

V. Establishing an Ongoing Evaluation System

This section establishes transportation objectives for Texas metropolitan areas and lays down a proposed continuing process for ongoing annual consideration of metropolitan transportation needs based on system performance reporting.

Establishing Objectives

The purpose of the Governor’s Business Council Plan, as stated at the outset, is to:

Establish a process whereby vision and needs drive the process of transportation improvement, rather than currently or traditionally available resources.

This is to start a “how can we fulfill our vision” process instead of a “what does the status quo allow” process.

It is recognized that:

The most serious transportation threat to the state and its metropolitan areas is the continuing delay in passenger and freight travel activity brought about by congested road facilities. This challenge threatens to increase to dramatic levels in the future unless timely substantial responses are undertaken.

Urban Roadways: Performance and Management

Given that the primary goal is to minimize travel delay, the urban transportation planning process will need to give priority to the most cost effective improvements. It will be important to establish a focused performance and management system to accomplish this objective.

Measuring Roadway Performance

A number of performance indicators can be used to measure travel delay and traffic congestion in Texas metropolitan areas. The important concern is not which measure or measures are used, but rather that the set of measures focus improvement activities on the roadway performance goals. The following list includes several measures that might be used. In most applications, it is appropriate to focus principally on peak period travel, because the volumes during the morning and evening “rush hours” are sufficiently higher than average to tax the capacity of the roadway system much more than during off-peak periods.

- Travel Time Index: The Travel Time Index was developed by the Texas Transportation Institute, which produces an annual *Urban Mobility Report* analyzing traffic congestion in urban areas throughout the nation. The Travel Time Index estimates the amount of time it takes to travel during peak travel periods (morning and evening “rush” hours) compared to non-congested periods. A Travel Time Index of 1.30 means that it takes 30 percent more

time to travel during peak hours compared to non-congested periods -- a 20 minute trip during an uncongested period would take 26 minutes during the peak travel period.

- Travel speed: The new automated regional highway monitoring systems, such as TranStar in Houston and Transguide in San Antonio, are capable of reporting speed data for roadway segments and are already providing much improved roadway performance monitoring information to administering agencies.
- Mobility and employment access: Research has been conducted to estimate the extent of access between locations in an urban area, especially for the work trip. Access can be stated in terms such as “50 percent of the jobs in the urban area are accessible to the average resident within a period of 20 minutes.” Access can also be measured by mode, such as automobile, transit or walking. Access indicators have been used only to a limited degree in transportation planning.
- Commercial operating costs: Slower urban travel times directly translate into higher commercial operating costs for long distance trucks and local delivery vehicles.
- Buffer Index: The Buffer Index is a Texas Transportation Institute measure of system reliability. It provides an estimate of the additional travel time (compared to the average) necessary to complete a trip 19 out of 20 times (95th percentile).
- Misery Index: The Misery Index is a Texas Transportation Institute measure of the speed of the slowest 20 percent of traffic compared to the average speed of all traffic. While the Misery Index may be an effective measure of travel reliability, it is not easy to communicate and was not used in the *2002 Urban Mobility Report*.
- Travel delay time: The Texas Transportation Institute also produces estimates of peak period travel time delay as a part of its annual *Urban Mobility Report*. In addition, new project evaluation reports often quantify changes in total delay hours that are anticipated from implementation. Delay can also be expressed in per capita terms to indicate the individual effects of congestion.
- Journey to work travel time: The decennial US Census collects journey to work travel times that are available at the detailed metropolitan area levels, though historically this data has been updated only every 10 years. There are plans to shift the journey to work data system from the decennial census to the annual American Community Survey over the next decade, which will provide more frequent information updates on mode choice, travel times and work trip origins and destinations.

- Level of Service Indicators: Departments of Transportation have long used “level of service” (LOS) indicators to measure the flow of traffic on roadways. The indicators have a range of from A to F, with “F” indicating a breakdown in the flow of traffic.

All of these indicators make a contribution to better understanding of the transportation congestion issue. But among these indicators, it would appear that the Travel Time Index would be the best single overall indicator of metropolitan roadway system performance. This readily understandable indicator provides an effective index of travel delay, the minimization of which must be the principal objective of any future urban mobility program in the state’s largest urban areas. It can be estimated from a variety of data sources and modeling efforts, and can be communicated to a variety of audiences relatively easily. The Travel Time Index has become the principal measure used in the annual *Urban Mobility Report* and is simple in concept so that it can be readily understood by the press, the public and elected officials.

An Urban Roadway Supply Management System

It is proposed that the state adopt a set of urban mobility objectives together with local agencies and supportive planning processes. This would be accomplished through the Urban Roadway Supply Management System (URSMS), which would involve:

- A set of urban roadway system objectives and reporting systems for the largest metropolitan areas in the state developed as a consensus of agencies at all government levels. These would be identified for individual project analyses as well as system evaluations.
- Commitment of all state funding that is available for new construction, system expansion and system management in a planning process intended to achieve the urban roadway system objectives.

Both the objectives and reporting requirements would apply to freeways, tollways and primary arterial roadways administered by both TxDOT and local agencies. Locally administered roadways would be included because of their importance in achieving the traffic flows necessary to support the longer term economic growth in the urban areas of the state. Developing a consensus plan would provide a method to coordinate investments so that the greatest benefits are achieved and the economic efficiency of public sector spending is maximized.

Performance Indicators and Objectives

Four performance indicators would be adopted:

- Urban Mobility Objectives
- Delay Reduction Index

- Travel Speed Objectives
- Financial Performance

Urban Mobility Objectives

The Travel Time Index appears to be the most effective and readily understood overall measure of mobility for urban areas. It is proposed that the state, in cooperation with local agencies establish Urban Mobility Objectives (UMO), using the Travel Time Index, for each of the largest urban areas and a target date by which the UMO is to be achieved. This report uses several example Travel Time Index objectives for the major Texas metropolitan areas to estimate funding and project needs.

Delay Reduction Index

In support of the Urban Mobility Objectives, it is proposed that projects be evaluated based upon the cost effectiveness of their contribution to the objective. As a result, a measure of the reduction in delay hours is proposed for evaluating projects for funding. Local roadway administrating agencies would be encouraged to adopt similar planning criteria. TxDOT project evaluations currently use cost data and overall travel delay reduction, giving credit for local contributions and user fee payments. By focusing on TxDOT costs per delay hour, it is possible for projects to score higher on cost effectiveness through the use of toll revenues or local government contributions in some funding categories. (It would be important to establish mechanisms to ensure that funding developed from local sources would not lower the allocations of TxDOT funding). The goal would be to maximize the provision of the most critical new roadway space within the TxDOT financial constraints. The Delay Reduction Index evaluation process might be incorporated into local project prioritization schemes, or its use expanded where similar methods are already in place. (Examples of project evaluation formats are in Appendix IV.)

Travel Speed Objectives

TxDOT and local roadway planning, administering and operating authorities would identify target conditions for each major roadway segment and for sections of major travel corridors. The targets would incorporate desirable travel conditions, as well as recognized local constraints and development plans. Improvement programs can be developed with an understanding of the community goals for particular sections and with simultaneous consideration of several mode, operating and land use options. The benefits, costs and characteristics can be compared to the community targets in a way that combines performance and finance needs in a relatively easily understood format.

Currently, the transportation measurement indicators in Houston, San Antonio and Austin, as well as some cities and transit agencies, have the capability to produce detailed information to support the Travel Speed Objective for some of their networks. For the near future, however, most of this activity will be based on estimates and models. In

addition, summarized Travel Speed Objective data would be included in the annual report to the Legislature and Governor.

Financial Performance Indicator

To support the Urban Mobility Objective, a financial performance indicator would be produced -- the cost per reduced Travel Time Index point. This indicator would be calculated and reported in both the long-term planning process and the annual report to the Legislature and the Governor.

Access Indicators

It would also be appropriate to identify “access” indicators to evaluate the performance of the urban transportation system and its relationship to land use development patterns. Because of their relatively infrequent use, specific standards are not recommended, but it would be appropriate to begin examining the development of such standards. This could build on research efforts and practices in Texas, other states and other countries.

- Work trip access indicators could be calculated from existing transportation planning models, both for highway and transit modes. It could, for example, be determined what percentage of jobs in a metropolitan area are within a 30-minute commute for 90 percent of workers using auto or transit modes.
- Other access indicators could be developed, such as the percentage of people within 30 minutes of major medical facilities, within 30 minutes of major airports, etc.

Based upon this research, specific access standards could be proposed and integrated into the URSMS.

The Long-Term Planning Process

TxDOT, in consultation with metropolitan planning organizations and local transportation agencies, would develop a long-term plan for each included metropolitan area, to cover a 25-year horizon. This plan would be coordinated with other long-term regional land use and transportation plans. The purpose of the long-term plan would be to develop a program of proposed projects and strategies to meet the Urban Mobility Objective. The proposed projects would be evaluated using the Delay Reduction Index and other key performance measures. The plan could be updated every three to five years.

As a part of the planning process, proposals would be solicited from developers of private highway infrastructure, in a manner similar to the process being developed for the Governor’s Trans Texas Corridor program.

Each long-term plan would include at least the following information:

- Proposed program of projects (state and local), including the Delay Reduction Index.
- Financial plan (sources and uses of funds)
- Projected Urban Mobility Objective values for each of years one through five, and years 10, 15, 20 and 25.

As a part of each long-term plan, detailed analysis and recommendations would be made for project implementation during the next five-year period.

Annual Report

TxDOT would submit an Annual Report on URSMS to the Legislature and Governor detailing the progress toward the Urban Mobility Objective in each of the covered metropolitan areas (see Appendix IV for sample forms). In preparing the report, TxDOT could also draw upon information from local agencies that administer and operate the transportation systems.

As currently envisioned, the Annual Report would include several elements that would be taken from existing long-range plans and other sections that provide more operational or financial details.

- Summary information comparing objectives, results and financial performance between the urban areas.
- Summary demographic and traffic information for each urban area.
- Performance information on the overall Urban Mobility Objective for each urban area.
- Performance information on the Urban Mobility Objective for the TxDOT administered roadways in each urban area.
- Overall performance information on the Urban Mobility Objective for the locally administered roadways in the urban area by jurisdiction.
- Performance information on the Urban Mobility Objective for the each of the local roadway administering agencies in the urban area by jurisdiction.
- Performance information for other modal operations in the urban area.

In addition, the Annual Report would include Roadway Segment Speed Objective information:

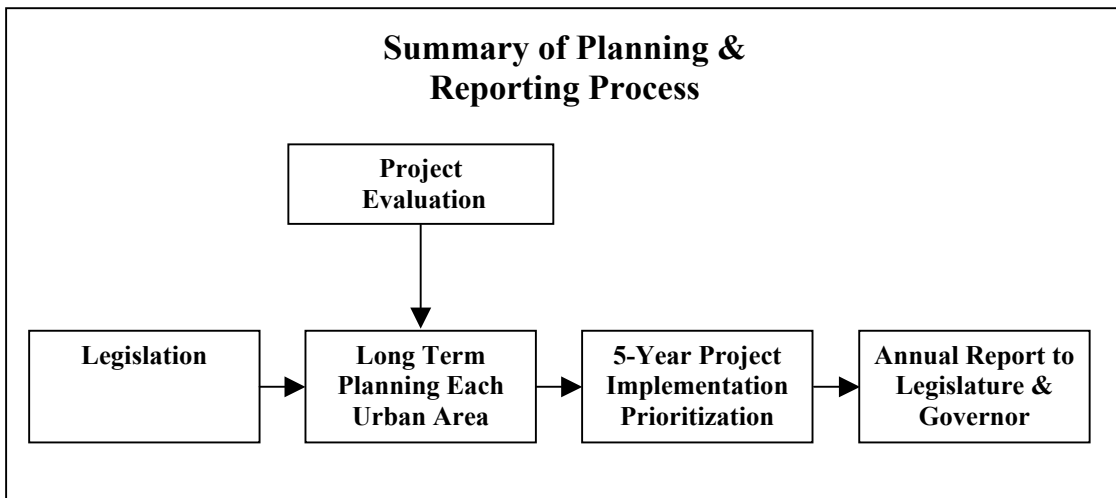
- Overall urban area summary.
- For TxDOT-administered roadways.
- For locally administered roadways, one form for each agency.

Legislation

The URSMS might be implemented by enacting legislation that establishes:

- Urban Mobility Objectives
- Delay Reduction Index
- Financial Performance Indicator
- Planning Process
- Annual Report Requirement

The overall planning and reporting process is depicted below. Alternatively, elements of the existing metropolitan planning organization or other local agencies with a cooperative process that provides a forum for state and local agencies and the private sector to discuss transportation needs and state and local goals could be enacted.



Consistency with Governor's Trans Texas Corridor Plan

The *Governor's Business Council Urban Mobility Plan* (GBC Plan) is consistent with and supplements the Governor's "Trans Texas Corridor Plan." The Trans Texas Corridor Plan seeks to provide new intercity corridors that would bypass the major metropolitan areas. The GBC Plan would seek similar objectives *within* the major metropolitan areas of the state, where daily traffic congestion is threatening to reduce both the quality of life and economic growth. The Trans Texas Corridor Plan and the GBC Plan can be seen as parts of a comprehensive approach to improving transportation throughout the state.

Moreover, the two plans incorporate similar strategies. The Governor's Trans Texas Corridor Plan will seek proposals from private infrastructure firms to build and operate transportation improvements that would be directly paid for by users (drivers, trucking companies and rail operators). The GBC Plan would also include the potential for seeking private infrastructure proposals to improve mobility on roadways within the major urban areas, which would be similarly financed by user fees.

The Governor's Trans Texas Corridor Plan offers a potential model for seeking private proposals to build needed additions to roadway systems in urban areas around the state.