Accelerating Infrastructure Innovations

FOCUS

March 2014

INSIDE

Federal-Aid Simplified

Navigate the laws and regulations of the Federal-aid Highway Program more easily with your own on-demand video library, Federal-aid Essentials for Local Public Agencies.

First launched in 2012 by the Federal Highway Administration (FHWA), the online video library offers extensive resources for understanding Federal-aid policies and procedures. Local agencies own and operate 75 percent of the Nation's roadways, collectively managing about $7 billion in Federal-aid highway projects.

Available 24/7 at www.fhwa.dot.gov/federal-aidessentials, Federal-aid Essentials is specifically designed for local agencies but applicable to any federally assisted highway project. The library features seven main categories:

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Visit www.fhwa.dot.gov/federal-aidessentials to discover the many resources of Federal-aid Essentials for Local Public Agencies.

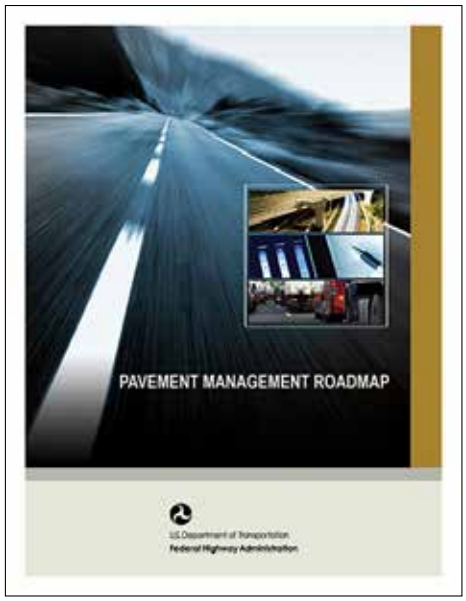
Transition Announcement: *Focus* to *Innovator*

In order to improve the efficiency of its communications efforts, the Federal Highway Administration (FHWA) will cease publication of the *Focus* newsletter after the April 2014 issue. Realizing that long-time readers of *Focus* have relied on the publication for the latest on highway innovation topics, FHWA will begin forwarding subscribers the agency's *Innovator* newsletter (www.fhwa.dot.gov/hfl/innovator). The *Innovator*, published by the FHWA Center for Accelerating Innovation, advances implementation of innovative technologies and processes in the highway industry. Its audience is transportation professionals in highway agencies, trade and research groups, academia, and the private sector, and the driving public. Subscribers not interested in receiving the publication will, of course, be able to opt out.

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

U.S. Department of Transportation
Federal Highway Administration

Follow the *Roadmap* to Advanced Pavement Management



For pavement management, the future is here.

State and Federal Highway Administration (FHWA) projects across the country are expanding the use of existing pavement management tools and technologies and advancing today's new innovations, as well as broadening the role of pavement management in strategically maintaining highway system assets. These projects support the goals of FHWA's *Pavement Management Roadmap* (Pub. No. FHWA-HIF-11-011).

"The *Roadmap* identified the steps needed to address current gaps in pavement management and establish research and development initiatives and priorities," said Nastaran Saadatmand of FHWA. FHWA developed the *Roadmap* with extensive input from stakeholders, including representatives from State and local highway agencies, Canadian government agencies, metropolitan planning organizations, academia, and private industry.

Roadmap-related projects address needs in four areas:

1. Use of Existing Tools and Technologies.
2. Institutional and Organizational Issues.
3. The Broad Role of Pavement Management.
4. New Tools, Methodologies, and Technology.

Projects that are helping to meet these needs and advance the *Roadmap's* long-term goals include the SPS-2 Pavement Preservation experiment initiated by FHWA's Long-Term Pavement Performance (LTPP) program in 2013. Started in 1992, the LTPP program's original SPS-2 experiment (Strategic Study of Structural Factors for Rigid Pavements) is the most comprehensive ongoing concrete research effort in the Nation. The new Pavement Preservation experiment is being conducted through a Transportation Pooled Fund study (Study No. TPF-5(291)). Researchers will use data from the existing SPS-2 sites to determine the most effective concrete preservation strategies for extending the service life of the pavements.

The study is designed to define the proper timing and strategy selection for pavement preservation treatments, enabling more effective infrastructure management and extended pavement life. New tools for determining strategy selection and pavement life extension that can be incorporated into pavement and maintenance management systems will also be developed. Seven States are currently participating in the study. For more information, visit www.pooledfund.org/Details/Study/533, or contact Jack Springer at FHWA, 202-493-3144 (email: jack.springer@dot.gov).

A project conducted under the second Strategic Highway Research Program (SHRP2), Nondestructive Testing to Identify Delaminations Between Hot-Mix Asphalt Layers, evaluated nondestructive testing technologies that can detect the extent, depth, and severity of delamination in hot-mix asphalt pavements. The technologies were also evaluated on whether they could be used to test the full-lane width of a roadway, while operating at a safe traveling speed. Laboratory and full-scale pavement testing were conducted at the National Center for Asphalt Technology, while field evaluations were held in Florida and Kansas. Technologies evaluated included ground penetrating radar, infrared thermography, mechanical waves, and deflectometers.

The top two technologies identified that are ready for project-level use are ground penetrating radar and a scanning mechanical wave system. Information on the top two technologies has been incorporated into a new electronic resource for transportation agencies, the NDToolbox. The Toolbox helps guide agencies in selecting the best technologies to detect a particular pavement deterioration. To use the Toolbox, visit www.ndtoolbox.org. To download the five-volume SHRP2 project report, visit www.trb.org/Main/Blurbs/167281.aspx.

New pavement management technologies under development also include a self-powered wireless sensor system capable of detecting damage and loading history for pavement structures, enabling continuous structural health monitoring of the pavement. This continuous monitoring can help facilitate more effective pavement maintenance and rehabilitation decisionmaking. FHWA's project report, *Smart Pavement Monitoring System* (Pub. No. FHWA-HRT-12-072), describes the successful development of the sensor system. Additional research is underway to refine the system and enable its implementation by highway agencies. To download the report, visit www.fhwa.dot.gov/publications/research/infrastructure/pavements/12072/12072.pdf.

Details on the more than 80 projects supporting the *Roadmap's* goals are available on FHWA's *Pavement Management Roadmap* Web site. Visitors can download the *Roadmap* and related documents, including project reports. Also featured are links to related publications and Web sites, including State pavement-management related sites, and information on conferences and other events. To view the site's many resources, visit www.fhwa.dot.gov/pavement/management/roadmap.

To learn more about how your agency or organization can get involved in supporting the *Roadmap* initiative, contact Nastaran Saadatmand at FHWA, 202-366-1337 (email: nastaran.saadatmand@dot.gov). *

Roadmap Resources

Additional information on the *Pavement Management Roadmap* initiatives is available in the March 2013 (www.fhwa.dot.gov/publications/focus/13mar/13mar02.cfm) and October 2013 (www.fhwa.dot.gov/publications/focus/13oct/13oct02.cfm) issues of *Focus* and September/October 2013 issue of *Public Roads* (www.fhwa.dot.gov/publications/publicroads/13sepoct/01.cfm). Agencies can also find more about the *Roadmap* in the Fall 2013 issue of the *Pavement Preservation Journal* (www.fp2.org/pavement-preservation-journal).

Federal-Aid Simplified,

continued from page 1

- Federal-aid Program Overview.
- Civil Rights.
- Environment.
- Finance.
- Right-of-Way.
- Project Development.
- Project Construction and Contract Administration.

"Federal-aid Essentials is a great starting place to get information on the Federal-aid program."

New videos and other resources continue to be added to the site. Among the recent additions are "Moving Ahead for Progress in the 21st Century (MAP-21)," "Purchasing Intelligent Traffic Systems (ITS) and Traffic Technology," and "Scoping and Conducting a Traffic Study to Meet Community Needs." Also available is a new overview on "Applying the MUTCD [Manual on Uniform Traffic Control Devices] to Aid Safety and Reliability." The full video library is available at www.fhwa.dot.gov/federal-aidessentials/indexofvideos.cfm.

Most videos are 4 to 7 minutes long, offering concise coverage of the topic in plain language and with illustrated examples. Videos can be viewed in any order and at any time. Companion materials are available for each video, including a printable script and information on applicable Code of Federal Regulations references, along with links to further resources. These links highlight State resources that local agencies can consult, including Local Technical Assistance Program (LTAP) centers, Web sites, manuals, and references.

"Federal-aid Essentials is a great starting place to get information on the Federal-aid program," said Rob Elliott of the FHWA Resource Center. "Agencies can use it to understand the complex laws and regulations that apply to their Federal-aid project." States such as Nebraska and Ohio, for example, are using the site's resources to augment their current training certifications. "We have incorporated the Federal-aid Essentials videos as part of our e-learning modules," said Victoria Beale, Director of the Ohio LTAP Center. "They are an excellent resource, as the videos offer attention to detail while also simplifying the topic."

The video library can also benefit consultants, contractors, and members of the American Association of State Highway and Transportation Officials and National Association of County Engineers.

Simplify your Federal-aid project experience today by visiting www.fhwa.dot.gov/federal-aidessentials. For additional information or to submit a question about the site, send an email to lpa-feedback@dot.gov. *

Do you have feedback or a story to tell about using Federal-aid Essentials for Local Public Agencies? FHWA wants to hear from you! Please send your comments to Rob Elliott at the FHWA Resource Center, rob.elliott@dot.gov, or Michael Smith at the FHWA Resource Center, michael.smith@dot.gov.

Work Zone Speeding: A Costly Mistake
National Work Zone Awareness Week 2014

Slow down for National Work Zone Awareness Week (NWZAW) 2014.

Scheduled for April 7–11, a kick-off event will be held April 8 in Seattle, Washington. Focusing on the 2014 theme, "Work Zone Speeding: A Costly Mistake," the kick-off will highlight work on the Alaska Way Viaduct Replacement Program. This project includes building a 3.2-km long (2-mi) tunnel beneath downtown Seattle to replace a double-deck highway carrying State Route 99 through the city.

In 2012, 609 workers and motorists were killed in highway work zones nationwide. Approximately 85 percent of those killed in work zones are drivers and their passengers. Nearly 25 percent of work zone crashes involved at least one large truck or bus, with 165 large trucks and buses involved in 132 fatal crashes.

NWZAW began in 1999 when the Federal Highway Administration (FHWA), American Traffic Safety Services Association (ATSSA), American Association of State Highway and Transportation Officials, and the Virginia Department of Transportation partnered to increase public awareness of work zone safety issues through a national media campaign. Partners now also include other individual States, the American Road and Transportation Builders Association, and the Associated General Contractors of America.

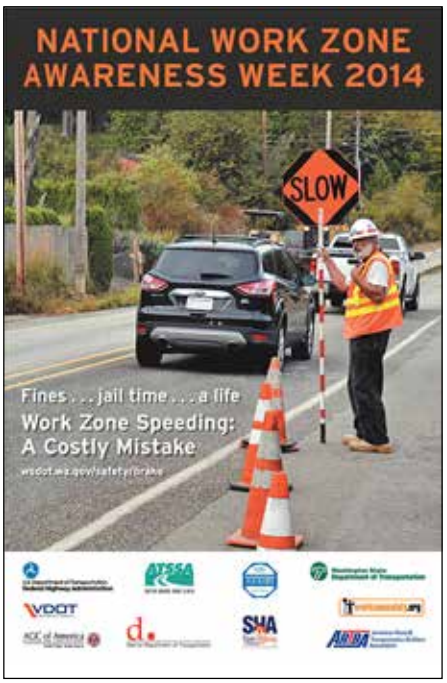
FHWA conducts research and training to advance the state-of-the-practice and improve work zone safety and mobility. Recent work zone publications and resources include:

- *Work Zone Performance Measurement Using Probe Data* (Pub. No. FHWA-HOP-13-043).
- *Work Zone Best Practices Fact Sheet 19: Work Zone Corridor Management in Michigan* (Pub. No. FHWA-HOP-13-052).
- *Synthesis of Work Zone Performance Measures.*
- *Applying the Americans with Disabilities Act in Work Zones: A Practitioner Guide* and related video.
- *Work Zone Safety and Mobility Rule for Design-Build Projects* (Pub. No. FHWA-HOP-13-026).
- *Work Zone Intelligent Transportation Peer Exchange Summary.*

These and many other work zone safety resources are available at www.ops.fhwa.dot.gov/wz/resources/publications/publications.htm.

Also available are guidelines, products, and training materials developed through FHWA's Work Zone Safety Grant Program. For a complete list, visit the National Work Zone Safety Information Clearinghouse at www.workzonesafety.org/fhwa_wz_grant.

Additional information about NWZAW 2014 is available at www.atssa.com/Events/NationalWorkZoneAwarenessWeek.aspx and http://ops.fhwa.dot.gov/wz/outreach/wz_awareness.htm. To learn more about FHWA's Work Zone Mobility and Safety program, visit ops.fhwa.dot.gov/wz/index.asp, or contact Paul Pisano at FHWA, 202-366-1301 (email: paul.pisano@dot.gov). *



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FHWA, ATSSA, State transportation agencies, and other partners will observe National Work Zone Awareness Week from April 7–11, 2014.

An Award-Winning Opportunity
LTPP International Data Analysis Contest

Be a winner in pavement research. The 2014 Long-Term Pavement Performance (LTPP) International Data Analysis Contest is now underway, with research paper submissions due by July 31, 2014. Sponsored by the Federal Highway Administration (FHWA) and American Society of Civil Engineers' (ASCE) Transportation and Development Institute, the contest encourages university students from around the world, with the support of professors and highway agency engineers, to get involved in using the LTPP database.

This year's theme is "Use LTPP InfoPave to Evaluate a Question or Concern for Your Region or State." Introduced in January 2014, LTPP InfoPave™ is a Web-based system that allows users to more easily tap into the array of pavement data available through FHWA's LTPP program. Since its launch in 1987, the LTPP program has monitored nearly 2,500 in-service pavement test sections throughout the United States and Canada.

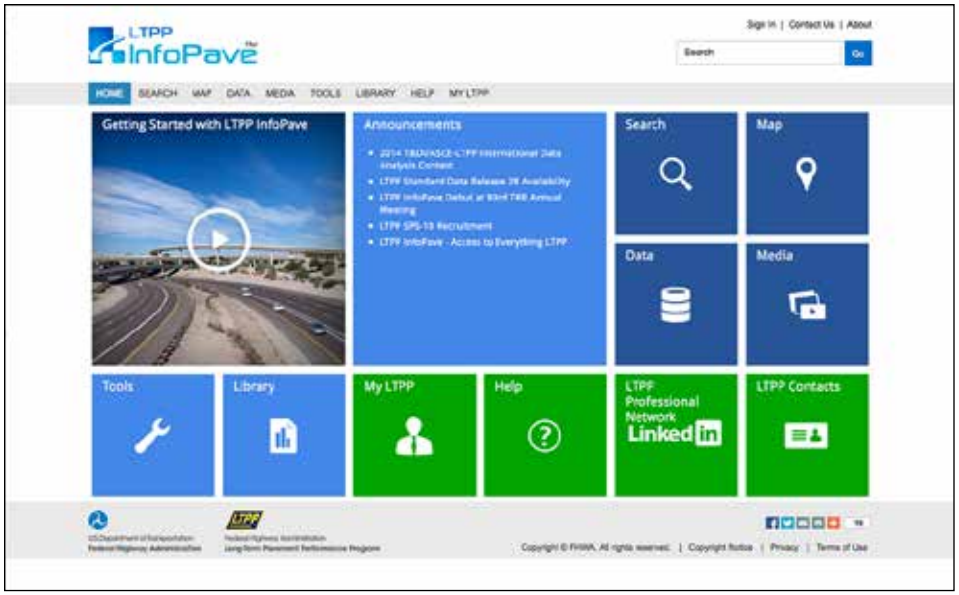
"The contest gives students the opportunity to learn how to gather data using the new Web-based system," said Deborah Walker of FHWA. "Students also have the flexibility to address an interest or concern relevant to their particular location."

Participants can enter in three categories:

- *Undergraduate Students.* Teams can consist of one to four undergraduate students. Analysis is restricted to LTPP data. The principal author must be the student who primarily conducted the analysis.
- *Graduate Students.* Teams can consist of one to four students and may include undergraduate students. Analysis is restricted to LTPP data. The principal author must be the graduate student who primarily conducted the analysis.
- *Partnership.* Undergraduate or graduate students working in partnership with a State transportation agency or private company are eligible. LTPP data may be supplemented with State agency data. Teams should consist of one to four students, the external partners, and advising faculty (if appropriate). The principal author must be the student who primarily conducted the analysis.

One winning team will be selected for each category. Winners will receive an award certificate and all-expenses-paid trip to attend the 2015 Transportation Research Board Annual Meeting in Washington, DC, where they will present their research. FHWA reserves the right to publish the winning papers. The top Graduate team will receive a $1,500 cash prize, while the winning Undergraduate team will receive $1,000 and the top Partnership team will be awarded $500. Cash prizes are being provided by private sector donors.

To view the contest guidelines, visit www.asce.org/tdi. Start using LTPP InfoPave today by visiting www.infopave.com. LTPP data are also available through Standard Data Release (SDR) 28. SDR 28 can be downloaded from the LTPP InfoPave site or obtained from the LTPP Customer Support Service Center, 202-493-3035 (email: ltppinfo@dot.gov). For more information on the contest, contact Andrea Baker at ASCE, 703-295-6124 (email: abaker@asce.org), or Deborah Walker at FHWA, 202-493-3068 (email: deborah.walker@dot.gov). *



Use the new LTPP InfoPave system to enter the 2014 LTPP International Data Analysis Contest.

Infrastructure Innovation Webinars

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

Real-Time Smoothness Measurements on Portland Cement Concrete Pavements During Construction
March 25, 2014, 2–3:30 p.m. eastern daylight time (EDT)

Sponsored by the Transportation Research Board (TRB) through its second Strategic Highway Research Program (SHRP2) Tuesdays Webinar series, the session will highlight how SHRP2 has developed model specifications and construction guidance to expedite the implementation of pavement smoothness measurement technologies. Measuring pavement smoothness during construction can reduce project delays and produce a better quality product, enabling agencies to avoid expensive corrective measures later.

Representatives from the Federal Highway Administration (FHWA) and American Association of State Highway and Transportation Officials will offer their perspective on implementation strategies and tactics for the technologies. The final 30 minutes of the Webinar are reserved for participant questions.

To register, visit www.trb.org/StrategicHighwayResearchProgram2SHRP2/Blurbs/170327.aspx. For more information, contact Linda Mason at TRB, 202-334-3241 (email: lmason@nas.edu).

Earthquake Planning and Response Tools: ShakeCast
April 2, 2014, 1–2 p.m. EDT

Organized by FHWA, the United States Geological Survey, and California Department of Transportation, the Webinar will discuss the advantages of responding to earthquakes using the ShakeCast tool. This Web-based application can autonomously analyze bridge infrastructure and rapidly deliver bridge inspection prioritization information to responders within minutes of an earthquake. To learn more about ShakeCast, visit http://earthquake.usgs.gov/research/software/shakecast.

For additional information and to register, visit www.fhwa.dot.gov/bridge/seismic/webinars.cfm. Information is also available by contacting Phil Yen at FHWA, 202-366-5604 (email: wen-huei.yen@dot.gov).

Applications of 3D Models on the Construction Site
April 2, 2014, 1–2:30 p.m. EDT

The Webinar will examine how contractors use 3D engineered models in transportation construction work. This session is fourth in an FHWA series on 3D Engineered Models for Construction. For details on registration and to find recordings and presentations from the first three Webinars in the series, visit www.fhwa.dot.gov/construction/3d/webinars.cfm.

For more information, contact Douglas Townes at the FHWA Resource Center, 404-562-3914 (email: douglas.townes@dot.gov).

Slide In Bridge Construction (SIBC) from the Engineer/Designer Perspective
April 3, 2014, 11 a.m. mountain daylight time

Sponsored by FHWA and the Colorado Department of Transportation, the training will help transportation agencies build a foundation for implementing the lateral SIBC method. This technique enables agencies to accelerate construction by building a new bridge using prefabricated bridge elements and then moving it into position with a lateral slide. Participants will have the opportunity to ask questions following the presentation. The target audience for the Webinar is State and local highway agency staff, including State bridge engineers.

To register for the Webinar, visit www.slideinbridgeconstruction.com. For additional information, send an email to sibc@urs.com. *

Highway Technology Calendar

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

National Bridge Preservation Partnership Conference 2014
April 21–25, 2014, Orlando, FL

Sessions will cover such topics as best practices; new materials, equipment, technologies, and research; and sustainable long-term performance. Interactive workshops will spotlight bridge preservation tools. Conference sponsors include the American Association of State Highway and Transportation Officials (AASHTO), Transportation Research Board (TRB), National Center for Pavement Preservation, and the Federal Highway Administration (FHWA).

Contact: Anwar Ahmad at FHWA, 202-366-8501 (email: anwar.ahmad@dot.gov), or visit www.nbppc2014.org.

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 decision-making, 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 AASHTO.

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

2014 Tools of the Trade Conference
July 21–23, 2014, Burlington, VT

Sponsored by TRB, the conference will spotlight practical transportation planning techniques and tools for use by practitioners in small and medium-sized communities. Researchers, members of academia, and other members of the transportation community are also encouraged to attend. Among the topics are the project programming process, including evaluating and prioritizing projects with performance measures; financial strategies; pedestrian and bike planning; traffic operations and analysis; demand forecasting; and systems analysis. Technology applications, environmental and health issues, and freight logistics will also be featured.

Contact: For additional information, visit www.trbtoolsofthetrade.org/conference/index.html.

2014 National Hydraulic Engineering Conference: Designing Sustainable Infrastructure in a Changing Environment
August 19–22, 2014, Iowa City, IA

Sponsored by FHWA, in coordination with the University of Iowa, the conference will feature such topics as stream stability, watershed management, scour and bridge hydraulics, coastal engineering, climate change, hydrology, and asset management.

Contact: Cynthia Nurmi at the FHWA Resource Center, 404-562-3908 (email: cynthia.nurmi@dot.gov), or visit www.uiowa.edu/~confinst/nhec2014/index.html.

2014 National Accelerated Bridge Construction Conference
December 3–5, 2014, Miami, FL

The latest knowledge, technologies, and case studies related to accelerated bridge construction (ABC) will be spotlighted at the conference. Several workshops on ABC topics will be held December 3, followed by the conference kick-off on December 4. Cosponsored by 16 State transportation agencies, the event is organized by the Accelerated Bridge Construction University Transportation Center at Florida International University. Attendees will include State bridge engineers, design professionals, fabricators, contractors, members of academia, and representatives from Federal agencies.

Contact: Atorod Azizinamini at Florida International University, 402-770-6210 (email: aazizina@fiu.edu), or Ben Beerman at the FHWA Resource Center, 404-562-3930 (email: benjamin.beerman@dot.gov). *

FOCUS

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.

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Publication No. FHWA-HRT-14-011
HIF-1/03-14(WEB)E

Data Palooza 2014 Showcases New Data Standards and Solutions

Are you ready for Data Palooza 2014?

Following up on last year's successful data solutions event, the U.S. Department of Transportation will hold a new showcase as part of the Geospatial Transportation Mapping Association's Annual Meeting and TransData Expo. Scheduled for June 3–4, 2014, in Arlington, Virginia, Data Palooza topics will include:

- The future role of data in transportation.
- Standards for sharing transportation data.
- Transportation agencies and geospatial mapping platforms.
- Data modeling and climate change.
- Developing a transportation data clearinghouse.
- Analyzing integrated data sets.
- MAP-21 [Moving Ahead for Progress in the 21st Century Act]: Bridge, pavement, and asset data requirements.

Technologies featured at the first Data Palooza in 2013 included the use of 3-D visualization in road safety audits.

- The role of new data collection and communications technologies in work zones.

For more details and registration information, visit www.gtma2014.com. To obtain recordings from Data Palooza 2013, visit www.fhwa.dot.gov/tpm/events/datap_agenda.cfm. Additional information is available by contacting Michael Nesbitt at FHWA, 202-366-1179 (email: michael.nesbitt@dot.gov). *