

9.0 Meeting the Challenges

9.1 SLRTP Goals

The SLRTP is built around the six TxDOT Strategic Plan goals.

1. Develop an organizational structure and strategies designed to address the future multimodal transportation needs of all Texans;
2. Enhance safety for all Texas transportation system users;
3. Maintain the existing Texas transportation system;
4. Promote congestion relief strategies;
5. Enhance system connectivity; and
6. Facilitate the development and exchange of comprehensive multimodal transportation funding strategies with transportation program and project partners.

Figure 9-1: SLRTP Goals





9.2 Strategy Options and Recommendations

In order to meet the challenge of limited funding, growing demand, and very large transportation needs in the SLRTP, three strategies are proposed to address the transportation needs and funding differences identified in the SLRTP. These strategies represent a complementary, multi-pronged approach designed to

1. Focus available transportation funds on the most cost-effective investments,
2. Manage our transportation system in ways that encourage cost-effective shifts in how we travel, and
3. Develop partnerships for providing transportation improvements

The first strategy aims to maintain the current system and expand it where possible; the second seeks to manage the system in ways that reduce peak-period demand; and the third would provide funding to help carry out the first two approaches.

Even an aggressive application of these strategies will not close the funding difference between our identified needs and the projected available funding, but they do offer an opportunity to meet the state's most important economic and social transportation needs. Each strategy includes a series of recommendations.

Transportation needs are a result of successful economic growth. Conversely, transportation investment is one of several major drivers of the economy. Not meeting the predicted needs for transportation can have a negative impact on the quality of the state's transportation service and a negative impact on the state's economy. It is predicted that Texans will be faced with a lower level of performance of the transportation system. This lower level of performance can mean increased congestion, decreased reliability, and reduced economic productivity.

9.2.1 Strategy 1 – Maximize Available Resources

TxDOT, along with most other state and local transportation agencies, is experiencing a shrinking amount of revenues from traditional sources. These trends are likely to continue for the foreseeable future. At the same time, the demand for travel continues to grow. The current imbalance between demand for transportation and available resources creates significant risks about sustainability of past trends in economic growth.



This combination of limited funds and increasing demand makes it essential to use available funds in ways that maximize the return on these resources. This calls for operating the transportation system as efficiently as possible. For example:

- ★ What can be done to maximize existing roadway capacity in the most congested areas?
- ★ What can be done to ensure a safe and reliable multimodal statewide transportation network?
- ★ How can Texas take advantage of the strengths offered by nonhighway modes of travel?
- ★ How can Texas take advantage of new technologies to achieve more efficient and coordinated use of all modes of transportation?

The focus of this strategy is to make the most of available transportation funds by targeting transportation investments that offer the greatest return for Texans, regardless of mode, type of investment, or location.

Recommendation A. TxDOT should refine current project selection procedures to investigate comprehensive multimodal options.

This recommendation recognizes the vital need for TxDOT to allocate limited resources as effectively as possible. This refinement would provide a comprehensive supplement to TxDOT’s current decision-making process and would assist the Transportation Commission in making its decisions.

The traditional benefit-cost technique offers an opportunity to illustrate how such a project decision process might work. A benefit-cost ratio measures the dollar value of benefits generated by a project for every dollar spent on that project—the higher the ratio the greater the return on investment. For example, benefits for a highway project typically include some combination of travel time savings, reduced operating costs (such as fuel saved), and improvements in safety (such as fewer fatalities). When calculated on a consistent basis, the benefit-cost ratio offers one way to rank projects, making it easier to identify the most attractive investments.

In addition to measures of cost effectiveness, the decision process should also consider qualitative impacts, perhaps using cost-effectiveness rankings. Since quantitative benefits are based on forecasts of future traffic flows that are subject to uncertainty, the process should include a risk analysis. Qualitative benefits should also be considered, particularly as part of multimodal alternatives analysis. Any decision process should consider the six SLRTP goals.



Recommendation B. MPOs should implement similar project selection procedures to improve consistency in the overall statewide planning process. While TxDOT can refine its own project selection procedures, the process effectiveness will be enhanced if other transportation agencies have similar processes. Some MPOs already have a robust process in place, but this is not consistent across the state. This would make it possible to adopt a broad, inclusive approach to transportation investment decisions for all modes, congruent to the six SLRTP goals.

Recommendation C. Increase investment in technology that improves system efficiency.

Texas has already made significant investments in ITS, particularly in large metro areas. Evidence from across the nation suggests that a high rate of return can be achieved by investing in relatively low cost measures such as traffic signal coordination, ramp metering, access management, and signal preemption for buses.

9.2.2 Strategy 2 – Manage Demand

This strategy considers ways to meet transportation needs through managing demand, with an emphasis on reducing demand on highway assets during peak periods and on enhancing highway management and operations.

A trend already exists in Texas towards travel other than by a single occupant vehicle. More than 20 percent of urban work trips are by other modes (with carpools accounting for most of this travel—between 11 and 13 percent of work trips). About 400,000 workers work at home in Texas. This equates to 3.6 percent of commuting trips—more than double transit’s share.

Recommendation A. Encourage shifts in mode, departure times, and/or route.

This recommendation seeks to encourage individual Texans to adjust their personal travel behavior. There is a desire, and often an unavoidable need, for single-occupant driving in metropolitan areas where people do not live near where they work—indeed 23 percent of Texans live in one county and work in another. This behavior is often the only choice in order to meet work schedules and family responsibilities. However, this behavior comes with a high cost in the form of traffic congestion.

During peak periods (in some urban areas, these include midday peak periods and weekends, not just the traditional morning and afternoon rush hour), increased use of transit, carpools, vanpools, biking, and walking will reduce the number of SOVs. Telecommuting can have a similar effect by eliminating work trips. Alternate work



locations that provide high-speed internet and high-definition video conferencing can help people relocate travel to locations or times of day with less traffic congestion.

Recommendation B. Consider capital investments that support modal shifts during peak hours.

This recommendation seeks to implement innovative approaches to encourage Texans to adjust their personal travel behaviors. One approach involves public-private partnerships that invest in telecommuting centers (offices where space is unassigned but available on an hourly/daily basis with shared resources, such as reproduction services and high quality tele/video-conferencing). Such centers could be co-located at transit hubs.

Another innovation is to adopt a corridor level approach to planning for bicycling routes and facilities. Typically bike trails are developed in a piecemeal fashion, with little regard to trip making patterns, signage, bicycle priority at traffic signals, continuous dedicated bike trails/lanes that avoid traffic congestion entirely, and bike parking.

Recommendation C. Implement active traffic management to smooth traffic flow and add to effective capacity.

Active traffic management is a relatively new operational concept that holds the promise of greater efficiencies and throughput on congested facilities via a host of real-time, dynamic traffic management techniques. International experience has found that these methods can increase capacity by proactively managing shoulders as peak running lanes, and smooth traffic flow by using variable speed limits.

Recommendation D. Coordinate with local communities to develop land use plans that support existing and future sustainable transportation systems.

TxDOT should work with local communities to identify and encourage more sustainable approaches to development that are consistent with the existing or planned transportation system.

Recommendation E. Explore real-time location information to assist with traveler decisions.

The recent expansion of personal and fleet-owned devices with GPS capability has resulted in an explosion of real time location information, including speed data. Several private sector companies have begun to use these data to develop commercial traffic information systems, including travel time predictions.



Recommendation F. Explore and encourage demand-based pricing that improves the level of performance for travelers.

One of the most powerful mechanisms for influencing travel behavior is to charge for using it at a level that is consistent with its scarcity. This is the business model that is seen in most commercial businesses. Transportation stands out as an exception in that anyone in Texas can use most of the state’s highway system for the same cost at all times. In return, travelers receive no assurance about expected travel time and reliability.

Many rail and transit systems charge higher fares for traveling at peak times. Most airlines charge more to travel when there are only a few seats available. Delivery companies charge more to deliver urgent packages than those that are not time sensitive. Apart from a few toll roads and some high occupancy toll (HOT) lanes, most of the Texas highway system is available to anyone to use at anytime. In practice the only “charge” for using the highway system at peak times is traffic congestion and uncertainty about when one will reach their destination.

9.2.3 Strategy 3 – Leverage Partnerships

TxDOT faces severe financial constraints, along with most state and local transportation agencies, as well as the USDOT. Regardless of the growth in future demand for new transportation system capacity and for preserving transportation assets, transportation funds are trending downward. Long-term factors will maintain downward trends in transportation revenues. State and federal fuel taxes are a fixed amount per gallon so that as vehicles become more fuel efficient, less revenue is raised per mile driven. In addition, fuel taxes are not indexed to the rate of inflation, so that fuel-related transportation revenues lose value over time relative to the cost of preserving, enhancing, or expanding the transportation system.

Transportation investments provide tangible benefits to local communities, individual travelers, and business. There are several active programs that attempt to leverage these benefits as ways to help generate additional funds. Examples include:

- ★ Pass-through financing is a technique where TxDOT provides repayment of a portion of facility cost incurred by local or regional entities (including toll roads) or private firms based on usage.
- ★ The Texas State Infrastructure Bank (SIB) provides loans and loan guarantees to local or regional entities and private firms, repaid in full with interest.



- ★ The private sector funds freight rail, pipelines, and many port facilities and represent another source of capital.
- ★ Regional Mobility Authorities (RMAs) are independent agencies formed to finance, design, construct, operate, maintain, and expand the full range of transportation facilities, including roads, airports, intermodal facilities, etc.
- ★ Local tolling authorities have been established as financially independent bodies, such as the North Texas Toll Authority, while others are formed by counties, such as Harris County Toll Road Authority and Fort Bend County Toll Road Authority.
- ★ Private Activity Bonds (PABs) provide private developers and operators of transportation facilities access to tax-exempt interest rates.
- ★ The Buy America Bonds (BABs) program is designed to provide a federal subsidy of 35 percent of the interest payment for state and local governments. BABs can be issued through the end of December 2010.
- ★ A Transportation Reinvestment Zone (TRZ) provides a way to capture a portion of property taxes from increased value in real estate resulting from a highway improvement. In Texas, this mechanism is only available to municipalities and counties that are planning to execute a pass through finance agreement to fund a highway project.

9.3 Performance Measures

Performance measures are indicators that enable decision makers to monitor changes in system condition and performance against established visions, goals, and objectives. These measure the progress of the implementation of TxDOT's future improvements to the system to ensure the most productive and beneficial use of available transportation funding and provide TxDOT with the means to update the SLRTP for all modes to meet the challenges ahead.

TxDOT's Mission and Vision, as established in the Strategic Plan, have two elements. One shows how TxDOT will act as an agency, and the other shows how the state's transportation system will function. Both components are relevant to this plan—the first because it relates to how the plan will be implemented, and the second because it characterizes how the transportation system will eventually look and function.



Table 9-1: TxDOT 2011–2015 Strategic Plan Mission and Vision

Source	TxDOT	Transportation System
Mission	<i>...maintaining existing roadways and collaborating with private and local entities to plan, design, build, and maintain expanded transportation infrastructure.</i>	<i>... safe and efficient movement of people and goods, enhance economic viability, and improve the quality of life for the people that travel in the state of Texas</i>
Vision	<i>To be a trusted performance-driven organization committed to collaborating with internal and external partners...</i>	<i>... modern, interconnected, and multimodal transportation system that enhances the quality of life for Texas citizens and increases the competitive position for Texas industry.</i>

The six goals established for the SLRTP are consistent with federal requirements for long-range planning, TxDOT’s 2010 Unified Transportation Program, and earlier work undertaken by the 2030 Committee. These other efforts also highlight increasing economic growth, which will be an outcome of congestion relief and system connectivity.

The list of performance measures below focus on a core group of measures that reflect TxDOT’s priorities for the transportation system and which offer the greatest value to Texans and Texas businesses. Candidate performance measures for inclusion in the core group are shown below.

Table 9-2: Performance Measures

Goal	Performance Measure
Develop an organizational structure and strategies designed to address the future multimodal transportation needs of all Texans	<ul style="list-style-type: none"> • Percentage of projects let on time and completed within budget • Overall customer satisfaction rate (external customers & partners) • Number of projects let to construction with more than one mode of transportation
Enhance safety for all Texas transportation system users	<ul style="list-style-type: none"> • Injuries and fatalities (number and rate) • Percentage of two-lane highways with improved shoulders • Reduction of work zone incidents • Percentage of general aviation airports with safety improvements • Percentage of railroad crossings with signalization
Maintain the existing Texas transportation system	<ul style="list-style-type: none"> • Percent of transportation facilities in good or better condition, or Texas Condition Assessment Program (TxCAP) score • Percentage of targets met in 4-year pavement management plans



Table 9-2: Performance Measures

Goal	Performance Measure
Promote congestion relief strategies	<ul style="list-style-type: none"> • Reduction in large- and small urban area congestion (total travel delay, travel delay per commuter, and congestion costs) • Effectiveness of multimodal congestion management projects and strategies in large urban areas • Progress on top 100 congested roadway segments • Fraction of work trips that use SOVs
Enhance system connectivity	<ul style="list-style-type: none"> • Satisfaction rates on industry access to international markets and gateways via the Texas transportation system • Percentage of Texas population within a 30-minute drive of an airport supporting business jet aircraft • Percent of Texas communities of 50,000 or more with public transportation services • Percent of Texas population with access to rural public transportation services • Reduction in the number of bottlenecks on economically critical road and freight corridors • Percentage of high volume rural roads with super-2 or 4-lane divided facilities
Facilitate the development and exchange of comprehensive multimodal transportation funding strategies with transportation program and project partners	<ul style="list-style-type: none"> • Percentage of projects and programs using alternative financing