

FOCUS

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Data Palooza Showcases a New Era of Transforming Technology

From wireless sensors to real-time information to advanced 3-D visualization techniques, the era of data has arrived.

At the U.S. Department of Transportation's (USDOT) Data Palooza, held May 9, 2013, at USDOT headquarters in Washington, DC, nearly 200 participants discussed innovative technology solutions that enhance transportation system performance, reduce congestion, and improve safety, among other benefits. These data solutions are being realized through improved public and private sector collaboration.

"We need credible and reliable data," said Peter Stephanos, Director of the Federal Highway Administration's (FHWA) Proposed Office of Transportation Performance Management. "We need to use that data to turn it into information and then use that information to make smarter decisions."

Data Palooza sessions focused on acquiring, processing, and using data, with 37 presenters and 23 technology exhibitors. Sessions were also available via Web conference. Today's supplementary and alternative data sources and real-time data are improving transportation reporting, decisionmaking, and performance across the country. Bill

Toothill of DBI Services described, for example, how vehicles specially equipped with high-sensitivity cameras can collect data on sign retroreflectivity while traveling at highway speeds. This method is more cost effective, improves safety for highway workers, and allows transportation agencies to assess signs from a driver's perspective.

Data processing, meanwhile, has been enhanced by 3-D visualization and other new techniques. As high-

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Bryna Helfer, Director of Public Engagement at the U.S. Department of Transportation, welcomes participants to Data Palooza on May 9, 2013, in Washington, DC.

www.fhwa.dot.gov/publications/focus/index.cfm



U.S. Department
of Transportation

**Federal Highway
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Data Palooza,

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lighted by Rebecca Crowe in FHWA's Office of Safety, the use of 3-D visualization in road safety audits (RSA) enables members of an RSA team to better understand proposed roadway improvements and identify potential safety concerns. The 3-D model, for example, can be used to illustrate exactly how the roadway environment will be affected by signs, structures, guardrails, and other key features. The 3-D model also allows the team to view the proposed roadway conditions from any number of vantage points. This may reveal problems not obvious from a review of standard 2-D plans.

"Using 3-D visualization brings a static design to life," said Crowe. More information on 3-D visualization will be available in a forthcoming FHWA Road Safety Audit case study, *Using Three-Dimensional Design Visualization in the Road Safety Audit Process*. Expected to be released this fall, the case study will be posted on FHWA's RSA Web site at <http://safety.fhwa.dot.gov/rsa>.

Data processing is also helping State highway agencies improve performance. The Ohio Department of Transportation (ODOT) developed a Snow and Ice Recovery Evaluator program to objectively grade the agency's winter maintenance efforts. This is part of ODOT's Critical Success Factor initiative, where the agency rates itself on factors ranging from pavement condition to safety. The evaluator analyzes roadway speed and weather data and issues reports monthly, scoring each of ODOT's 12 districts on their performance for the preceding month. If a district recovers from a snow event in less than 3 hours, based on an evaluation of roadway speed, it receives a score of 100 percent.



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"Before this winter we determined our thresholds for starting and stopping a snow event by modeling historical events," noted John MacAdam of ODOT. For an event to start, at least 5 percent of roadway routes must have an average speed of at least 16 km/h (10 mi/h) slower than normal, while at least 25 percent of ODOT's road weather information system stations must report snow or ice. ODOT plans to refine the program thresholds before next winter and would also like to develop the evaluator into a real-time program, instead of looking back at the preceding month.

In Washington, DC, data is being used to improve traffic management. The District Department of Transportation's (DDOT) Wireless Detection

Project is using wireless sensors at 142 major arterial locations to collect such data as traffic speed and vehicle counts. These data are then used to create a real-time congestion map that aids DDOT personnel in managing traffic and responding to incidents. Data are also aggregated and archived 24/7 for future planning purposes.

To learn more about data solutions that are changing today's transportation system, visit www.fhwa.dot.gov/tpm/events/datap_agenda.cfm. Data Palooza session presentations and recordings are available, as well as the event agenda. For more information about Data Palooza, contact Michael Nesbitt at FHWA, 202-366-1179 (email: michael.nesbitt@dot.gov). *

Get Ready for the Next Round of SHRP2 Solutions

Get acquainted with the second round of SHRP2 Solutions products by registering for free informational Webinars to be held in July 2013.

Research projects conducted under the second Strategic Highway Research Program (SHRP2) have resulted in an array of advanced tools and technologies for improving highway safety, renewal, reliability, and capacity. These new tools and technologies are now being released as SHRP2 Solutions products. Earlier this year, the Federal Highway Administration (FHWA) and American Association of State Highway and Transportation Officials (AASHTO) launched the SHRP2 Implementation Assistance Program to help State departments of transportation (DOT), metropolitan planning organizations, and other agencies as they begin implementing the new products.

Recipients of the first round of the Implementation Assistance Program were announced in May. Assistance was available for hosting a pilot project, serving as a “lead adopter” or Lead State for the technology, or using the new product. Approximately \$10.5 million in funding was awarded.

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Applications for the second round of the Implementation Assistance Program will be accepted starting in August. The four featured products are previewed in the scheduled July Webinars:

- **July 18, 2013, 2–3:30 p.m. eastern daylight time (EDT)**
Railroad–DOT Mitigation Strategies (Product R16)—Contains model legal agreements, recommended practices, sample contracts, and training materials agencies can use to resolve underlying sources of conflicts and streamline review and agreement processes.
- **July 23, 2013, 12–1:30 p.m. EDT**
Expediting Project Delivery (Product C19)—Features 24 strategies to address or avoid 16 common constraints in speeding delivery of transportation planning and environmental review projects.

- **July 24, 2013, 12–1:30 p.m. EDT**
Performance Specifications for Rapid Renewal (Product R07)—Contains sample construction performance specifications for accelerating road and bridge projects. Topic areas include asphalt and concrete pavements, concrete bridge decks, and work zone traffic control.
- **July 26, 2013, 12–1:30 p.m. EDT**
Managing Risk in Rapid Renewal Projects (Product R09)—This SHRP2 product was featured in the first round of Implementation Assistance opportunities, when two pilot projects were selected. In the second round, FHWA and AASHTO are seeking lead adopters to use the product’s tools, including training materials and a handbook, to identify, assess, mitigate, allocate, and monitor risk on accelerated reconstruction projects.

For more information on the second round of the Implementation Assistance Program and registration links for the Webinars, visit www.fhwa.dot.gov/go/shrp2. Additional information is available by contacting Carin Michel at FHWA, 410-962-2530 (email: goSHRP2@dot.gov), or Pam Hutton at AASHTO, 303-263-1212 (email: phutton@aaashto.org). *

Pavement Construction and Safety Training on Demand

New free Web-based courses sponsored by the Federal Highway Administration (FHWA) offer construction contractor employees and others the training they need at a time that's right for them.

Available online around the clock, the courses cover both asphalt and concrete pavement technology.

Developed by the American Concrete Pavement Association (ACPA) in partnership with FHWA, "Safety on Concrete Pavement Construction Sites" addresses safety concerns about working on a construction site around slipform paving equipment. Also addressed during the 90-minute course are safety measures at the concrete plant and the general paving site.

"The course will enhance the safety knowledge of highway workers and equipment operators and improve overall safety construction practices," said Jason Harrington of FHWA.

Another online option presented by ACPA is "Proper Use of Stringless Paving Technology." The 90-minute course explains how stringless paving works, as well as important considerations for equipment operators and agency field personnel to know when using the technology. The course also recommends best practices to achieve a quality concrete pavement.

To take both courses, visit <http://acpa.scholarlab.com> and enter coupon code "Pavement1."

Asphalt pavement technology is featured in

"The course will enhance the safety knowledge of highway workers and equipment operators and improve overall safety construction practices."



© ACPA

Online training sponsored by the American Concrete Pavement Association and Federal Highway Administration explains the proper use of stringless paving technology.

three 2-hour Web-based courses developed by the International Slurry Surfacing Association (ISSA) in partnership with FHWA. "How to Construct High Quality Slurry Seal and Micro Surfacing Treatments (Part 1)" provides an educational tool for workers who have limited familiarity with slurry system methods.

"Contractor performance and agency oversight both play an important role in the successful outcome of slurry system projects," said Harrington. "This training module addresses what a contractor's crew must do, which will also help agencies understand the

contractor's role in doing the job right." To take the course, visit <http://issa.adobeconnect.com/slurrysealmicrosurfacing1/event/registration.html>.

"How to Construct a High Quality Slurry Seal and Micro Surfacing Project (Part 2)" focuses on construction best practices for slurry system methods as presented in the ISSA *High Performance Slurry Systems Inspector's Manual*. To begin the training, visit <http://issa.adobeconnect.com/slurrysealmicrosurfacing2/event/registration.html>.

Contractor and agency staff can also learn "How to Construct High Quality Chip Seal Treatments." The course introduces best construction practices for chip seals, providing an overview of chip seal treatments and why they are needed. Topics include selection of appropriate materials for chip seals, as

well as how to store, transport, and apply a sprayed asphalt treatment. Also featured are best practices for using and maintaining necessary equipment. To take the course, visit http://issa.adobeconnect.com/chipseal_treatments/event/registration.html.

For more information on the new Web-based training courses, visit www.fhwa.dot.gov/construction/wbt.cfm, or contact Jason Harrington at FHWA, 202-366-1576 (email: jason.harrington@dot.gov).



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Top: New Web-based courses available from the International Slurry Surfacing Association and Federal Highway Administration include “How to Construct High Quality Slurry Seal and Micro Surfacing Treatments.”

Bottom: Highway workers now have an on-demand option to learn construction best practices for slurry systems.



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Construction Training Resources

To learn more about training resources for highway construction workers, visit www.fhwa.dot.gov/construction/training.cfm. Featured resources include training courses available from FHWA’s National Highway Institute on topics ranging from construction inspection to materials control and acceptance to utility issues. Also featured are Web-based training options and courses developed through the Transportation Curriculum Coordination Council.



Infrastructure Innovation Webinars

These free Webinars provide a quick introduction to the latest infrastructure innovations and technologies.

Strategic Highway Research Program 2 (SHRP2) Solutions Webinar Series

The Webinars will feature the second round of SHRP2 Solutions products.

July 18, 2013, 2–3:30 p.m. eastern daylight time (EDT): *Railroad–DOT Mitigation Strategies (Product R16)*—Contains model legal agreements, recommended practices, sample contracts, and training materials agencies can use to resolve underlying sources of conflicts and streamline review and agreement processes.

July 23, 2013, 12–1:30 p.m. EDT: *Expediting Project Delivery (Product C19)*—Features 24 strategies to address or avoid 16 common constraints in speeding delivery of transportation planning and environmental review projects.

July 24, 2013, 12–1:30 p.m. EDT: *Performance Specifications for Rapid Renewal (Product R07)*—Contains sample construction performance specifications for accelerating road and bridge projects.

July 26, 2013, 12–1:30 p.m. EDT: *Managing Risk in Rapid Renewal Projects (Product R09)*—The product's tools, including training materials and a handbook, can be used to identify, assess, mitigate, allocate, and monitor risk on accelerated reconstruction projects.

For more information on the products and registration links for the Webinars, visit www.fhwa.dot.gov/goshrp2. Additional information is available by contacting Carin Michel at the Federal Highway Administration (FHWA), 410-962-2530 (email: goSHRP2@dot.gov), or Pam Hutton at the American Association of State Highway and Transportation Officials (AASHTO), 303-263-1212 (email: phutton@aaashto.org).

Fiber-Reinforced Polymer (FRP) Composite Bridge Decking: Development, Qualification Testing, and Installation of Nonproprietary System

July 23, 2013, 2:30–4 p.m. (EDT)

Presented by FHWA's Highways for LIFE program (HfL), the Webinar will highlight the benefits of a nonproprietary FRP composite bridge decking system refined under a HfL initiative. The use of FRP composite bridge decks can significantly reduce the time required for rehabilitation projects. Details will be included about installing the system on a typical steel girder bridge. Presenters will describe the tests done on full-scale deck panels to validate the design and then present the step-by-step sequence of an actual field installation.

For registration information, visit www.nhi.fhwa.dot.gov/resources/webconference/web_conf_learner_reg.aspx?webconfid=25392.

Asset Management Book Club

All Webinars are from 2–3:30 p.m. (EDT).

July 24, 2013—Enabling Processes and Tools for Transportation Asset Management Integration (Chapter 7 of *Transportation Asset Management Guide*)

August 28, 2013—Information Systems and Data (Chapter 8 and Appendix E of *Transportation Asset Management Guide*)

September 25, 2013—Bringing It All Together and Moving Forward (Appendix D of *Transportation Asset Management Guide*)

In 2011 AASHTO published the *Transportation Asset Management Guide: A Focus on Implementation*, which encourages transportation agencies to use asset management principles. Sponsored by FHWA and AASHTO, this Webinar series will review the content of the guide and share experiences from practitioners. To register, visit www.fhwa.dot.gov/asset/bookclub.cfm. Advance registration is required for each individual Webinar. For additional information, contact Nastaran Saadatmand at FHWA, 202-366-1337 (email: nastaran.saadatmand@dot.gov). *

Highway Technology Calendar

The following events provide opportunities to learn more about products and technologies for accelerating infrastructure innovations.

Midwestern States Regional In-Place Recycling Conference

September 10–12, 2013,
Schaumburg, IL

The conference will feature improvements in research, design, specifications, and materials and construction practices for in-place recycling. Also featured are site visits to in-place recycling projects and a recycling facility. The event is designed for State, local, and Federal government staff; contractors; suppliers; consultants; members of academia; and metropolitan planning organization representatives. Sponsors include the American Recycling and Reclaiming Association, Federal Highway Administration (FHWA), and National Center for Pavement Preservation (NCPP).

Contact: Lee Gallivan at FHWA, 317-226-7493 (email: victor.gallivan@dot.gov), or Patte Hahn at NCPP, 517-432-8220 (email: hahnp@egr.msu.edu). Registration information is available at www.pavementpreservation.org/conferences/regional-in-place-recycling-conferences.

Transportation Research Board (TRB) 93rd Annual Meeting

January 12–16, 2014, Washington, DC

Transportation professionals from around the world will gather to share perspectives on current developments in transportation research, policy, and practice. The conference will feature more than 4,000 presentations in nearly 750 sessions and workshops. The spotlight theme for 2014 is “Celebrating Our Legacy, Anticipating Our Future.”

Contact: For information, visit the TRB Web site at www.trb.org (click on “Annual Meeting”). Questions about the meeting can be emailed to trbmeetings@nas.edu.

2014 Design-Build in Transportation Conference

March 19–21, 2014, San Jose, CA

Join transportation leaders in discussing lessons learned in the use of the design-build project delivery method for transportation projects. Topics will include choosing the right delivery method, contracting approaches, innovative financing solutions, risk allocation, and performance contracting.

Contact: Jerry Yakowenko at FHWA, 202-366-1562 (email: gerald.yakowenko@dot.gov), or visit www.dbtranspo.com.

Tenth National Conference on Transportation Asset Management

April 28–30, 2014, Miami, FL

The conference is designed for transportation agencies and metropolitan planning organizations in all stages of asset management implementation. Themes will include establishment and monitoring of asset management plans, performance measures for asset management, tools and technology to assist decisionmaking, and adaptation to extreme weather events and climate change, including using risk assessment and vulnerability analysis. Strategies for overcoming barriers to asset management implementation will also be discussed. Organized by TRB, the conference is also supported by FHWA and the American Association of State Highway and Transportation Officials.

Contact: Steve Gaj at FHWA, 202-366-1336 (email: stephen.gaj@dot.gov), or visit www.trb.org/conferences/AssetManagement2014.aspx. *

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Focus (ISSN 1060-6637), which is published monthly by the U.S. Department of Transportation's Federal Highway Administration (FHWA), covers the implementation of innovative technologies in all areas of infrastructure.

Its primary mission is twofold: (1) to serve the providers of highway infrastructure with innovations and support to improve the quality, safety, and service of our roads and bridges; and (2) to help promote and market programs and projects of the various offices of FHWA's Office of Infrastructure.

FHWA Administrator: Victor M. Mendez

Managing Editor: Lisa Jackson
Tel: 202-493-3204 (fax: 202-493-3475)
lisa.jackson@dot.gov

Editor: Lisa Pope
Tel: 202-234-7157 (fax: 202-347-6938)
lgpope@woodwardcom.com

Federal Highway Administration (HRTM)
6300 Georgetown Pike, McLean, VA
22101-2296

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Your Go-To Course on Geotechnical Aspects of Pavements

Now available from the Federal Highway Administration's (FHWA) National Highway Institute (NHI), a 3-day course on "Geotechnical Aspects of Pavements" (Course No. FHWA-NHI-132040) brings together multidisciplinary teams to address design, construction, and performance issues for pavements.

The target audience includes geotechnical, pavement design, materials, construction, and maintenance engineers, as well as specification writers. "This course was developed as a forum for personnel from a variety of disciplines to work together to enhance current procedures for building and maintaining better performing and more cost-effective pavements," said Daniel Alzamora of the FHWA Resource Center.

Topics include geotechnical exploration and characterization of in-place and constructed subgrades, as well as design and construction of subgrades and unbound layers for both paved and unpaved roads. Participants will learn how to identify subgrade problems during construction and develop remediation measures and other solutions.

Both the 1993 American Association of State Highway and Transportation Officials (AASHTO) empirical design procedure and the 2008 AASHTO *Mechanistic-Empirical Pavement Design Guide* are covered in the course. Also covered are drainage of bases, subbases, and subgrades; soil improvement and stabilization; construction methods; specifications; and quality assurance inspection for pavement projects.

The course fee is \$760 per person in 2013, with a minimum class size of 20 and a maximum of 30. For information on scheduled courses or to schedule the course in your State, visit www.nhi.fhwa.dot.gov and select "Search for a Course." For additional details on the course content, contact Daniel Alzamora at the FHWA Resource Center, 720-963-3214 (email: daniel.alzamora@dot.gov). To learn more about FHWA's Geotechnical Engineering resources, visit www.fhwa.dot.gov/engineering/geotech. Topic areas include earth and rock works, earth retaining structures, geotechnical hazards, ground improvement, structural foundations, and subsurface investigation. *