

Improving Freight Data Collection Methods

Freight movement is an important transportation issue in Oregon and throughout the U.S. Much information about truck movements within the state, and specifically in urban/metropolitan areas, comes from traffic count data.

While traffic counts are useful, information is lacking on truck trips, their origins and destinations, routes traveled and commodities carried. A principal reason for the lack of data on truck movements is that reliable methodologies have not been developed to obtain the level of detail needed.

The overall goal of this study was to identify data collection methods capable of generating the information at a level of detail that would better fill ODOT's modeling and freight planning needs at the metropolitan level. After a review of other research and selecting the most promising methods, this project undertook pilot studies of two data collection approaches:

1. One pilot study tested the roadside interview approach for collecting data on "inter-regional" freight movements (freight movements into, out of, and through an urban region); and
2. A second pilot study tested the mail/fax survey approach for collecting data on "intra-regional" freight movements (freight movements within an urban region).



Roadside Interview Pilot Study

In this pilot study roadside interviews were conducted at three different locations and facility types in the Portland metropolitan area – an interstate highway weigh station, a port location and a warehouse/distribution facility. To conduct these surveys researchers enlisted the support and cooperation of the ODOT Motor Carrier Transportation Division, the Port of Portland and a private warehouse/distribution center.

The survey posed questions on the motor carrier firm, truck and trailer configuration, origin and destination, commodities carried, trip route, and pickups and deliveries.

Overall, the roadside surveys were successful in collecting freight data. The response rate for truck operators invited to participate ranged from 93% to 100%, depending on the location. All three types of roadside interviews produced high response rates related to vehicle and trailer

information, carrier information, trip route information, and pick-up/drop-off facilities.

Mail and Fax Survey Pilot Study

This pilot study was comprised of two components – a mail survey and a fax survey of warehouse/distribution centers in the Portland urban area. The fax survey component was included because many freight firms rely on the fax for important communications.

The survey focused less on specific trip information (compared to the roadside interview questionnaires) and more toward characteristics of warehouses and distribution centers, vehicle and trailer configuration, commodity descriptions, and inbound and outbound shipment information. The survey method was varied to test the effect of follow-up contact after the initial questionnaires were sent.

While producing valuable information and results, this method presented more challenges in obtaining truck trip information than the roadside interviews. Response rates to the mail survey ranged from 18% to 43%, depending on the amount of follow-up. Those from the fax survey ranged from 9% to 55%. Overall, the mail survey yielded more completed questionnaires than the fax survey, however.

Those who completed questionnaires provided responses for most of the questions in the survey. Respondents who were not interested in completing the survey indicated several reasons, including the following: did not handle freight; information was private; respondent was too busy; and there was no appropriate individual to complete the questionnaire.

Questions dealing with the nature of the warehouse facility such as total square footage, number of employees and number of loading bays received the highest percentage of responses. Information related to trip detail for inbound and outbound shipments was the most difficult to obtain.

Putting the Results to Use

The results of the pilot studies showed that the roadside interview method can be effective in capturing data on truck origins and destinations, routes, vehicle types, commodities, and shipment volumes. The mail survey can provide useful information on freight facility characteristics, vehicle types, commodities and shipment volumes. Neither method provides sufficient information on locations of stops, trip generators or shipment times of day.

The study showed that roadside interviews at carefully selected highway locations are effective in providing data on freight movements into, out of and through an urban region. It also showed that, when conducted at warehouse/distribution centers, the roadside interview method could provide much useful information on freight movements within an urban region. Mail surveys to private warehouse/distribution centers could supplement roadside interview information with an emphasis on information related to freight activity at the warehouse locations.

The findings of the study have been of immediate value to a large-scale freight planning effort in the Portland metropolitan area, known as the Regional Freight Data Collection Project. This project is a cooperative undertaking by the cities, counties and metropolitan planning agencies which comprise the urban region in Oregon and Washington and both state departments of transportation. Thus the research has already begun to pay dividends in guiding freight data collection efforts designed to serve ODOT modeling and planning needs.

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