

FHWA R&T Now ~ January 2014~

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

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 priority products resulting from the Second Strategic Highway Research Program (SHRP2). The centerpiece of the implementation strategy is the SHRP2 Implementation Assistance Program, launched in 2013 to help transportation agencies begin to deploy SHRP2 products. Participants include State departments of transportation, metropolitan planning organizations, tribal agencies, and FHWA Federal Lands Divisions.

Currently 9 products from the first two rounds of the implementation assistance program are being put into practice on approximately 135 different transportation projects in 38 States and the District of Columbia. The solicitation period for the third round will be open until February 14, 2014, offering opportunities to implement five new SHRP2 products:

SHRP2 Solution R02: GeoTech Tools ([apply now!](#))

SHRP2 Solution R05: Precast Concrete Pavement ([apply now!](#))

SHRP2 Solution R15B: Identifying and Managing Utility Conflicts ([apply now!](#))

SHRP2 Solution R23: Using Existing Pavement in Place and Achieving Long Life ([apply now!](#))

SHRP2 Solution C20: Freight Demand Modeling and Data Improvement ([apply now!](#))

For more information, contact Carin Michel, 410-962-2530, carin.michel@dot.gov.

FHWA Posts RFI for Every Day Counts Initiative

FHWA posted an Every Day Counts (EDC) Request for Information (RFI) on FedBizOpps.gov in order to obtain suggestions, ideas, and recommendations for the third round of the EDC initiative. The initiative is designed to identify and accelerate the deployment of innovation aimed at reducing the time it takes to deliver highway projects, enhance safety, and protect the environment. FHWA is looking to promote new and innovative efforts by the private and public sectors that can bring road, highway, and bridge projects to completion faster. Suggestions are due by February 15, 2014.

For more information, contact Julie Zirlin, 202-366-9105, julie.zirlin@dot.gov.

ADVANCED RESEARCH

FHWA Provides Opportunity for International Research

FHWA is partnering with other national road administrations in the Infravation Program. The goal is to advance innovative, near-market materials or processes that will make highway infrastructure last longer, perform more efficiently, and cost less. Infravation is infrastructure plus innovation. The Infravation Program is the first cooperative research initiative between FHWA and other national road administrations developed from the ground

up, which allows U.S. entities such as academic institutions, State departments of transportation, and businesses to participate in the research along with entities from other countries.

For more information, please see www.fhwa.dot.gov/research/resources/infravation.cfm.

Advances in Concrete Research

On December 3, 2013, at the Turner-Fairbank Highway Research Center, FHWA's Exploratory Advanced Research (EAR) Program and Office of Infrastructure Research and Development hosted a workshop on advances in concrete research. The workshop provided a forum for conversations about innovative concrete research, presentations of research in progress, and discussions about opportunities and continued research gaps.

For more information about the workshop, contact Richard Meininger, 202-493-3191, richard.meininger@dot.gov. For more information about the EAR Program, contact David Kuehn, 202-493-3414, david.kuehn@dot.gov.

National Multimodal Freight Analysis Framework Research

On December 11, 2013, at the National Academies of Sciences' Keck Center in Washington, D.C., the EAR Program supported the workshop, "National Multimodal Freight Analysis Framework Research," for the Office of Freight Management and Operations and Office of Planning. Invited participants discussed the state of the art, primary gaps in current capabilities, and strategies for addressing these gaps, particularly in the areas of a multimodal freight networks, freight demand modeling, and origin-destination data disaggregation. At the conclusion of the workshop, FHWA identified a set of topics that could be incorporated into future EAR Program solicitations, and ultimately inform the Freight Analysis Framework version 4, scheduled for release in late 2015.

For more information on the EAR Program, contact David Kuehn, 202-493-3414, david.kuehn@dot.gov. For more information on the workshop topic, contact Ed Strocko, 202-366-2997, ed.strocko@dot.gov.

Fact Sheet: Understanding Transportation Systems—An Integrated Approach to Modeling Complex Transportation Systems

The ability to model and understand the complex dynamics of intelligent agents as they interact within a transportation system could lead to revolutionary advances in transportation engineering and intermodal surface transportation in the United States. Developing such a model is the goal of "Agent-Based Approach for Integrated Driver and Traveler Behavior Modeling," an EAR Program study awarded to the University of Maryland.

A fact sheet discussing the project is available at www.fhwa.dot.gov/advancedresearch/pubs/13080/index.cfm. For questions about the project, contact Brian Gardner, 202-366-4061, brian.gardner@dot.gov. For more information about the EAR Program, contact David Kuehn, 202-493-3414, david.kuehn@dot.gov.

Catalog: EAR Program Results for 2013 Available

The EAR Program, which addresses the need for longer-term, higher-risk research with the potential for long-term improvements to transportation systems, has just published its research results for 2013. The EAR Program seeks to leverage advances in science and engineering that could lead to breakthroughs for critical current and emerging issues in highway transportation—where there is a community of experts from different disciplines who likely have the talent and interest in researching solutions and who likely would not do so without EAR Program funding. This catalog of results documents the output of that effort, a critical link in the chain of research, development, and

deployment of new technology and practices necessary for the United States to have the best transportation system in the world for decades to come.

The results of EAR Program-funded projects may include new fundamental insights and how they can be applied in highway transportation; new research methods, models, or data that can accelerate applied research; or new system concepts or prototypes, including laboratory testing and possibly limited field testing. FHWA is committed to transitioning the results of EAR Program-funded projects and takes an active role in demonstrating results to audiences critical to continuing the research and development cycle.

The catalog, “EAR Program Research Results—Updated Through 2013,” is available at www.fhwa.dot.gov/advancedresearch/pubs/14033/index.cfm. For more information about the EAR Program, contact David Kuehn, 202-493-3414, david.kuehn@dot.gov.

INFRASTRUCTURE

Webinar Introduces Wind Hazards in Highway Engineering

On January 27, 2014, FHWA continued its Aerodynamics Webinar Series with an hour-long session that discussed wind hazards in highway engineering. The speaker, Peter Irwin, has broad experience in wind engineering, including wind load, aeroelastic response, and lab/field testing of bridges and tall buildings.

The Webinar focused on helping bridge engineers develop better capability in identifying potential aerodynamic issues and prioritize the use of resources towards mitigation of wind hazards. It covered past problems and lessons learned; types of bridge aerodynamic issues; strategies for design engineers and for maintenance and rehabilitation; and introductions to laboratory testing, field instrumentation, and analysis tools.

The next Webinar, “Wind Load and Aerodynamic Design of Bridges,” will be held in March. For more information about the Aerodynamics Webinar Series, contact Harold Bosch, 202-493-3031, harold.bosch@dot.gov.

TechBrief: Corrosion Monitoring Research of New York City Bridges

This TechBrief observes that all State and local agencies responsible for maintenance of suspension bridge cables base their maintenance plan mainly on previous experiences and on information from limited inspections. Usually, the exterior covering of the cable is visually inspected biannually. If deterioration problems are suspected and if the maintenance budget allows, then indepth inspections are conducted. The cable is then unwrapped at a few locations along the cable length and is wedged into its center. Next, a visual inspection of the wires’ conditions is performed, and in some cases, a few wires are cut and removed for laboratory testing.

Unfortunately, current visual inspections do not provide an adequate amount or sufficiently reliable data, indicating the need for innovative nondestructive testing and sensing technologies that can provide an immediate, comprehensive, and reliable assessment of cable conditions and their evolution with time either directly or through measuring-related variables (i.e., temperature, humidity, etc.).

The document is available at www.fhwa.dot.gov/publications/research/infrastructure/structures/bridge/14024/index.cfm.

For more information, contact Paul Virmani, 202-493-3052, paul.virmani@dot.gov.

Report: LTBP Bridge Performance Primer

This report discusses a study conducted as part of the Federal Highway Administration's Long-Term Bridge Performance (LTBP) Program. The LTBP Program is a minimum 20-year research effort to collect scientific performance field data—from a representative sample of bridges nationwide—that will help the bridge community better understand bridge deterioration and performance. The products from this program will be a collection of data-driven tools, including predictive and forecasting models that will enhance the abilities of bridge owners to optimize their management of bridges.

The report is intended to provide a comprehensive definition of bridge performance that will be the foundation for carefully designed research studies in the LTBP Program. The report describes the barriers and complications that hinder the understanding of bridge performance and identifies the measures by which bridge performance is currently defined. The report divides bridge performance into specific issues, identifies the most critical issues, and describes the types of data necessary to analyze these issues. This report will be of interest to engineers involved with research, design, construction, inspection, maintenance, and management of bridges as well as to decisionmakers at all levels of management in public highway agencies.

This document is available at

www.fhwa.dot.gov/publications/research/infrastructure/structures/ltbp/13051/index.cfm.

For more information, contact Hamid Ghasemi, 202-493-3042, hamid.ghasemi@dot.gov.

Report: Pavement Marking Demonstration Projects: State of Alaska and State of Tennessee

This report provides information on four topics related to advanced pavement marking systems: an evaluation of the durability and cost effectiveness of alternative marking materials; a two-part study on the safety impacts of wider edge lines, the first part using operational effects as surrogate safety metrics and the second part based on a post-hoc analysis of safety data; an evaluation of the potential environmental impacts of cost-effective pavement marking systems; and a review of the effect of State procurement processes on the quality of installed markings.

The intent of this report is to provide decisionmakers with information on materials and methods that will reduce the overall national expenditure on pavement markings, while providing improved guidance and enhanced safety for the driving public.

For more information, contact Carl Andersen, 202-493-3045, carl.andersen@dot.gov.

SAFETY

TechBrief: Where Pedestrians Cross the Roadway

This TechBrief describes research on the environmental influences on where and when pedestrians cross the roadway across 20 different sites. In 2010, 13 percent of all crash fatalities were pedestrians. Of these, 68.1 percent occurred outside of intersections. As a result of the large proportion of pedestrian fatalities that occur at nonintersection locations, it is important to investigate the causal factors of these collisions. Despite the large proportion of crashes, there has been little research investigating why pedestrians cross roadways at unmarked locations.

The present study sought to better understand the environmental influences on both where and when pedestrians elect to cross the road. The study team observed, coded, and analyzed the circumstances surrounding when and where crashes took place at more than 70,000 crossings. The study team created a model to predict crossing

behaviors. These data have the potential to guide roadway design. This approach may aid in the selection and location of pedestrian crossing interventions (e.g., new pedestrian activation crossing beacons), ultimately increasing pedestrian safety in shared use environments.

This document is available at www.fhwa.dot.gov/publications/research/safety/13099/index.cfm.

For more information, contact Jim Shurbutt, 202-493-3420, jim.shurbutt@dot.gov.

RECENT PERIODICALS

Public Roads—January/February 2014

This issue includes: Now Is the Time for Innovation; When Disaster Strikes; Setting the Bar for Excellence; and The Century Challenge.

It is available online via www.fhwa.dot.gov/publications/publicroads/14janfeb/index.cfm.

For more information, contact TaMara McCrae, tamara.mccrae@dot.gov.

FOCUS Newsletter December 2013

The December issue includes: Post-Tensioning for Bridges: FHWA Manual Presents New State-of-the-Practice; In-Place Recycling Techniques for Asphalt Pavements; FHWA Launches Aerodynamics Webinar Series; Meet LTPP InfoPave; Infrastructure Innovation Webinars; and Highway Technology Calendar.

The issue is available online via www.fhwa.dot.gov/publications/focus/13dec/13dec00.cfm.

For more information, contact Lisa Pope, lgpope@woodwardcom.com.

Innovator: Accelerating Innovation for the American Driving Experience—January/February 2014

This issue includes: Pennsylvania Group Demonstrates Value to Taxpayers; Agency Staff Learn From Colleagues at Peer Exchanges; States Expand 3-D Modeling Use; GRS Model Helps Deploy Innovation; States Innovate!; Innovator to Go Electronic; Visit Us at TRB; Wyoming Opens Its First Diverging Diamond; and Calendar.

The issue is available online via www.fhwa.dot.gov/hfl/innovator/issue40.cfm.

For more information, contact Kathleen Bergeron, 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>

Please forward this newsletter to others you think might find it interesting and/or useful.

Suggestions may be submitted to: FHWA_Now@fhwa.dot.gov