

Freight Analysis

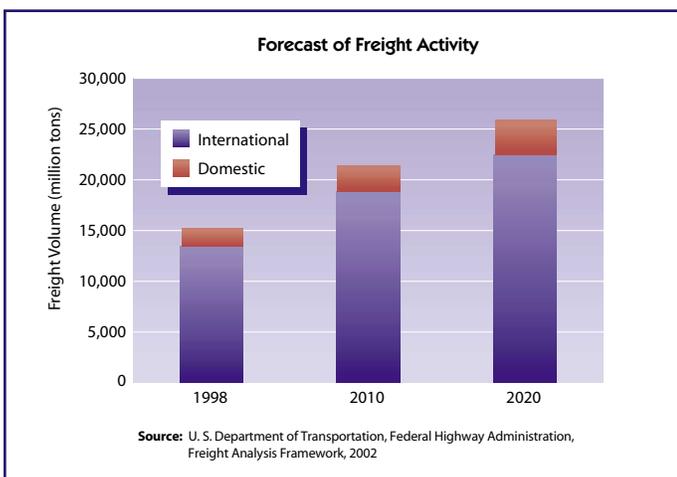
21ST CENTURY OPERATIONS USING 21ST CENTURY TECHNOLOGIES

FREIGHT ANALYSIS CHALLENGES

Over the last two decades, the volume of freight has grown dramatically, and the mix of goods and the way they are moved have changed. System improvements have not kept pace with the growth in freight transportation demand, resulting in congestion on our nation's highways and straining other freight modes as well. Truck vehicle-miles, for example, nearly doubled while roadway lane-miles increased by only 5 percent between 1980 and 2002. Understanding the dynamics of freight transportation now and in the future is important for matching infrastructure supply to demand and for assessing potential operational strategies and prioritizing investments.

WHY WE'RE CONCERNED

Congestion is a serious problem for freight transportation. It increases the cost of freight transportation by making travel times longer and more unpredictable. Reliable and predictable travel times are important in an economy where many goods are expensive and are needed in tightly scheduled manufacturing and distribution processes. Late arrivals can have significant economic costs for factories waiting for parts to assemble and for carriers who are missing guaranteed delivery times. Hence, when transportation system performance decreases, the economy pays the price.



WHAT WE'VE LEARNED

The transportation network moves a staggering volume of freight each year. Over 15 billion tons worth more than \$9 trillion were transported in 1998. By 2020, freight volumes are expected to increase by 70 percent and the value of shipments is expected to grow to nearly \$30 trillion.

WHAT WE'RE DOING

To better understand the challenges that come with increasing demand for freight transportation and to improve mobility and productivity, the Federal Highway Administration (FHWA) is conducting research and analysis on freight flows and commodity movements, developing analytical tools, measuring system performance, and examining the relationships between freight transportation improvements and the economy. A recent Office of Operations report, *The Freight Story*, provides an overview of the key challenges facing the freight transportation industry. This and other publications are available on the Office of Freight Management Web site, www.ops.fhwa.dot.gov/freight.

In partnership with other modal administrations, FHWA developed the Freight Analysis Framework (FAF), a database and analytical tool, to capture freight flow data by mode and commodity. This information will help identify points of congestion and highlight areas needing improvement. A series of FAF products have been released, including freight flow maps for states and modes and detailed databases on traffic flows and commodity movements.

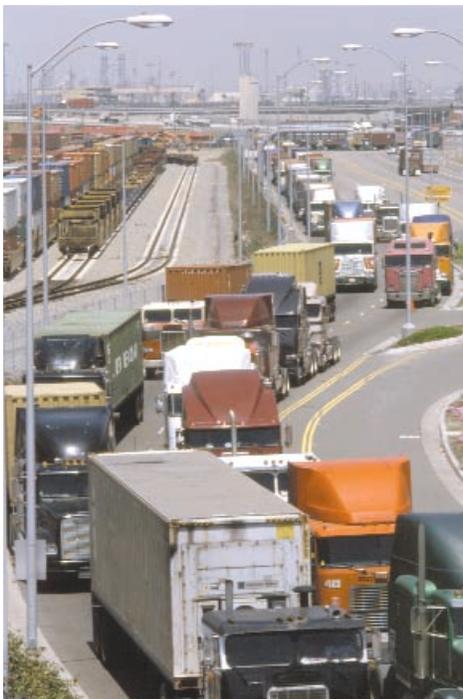
As part of its efforts to improve freight transportation mobility, FHWA evaluated the condition of National Highway System intermodal connectors, which are vital links to ports and terminal facilities. The evaluation found that intermodal connectors are in relatively poor condition and do not get adequate attention in transportation planning and programming processes. Specifically, about 38 percent of connector miles need resurfacing and reconstruction and about 33 percent need additional capacity.

FHWA also undertook onsite reviews of seven land ports-of-entry that handle over 60 percent of NAFTA truck trade. The reviews found that the time needed for processing commercial vehicles entering the United States was significantly longer than that for departing vehicles at almost every location. Additional analysis is being conducted to determine the reasons for the delay. This information will enable decision-makers to make informed recommendations about border crossing improvements.

FHWA's research on the benefits and costs of highway improvements has documented a range of short-term and long-term benefits for both shippers and carriers. (Prior to FHWA's research, only the benefits to carriers had been estimated.) Short-term benefits of a better road network include immediate reductions in transportation costs due to decreases in transit time and improved reliability. Long-term benefits of transportation improvements include efficiency gains and further cost reductions resulting from a firm's ability to consolidate facilities.

FUTURE DIRECTIONS

The Office of Operations will continue to provide data and develop tools for transportation planners, operations managers, and decisionmakers. Although the FAF has provided much needed assistance in analyzing current and future freight



Trucks queuing in California

trends, further work is needed to develop a national database that could be customized for all stakeholders, including State and local users. Future efforts will include integrating economic and geographic databases and linking the data and analyses to existing FHWA models.

In addition to assessing travel time and delay at border crossings, FHWA is also evaluating the travel time required to move goods along significant freight corridors. This information will be invaluable in highlighting regions with mismatched freight demand and capacity and encouraging the development of multistate and regional approaches to improving operations.

Economics research is continuing on a variety of projects, such as developing a benefit-cost model that could provide

more valid estimates of the benefits of freight improvements. Development of this tool will be a major gain in analytical capability, helping decisionmakers conduct both project planning and assessment in a way that better recognizes the unique contributions of freight transportation to a region's economy.

The projects highlighted here are just a few of the many freight analysis initiatives being undertaken by the Office of Freight Management and Operations in its efforts to improve the mobility and productivity of freight transportation.

