

CALL FOR PAPERS

Innovations in Freight Modeling & Data

INTEGRATING SUPPLY-CHAIN MODELS AND DATA INTO PUBLIC-SECTOR FREIGHT DEMAND MODELING

A Transportation Research Board SHRP 2 Symposium

October 21-22, 2013, Crowne Plaza Hotel – Dulles Airport, Washington, DC

Organized by the Transportation Research Board of the National Academies, Second Strategic Highway Research Program

This symposium will provide a forum to explore how transportation planners, in focusing on freight flows, can benefit from using private-sector techniques to amplify existing freight-demand forecasting models, data, and methods.

The volume of freight transported in this country has grown considerably over the years, with growing pressure on our transportation infrastructure. Freight has become a major issue for state and metropolitan transportation planners since freight forecasting models lag behind traditional travel demand models, making it more difficult to address these issues. Understanding and being able to forecast freight traffic is critical to planning for future highway capacity.

Freight demand modeling is more dynamic and heterogeneous than passenger demand modeling. In freight, there are considerable and complex interactions between international and domestic flows, public and private interests, and logistics behavior. Freight traffic forecasting is often treated as a secondary consideration or a percentage add-on to passenger flows. Fostering fresh ideas and new approaches in freight demand modeling and associated data is an important step in advancing strategic research initiatives of the SHRP2 C20 Freight Modeling and Data Improvement Strategic Plan.

The symposium, by facilitating a public - and private- sector dialog, seeks to examine modeling approaches that are used in the private sector, particularly those that are applicable to public-sector planners and modelers. The meeting seeks to have practitioners from both private industry and public agencies share and learn new knowledge and tools that will help public and private-sector decision-makers

make more informed decisions leading to improvements in transportation infrastructure and operations that drive economic growth for the nation.

In addition, one of the primary outcomes of the conference is to initiate an ongoing “Community of Practice” to further the science of freight demand modeling and forecasting and to enhance the dialog between the public and private sectors.

During the course of the symposium, participants will be asked to provide input and feedback to assist in identifying and advancing priority research topics for the future.

Several major gaps exist that provide motivation for the symposium:

- The plans prepared by Metropolitan Planning Organizations (MPOs) and Rural Planning Organizations (RPOs) seem to underestimate the needs of freight.
- Private companies often make logistics decisions about facility location, logistics network capacity and structure, port capacity, modal use and other related decisions with the tacit assumption that the public infrastructure will be available.
- Private industry logistics decisions based on infrastructure planning will have a major impact on the growth of Gross National Product in the US.
- Public-sector data (e.g. the Freight Analysis Framework, or FAF) is based on a national-level commodity survey and becomes increasingly limited in usefulness as it is disaggregated into regional, state, county, and especially, urban areas.
- Many industries’ trading partners in the private sector share vast amounts of trading data regularly. Knowing about the kinds of data, models, decision-making processes, and availability of data might help public-sector planners develop better plans. Providing a glimpse into private-sector techniques, tools, and data may provide an impetus for shared research between the two sectors.

Symposium Prize

The symposium is also a competition, in that selected models and research will be presented and discussed.

Two prizes will be awarded—\$ 2,500 to the private-sector idea that is most applicable to the public sector and \$2,500 to the public-sector idea that best demonstrates linkage to private-sector models, data, or methods.

The presentations will be judged on a variety of dimensions, such as methodology, practicality, ease of use, clarity of purpose, research value, and results. A panel of experts, representing transportation modes, public and private sectors, geographies (international and domestic), technology, and analytical techniques, will judge the competition.

Public-sector planners, modeling researchers, and private-sector supply-chain practitioners are encouraged to submit short papers/abstracts (1-3 pages) describing their current research, applicable methodologies, and case studies on any of the example topics listed below **by August 15, 2013** to SHRP2SecondSymposium@gfnet.com.

The authors will be notified regarding the selection of their abstracts by August 30, 2013. If selected, a formal paper will not be required. Selected presenters will be reimbursed for travel according to the National Academies travel policies¹.

A presentation (PowerPoint or presentation outline) will be due by September 30, 2013, followed by full presentation at the conference in October.

Topics that are consistent with the theme of the Symposium include, but are not limited, to:

Public Planning-Private Supply Chain Linkages

- Synergies between supply chain management and public-sector freight-demand modeling
- Knowledge growth for public-sector modelers from the private sector – modeling techniques used in the private sector that can be adopted in the public sector planning
- Benefits of capturing the commonality of logistics management and public freight demand modeling
- How transportation infrastructure matters to shippers, carriers, and receivers
- Relevance and importance of logistics (in terms of transport, warehousing, and integrated decisions) to statewide and regional freight modeling and forecasting by public agencies
- The perspective of the “receiver” (customer demand) on urban tour-based behavior models and network structure
- The relationship and implication of shipper, forwarder, and carrier for decisions for gateway choice and travel route

Modeling and Logistics Data Integration

- Integrating public and private data sources – new sources of data that can be merged to create improved opportunities for modeling
- New and emerging data technologies that can impact infrastructure modeling
- Freight demand modeling recommendations – new modeling technologies
- Using private sector data for public sector models – types of data that can be integrated and used in public sector
- Effective uses of visualization techniques in logistics demand modeling

¹ Travel reimbursement funds are limited and will be awarded at the discretion of the Symposium organizers. Much of the National Academies' travel policy requirements are based on the Federal Travel Regulations (FTR) (41 CFR 300-304).

- Key variables driving tour-based freight demand forecasting methods for metropolitan/urban areas
- Large urban centers – policies that are being adopted in these centers that will impact national highway and other infrastructure decisions
- Rural regions with pass-through freight transport – how rural regions benefit from improved freight modeling
- Transferability of freight-modeling approaches, based on industry structure, between cities or regions

Freight Reliability

- Reliability metrics that matter to private industry
- How key performance metrics drive private industry freight decisions
- How businesses are impacted by consistency in delivery lead times and the unpredictability of traffic patterns
- The value of reduced variability in delivery performance – the impact of reliability on supply chain and logistics decisions that will ultimately drive investments in new facilities in important new regional planning hubs and distribution points in the country
- Modeling of freight reliability in the private sector – new thinking about freight forecasting models
- The role of warehousing and consolidation/distribution functions in decision making by shippers and carriers in freight transportation
- Facility site location decisions – how private industry makes facility location decisions based on logistics network reliability

Global Logistics Trends Impacting Freight Modeling and Data

- Vessel size and use – how port infrastructure is related to highway traffic patterns in port hinterlands, and important considerations
- Panama canal expansion – the effect of adding a third lane of much larger locks, and how the private-sector decision making regarding ports of call and US highway traffic will be altered
- Logistics changes – how the world economy is driving new issues in highway transportation and growth patterns
- Urban center planning trends – how new regulations on urban planning impact infrastructure and private freight capabilities to serve urban centers
- Industrial areas and/or warehouses – how location provides a key transition point in the supply chain
- Origin sources – coal, natural gas, and other key commodity origins – as the nation’s dependence on energy resources increases, what the choke points will be for shipments of energy within the US infrastructure
- Waterways – how the projected growth of and reliance on inland and port waterways impact multi-modal freight-traffic patterns in the coming years