Research Note

Development of a Washington State Freight Data System

Background

At the heart of an effective and efficient U.S. transportation system is the data that support transportation investment decisions, prioritization, and overall policy development. This is especially true for freight. Good data results in improved decision making and use of limited funds for maximum benefit to the economy.

The goal of this research project is to support economic activity in the state and to maximize efficiency of the state's transportation system by creating a plan of available and needed data to address critical freight planning and management questions.

The Problem

Very little system data exists to inform decision makers about the economic impact, system bottlenecks, and supply chains flowing through freight systems that support Washington State producers and delivery of goods to consumers. Many public and private sector entities collect some data on goods movement.

However, there is no link between these different sources and some needed information isn't collected by anyone. In addition, the combination of data from different sources, known as "data fusion," raises concerns about quality and comparability of the resulting fused data. What is needed is a plan for WSDOT to collect timely and complete freight data across all modes and supply chains.

What We Did

In order to develop a plan for a Washington State Freight Data System, the research team conducted the following tasks:

1. Inventoried current freight data sources and compiled in a database.

2. Surveyed other state Departments of Transportation as to freight data usage, needs, approaches, and attempted solutions.

3. Determined freight data needs within the state through freight data user workshops held within the state.

4. Compared existing freight data sources with freight data needs to identify gaps, redundancies, inaccuracies and weaknesses in current data collection.

5. Developed a plan to fill data gaps and present a maintainable, systematic, and coordinated data collection system.

**Washington State
Department of Transportation**

What the Researchers Recommend

The New Freight Data System for Washington

WSDOT needs and provides transportation data for many projects and policy deliberations. The recommendation from this research is that WSDOT develop a new Freight Data System. This system will enable WSDOT to lead and respond to freight needs in the state and nation. The proposed data team (described below), with the data collection process and timeline, will be the source of freight data depth and timeliness.

Figure 2A: Washington State Freight Data System
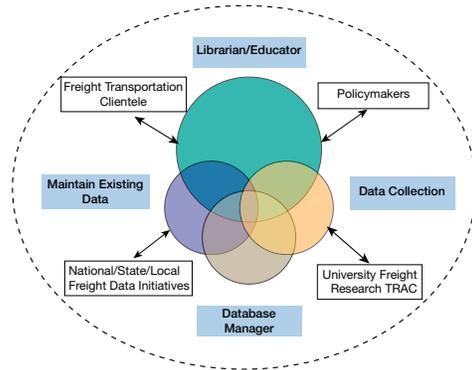
The horizontal (left and right) text boxes indicate the recommended activities and the vertical (above and below) text boxes show recommended personnel additions. The upper white text boxes identify the clientele and the lower white text boxes present the data sources. The circles indicate the extent of interaction.

The recommended WSDOT Freight Data System has multiple levels (see Figure 2a). A new Freight Data Librarian/Educator leads the overall effort, supported by a Freight Database Manager. Collectively this group will maintain existing data sources (local, state, and national) and also coordinate future freight data collection efforts. The Freight Database Manager will provide technical support while the Freight Data Librarian/Educator will interact with state freight clientele (to develop freight data partnerships) and policy makers at the state and national level. Freight transportation research efforts of area university practitioners will also contribute to and use the system.

Data Generation and Timeline

The following phases offer a freight data system approach that would vastly improve freight data accessibility and build knowledge within the region, state, and nation for a variety of policy, planning, and project uses across agencies.

Origin and destination studies of carriers, shippers or receivers are an ongoing need in the state. Both statewide and local distribution movements suffer the most from data gaps. Updating the statewide survey with a carrier survey appears to be the most manageable and productive data collection effort. A survey every three to five years would provide current data of the transportation system serving the shippers and carriers of the state. This could be supplemented by similar surveys, done on a rolling basis (one survey done every year or so) at the local distribution level, so that at least every five years every area would be covered. These surveys would be refined on focused corridors in an "as needed" basis within that time period.

The data collection efforts may be scheduled into the future in a way that data gaps and needs are addressed on a continued basis, which capture the dynamic changes that occur. A recommended plan of WSDOT's timeline is presented in Figure 3A. This shows how four separate types of efforts are implemented on a revolving basis, as needs require and budget resources allow.

Figure 3A: Proposed WSDOT Data Collection Timeline

Degree of Effort
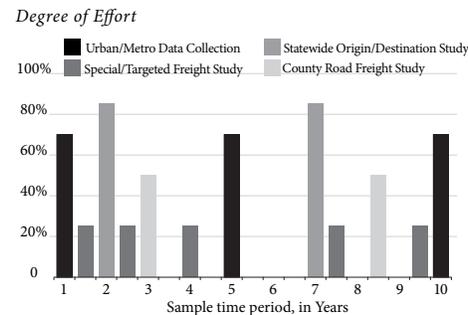
Summary Recommendations and Implementation

Recommendations

This study identified freight data uses, needs, and gaps, both nationally and in the state of Washington. Specific recommendations for providing the needed data and data generating processes include the following:

• Phase I: Identification of Data Gaps, Needs, and Uses (Timeframe: current and ongoing)

An ongoing inventory of available freight data, relative to identified freight data needs, should be performed throughout the state and region. This process may be incorporated into the expected activities/duties proposed in these recommendations.

• Phase II: Freight Data Librarian/Educator, Resource to Manage Freight Data Warehouse (Timeframe: within six months)
This individual or resource is a "data source" for the state; a contact for all agencies and businesses using transportation flow and operational data; and a participant in discussions as freight data needs arise in the state.

• Phase III: Freight Database Manager, Technical Resource (Timeframe: within one year)
The Freight Database Manager will design/develop and maintain the freight data warehouse for the Washington State Department of Transportation (WSDOT).

• Phase IV: Dedicated Funds for Operations/Data Development (Timeframe: year one and ongoing)
The fourth phase of this proposal is to dedicate resources to design, develop, and use freight data collection efforts addressing deficiencies. An ongoing piece of this effort will involve developing relationships with private or quasi-public firms in order to determine their desired transportation system performance and needs, and to earn the confidence of these decision makers.

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