

## ***FHWA R&T Now ~ July 2010 ~***

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*A news update of research, technology, and development from the U.S. Department of Transportation (USDOT), Federal Highway Administration (FHWA)*

### **GENERAL/ADMINISTRATIVE**

#### **SHRP 2 Update**

The Strategic Highway Research Program (SHRP) 2 has been underway since 2007, and several products and outcomes are beginning to emerge. As of June 2010, 13 reports have been published, and an additional 36 are either in review or in press. With the extension of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) through December 31, 2010, allowing for FHWA programs to continue at fiscal year (FY) 2009 funding levels, approximately \$48 million of additional funding is available for SHRP 2 research and preimplementation during FY 2010. An additional \$12 million could be available for the first quarter of FY 2011. This brings the total SHRP 2 funding to \$230 million. The cooperative agreement between FHWA and the Transportation Research Board (TRB) is in the process of being extended by 2 years, to March 2015, to incorporate this additional funding and to add tasks with a greater focus on preimplementation activities. TRB continues to manage the SHRP 2 research program and its preimplementation initiatives. Also, on July 1, 2010, FHWA and American Association of State Highway and Transportation Officials (AASHTO) executed a cooperative agreement that will enable AASHTO to dedicate resources to SHRP 2 preimplementation planning and coordination.

For more information, contact Margie Sheriff, 202-366-1747, [margie.sheriff@dot.gov](mailto:margie.sheriff@dot.gov).

#### **FHWA Seeks Pilot Locations for Climate Vulnerability/Risk Assessment**

FHWA is soliciting interested departments of transportation (DOTs) and metropolitan planning organizations (MPOs) to partner with it in piloting approaches to conduct climate change vulnerability and risk assessments of transportation infrastructure. The purpose of the pilots is twofold: 1) to assist State DOTs and MPOs in advancing existing adaptation assessment activities more quickly and 2) to assist FHWA in “test-driving” the model. Based on the feedback received through the pilots, FHWA will revise and finalize the model for national application. It is anticipated that three to four awards will be made at approximately \$200,000 to \$300,000 each. By Federal statute, a 50-percent, non-Federal match is required for these funds to be awarded to the pilot areas. In-kind contributions, such as staffing, may be counted towards the match requirement. Applications are due to the relevant FHWA division office by July 30, 2010. For more information, see the solicitation announcement and the conceptual model that soon will be available on the [FHWA Climate Change Activities Web page](#).

For more information, contact: Michael Culp, 202-366-9229, [michael.culp@dot.gov](mailto:michael.culp@dot.gov)

## **FHWA Solicits Lines of Research for STEP**

FHWA is requesting suggested lines of research for the proposed FY 2011 Surface Transportation Environment and Planning Cooperative Research Program (STEP) through September 30, 2010. The *Federal Register* notice was issued on July 2, 2010. To provide feedback, visit the STEP Web site and review the draft *FY 2011 STEP Implementation Strategy*: <http://www.fhwa.dot.gov/HEP/STEP/strategy.htm>. After reviewing the proposed strategy, submit feedback at: <http://knowledge.fhwa.dot.gov/cops/step.nsf>.

For more information, contact: Felicia Young, 202-366-1263, [felicia.young@dot.gov](mailto:felicia.young@dot.gov).

## **ADVANCED RESEARCH**

### **FHWA Exploratory Advanced Research Solicits Proposals in Various Topic Areas**

FHWA's Exploratory Advanced Research (EAR) Program working with the Offices of Acquisition Management, Infrastructure Research and Development (R&D), Safety R&D, Operations R&D, Planning, and Policy and Governmental Affairs is soliciting proposals through a broad agency announcement (BAA) in three topic areas. The topic areas include Agent-Based Modeling and Simulation for Transportation, Breakthrough Approaches for Network-Level Travel Data, and National Transportation Demand Model: Foundational Research for New Approaches. Proposals are due September 30, 2010, with awards anticipated in 2011. The EAR Program plans to award nearly \$5 million to selected proposals responding to the solicitation. A link to the solicitation is posted at <http://www.fhwa.dot.gov/advancedresearch/>.

For more information, contact Terry Halkyard, 202-493-3467, [terry.halkyard@dot.gov](mailto:terry.halkyard@dot.gov); or David Kuehn, 202-493-3414, [david.kuehn@dot.gov](mailto:david.kuehn@dot.gov).

### **EAR Program Awards Research on Mechanical and Structural Nanoscale Modeling**

As a result of a national BAA for EAR Proposals issued in the spring of 2009, FHWA entered into a contract with Virginia Tech, which will seek to: develop a generalized dynamical field theory of multiscale materials; develop the theory further to an integrated thermomechanical and electromagnetic theory; develop corresponding algorithms and software; and investigate applications of the theory and software to field issues. In this process, Virginia Tech will demonstrate innovative ideas and new technologies related to characterizing the mechanical properties of materials at the nanoscale and microscale level, as well as create new algorithms and software. For more information about the project, contact Kunik Lee, 202-493-3491, [kunik.lee@dot.gov](mailto:kunik.lee@dot.gov).

For more information about the EAR Program, contact David Kuehn, 202-493-3414, [david.kuehn@dot.gov](mailto:david.kuehn@dot.gov).

## **EAR Program Initiates Research on Integrated GPS/INU Simulator for Enhanced Traffic Safety**

FHWA entered into a cooperative agreement with the Ohio State University Foundation to test emerging navigation technologies in a simulated environment. This could lead to better assessment of future navigation technology and improved methods for roadway design. The project will use an Integrated Global Positioning System/Inertial Navigation Unit (GPS/INU) Simulator for Enhanced Safety consisting of several modules. The modules are integrated to create an environment that allows researchers to study the relationship between vehicle dynamics and roadway geometry, and to provide an integrated design, test, and evaluation tool for developing advanced concept subsystems to enhance vehicle safety at the vehicle and network levels. Several prototype GPS/INU systems are proposed to cross-validate the integrated simulation environment and explore new concepts for enhancing vehicle safety in conjunction with or without the existing IntelliDrive<sup>SM</sup> environment. This award is a result of the national BAA for EAR proposals issued in the spring of 2009. For more information about the project, contact James Arnold, 202-493-3265, [james.a.arnold@dot.gov](mailto:james.a.arnold@dot.gov).

For more information about the EAR Program, contact David Kuehn, 202-493-3414, [david.kuehn@dot.gov](mailto:david.kuehn@dot.gov).

## **Fact Sheet: Benefits of High Volume Fly Ash: New Concrete Mixtures Provide Financial, Environmental, and Performance Gains**

Many producers and transportation agencies aim to increase the use of fly ash in the transportation infrastructure, however, several barriers exist to implementing new mixtures. An EAR Program project addresses the need for predicting strength gain in full-scale structures and screening procedures to identify the influence and properties of residual carbon on the rate of admixture absorption. For more information on this EAR Program project, contact Richard Meininger, 202-493-3191, [richard.meininger@dot.gov](mailto:richard.meininger@dot.gov) or visit <http://www.fhwa.dot.gov/advancedresearch/pubs/10051/index.cfm>.

## **INFRASTRUCTURE**

### **Techbrief: Simultaneous Structural and Environmental Loading of a UHPC Component**

This techbrief highlights the results of a study aimed at evaluating the inelastic tensile response of ultra-high performance concrete subjected to simultaneous structural and environmental loading.

<http://www.fhwa.dot.gov/publications/research/infrastructure/structures/10055/index.cfm>

For more information, contact: Benjamin Graybeal , 202-493-3122, [benjamin.graybeal@dot.gov](mailto:benjamin.graybeal@dot.gov) .

### **Fact Sheet: Nondestructive Evaluation Center Laboratory**

The Nondestructive Evaluation (NDE) Center Laboratory was established by the FHWA in 1998 in an effort to centralize and better coordinate research related to nondestructive testing. Since its establishment,

the center has acted as a resource to the FHWA and States for information and expertise on nondestructive testing tools and technologies.

<http://www.fhwa.dot.gov/publications/research/infrastructure/pavements/10036/>

For more information, contact: Firas Ibrahim, 202-493-3053, [firm.brahim@dot.gov](mailto:firm.brahim@dot.gov) .

## **SAFETY**

### **Report: Pavement Marking Demonstration Project: State of Alaska and State of Tennessee—Report to Congress**

Under Section 1907 of the SAFETEA-LU, the U.S. Congress directed the Secretary of Transportation to conduct demonstration projects in Alaska and Tennessee. The demonstration projects are to study the safety impacts, environmental impacts, and cost effectiveness of different pavement marking systems and the effect of State bidding and procurement processes on the quality of pavement marking material employed in highway projects

<http://www.fhwa.dot.gov/publications/research/safety/09039/index.cfm>

For more information, contact: Carl Andersen, 202-493-3366, [carl.andersen@dot.gov](mailto:carl.andersen@dot.gov) .

### **Report: Development of a Speeding-Related Crash Typology**

The overall goal of FHWA's *Speed Management Strategic Initiative* and the FHWA Speed Management Program is to improve the safety of the Nation's highways through the reduction of speeding and speed-related (SR) crashes. This report summarizes a detailed examination of crash data and the development of an SR crash typology.

<http://www.fhwa.dot.gov/publications/research/safety/10024/index.cfm>

For more information, contact: Richard Knoblauch, 202-493-3369, [richard.knoblauch@dot.gov](mailto:richard.knoblauch@dot.gov).

### **Summary Report: An Evaluation of Signing for Three-Lane Roundabouts**

The use of three-lane roundabouts raises the concern that low comprehension and compliance could be a bigger problem than at two-lane roundabouts for the following reasons: (1) the larger radii of three-lane roundabouts enable higher speeds, (2) angles of impact in three-lane roundabouts may be more severe when errant vehicles stray across multiple lanes from their assigned lane, and (3) traffic volumes will be higher, and thus, more vehicles will be affected by incidents. The present study is intended to address this concern of low comprehension and compliance.

<http://www.fhwa.dot.gov/publications/research/safety/10030/index.cfm>

For more information, contact: Joe Bared, 202-493-3314, [joe.bared@dot.gov](mailto:joe.bared@dot.gov).

## **Report: Operating Characteristics of the Segway™ Human Transporter**

The Segway™ Human Transporter (Segway HT) is one of several low-speed transportation devices (e.g., bikes, scooters, wheelchairs) that, under certain circumstances, travels on sidewalks, roadways, and other shared-use paths. The objective of this research was to examine the primary operating characteristics of the Segway HT.

<http://www.fhwa.dot.gov/publications/research/safety/10025/index.cfm>

For more information, contact: Chris Monk, 202-493-3365, [chris.monk@dot.gov](mailto:chris.monk@dot.gov).

## **Summary Report: Evaluation of Lane Reduction “Road Diet” Measures on Crashes**

This Highway Safety Information System summary replaces an earlier one, *Evaluation of Lane Reduction “Road Diet” Measures and Their Effects on Crashes and Injuries* (FHWA-HRT-04-082), describing an evaluation of “road diet” treatments in Washington and California cities. This summary reexamines those data using more advanced study techniques and adds an analysis of road diet sites in smaller urban communities in Iowa.

<http://www.fhwa.dot.gov/publications/research/safety/10053/index.cfm>

For more information, contact: Carol Tan, 202-493-3315, [carol.tan@dot.gov](mailto:carol.tan@dot.gov).

## **OPERATIONS**

### **FHWA's Office of Operations R&D Reorganization**

The FHWA's Office of Operations R&D has been reorganized. It will focus on: developing advancements in enabling technologies; identifying and developing new transportation operations concepts and performance-based ways of assessing resultant transportation system performance outcomes; and developing specific, promising applications that can be tested in the lab, on test tracks, and safely in the community. The office also identified the need for three testbeds within its Transportation Operations Laboratory that would serve as tools for staff to accomplish the operations needed by R&D to support the achievement of the vision: (1) data resources testbed, (2) analysis testbed, and (3) cooperative vehicle-highway testbed.

For more information, contact Joe Peters, 202-493-3269, [joe.peters@dot.gov](mailto:joe.peters@dot.gov).

### **TRANSED 2010, Hong Kong, China**

Cosponsored by TRB, the 12th International Conference on Mobility and Transport for Elderly and Disabled People (TRANSED 2010) was held June 2–4, 2010, in Hong Kong, China. The conference was designed to review advances in research, profile international breakthroughs, and explore perspectives for technological innovations in response to the mobility challenges of an aging population and persons with

disabilities. More than 800 researchers, policy makers, transportation operators, consumers, and other specialists from various countries shared and explored innovations and best practices.

For more information, contact: Mohammed Yousuf, 202-493-3199, [mohammed.yousuf@dot.gov](mailto:mohammed.yousuf@dot.gov).

## **RECENT PERIODICALS**

### ***FOCUS* Newsletter—June 2010**

This issue includes: Bigger and Better Approach to Bridge Improvement: The Design-Build Difference; Meeting the Challenges of Today's Transportation Needs by Making Every Day Count, Conference to Present Practices, Challenges, and Directions for Sustainable Concrete Pavements; Explore the Latest in Advanced Highway Research Online; Highways for LIFE Now Accepting 2010 Project Applications; and, Highway Technology Calendar.

<http://www.fhwa.dot.gov/publications/focus/10jun/index.cfm>

For more information, contact: Lisa Pope, 202-234-7157, [lgpope@woodwardcom.com](mailto:lgpope@woodwardcom.com).

### ***FOCUS* Newsletter—May 2010**

This issue includes: Accelerated Bridge Construction Success Stories Add up to \$30 Million in Savings; TIG Announces 2010 Focus Technologies; All About Tunnels; Training on Demand; Highway Technology Calendar; and, The Online Source for Local Agencies.

<http://www.fhwa.dot.gov/publications/focus/10may/index.cfm>

For more information, contact: Lisa Pope, 202-234-7157, [lgpope@woodwardcom.com](mailto:lgpope@woodwardcom.com).

### **Public Roads —May/June 2010**

This issue includes: Subsurface Utility Engineering; Leaving a Smaller Footprint; World Class Streets; Taking a Key Role in Reducing Disaster Risks; Greener Alleys; Detecting Motorcyclists and Bicyclists at Intersections.

<http://www.fhwa.dot.gov/publications/publicroads/10mayjun/index.cfm>

For more information, contact: Martha Soneira, 202-493-3468, [martha.soneira@dot.gov](mailto:martha.soneira@dot.gov).

***NDEC News—The Nondestructive Evaluation Center’s Newsletter***

This issue includes information about the Evaluation of NDE Technologies for Fatigue Crack Detection.

<http://www.fhwa.dot.gov/publications/ndec/index.cfm>

For more information, contact: Firas Ibrahim, 202-493-3053, [firm.brahim@dot.gov](mailto:firm.brahim@dot.gov).

***Innovator—Accelerating Innovation for the American Driving Experience—April/May 2010***

This issue includes: Highways for LIFE Demonstrates How Innovations Pay Dividends; Surveys Show Innovation Use Boosts Highway User Satisfaction; Performance Contracting Yields Success on Michigan Project; Precast Concrete Pavement Systems Named Trendsetter; Highways for LIFE Web Site Gets New Look; Calendar.

<http://www.fhwa.dot.gov/hfl/innovator/issue18.cfm>

For more information, contact: Kathleen Bergeron, 202-366-5508, [kathleen.bergeron@dot.gov](mailto:kathleen.bergeron@dot.gov).

***Transportation and Climate Change Newsletter—May 2010***

This issue includes: Senators Kerry and Lieberman Introduce Climate Legislation; FHWA Climate Effects Report Released; FHWA Carbon Sequestration Pilot Project Results Posted; President Calls for a Transformation of USA’s Car and Truck Fleet, Truck Fuel Economy Standards; National Academies’ Climate Change Reports Released; U.S. Department of Commerce Releases Report on CO<sub>2</sub> Emissions Over Time by Sector; USDOT to Host Webinar on Report to Congress; and, Welcome Faiz Khan.

<http://www.fhwa.dot.gov/hep/climatechange/newsletter/ccnews0510.htm>

***LTPP Newsletter, Spring 2010***

This issue includes: Completion of the LTPP Materials Action Plan for Specific Pavement Study Sites and In Brief—LTPP Pavement Analysis Forum.

<http://www.fhwa.dot.gov/publications/ltpnews/10059.cfm>

***LTPP Newsletter, Winter 2010***

This issue includes: Celebrating 20 Years of Pavement Data Collection.

<http://www.fhwa.dot.gov/publications/ltpnews/10040.cfm>

**Links:**

**Turner-Fairbank Highway Research Center:** [www.tfhrc.gov](http://www.tfhrc.gov)

**Resource Center:** <http://www.fhwa.dot.gov/resourcecenter/>

**National Highway Institute:** <http://www.nhi.fhwa.dot.gov/home.aspx>

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Suggestions may be submitted to: [FHWA\\_Now@fhwa.dot.gov](mailto:FHWA_Now@fhwa.dot.gov)