



# Project Summary

Texas Department of Transportation

## 0-5410: Developing Freight Highway Corridor Performance Measure Strategies in Texas

### Background

Recent trends at national and state levels have contributed to the development of freight performance measure (FPM) strategies to assist highway planners. First, the North American Free Trade Agreement initiated the move towards global trading that has resulted in the growth of international freight shipments on Texas highways and transportation systems. Second, performance measurement in government agencies became a more widely used tool with the passage of the Government Performance and Results Act of 1993. Finally, most transportation planning efforts were primarily focused on improving passenger transportation mobility and reliability. As these three trends continued throughout the 1990s, a gap in transportation planning became apparent – transportation agencies were lacking freight transportation planning data.

In response to this need, transportation agencies developed FPM tools or initiated freight transportation plans supported by FPM strategies. For example, the Federal Highway Administration (FHWA) in partnership with the American Transportation Research Institute (ATRI) produced a means to quantify freight mobility and reliability on interstate corridors spanning the nation. In addition, transportation agencies in Minnesota, California, and New Jersey have implemented freight transportation plans containing FPM strategies. This research, *Developing Freight Highway Corridor Performance Measure Strategies in Texas*, will help the Texas Department of Transportation (TxDOT) position itself to consider, initiate, and implement FPM strategies.

### What the Researchers Did

The Center for Transportation Research (CTR) in partnership with the Texas Transportation Institute (TTI) completed a study to observe the current status of FPM programs nationwide. To fully describe the present state of FPM, the researchers described the following:

- The use of performance measures, especially FPM, in the context of performance-based planning,
- Freight plans and FPM strategies developed by metropolitan planning organizations and state transportation agencies,
- The three phases of innovative work conducted by the FHWA/ATRI initiative,
- Technologies that can be used to provide freight data needed to support freight performance measures, and
- A preliminary assessment of how intercity and urban performance measure programs can be linked.

### Research Performed by:

Center for Transportation Research (CTR),  
The University of Texas at Austin

Texas Transportation Institute (TTI),  
The Texas A&M University System

### Research Supervisor:

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### Project Completed:

8-31-06

## What They Found

Performance measures provide information to the transportation planning process useful for evaluating the accomplishment of goals and objectives. Transportation performance indicators are useful for enhancing communication between decision makers and the public, increasing agency accountability, and improving the long-term operation of a transportation system. The transportation agencies mentioned above are trying to improve communication, accountability, and operations with FPM strategies.

A major issue for any FPM strategy is obtaining freight data collected by sensor and information technologies capable of supporting FPM programs. This study evaluated how data collected by Global Positioning Systems (GPS), transponders, and cellular phones could describe mobility and reliability. The most likely freight data source for TxDOT is GPS, followed by cellular phones and transponders.

A second component of FPM success is whether the transportation agency has a strategy for utilizing FPMs. Several transportation agencies have applied performance measures to the freight component of transportation. FHWA has taken a leadership role through its partnership with ATRI, and used GPS from equipped commercial vehicles to describe freight mobility and reliability on five interstate corridors for all of 2005. FHWA/ATRI will expand the number of interstates it evaluates in 2006 to 25. Furthermore, state transportation departments like the Minnesota Department of Transportation and the California Department of Transportation have identified freight performance measures. The North Jersey Transportation Planning Authority has also used FPMs to forecast future freight needs in 2025.

The research team also discovered that FPM strategies are capable of supporting only planning purposes at this time. As technology costs and processing times decrease, freight corridor data may be used for operational activities. Although FPM approaches will currently focus on planning, the strategies can be developed to provide real-time performance evaluations to decision makers and transportation users.

Finally, the research team evaluated how urban transportation and corridor performance measures complement each other. TTI has developed three urban congestion monitoring programs, and the most prominent method is the Mobility Monitoring Program (MMP). MMP does not currently capture truck speeds separately, so reporting frequency for the FHWA/ATRI data collection process would have to be increased to provide a similar level of detail to that of the MMP in urban areas.

## What This Means

Freight Performance Measures are an emerging topic in transportation planning, but only a few transportation agencies have incorporated them. TxDOT could move in this direction by continuing to work with the FHWA/ATRI team to ensure that TxDOT staff is aware of how the FPM data may be accessed. One possibility is through a web site that could be accessed by TxDOT planning staff at division and district levels. Through this research, TxDOT will have several examples of how freight performance indicators are being implemented to ensure freight mobility and reliability.

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