Assessing Mn/DOT’s Freight Performance Measures

What Was the Need?
Freight is playing an increasingly important role in transportation planning at local, state, regional, national and international levels. As the shipping of commercial and industrial goods becomes more global, it is more dependent on varying infrastructures and operational and logistical systems. Planners must determine if these transportation systems are capable of moving freight effectively and safely.

Mn/DOT currently uses four performance indicators, identified in the 2005 Statewide Freight Plan, to assess Minnesota’s freight transportation system: shipment rates; mode share, or the percentage of freight moved by a particular mode of transportation; geographic market share; and travel time.

Because of current difficulties in accurately obtaining and modeling freight data, these performance measures need to be evaluated for their clarity, technical adequacy, and the cost and availability of the data required for their application. Additional measures that may be useful also need to be identified. This assessment will assist Mn/DOT’s long-range planning efforts to improve its freight transportation system and update the Statewide Transportation Plan.

What Was Our Goal?
The objective of this project was to evaluate Mn/DOT’s current freight performance measures by identifying more general industry measures and finding available public and private sector freight information sources required for the application of these measures. In addition, the project assessed the cost of using these information sources and examined the relevance of source data to Mn/DOT and freight movement within and through Minnesota.

What Did We Do?
Investigators conducted a literature review to identify performance measures currently in use by industry. They then identified public and private data sources for these measures and classified them according to mode, market, commodity, provider and performance measure category.

Researchers then assessed the relationship between the various performance measures identified in the previous step and their data sources, the availability of data, the cost of acquiring it and its relevance to Mn/DOT. Finally, they used these analyses to recommend best practices for Minnesota and to identify lessons learned from other efforts, freight industry data and reports to monitor on an ongoing basis, and additional prospective measures that Mn/DOT should further develop.

What Did We Learn?
Researchers found that freight performance measures are often not clearly defined, and it may be costly to develop and maintain the data required to use them. Moreover, freight modes are continually in flux, and much of the data required for developing measures is proprietary or withheld for security reasons. To address these challenges, researchers identified the best sources for freight performance data—including federal databases, past freight studies and information available from the economic development department—and recommended best practices for developing measures, including:

- Identifying the policies and strategic objectives in statewide and district freight plans
Maintaining and improving databases related to interregional corridors, connectors, intermodal facilities, bridges and pavements

Compiling and analyzing data from freight studies and various government agencies

Conducting periodic freight flow studies

Meeting regularly with a freight advisory group of Minnesota stakeholders to identify freight problems

Establishing innovative practices to address the availability of freight data, including partnerships between public and private agencies, inter- and intra-agency arrangements, surveys of freight stakeholders and facilities, modeling urban freight movement, and the study of travel time and reliability data

Monitoring industry data sources

Investigators recommended developing the following measures in more detail:

- Modal cost of agricultural shipments by markets
- Shipment rates for agricultural shipments
- Transportation cost as a percent of total cost for timber and lumber industry
- Door-to-door time for manufacturing shipments, especially in last leg of supply chain
- Transportation cost for wholesale by market
- Truck parking shortages along corridors or near major shipment, distribution or intermodal centers

What’s Next?

Mn/DOT will continue to redefine performance measures and indicators by working with the Freight Advisory Group, government agencies and the private sector to tie measures to the strategic objectives of statewide transportation and freight plans and to identify significant freight corridors and nodes. In the short term, they plan to develop performance measures related to network and infrastructure, safety, travel time and external factors. In the medium term, they will develop access, capacity and reliability-related performance measures. Long-term plans include surveying shippers on a continuing basis concerning inbound and outbound freight movements.