

National Cooperative Freight Research Program

November 2009

Announcement of FY 2010 Freight Research Projects

America's freight transportation system makes critical contributions to the nation's economy, security, and quality of life. The system is a complex, decentralized, and dynamic network of private and public entities, involving all modes of transportation—trucking, rail, waterways, air, and pipelines. In recent years, the demand for freight transportation service has been increasing fueled by growth in international trade. U.S. domestic freight, measured by ton mileage, is expected to grow by some 50 percent in the next 20 years. Strategic operational and investment decisions by governments at all levels will be necessary to maintain freight system performance, and will in turn require sound technical guidance based on research. The National Cooperative Freight Research Program (NCFRP) was authorized in federal legislation to help address problems facing the freight industry.

The NCFRP is sponsored by the U.S. Department of Transportation's Research and Innovative Technology Administration (RITA) and managed by the National Academies, acting through the Transportation Research Board (TRB). The NCFRP Oversight Committee, the governing board for the program, met on October 1 and 2, 2009, and selected projects for the Fiscal Year 2010 program.

Interested in being a panel member?

This announcement contains problem statements that are preliminary descriptions of the selected projects. Panels are being formed to develop detailed project statements and oversee these projects. **Recommendations for panel members may be made by completing the Cooperative Research Programs' Nomination Form and sending it and a resume to Ms. Adrienne Blackwell (ablackwell@nas.edu) by January 22, 2010.**

Interested in proposing on NCFRP research?

Detailed project statements, formally soliciting proposals for these projects, are expected to be released starting in April 2010. NCFRP project statements will be available only at the program [website](#). Each project statement will be announced by e-mail, and information on registering for this service and other details on the NCFRP are available at that site.

The NCFRP will conduct research and disseminate timely findings that will inform investment and operations decisions affecting the performance of the freight transportation system. Proposals should evidence strong capabilities gained through extensive, successful experiences. Any research agency interested in submitting a proposal should first make a frank and thorough self-appraisal to determine whether or not it possesses the capability and experience necessary to ensure successful completion of the project. The specifications for preparing proposals are set forth in a brochure entitled [Information and Instructions for Preparing Proposals](#), available on the website referenced above. Proposals will be rejected if they are not prepared in strict conformance with the section entitled "Instructions for Preparing and Submitting Proposals."

Address inquiries to:

Crawford F. Jencks
Manager, National Cooperative Freight Research Program
Transportation Research Board
500 Fifth Street NW
Washington, DC 20001
202/334-3233
cjencks@nas.edu
<http://www.trb.org/ncfrp>

**National Cooperative Freight Research Program
Projects in the Fiscal Year 2010 Program**

Project No.	Title	Page
30	<i>Web-Based Simulation Tool for Shared-Use Rail Corridors.....</i>	3
31	<i>Overcoming Barriers to Sharing Freight Transportation Data.....</i>	3
32	<i>Integrating Smart Growth into Activity-Based Modeling for Freight Transportation and Land Use</i>	3
33	<i>Impact of Environmental Regulations on the Supply Chain</i>	4
34	<i>Alternative Technologies for Container Freight Movements.....</i>	4
35	<i>The Great Lakes Region Impacts on the Intermodal Freight System.....</i>	4

FY 2010
National Cooperative Freight Research Program
Oversight Committee Approved Research Projects

• **Project 30**

Web-Based Simulation Tool for Shared-Use Rail Corridors

Allocation: \$500,000

A successful federal rail capital grant application to fund shared-use passenger service relies on accurate incremental and service cost estimates. Currently, the freight railroads provide the cost estimates using licensed and highly sophisticated simulation software. States' passenger and commuter rail operators may have insufficient funds, technical skills, or access to the railroad simulation software needed to develop an independent assessment of these cost estimates.

The proposed research would provide funding to revise any existing railroad simulation software as a web-based, freely accessible tool able to estimate the incremental and service costs associated with adding or improving passenger rail service on freight rail lines. The tool would enable base and alternative case comparisons of train speed, delay, and throughput that result from changes in rail operations or rail infrastructure.

• **Project 31**

Overcoming Barriers to Sharing Freight Transportation Data

Allocation: \$250,000

Public infrastructure managers, environmental planners, freight shippers, and carriers need to understand and anticipate freight flows between regions, in corridors, and on particular links. This requires a variety of data describing the types and volume of freight moved between areas of production and attraction and the characteristics of modes that carry that freight (e.g., quality and cost of service). Key elements of those data come from individual shippers and carriers; the originators of data on shipments by commodity type, volume, and schedule; flows by mode; and levels of service in the logistics system. It has become almost standard for private carriers and shippers to track shipments and vehicles in near-real-time to support operations management. Such detailed and

accurate data, in both real-time and archived form, are of high value to public infrastructure operators for management and planning purposes. In particular, these data are essential for modeling freight flows and their environmental and energy consequences, and for testing policies to manage and moderate those consequences. Stakeholders in freight data sharing also include the vendors that collect real-time data for carriers and shippers, as well as consultants who analyze and transform those data into useful management information. However, there are several important barriers to be overcome to collect, share, and make effective use of such private freight flow data.

The objective of this research is to provide a general framework for agreements for public-private sharing of freight data to support planning and management decisions. The products will include samples and case studies of successful public-private freight data sharing arrangements, identification and analysis of the safeguards included to protect all stakeholders, and model data sharing agreements.

• **Project 32**

Integrating Smart Growth into Activity-Based Modeling for Freight Transportation and Land Use

Allocation: \$250,000

The potential impact of improved modeling for freight transportation and land use has become more apparent of late because of increasing concerns regarding greenhouse gas emissions. In an effort to reduce greenhouse gas emissions, transportation planning organizations are looking to potentially influence future land-use patterns to reduce vehicle miles traveled (VMT) and therefore greenhouse gas emissions. However, increasing vehicle density on roadways as a result of smart growth policies could increase congestion, often measured as vehicle hours delay (VHD). An increase in the share of travel completed in a congested environment would decrease average speed, increase the frequency of hard vehicle accelerations, decrease vehicle fuel economy, and increase air pollutant emissions. Improved

modeling that fully accounts for impacts of future land use on personal and freight transportation, in terms of VMT, VHD, and potentially other metrics, could be used to help design smart growth strategies that result in the greatest emissions benefit. Synchronizing the development/maintenance of transportation facilities with the provision of industrial land is important for state and local governments. Land-use activities (zoning, urban growth limits, etc.) are often disconnected from decisions regarding investments in the freight system. Understanding how land-use decisions can impact freight transport demand will become increasingly important.

The objective of this research is two-fold: to improve upon the means by which planning agencies can measure the performance of (freight) transportation systems, and to use these improved measures to model (freight) transport systems more accurately.

• **Project 33**

Impact of Environmental Regulations on the Supply Chain

Allocation: \$400,000

Many ports and intermodal carriers are currently constrained and are seeking permission to expand their infrastructure and throughput capacity. For instance, the California Air Resources Board (CARB) is the regulatory agency responsible for issuing and enforcing California's laws to protect the state's air quality and recently the control of the emission of green house gases (GHG). Because of the requirement to get regulatory approval before port projects can be constructed, all new projects have been delayed as CARB works to develop policy and issue regulations and permits with applicable conditions to reduce air emissions and GHG consistent with California law. Part of the agency's challenge is to control emissions without adversely impacting this important economic sector by their actions. Many other areas of the country face similar issues. The objective of this research is to better understand the economic drivers and competition considerations of supply-chain businesses with respect to current and future air quality and GHG emission regulations.

• **Project 34**

Alternative Technologies for Container Freight Movements

Allocation: \$300,000

Currently, container freight moving to or from ocean ports is transported by diesel trucks or diesel-powered railroad locomotives. Communities around these ports are demanding cleaner and more efficient methods to move this freight. Passenger car commuters who have to share the roads with heavy trucks moving the freight in metropolitan areas are looking for options that could remove much of the truck traffic destined for intermediate freight destinations such as off-dock rail yards and warehouse facilities.

The objective of this research is to conduct an industry review of alternative technology to move ocean containers or truck trailers, such as magnetic levitation, the Texas Transportation Institute's Universal Freight Shuttle, and future concepts still on the drawing board. The outcome would be an effective methodology to provide an unbiased evaluation of current and future technologies using proven benefit-cost analysis techniques.

• **Project 35**

The Great Lakes Region Impacts on the Intermodal Freight System

Allocation: \$300,000

The Great Lakes region of the country is a unique transportation system, with the nation's largest rail hub in Chicago; the border with our largest trading partner, Canada; numerous waterways and ports; an extensive highway infrastructure, that all serve the major industrial and agricultural heart of the nation. However, there is a need to clearly understand the Great Lakes' current contribution to the intermodal freight system. The proposed research would describe the current state of freight transportation in the Great Lakes region, the impediments that lead to inefficiencies, and practical steps that could raise intermodal freight performance in the region.