federal agency primarily responsible for environmental protection, including air quality.

exclusive development agreement (EDA)
A contract between the state and a consortium to perform any or all of the following tasks: design, construct, operate, maintain, or finance a transportation project. The project may be privately funded or funded with public and private funds. The state determines the overall need for a project and then considers proposals from competing consortia on how the final project can be accomplished. The state then can select the consortium that proposes the method offering the best value for the project. With exclusive development agreements, state transportation officials can immediately begin to negotiate with organizations in the public or private sectors to develop corridors anywhere in the state.

F

fatal-flaw analysis
A form of review used in conducting environmental-impact assessments to determine if a circumstance or an error (of fact, logic, etc.) is evident. Such factors could prevent continuation of a project or call for alteration in project design or planning. This method of analysis helps reduce the number of possible options and leads to a more detailed evaluation using various standards defined under the goals and objectives of an environmental study.

feasibility study
A study about a project's feasibility (whether and how the project can be accomplished). Summarized in a document, the study addresses issues including the project's benefits, costs, effectiveness, alternatives considered, analysis of alternative selection, environmental effects, public opinions, and other factors.

federal-aid highway
A general term describing activities funded through the Federal Highway Administration and administered by the states' highway or transportation agencies or, in some cases, by local transportation agencies.

Federal Highway Administration (FHWA)
A federal agency whose mission is to create the best transportation system in the world for the American people through proactive leadership, innovation, and excellence in service. FHWA provides

F
(continued)

expertise, resources, and information to improve the quality of the U.S. highway system and its intermodal connections. The agency undertakes this mission in cooperation with all its partners to enhance the country's economic vitality, quality of life, and the environment. The FHWA is part of the U.S. Department of Transportation. Its main office is in Washington, D.C., and it has field offices across the United States. The FHWA performs its mission through these main programs: The Federal-Aid Highway Program provides federal financial assistance to the states to construct and improve the national highway system, urban and rural roads, and bridges. The program provides funds for general improvements and development of safe highways and roads. The Federal Lands Highway Program provides access to and within national forests, national parks, Indian reservations, and other public lands by preparing plans, letting contracts, supervising construction facilities, and conducting bridge inspections and surveys. To support these program areas, the FHWA conducts and manages a comprehensive research, development, and technology program.

final environmental impact statement (FEIS)
End result of incorporating valid agency and public comments into the DEIS review process and resubmitting for acceptance and funding of a proposed project. (See DEIS.)

franchise agreement
See entry for "concession."

G

grade
The slope of a roadway, channel, or natural ground. Grade also is any surface prepared for the support of construction such as that for paving or laying a conduit.

grade separation
The crossing of two highways or a highway and a railroad at different levels. All roadways (excluding unpaved county roads), rails and streams intersecting the Trans Texas Corridor are assumed to be grade-separate. Most crossings will be handled by simple grade-separation structures. These allow existing local highway and rail facilities to cross the corridor but not access it. Grade separations will be provided for farm to market highways, two-lane state highways, rail lines, and paved county roads.

H

high-occupancy toll lane (HOT lane)
These highway lanes serve both HOV users and those willing to pay a toll to use the restricted lane (typically during hours of peak demand).

high-occupancy vehicle (HOV)
A vehicle having more than one occupant. Examples include carpools, vanpools, buses, and mini-buses. Transportation systems may encourage HOV use by having designated HOV lanes and designating a minimum number of occupants to use these lanes.

high-occupancy vehicle lane (HOV lane)
These highway lanes provide preferential treatment to carpools, vanpools and buses carrying a minimum number of people in each vehicle. Dedicated lanes are restricted for this purpose, either on a part-time or full-time basis.

Highway Trust Fund
A federal account established by law to hold receipts collected by the government and earmarked for highway programs and a portion of the federal mass-transit program. It is supported by the federal gasoline tax and other user taxes.

I

intelligent transportation system (ITS)
An integrated system that uses video and other electronic detection devices to monitor traffic flows on major freeways. When problems (called “incidents”) are detected, operators may use remote controls to redirect traffic, inform motorists (using dynamic message signs) and notify emergency response services as appropriate.

interchange
A system of interconnecting roadways in conjunction with one or more grade separations that provides for the movement of traffic between two or more roadways or highways on different levels. A proposed interchange will be designated as an interchange when the construction contract has been awarded, regardless of whether it is open to the public.

intermodalism
An integrated view of transportation in which individual modes (automobiles, mass transit [buses], railways, airways, waterways, bicycles, pedestrians) work together or within their own niches to provide the user with the best choices of service, and in which the consequences of policy on a single mode are considered for all modes.

I (continued)

intermodal transportation
The transportation of persons and goods that involves the interchange among transportation modes such as automobiles, mass transit, railway, airways and waterways, bicycles and pedestrians.

L

lane mile
A measure of the total length of traveled pavement surface. Lane miles is the centerline length (in miles) multiplied by the number of lanes.

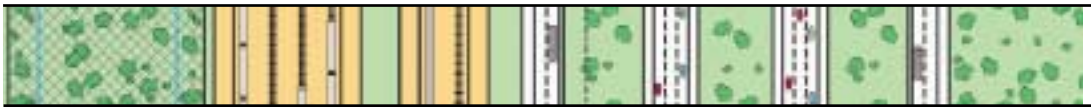
letting
The process of receiving and opening sealed bids submitted by contractors to the department to obtain work on highway projects. It is followed by the awarding of a contract to the qualified bidder who submitted the lowest acceptable bid to accomplish the agreed work at the prices quoted in the bid.

light rail
Passenger-train service using modern day trolley or updated streetcar technology. Electric trains travel on rails within existing railroad rights of way, dedicated right of way, or along right of way also used by vehicles. It is the rail transit mode designed to operate primarily on separate tracks from the general railroad system of freight and intercity passenger trains. Light rail trains evolved from streetcars (trolleys) and cannot share the same tracks with freight, commuter, and intercity passenger trains during the same operating hours. The trains consist of self-propelled cars, usually electric.

low-bid contract
A contract for goods or services that is awarded to the lowest bidder.

M

magnetic levitation (maglev)
A promising new technology in the development of high-speed rail. Some characteristics: wheels do not contact rails, trains may reach 300 mph, uses magnetic forces (for levitation, propulsion and guidance), safe and economical, high acceleration, continuous operation, low noise, no pollution, less consumption of energy per passenger mile. Maglev trains have been deployed in both Japan and Germany and plans are under way for some use in the United States.



M
(continued)

metropolitan planning organization (MPO)
An association of local agencies established to coordinate transportation planning and development activities within a metropolitan region. Establishment of the MPO is required, by law, in urban areas of more than 50,000 population, if federal funds are to be used. The MPO consists of two groups — the policy board and the technical advisory group. The policy board comprises officials representing the counties and cities, and the state transportation agency. The technical advisory group comprises professional planners and engineers who usually are employees of the same agencies. An MPO is the forum for cooperative transportation decision-making for the metropolitan planning area. It is also a term used generically to mean the organization in urbanized areas over 50,000 population that is responsible for carrying out the transportation planning process for the metropolitan area.

mitigation
Engineering, design, monetary, or construction measures to lessen or offset adverse impacts caused by a proposed action. A technique or means of reducing impacts to resources or to the natural environment. Mitigation includes avoiding the impact altogether by not taking a certain action or parts of an action. It also includes minimizing impacts by limiting the degree or magnitude of the action and its implementation. Further, mitigation includes rectifying the impact by repairing, rehabilitating, or restoring the affected environment. It also includes reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action. Mitigation also may include compensating for the impact by replacing or providing substitute resources or environments.

mobility
Term used to describe transportation projects that add additional lanes to an existing facility (roadway) and which have a length of at least one mile.

mode
A particular form or method of travel. The physical means of transportation used for a trip. The modes available include auto/truck/van driver, auto/truck/van passenger, public transit, bicycle, school bus, walking, taxi, commercial vehicle, and other. Generally, trips are aggregated for similar modes such as private vehicle driver, private vehicle passenger, public transit, school bus, bicycle, walk, taxi, commercial vehicle, and other.

N

National Environmental Policy Act (NEPA)
Federal legislation that establishes environmental policy for the nation. It provides an interdisciplinary framework for federal agencies to prevent environmental damage and contains "action-forcing" procedures to ensure that federal agency decision-makers consider environmental factors. It is the basic national charter for protection of the environment. It establishes policy, sets goals, and provides means for carrying out the policy. NEPA is binding upon federal agencies, including the Federal Highway Administration. State and local agencies usually follow NEPA as an environmental guidelines. In general, references to NEPA include the act itself and its subsequent amendments.

North American Free Trade Agreement (NAFTA)
A formal agreement, or treaty, between Canada, Mexico, and the United States of America to promote means for improved and increased free trade among the three countries.

P

preliminary engineering
That portion of the development of a project during which the basic planning objectives are translated into specific, well-defined criteria that can permit the final design process to begin.

private toll road
A highway open to traffic only upon payment of a direct fee known as a toll. Such a highway may be owned, operated or managed by private interests, separate from governmental interests that also may operate toll roads.

Proposition 15
Approved by Texas voters on November 6, 2001, this legislation authorized toll equity and the Texas Mobility Fund. Passage of the proposition indirectly resulted in regional mobility authorities to build, operate, and maintain toll projects within a designated area.

purchase and lease-back agreement
An agreement between the state and a property owner by which the state purchases a private property, leasing it back to the original owner as a way to generate revenue until the property is needed for development.

Glossary

R

regional mobility authority (RMA)
New mobility authorities that operate much like existing tollway authorities, but with additional benefits. These authorities will be initiated on the local level and will have the ability to build, operate and maintain newly created toll projects.

remainder
That area of a parcel of land that remains in the possession of the property owner after the part to be acquired has been taken, either by purchase or condemnation by the state. (See "uneconomic remainder.")

right of way
The corridor (horizontal and vertical space) occupied by the transportation way. A general term denoting land, property or interest therein, usually in a strip, acquired for or devoted to a highway for the construction of the roadway. Right of way is the entire width of land between the public boundaries or property lines of a highway. This may include purchase for drainage.

S

state highway system
The system of highways in the state included in a comprehensive plan prepared by the TxDOT executive director under the direction and with the approval of the Texas Transportation Commission.

state infrastructure bank (SIB)
A TxDOT program which may provide loans, lines and letters of credit, bond insurance, and capital reserves to public or private entities authorized by law to construct, maintain or finance an eligible transportation project. Eligible projects include the construction of a federal-aid highway and other projects eligible under Title 23, U.S. Code. This includes projects on the state highway system as well as off-system bridge projects eligible for federal aid. Financial assistance may be funded directly from available resources or through the sale of revenue bonds.

T

taking
The process of obtaining right of way by condemnation or eminent domain proceedings. In addition, that portion of real property "taken" for transportation purposes.

T
(continued)

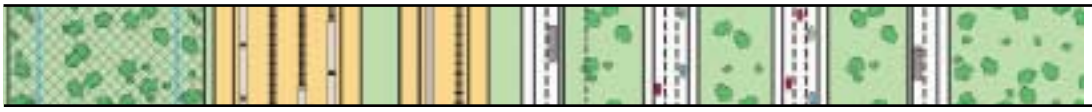
Texas Mobility Fund (TMF)
In November 2001, Texas voters approved a proposal (Proposition 15) that amended the state constitution and created a new way to finance the construction of state highways, public toll roads and other public transportation projects. This new financing tool is called the Texas Mobility Fund and permits the state to borrow funds (through bonds, for example) to build roads. This fund supplements the traditional pay-as-you-go method of financing highway transportation. It allows the Texas Transportation Commission to issue bonds so construction of major highway projects can be accelerated. Funds can be used to finance road construction on the state-maintained highway system, publicly owned toll roads, or other public transportation projects. The state legislature will need to appropriate funds for the Texas Mobility Fund. Before a bond can be issued, the TMF must contain 110 percent of the money necessary to pay debt service on the loan. Since the TMF has not yet received appropriations, no bonds can be issued.

Texas Transportation Commission
The three-member body that sets policy for the Texas Department of Transportation. The commission also selects the executive director to head the department. The governor, with the advice and consent of the Texas Senate, appoints commission members, who serve overlapping six-year terms.

toll equity
A financing option that makes potential toll projects more viable and could speed up relief from congestion while stretching limited state transportation funds. Toll equity allows state highway funds to be combined with other funding sources to help pay for toll roads, and makes projects more attractive for additional private-sector investment.

toll lane
A lane for use of which a toll, or fare, is collected from users. The toll may be collected 24 hours each day or during peak traffic periods. A toll lane also may be used in conjunction with an HOV lane to allow motorists not meeting the HOV passenger requirements to pay a toll to use the dedicated lane. This is referred to as a HOT lane.

toll road
A highway open to traffic only upon payment of a direct fee.



T
(continued)

trackbed
The prepared, graded surface upon which tracks are constructed.

transit
Public transportation services characterized by fixed routes and schedules, such as bus and rail services. (Also, mass transit, mass transportation, or public transportation.)

transit center
Location where several transit modes or services come together, providing a convenient interchange.

Transportation Equity Act for the 21st Century (TEA-21)
The transportation act passed by Congress in 1998 that provides another six-year funding authorization (1998-2003) and policy for highways, safety, transit and other surface transportation programs.

Transportation Infrastructure Finance and Innovation Act (TIFIA)
Under the Transportation Infrastructure Finance and Innovation Act of 1998, the U.S. Department of Transportation may provide three forms of credit assistance (direct loans, loan guarantees, and standby lines of credit) for surface transportation projects of national or regional significance.

U

uneconomic remainder
A parcel of land being acquired that is of such low value or utility to the owner that acquisition of the entire parcel should be considered (if the property otherwise meets the requirements of the Texas Transportation Code). Also called an “uneconomic remnant.”

utility zone
Within the Trans Texas Corridor, space to be used for transmission of oil, natural gas, energy, water and data. The 200-foot-wide utility zone will accommodate large pipelines for water, pipelines for natural gas and petroleum, telecommunication fiber-optic cables, and high-power electric lines.

V

vehicle mile of travel (VMT)
A unit to measure travel by a private vehicle, such as an automobile, van, pickup or motorcycle. Each mile traveled is counted as one vehicle mile, regardless of the number of persons in the vehicle.

W

wetland
An area inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, under normal conditions, a prevalence of vegetation typically adapted for life in saturated soil conditions. Examples: swamps, marshes and similar areas.