



0-6697-CTR: Integration of Data Sources to Optimize Freight Transportation in Texas

Background

The 2012 Moving Ahead for Progress in the 21st Century Act (MAP-21) created momentum to improve the condition and performance of the national freight network. MAP-21's stipulations expand agencies' interest in freight initiatives and modeling within statewide planning efforts, particularly the evaluation of current and future freight transportation capacity necessary to ensure freight mobility. However, the understanding of freight demand and the evaluation of current and future freight transportation capacity are not only determined by robust models, but are critically contingent on the availability of accurate data. Thus, insufficient and inferior quality data is the most commonly cited challenge in the development of freight models. Effective partnerships are clearly needed between the public and private sectors to ensure adequate freight planning and funding of transportation infrastructure at the state and local levels. However, establishing partnerships with firms who are both busy and suspicious of data-sharing remains a challenge.

What the Researchers Did

To address the limitations of public and commercial sector databases, this study team was commissioned to explore the feasibility of entering into a data-sharing partnership with representatives of the private sector (i.e., shippers, receivers, trucking companies, forwarders, etc.), and obtain sample data for use in formulating a strategy for integrating public and private sector data sources. Of the 493 companies contacted, 151 expressed an interest in receiving additional information about the project. However, only 33 participated in one-on-one interviews and 3 provided sample data, notwithstanding the lack of a non-disclosure agreement. However, through

these efforts, the study team initiated productive relationships with freight stakeholders, and recommends developing these freight relationships on an ongoing, long-term basis in order to gain trust and secure partnerships.

What They Found

In summary, the following lessons were gleaned from the outreach efforts:

1. Most stakeholders interviewed felt a partnership would have beneficial outcomes, including addressing any current or anticipated transportation issues such as congestion and capacity constraints, and providing recommendations in the design and development of new infrastructural projects that can impact freight operations.
2. The majority of stakeholders were concerned with the mishandling or improper use of data, the time commitment required in scrubbing and preparing data in-house, and new government regulations and law enforcement measures pertaining to data security.

Research Performed by:

Center for Transportation Research

Research Supervisor:

Dr. C. Michael Walton, CTR

Researchers:

Dan Seedah	Prateek Agarwal
Alejandra Cruz-Ross	Jolanda Prozzi
Dr. William O'Brien	Meredith Cebelak
Bharathwaj Sankaran	Sarah Overmyer
Peter La Fountain	

Project Completed:

12-31-2013

3. Lightening the information technology (IT) requirements for stakeholders is highly recommended. Stakeholders were more willing to share data when the study team offered to accept data samples in either CSV or Excel formats. In addition, offering to “clean” or scrub the data for them was also welcomed.
4. Data variables that stakeholders were willing to share include trip origin/destination, number of trips, vehicle type, load type (truckload, less-than-truckload), route preference, commodity being transferred, cargo weight, and mode of transport.
5. A clear non-disclosure contract is required: a written contract would reinforce a sense of trust with freight partners and the sample provided in the Freight Data Sharing Guidebook is a good option.
6. Most stakeholders contacted asked for tangible evidence of project benefits to share with company executives and decision-makers before deciding whether to enter into a data-sharing partnership. Therefore, a built-out demo website (complete with the initial architecture) that demonstrates the integration of public and private datasets could promote confidence in future data partnership efforts.

What This Means

The study team recommends a rigorous outreach and follow-up effort to sustain the success of any freight data-sharing partnership. The study team recommends that TxDOT uses a trusted third party

such as an academic institution or a consultant to spearhead the implementation and development of the integrated freight data system. Validation of this sort of partnership was evidenced in the study, as stakeholders were more inclined to communicate further with the study team based on their affiliation and trust of the institution. The agency should also be involved in promoting and advocating freight data-sharing partnerships through its relationships with trade associations and industry experts. For example, through TxDOT’s Freight Advisory Committee (FAC) and partnership with the Texas Trucking Association (TXTA), private-sector partner organizations can be invited to participate in the data-sharing partnership. The FAC and TXTA provide a convenient avenue for both the public and private sector agencies to articulate the purpose, benefits, challenges, and concerns of data-sharing. These partners could address issues relating to privacy concerns and how the data can improve TxDOT’s planning efforts. Adequate funding should be allocated to sustain the program and cover operational costs. Any data-sharing partnership will require a long-term commitment from TxDOT and the partners; adequate program funding would demonstrate commitment. Adequate funding also ensures an updated dataset, thus helping address freight-related issues TxDOT faces. A lack of commitment may result in partners not renewing agreements with the agency as they may sometimes not experience any direct benefits from participating in the program.

For More Information

Research and Technology General Information:
(512) 416-4730

Research Supervisor:
C. Michael Walton, CTR (512) 471-1414

Technical reports when published are available at <http://library.ctr.utexas.edu>.

Research and Technology Implementation Office
Texas Department of Transportation
125 E. 11th Street
Austin, TX 78701-2483

www.txdot.gov
Keyword: Research