

National Cooperative Freight Research Program

December 2008

Announcement of FY 2009 Freight Research Projects

America's freight transportation system makes critical contributions to the nation's economy, security, and quality of life. More than \$660 billion (about 6.4 percent of the U.S. Gross Domestic Product) is spent annually to move freight, and the cost and volume of goods movement are crucial to the productivity of the entire U.S. economy. The National Cooperative Freight Research Program (NCFRP) was authorized in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU).

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 November 13, 2008 and selected 10 projects for the Fiscal Year 2009 program. The purpose of this announcement is to inform the research community of these projects.

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 sending an email indicating the project of interest and a resume to Ms. Adrienne Blackwell (ablackwell@nas.edu) by February 6, 2009. **Detailed project statements, formally soliciting proposals for these projects, are expected to be released starting in April 2009.**

NCFRP project statements will be available only at the program website:

<<http://www.trb.org/ncfrp>>.

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."

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**National Cooperative Freight Research Program
Projects in the Fiscal Year 2009 Program**

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FY 2009
National Cooperative Freight Research Program
Oversight Committee Approved Research Projects

• **Project 19**

Truck Tolling – The Role of Freight Markets and Industry Characteristics in Decision Making

Allocation: \$150,000

Road pricing projects have improved traffic flow along congested corridors and facilities and raised new revenue for investment in transportation infrastructure. While many pricing projects have gained public acceptance, there is significant skepticism among key stakeholders, especially from the trucking industry. Recent TRB forums that brought advocates and analysts of road pricing together with trucking industry representatives highlighted the gulf in understanding on the part of analysts in the business of trucking.

The objective of this research is to identify the value that goods movement businesses seek from the transportation system and their willingness to pay for that value. The proposed research will look across the spectrum of freight markets and their sub-sectors to address questions of who pays the tolls, how the tolls relate to other operating costs, whether these costs can be passed on to the customer, and who makes routing decisions. The proposed research is intended to be expansive with regard to freight markets, exploring not only those that move the goods, but the shipping community as well. This project will be jointly funded by the National Cooperative Highway Research Program. Total project funding will be \$300,000.

• **Project 20**

Resources and Procedures for Developing Local and Specific Freight Corridors Commodity Flow Databases

Allocation: \$500,000

Commodity flow data are used to understand which industries in a state or region generate the most demand on the system; they provide a key link between economic trade relationships in a state or region and freight demand; they are also used in modal diversion studies; and are a key input to multimodal trade corridor studies and

air quality assessments. State DOTs and MPOs need a variety of tools, but a number of useful commodity flow databases at the national level are of limited use at the state or regional level because they lack the appropriate level of geographical detail for flow origins and destinations.

The objective of this research is to provide state DOTs and MPOs with guidance for compiling commodity flow data sets appropriate for sub-national analysis. This will include techniques for disaggregating national data sets; procedures and methodologies for conducting local commodity flow surveys; a compendium of commonly available public and private data sources for use in constructing sub-national commodity flow data sets; and procedures for compiling local, state, or regional commodity flow databases from these various resources.

• **Project 21**

Legal Considerations for Accessing Private Freight Data for Transportation Planning

Allocation: \$50,000

Most data on freight transportation originates with private companies. Many factors are operating to increase the priority on planning and public investment for freight transportation: globalization of the economy; congestion at border crossings, terminals, and line haul links; health effects of emissions from diesel vehicles; and concerns about global warming and energy resources. Private data sources can be important resources for transportation planning and policy making, but the challenge is to find ways to make selected private data available to meet the specific needs of planners. While some agencies have had important successes securing and using private transportation data, the barriers remain significant, and the structures of data sharing agreements are not widely known.

The objective of this research is to study the legal issues and establish general approaches and protocols for agreements between private entities and public agencies to enable access to essential private data for appropriate public transportation planning purposes.

- **Project 22**

Applying Benefit-Cost Analysis to Freight Project Selection: Lessons from the Corps of Engineers

Allocation: \$50,000

State and local transportation agencies are encouraged to use benefit-cost analysis for project selection, and proposals are occasionally made to require benefit-cost analysis as part of the planning and project development processes for all publicly funded freight projects. Such a requirement already exists for the U.S. Army Corps of Engineers, which must conduct benefit-cost analysis for its civilian navigation and flood control projects. The experience is mixed, with some arguing that benefit-cost analysis has saved the nation from wasteful projects while others argue that benefit-cost analysis has paralyzed decision making, encouraged underinvestment, or put environmental restoration efforts at an inappropriate disadvantage. Congress has recently required that the Corps convene expertise from the National Academies to review its benefit-cost analysis methods. If state departments of transportation and metropolitan planning organizations are to be required or strongly encouraged to apply benefit-cost methods to all freight investments, then the experience of the Corps should be carefully considered so that mistakes are not repeated and successes are built upon.

The objective of this research is to summarize past studies and testimonies on the effectiveness of benefit-cost analysis at the Corps of Engineers, supplemented by interviews with past and present Corps officials and stakeholders.

- **Project 23**

Economic and Transportation Factors for Locating Freight Intermodal and Warehouse Distribution Facilities

Allocation: \$250,000

Public officials at the state and local level are frequently called on to consider the siting of inland ports, freight intermodal terminals, and warehouse distribution centers. Deciding to pursue these facilities as economic development generators, as a supporting function for current businesses, or in response to outside proposals

without fully understanding the transportation, community and economic consequences—both positive and negative—is not an uncommon issue. This has led to public officials expending time and resources on flawed strategies to attract facilities and incorrectly reacting to facility proposals. This can ultimately lead to inefficient transportation systems, negative community perceptions, and failed economic development strategies. In order for these facilities to be considered viable and positive community assets, public sector decision makers require an understanding of many factors to make sound decisions on whether to pursue such facilities, or if they are approached about such facilities, what they need to consider when analyzing their possible locations.

The objective of this research is to provide public sector practitioners in both the transportation and economic development fields with an understanding of key transportation and economic-related factors and strategies that must be considered when building intermodal terminals and warehouse distribution facilities.

- **Project 24**

Preserving and Protecting Freight Infrastructure and Routes

Allocation: \$500,000

There has been a generalized decline of critical maritime infrastructure especially in urban areas, at the very time when there is renewed interest and identified need for more maritime transport of freight (and people). Critical maritime infrastructure is defined as ship repair/building, berths and anchorages, and storage areas. Existing freight routes are threatened by such factors as: gentrification around truck routes connecting pockets of urban manufacturing and ports to the intercity highway network; conversion of short line railroads to recreational trails; permanent weight restrictions on aging bridges; and other changes in the surrounding landscape. Voters often put effective pressure on local decision makers to block freight movement on long-used freight routes, leaving local manufacturers and others without needed access to the intercity and international freight networks.

The objective of this research is to provide state and local officials, land use planners, transportation consultants, architects and

developers with a state-of-the-practice review of current activities in this area. It will provide information on best practices, innovative zoning or other ordinances currently used, mitigation options, as well as a guidebook, which the aforementioned groups can utilize as they plan and develop facilities in proximity to freight, port, and rail operations.

• **Project 25**

Generation and Attraction of Freight by Land Use Characteristics

Allocation: \$125,000

Trip generation and attraction rates by type of land use are a key element of local transportation and land use planning. Most estimates are based on personal travel rather than freight movement, and the freight estimates that are used are typically limited to the number of trucks.

The objective of this research is to estimate the amount of freight activity generated or attracted by different types of land use for state and local planning studies. The research would extend truck trip generation estimates and guidebooks developed by the Institute of Transportation Engineers and the Truck Trip Generation Guide in NCHRP Synthesis 20-05/Topic 31-09. NCFRP funding for this project is contingent on the allocation of an equal amount by the National Cooperative Highway Research Program. Total project funding will be \$250,000.

• **Project 26**

Strategies for Measuring the Costs of Freight Transportation

Allocation: \$200,000

Data on the cost of transportation are central to understanding the economic importance of freight system performance, for evaluating the effectiveness of public policies to divert truck traffic to other modes, for understanding the implications of vehicle size and weight limits, for forecasting future freight demand and revenue generation for states and facility operators, and for monitoring the performance of transportation investments, regulations, and policies. Traditional sources of cost data disappeared with deregulation, or have become invalid by post- deregulation pricing practices

that are no longer reflected in reporting systems to public agencies. While the Commodity Flow Survey measures the value of commodities being shipped, it cannot measure the cost of moving those commodities. The only public data on freight costs are survey-based national price indices by industry from the Bureau of Labor Statistics. *Transportation Statistics beyond ISTEA*, a publication by the Bureau of Transportation Statistics, is among the publications that recognize the importance of this data gap and the profound difficulties in filling the gap.

The objective of this research is to identify specific types of transportation cost data required by national, state, and local transportation and economic development agencies, assess different strategies for collecting those types of cost data, and propose a strategy for obtaining the needed data.

• **Project 27**

Promoting Environmental Goals in Freight Transportation through Industry Benchmarking

Allocation: \$300,000

The rapid growth of freight emissions control programs is starting to overwhelm both public and private stakeholders. Port regions and border regions are developing individual, site-specific programs, thereby creating a patchwork approach to freight emissions control programs. Prescriptive regulations based on large scale freight emissions models require significant time and resources, and typically lack the flexibility to deal with local, industry-specific conditions. Industry benchmarking may provide a more effective approach to protecting air quality around freight hubs.

The objectives of this research are to (1) identify and evaluate methods currently used to estimate, monitor, and regulate freight emissions (building upon the work in NCFRP-16) and (2) examine benchmarking in the freight industry to promote environmental goals, opportunities to use benchmarking in the freight emissions context; and the possible benefits of benchmarking by mode for air quality impacts around major freight hubs.

- **Project 28**

Truck Idling Scoping Study

Allocation: \$200,000

Truck idling has been identified as a significant source of local air pollution around highway rest areas, major freight terminals, ports, and in freight-intensive areas such as Southern California. Restrictions on idling have been proposed and programs for encouraging deployment of stand-by power systems to reduce truck idling have been developed. While data exist on truck emissions while idling, data on the time trucks spend idling are anecdotal or speculative, and time spent idling could change significantly with recent and expected increases in fuel costs. Robust estimates of the time spent by trucks standing still with the engine running are needed by decision makers who are considering idle-reduction strategies to improve air quality and reduce greenhouse gas emissions.

The objective of this research is to develop the scope, methods, and cost estimates for obtaining national and regional estimates of the time spent idling by trucks, categorized by type of truck and activity served.