

# Hazardous Materials Cooperative Research Program Transportation Research Board

December 2009

## Announcement of FY 2010 Hazardous Materials Research Projects

Hazardous materials shipments vary in size and type, from small parcels containing a few ounces of infectious or radioactive substances to barges or railroad tank cars carrying tons of flammable, toxic, and corrosive materials. Although virtually all hazardous materials shipments occur without incident, there has been a long-standing gap in the system for conducting hazardous materials safety and security research. Acknowledging this gap, in 2005, a pilot cooperative research program on the transport of hazardous materials was authorized in federal legislation.

The Hazardous Materials Cooperative Research Program (HMCRP) is sponsored by the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration and managed by the National Academies, acting through the Transportation Research Board (TRB). The HMCRP Technical Oversight Panel, the governing board for the program, met on October 13, 2009, and selected projects for the Fiscal Year 2010 program. The purpose of this announcement is to inform the industry of these projects.

### **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 submitting it with a resume by January 22, 2010.**

### **Interested in proposing on HMCRP research?**

**Detailed project statements, formally soliciting proposals for these projects, are expected to be released starting in April 2010.** HMCRP 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 HMCRP are available at that site.

The HMCRP 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:**

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**FY 2010**  
**Hazardous Materials Cooperative Research Program**  
**Technical Oversight Panel Approved Research Projects**

- **Project HM-10**

*Synthesis of Hazardous Materials Transportation Research*

Allocation: \$100,000

There are a number of governmental agencies, trade associations, and companies that have active efforts to develop new capabilities for improving the safety and security of hazardous materials during transport. In order for the HMCRP to adequately address research gaps, it is necessary to (1) understand the current research requirements for the various agencies and organizations, (2) identify the efforts underway in the different agencies and organizations to address those requirements, and (3) identify the research gaps compiled by each agency and organization. The objective of the synthesis is to develop a matrix that identifies the organization, research, state of maturity, research gap addressed, and anticipated completion date.

- **Project HM-11**

*Improving Recovery from Episodic Events Involving Hazardous Materials Transport*

Allocation: \$350,000

The significant impact that poor recovery planning can have on business continuity and economic vitality has been made very clear from recent episodic events such as hurricanes and earthquakes. All indications are that effective recovery can be enhanced by examining disaster scenarios and developing contingency plans for how to successfully recover from these events if the event itself cannot be mitigated. Hazardous materials transportation is a key factor because it could be the cause of an episodic event, or the ability to deliver critical hazardous materials could be compromised by an event caused by some other agent. The objectives of this research are (1) to establish what constitutes best practices for recovery planning in general and particularly for incidents caused by or affecting hazardous materials transport, (2) to identify hazardous materials-related recovery planning needs that are not being addressed adequately (i.e., gap analysis), and (3) recommend steps that could be taken to address the unmet needs.

- **Project HM-12**

*Applications and Needs for Hazardous Materials Transport Risk Assessments in the Public and Private Sector*

Allocation: \$200,000

A variety of methods are utilized in both the public and private sectors to assess the risk due to hazardous materials transportation. However, these risk assessments are often designed for different purposes and used in different ways by government agencies and the private sector. Further, there are a number of models/methodologies used in each sector, from simplified to extremely complex, that have varying data needs and make varying degrees of assumptions. Results from different assessments may be applicable to only specific instances or for specific purposes. In addition, many of the assessments address single modes of transportation, and there are few published methods to adequately compare risk across modes. There is a need for the government sector to better understand how the private sector does risk assessments and risk management and for the private sector to appreciate government needs in regulating hazardous materials in transport. This project will provide the following: (1) the different requirements needed for models and methodologies in the private sector and the public sector; (2) a critical review of the current models and methodologies available to each sector, including capabilities and limitations; (3) an assessment of the data gaps needed for the different models; (4) an assessment of the capability gaps not addressed by the available models; and (5) an assessment of how risk can be compared across modes of transportation.

- **Project HM-13**

*Cargo Tank Rollover Factors, Prevention, and Mitigation*

Allocation: \$200,000

Cargo tank rollover has been a major cause of hazardous materials transport accidents, fatalities, and spills. While geometric design features and highway traffic are important factors in the safe operation of large trucks, there are also benefits to be gained from rollover prevention devices and other design features in cargo tanks that could ensure the survival rate of cargo tanks and reduce the likelihood of hazardous materials releases in transportation accidents. This project will review the factors and assumptions that must be considered when calculating the loads on cargo tank rollover protection devices in determining compliance with DOT performance, and review and recommend acceptable means to shield and protect top-mounted closure fittings on bulk liquid and gas cargo tanks.