

## ***FHWA R&T Now*** ~ May 2013~

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

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### **GENERAL/ADMINISTRATIVE**

#### **SHRP2 Implementation Update**

FHWA is working closely with the American Association of State Highway and Transportation Officials (AASHTO) and the Transportation Research Board (TRB) to implement the first set of priority products resulting from the Second Strategic Highway Research Program (SHRP2).

In February, FHWA and AASHTO launched a new Implementation Assistance Program to help transportation agencies begin to deploy SHRP2 products. In May, the two organizations announced that transportation agencies in 34 States and the District of Columbia will participate in the initial round of the SHRP2 Implementation Assistance Program, which includes 2 proof of concept pilots, 74 lead adopter incentives, and 24 user incentives for 6 new SHRP2 products. The selected entities include State departments of transportation, metropolitan planning organizations, and tribal departments of transportation. In the coming months, each agency will put into practice one or more of the 6 SHRP2 products on 108 different transportation projects across the Nation.

In addition, eight States will receive limited technical assistance in the form of knowledge transfer activities and/or workshops to learn more about the SHRP2 products. As more SHRP2 products become available, transportation agencies will have future opportunities to receive implementation assistance. Plans are to solicit participants on a biannual basis, and the next round of the Implementation Assistance Program will be announced later this year.

For more information, contact Carin Michel, 410-962-2530, [carin.michel@dot.gov](mailto:carin.michel@dot.gov).

### **ADVANCED RESEARCH**

#### **Real-Time Bridge Monitoring Technologies**

With steel bridges representing approximately 34 percent of the nearly 600,000 highway bridges in the United States, continual monitoring and early detection of deterioration in these structures is vital to prevent expensive repairs or catastrophic failures. Developing a solution for autonomous crack monitoring is the goal of “Low-Cost Self-Powered Wireless Nanosensors for Real-Time Structural Integrity Monitoring of Steel Bridges,” an Exploratory Advanced Research (EAR) Program project launched by FHWA in 2009 and conducted by the Georgia Institute of Technology. The EAR Program has published a fact sheet, “Real-Time Bridge Monitoring—Developing Wireless Nanosensors to Monitor Structural Integrity” (Publication Number FHWA-HRT-13-057) that provides details of the study.

The fact sheet is available at [www.fhwa.dot.gov/advancedresearch/pubs/13057/index.cfm](http://www.fhwa.dot.gov/advancedresearch/pubs/13057/index.cfm). For technical information about the project, contact Hamid Ghasemi, 202-493-3042, [hamid.ghasemi@dot.gov](mailto:hamid.ghasemi@dot.gov). For more information about the EAR Program, contact David Kuehn, 202-493-3414, [david.kuehn@dot.gov](mailto:david.kuehn@dot.gov).

#### **Engineering Tomorrow’s Transportation Market**

According to the Texas A&M Transportation Institute’s *2012 Urban Mobility Report*, the cost of congestion in the United States is approximately \$121 billion. Transportation planners are under increasing pressure to improve conditions and meet projected demand increases. Harnessing emerging technologies to develop an entirely new type of decentralized transportation system to help meet this challenge is the goal of “Engineering Tomorrow’s Transportation Market,” an EAR Program study awarded to the University of Southern California. The EAR

Program has published a fact sheet, “Tomorrow’s Transportation Market—Developing an Innovative, Seamless Transportation System” (Publication Number FHWA-HRT-13-058) that provides details of the study.

The fact sheet is available at [www.fhwa.dot.gov/advancedresearch/pubs/13058/index.cfm](http://www.fhwa.dot.gov/advancedresearch/pubs/13058/index.cfm). For technical information about the project, contact Jeremy Raw, 202-366-0986, [jeremy.raw@dot.gov](mailto:jeremy.raw@dot.gov). For more information about the EAR Program, contact David Kuehn, 202-493-3414, [david.kuehn@dot.gov](mailto:david.kuehn@dot.gov).

### **Making Accessible Transportation Cool**

In March, Mohammed Yousuf, a research engineer in FHWA’s Office of Operations Research and Development, delivered a presentation during a panel session at the South by Southwest Conference in Austin, Texas. Yousuf is working on enabling technologies solutions for Intelligent Transportation Systems (ITS). The panel, “Making Accessible Transportation Modern and Cool,” was made possible through an abstract selected from over 3,000 outstanding submissions. The session, which featured various perspectives from the U.S. Department of Transportation (USDOT), academia, and private sector, examined ways to work collaboratively to advance accessible transportation research. Spurred by USDOT initiatives, research in this area has gained new momentum in recent years. FHWA’s EAR Program and Small Business Innovation Research Program are exploring advancements in ITS and other technologies to improve accessible transportation for people with vision impairment and other disabilities.

For more information about the ITS research on accessibility, contact Mohammed Yousuf, 202-493-3199, [mohammed.yousuf@dot.gov](mailto:mohammed.yousuf@dot.gov). For more information about the EAR Program, contact David Kuehn, 202-493-3414, [david.kuehn@dot.gov](mailto:david.kuehn@dot.gov).

## **SAFETY**

### **New Publication Quantifies RSA Benefits**

While benefits of Road Safety Audits (RSA) are substantial, they have been largely unmeasured on a national scale. Now there is a new publication, *Road Safety Audits: An Evaluation of RSA Programs and Projects*, that quantifies the benefits of RSAs at the program and project level. The publication cites key factors for RSA program success, including a focus on high-benefit, low-cost safety and mobility improvements; establishing RSA champions; a recurring and well-managed system-wide RSA program; linking RSAs to the Highway Safety Improvement Program; using RSAs to improve pedestrian and bicycle safety; using RSAs for a collaborative and proactive approach to statewide safety; a formalized and uniform RSA process; adoption of an RSA policy, including an RSA requirement for design permits; and comprehensive site selection processes.

The publication drew from an evaluation of improvements implemented as a result of five specific RSAs. These evaluations quantified the safety effectiveness of suggested improvements in reducing crashes. This consisted of a before-after analysis to measure the benefits derived from crash reduction versus the cost of conducting the RSA and implementing the improvement. Five locations exhibited an overall reduction in crashes ranging from 10 percent to 50 percent as a result of the improvements. The study showed the benefits of these safety treatments exceeded the total RSA and implementation costs combined.

This publication provides detailed information on statistical evaluation methods used for each RSA, a summary of implemented safety improvements, and benefit/cost ratios. The RSA programs and RSAs evaluated provide State, local, Federal, and tribal agencies with examples and quantifiable results that can help in implementing RSAs and advance growth and success.

For more information about the RSA evaluation project, or to obtain a copy of the publication, contact Rebecca Crowe, 804-775-3381, [rebecca.crowe@dot.gov](mailto:rebecca.crowe@dot.gov).

### **Report: Daytime Color Appearance of Retroreflective Traffic Control Sign Materials**

This report describes a research study conducted to determine physical measurements of the chromaticity and luminance of retroreflective sign materials by means of instruments and to determine perceptual measurements of the color appearance (hue, apparent saturation, and brightness) of these materials as judged by a group of human observers. Comparisons are presented between physical measurements made in the laboratory and in the field and between these physical measurements and the psychophysical determination of color appearance obtained from a sample of 17 observers. These comparisons have implications for the specification of allowed color ranges for retroreflective sign materials.

This document is available at [www.fhwa.dot.gov/publications/research/safety/13018/index.cfm](http://www.fhwa.dot.gov/publications/research/safety/13018/index.cfm).

For more information, contact Chris Monk, 202-366-5195, [chris.monk@dot.gov](mailto:chris.monk@dot.gov).

## **OPERATIONS**

### **Senate Committee Holds Hearing on Advanced Vehicle Technology**

An important, emerging topic in transportation concerns efforts to understand and deal with core challenges of automated vehicle integration and its future impact on roadways. On May 15, 2013, the U.S. Senate Committee on Commerce, Science, and Transportation held a hearing titled, “The Road Ahead: Advanced Vehicle Technology and its Implications.” The hearing explored the safety benefits, potential risks, and policy implications of the development and implementation of advanced vehicle technologies; adaptive cruise control and lane-keeping systems; partially and fully self-driving vehicles; vehicle-to-vehicle communication; and communications and entertainment devices for drivers.

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

### **FHWA to Present at AUVSI Driverless Car Summit**

On June 11, 2013, FHWA leadership will attend the Association for Unmanned Vehicle Systems International (AUVSI) Driverless Car Summit. FHWA will offer its perspective to the vehicle automation stakeholder community on how automation can enhance performance of the transportation system and how connected vehicle technology and field infrastructure can assist in enabling automated technologies.

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

### **Understanding Driver Behavior in Work Zones**

In the March/April issue of *Public Roads*, the article, “Understanding Driver Behavior in Work Zones,” describes research findings on utilizing microsimulation modeling to improve mobility and reduce congestion. In coordination with its Virginia Division and the Virginia Department of Transportation, FHWA recruited participants to drive an instrumented test vehicle through an actual, real-world work zone—a living laboratory—set up along a 3-mile (4.8-kilometer) stretch of I-95 between Springfield and Lorton, VA. The objective of the study was to analyze driver comfort levels while driving through a work zone. Findings show reductions in comfort level are due to common roadside equipment, especially temporary concrete barriers, supporting the assumption that drivers may change their normal driving behavior while traveling through a freeway work zone.

This document is available [www.fhwa.dot.gov/publications/publicroads/13marapr/04.cfm](http://www.fhwa.dot.gov/publications/publicroads/13marapr/04.cfm). For more information, contact Taylor Lochrane, 202-493- 3293, [taylor.lochrane@dot.gov](mailto:taylor.lochrane@dot.gov).

## **RECENT PERIODICALS**

***Public Roads*—May/June 2013**

This issue includes: Trip Traces; The Road Not Taken; Using Risk to Drive Safety Investments; A Bridge to Greater Connectivity; How Does Transportation Affect Public Health?; Shouldering the Load; and Bridging the Digital Divide.

It is available online via [www.fhwa.dot.gov/publications/publicroads/13mayjun/index.cfm](http://www.fhwa.dot.gov/publications/publicroads/13mayjun/index.cfm).

For more information, contact Paula Magoulas, [paula.magoulas@dot.gov](mailto:paula.magoulas@dot.gov).

### ***FOCUS Newsletter May 2013***

The May issue includes: Maintenance Leadership Academy: Training Today's Highway Maintenance Managers; LTPP-PLUG: Plug Your Traffic Loading Data Gaps; Get Ready for SHRP2 Tuesdays; How to Build a Transportation Asset Management Plan; Infrastructure Innovation Webinars; and Highway Technology Calendar.

The issue is available online via [www.fhwa.dot.gov/publications/focus/13may/13may00.cfm](http://www.fhwa.dot.gov/publications/focus/13may/13may00.cfm).

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

### ***Innovator: Accelerating Innovation for the American Driving Experience—March/April 2013***

This issue includes: Collaboration Vital to Innovation Success, Industry Leaders Say; Highways for LIFE Shines Spotlight on Innovation, Survey Shows; Innovations Speed Project, Lower Cost, Improve Safety; States Innovate; California Uses Precast Pavement to Restore Urban Highway; GIS Tools Help Balance Conservation with Transportation; and Calendar.

The issue is available online via [www.fhwa.dot.gov/hfl/innovator/issue35.cfm](http://www.fhwa.dot.gov/hfl/innovator/issue35.cfm).

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

#### **Links:**

**Turner-Fairbank Highway Research Center:** <http://www.fhwa.dot.gov/research/>

**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)