

National Cooperative Freight Research Program Announcement of FY 2012 Freight Research Projects

Fiscal Year 2012

May 2012

IMPORTANT NOTICE

The research program described herein is tentative. The final program will depend on the level of funding received from the federal sponsor, the U.S. Department of Transportation.

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. 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 February 7-8, 2012 and selected projects for the Fiscal Year 2012 program.

INTERESTED IN BEING A PANEL MEMBER?

This announcement contains 4 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 by June 1, 2012.

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INTERESTED IN PROPOSING ON NCFRP RESEARCH?

Detailed project statements, formally soliciting proposals for the 4 projects, are expected to be released starting in July-August 2012. 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 the program 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."

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**National Cooperative Freight Research Program
Projects in the Fiscal Year 2012 Program**

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FY 2012
National Cooperative Freight Research Program
Oversight Committee Approved Research Projects

- **Project 44**

Factors Influencing Freight Modal Shift

Allocation: \$350,000

In recent public policy debates, much emphasis has been placed on shifting freight from highways to rail. This interest is based on goals of reducing emissions and highway congestion. There is no formal research in the U.S. that analyzes the causal elements of freight mode shift; when and if it has occurred; what impediments exist; or what were the benefits and costs. Without such research, public officials could make uninformed decisions that have decades-long impacts on transportation infrastructure and business supply-chain procurement and the U.S. economy and competitiveness. This research would inform stakeholders and public sector decision makers by analyzing: (1) the current state of modal share (domestic and international); (2) the past modal shifts and causation; (3) the propensity of freight to shift modes (or not); (4) the potential effect of modal shifts at different levels (5%, 10%, etc.) on GHG, congestion, supply chains, shipping costs, employment, etc.; (5) potential options to affect mode share and likelihood of success; (6) international experience; and (7) the effect on communities.

- **Project 45**

Sleep/Rest Practices of Tow/Barge Crews

Allocation: \$300,000

Human errors related to fatigue are a major concern in all freight operations, not the least because 24-hour operations require personnel to be vigilant when they are biologically predisposed to sleep. Commonly accepted is that 7 to 8 hours of uninterrupted sleep per 24-hour day is required to maintain optimum performance and minimize fatigue. However, many freight operations are not conducive to a single uninterrupted sleep period that allows 7 to 8 hours of sleep. The use of short naps (10-20 minutes) has been reported to be successful in other industries in improving performance; however, there is limited data on the use of longer naps (2-3 hours) in conjunction with anchor sleep (4-5 hours). Preliminary studies with the barge industry suggest that an anchor sleep/nap sleep strategy can be used and still maintain safe performance, but it remains to be determined whether such a strategy works in real world, maritime operations, and whether the strategy would be accepted by crew members. The proposed research will build upon previous studies to develop and test educational materials to aid in the implementation of such strategies and determine if after receiving such educational materials (1) crew members report placing more importance on sleep, (2) individuals with sleep disorders/problems report seeking professional help, and (3) crew members report changes in daily sleep and sleep quality.

- **Project 46**

Benefit-Cost Methodologies for Intermodal Freight Corridor Investments

Allocation: \$350,000

Increasingly, state departments of transportation are asked to evaluate project investments across modes in multi-state intermodal freight corridors of national significance. However, there is no nationally accepted methodology or modeling tool(s) available to quantify the benefits and costs of alternative intermodal freight project packages in such corridors. How should conflicts between interstate and local interests be taken into account? For example, local communities sometimes object to the noise, air pollution, or other aspects of trucks and trains that would pass through with little local benefit, as contrasted with the potentially large benefits on national and regional economies from improved freight flows. The proposed research will (1) identify important and measurable benefits and total public costs associated with public investments in intermodal corridors of national significance, (2) identify and analyze existing benefit-cost methodologies that have been proposed or used for freight corridor investments, (3) identify procedural and knowledge gaps in the existing methodologies as applied to intermodal freight corridor investments, (4) develop guidance for benefit-cost analysis of multi-state intermodal freight corridor improvement proposals, (5) apply the guidance material to proposed intermodal freight system investments, and (6) develop a guidebook and tool(s) to assist public agencies to evaluate the benefits-costs of freight projects across different modes and in multi-state corridors.

- **Project 47**

Implementing the Freight Transportation Data Architecture: Data Element Dictionary

Allocation: \$500,000

The proposed research will inventory data elements from the surveys, data systems, classification systems, and other data sources identified in *NCFRP Report 9: Specifications for Freight Transportation Data Architecture*, as well as other appropriate sources, in order to produce a Freight Transportation Data Dictionary that (1) inventories all variables used in public data sets used in transportation; (2) organizes the variables into a useful typology; (3) provides the definition used for each variable; (4) identifies differences in definitions and whether crosswalks or other bridges are available to resolve differences in definitions; and (5) recommends whether harmonization or new statistical bridges are appropriate for resolving differences in definitions. The research team will design a website that contains the Dictionary as well as provides methods for data program managers to update and expand the Dictionary as data programs evolve. (FHWA has expressed interest in maintaining the website).