

FOCUS

April 2013

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U.S. Department of Transportation

Federal Highway Administration

Collaborating to Move Transportation Performance Management

MAP-21, the Moving Ahead for Progress in the 21st Century Act, is transforming Federal highway programs to address the challenges facing the U.S. transportation system, including improving safety, maintaining infrastructure condition, reducing traffic congestion, improving air quality, and reducing delays in project delivery. One of the key features of MAP-21 is establishment of a performance- and outcome-based program. Transportation performance management (TPM) is a strategic approach that uses system information to make investment and policy decisions in support of national performance goals.

MAP-21 established national goals for the Federal-aid highway program in seven areas:

- *Safety.* To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
- *Infrastructure condition.* To maintain the highway infrastructure asset system in a state of good repair.
- *Congestion reduction.* To achieve a significant reduction in congestion on the National Highway System (NHS).
- *System reliability.* To improve the efficiency of the surface transportation system.
- *Freight movement and economic vitality.* To improve the national freight network, strengthen the ability of rural communities to access national and international trade

markets, and support regional economic development.

- *Environmental sustainability.* To enhance the performance of the transportation system while protecting and enhancing the natural environment.
- *Reduced project delivery delays.* To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including regulatory burdens and improving agencies' work practices.

In consultation with States, metropolitan planning organizations (MPOs), and other stakeholders, the Federal Highway Administration (FHWA) is establishing measures to assess performance or condition in 12 specific areas. FHWA intends to issue three performance measure Notice of Proposed Rulemakings (NPRM) in sequence based on the level of readiness to adequately define measures. FHWA has grouped the areas that require measures to be established into three categories of readiness: Status I for areas where measures are clearly defined; Status II for areas where additional work is required to fully define measures; and Status III for areas where new measures need to be defined. Status I measures will be included in the first NPRM, followed by Status II measures in a

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Transportation Performance Management,

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second NPRM, and then a final NPRM for the Status III measures.

Status I Measure Areas

- Number of serious injuries on all public roads.
- Number of fatalities.
- Serious injuries per vehicle mile traveled (VMT).
- Fatalities per VMT.

Status II Measure Areas

- Pavement condition on the Interstate System.
- Pavement condition on the non-Interstate NHS.
- Bridge condition on the NHS.

Status III Measure Areas

- Traffic congestion.
- On-road mobile source emissions.
- Freight movement on the Interstate System.
- Performance of the Interstate System.
- Performance of the non-Interstate NHS.

FHWA intends to establish one common effective date, currently proposed for spring 2015, for the Status I, II, and III measures.

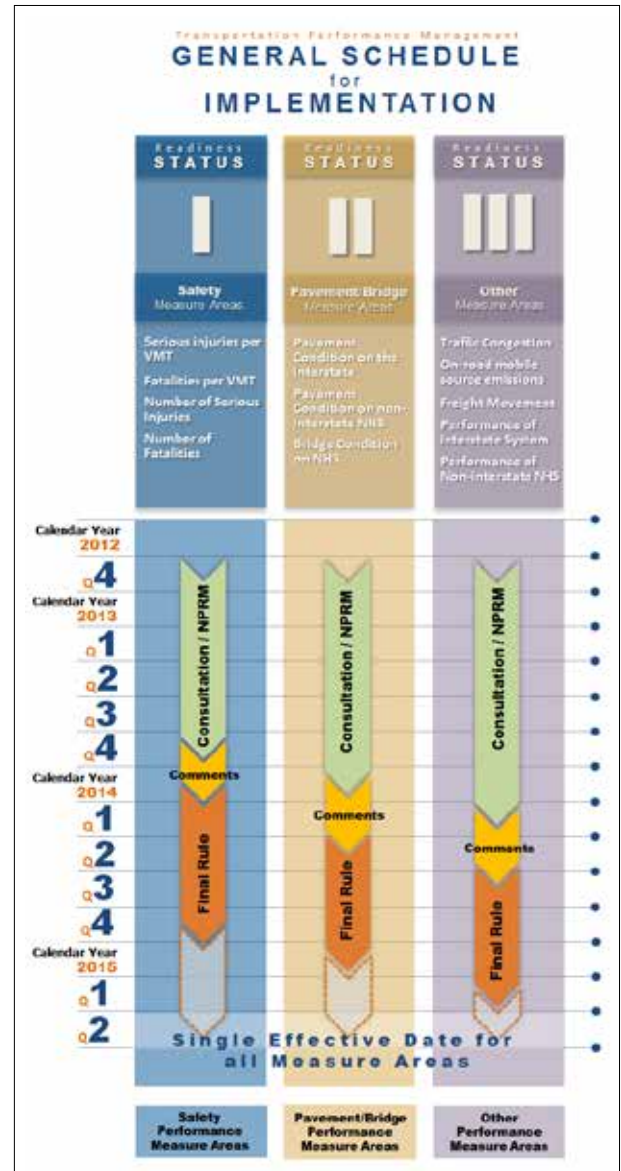
In considering the new performance measures and preparing for the NPRMs, FHWA has emphasized outreach to State and local agencies, MPOs, and other stakeholders. Outreach efforts include Webinars, targeted focus sessions, a virtual Town Hall that drew 1,000 participants, and the National Online Dialogue on Improving Transportation Performance, held from May 21 to June 22, 2012. The Dialogue was visited by stakeholders nearly 8,000 times.

State and local agencies and others can now find the latest TPM news and resources on FHWA's Transportation Performance Management Web site (www.fhwa.

dot.gov/tpm). The site features information on the MAP-21 TPM requirements and implementation schedule, as well as the Rulemaking stakeholder engagement process. Resources include links to tools that can be used to validate performance and improve how performance is managed. A section on "Noteworthy Practices" highlights innovative approaches State and local agencies are using to plan, implement, and evaluate TPM. In the "Presentations" section, visitors can find recordings and files from Webinars on TPM topics.

FHWA's current TPM initiatives include a study of how different agencies have collaborated to manage multi-state corridors. "We are developing a maturity model and guidelines that agencies can use to assess how they can best work together to manage corridors," said Peter Stephanos, Director of FHWA's Proposed Office of Transportation Performance Management. Also underway is an initiative to design a model online report that States can use to communicate performance management results.

FHWA is planning a series of regional peer exchange workshops where representatives from States, MPOs, transit agencies, and the Federal Transit Administration can collaborate on how to integrate performance management into their programs. In conjunction with the peer exchanges, FHWA is developing a Web



FHWA's general schedule for implementing national performance measures for the Federal-aid highway program.

site for States to share their performance management experiences and approaches and collaborate on implementation activities. "This forum will allow States to share their best practices and learn from each other," said Stephanos.

Enter the 2013 International Contest on LTPP Data Analysis

To learn more about TPM and the many resources available, find the latest TPM news and events, or subscribe to email updates from FHWA, visit www.fhwa.dot.gov/tpm. Information is also available from the following FHWA contacts:

Analytical Tools—Mark Swanlund, 202-366-1323 (email: mark.swanlund@dot.gov).

Peer Exchanges/Outreach—Connie Yew, 202-366-1078 (email: connie.yew@dot.gov).

Performance Measures—Francine Shaw-Whitson, 202-366-8028 (email: francine.shaw-whitson@dot.gov).

Training—Susanna Hughes-Reck, 202-366-1548 (email: susanna.hughes-reck@dot.gov). *

Transportation Data Palooza: A Showcase of Innovative Technology Solutions

It's not just data. It's a Data Palooza. Scheduled for May 9, 2013, at U.S. Department of Transportation headquarters in Washington, DC, this free event will showcase innovative technology solutions that enhance performance, reduce congestion, improve safety, and enhance public access to data, among other benefits. Data Palooza will include exhibitions, workshops, and panel discussions. For more information or to register, visit www.fhwa.dot.gov/tpm/events/datapalooza.cfm. Information is also available by contacting Michael Nesbitt at FHWA, 202-366-1179 (email: michael.nesbitt@dot.gov).

Use the world's most extensive pavement performance database to research and write an award-winning paper by July 31 for the International Contest on Long Term Pavement Performance (LTPP) Data Analysis.

Sponsored by the Federal Highway Administration's (FHWA) LTPP program and the American Society of Civil Engineers (ASCE), the contest launched in 1998 to encourage college students, professors, State highway agency staff, industry representatives, and others to get involved in using the LTPP data. Since the LTPP program began more than 20 years ago, data have been collected from nearly 2,500 in-service pavement test sections throughout the United States and Canada. These test sections represent a range of climatic and soil conditions.

The 2013 contest theme is "Pavement Performance Measures for Highways." Contest participants should focus on paper topics relevant to this theme. Participants can enter in four categories:

- *Challenge Topic.* Undergraduate or graduate students, partners from State highway agencies or other organizations, and a faculty advisor are eligible to tackle the 2013 challenge topic, "Develop Pavement Health Index/Indices Using the LTPP Data." Analysis is restricted to LTPP data. The principal author of the paper must be the student who primarily conducted the analysis.
- *Partnership.* Undergraduate or graduate students working in partnership with a State highway agency or other organizations are eligible. In this category, the 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.

- *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 should 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.

Participants can find the LTPP data in FHWA's online DataPave tool at www.ltp-products.com, or they can use the LTPP program's Standard Data Release (SDR) 27, released in January 2013. To obtain a copy of SDR 27 on a thumb drive, contact LTPP Customer Service at ltppinfo@dot.gov. Groups working on the Challenge Topic or other topics requiring large data downloads are encouraged to use the SDR.

A first place winner will be selected for the Challenge Topic category, while other categories will recognize both first and second place winners. First and second place winners will receive an award certificate and all-expenses paid trip to attend the 2014 Transportation Research Board Annual Meeting in Washington, DC, where they will present their research topic. All participants receive letters of recognition. FHWA reserves the right to publish the winning papers in an LTPP research document.

The deadline to submit contest papers is July 31, 2013. Winners will be notified by October 18, 2013. For contest guidelines, visit the LTPP Web site at www.fhwa.dot.gov/research/tfhrc/programs/infrastructure/pavements/ltpp/contest.cfm. For more information, 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). *

Geotechnical Asset Management: Strategies for Protecting Your Assets and Improving Performance

What is the value of your agency's geotechnical assets? A new Federal Highway Administration (FHWA) publication, *Geotechnical Asset Management: Implementation Concepts and Strategies* (Pub. No. FHWA-CFL/TD-13-003), examines how to apply asset management strategies to such features as retaining walls, cut slopes, embankments, rockfall sites, and culverts.

While asset management programs have more typically been applied to infrastructure elements such as pavements and bridges, geotechnical features can also significantly affect the performance of a transportation system. "These geotechnical assets are on every roadway and need to be managed over the long term," said Matt DeMarco of FHWA.

If geotechnical features fail, such as during rockfall incidents, the resulting environmental damage, repair costs, and larger economic costs can significantly affect roadway users and communities. When an April 2006 rock slide closed the most accessible and direct route for tourists visiting California's Yosemite National Park, for example, estimated local business losses dur-

ing the 92-day closure period were \$4.8 million. The costs of managing geotechnical assets to prevent failure can be offset by the potential for savings when compared to the larger economic impacts experienced by communities if failures occur.

In 2011 the Transportation Research Board Engineering Geology Committee established a subcommittee on Geotechnical Asset Management. "This reflected a changing paradigm for geotechnical engineers and a growing interest in asset management," said DeMarco. To meet this growing interest, FHWA developed *Geotechnical Asset Management* as a baseline document containing preliminary guidelines on how geotechnical assets fit into an overall asset management strategy.

Topics covered include asset identification, general strategies for managing geo-

technical assets, components that need to be considered in managing these assets, guidance on developing management strategies, and the current state of the practice.

General strategies can follow the approach of managing specific features such as rockfall sites or retaining walls, or alternately managing a group of features in a geotechnical asset class. While U.S. transportation agencies have generally only followed the first approach, countries such as Australia, the United Kingdom, and Canada have managed groups of features. For example, in 2003 Saskatchewan Highways and Transportation in Canada implemented a risk-based system for prioritizing and managing geotechnical and landslide hazards within its transportation network. Managing a group of features allows agencies to better assess risk and develop accurate conclusions.

One of the primary components of a geotechnical management program is data management, including decisions on the quantity and type of data to be collected. To be most effective, agencies should use database systems that centralize, maintain, and make available all data to users throughout the agency. For geotechnical asset features, data collected might include location, relation to



Top: A repair is made to Hanging Lake Tunnel along I-70, near Glenwood Springs, CO. **Right:** A rockery wall at the toe of a scaled rock and soil cut slope along Guanella Pass Road near Georgetown, CO. **Left:** Damage to a culvert on I-70 and adjacent embankment that have failed near the Eisenhower Tunnel in CO.

Infrastructure Innovation Webinars

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

roadway, type of structure or feature, geometrics, photographs, details on any distress experienced by the feature, performance history, and a subjective hazard ranking.

Program components also include geotechnical performance standards. These standards should be based on an agency's overall performance measures. Examples of general performance requirements for geotechnical assets include protecting the safety of the traveling public, maintaining traffic mobility, achieving the target design life for the lowest cost, and reducing asset failures and emergency costs. While most agencies have not established performance measures for specific geotechnical features, work is underway by the Alaska Department of Transportation and Public Facilities to develop performance standards for slopes.

Also examined is the current state of the practice. Agencies applying asset management to their geotechnical features are primarily conducting agency-wide programs rather than corridor-level programs. One State taking a different approach is Wyoming, which launched a transportation asset management program in 2008 that is based on corridor needs and includes geotechnical assets.

Agencies will find guidance on developing a geotechnical management program, including a sample proposed process and examples of performance measures and data collection needs. Sample "decision trees" lead agencies through the process of evaluating geotechnical risks.

To download a copy of *Geotechnical Asset Management: Implementation Concepts and Strategies*, visit www.cflhd.gov/programs/techDevelopment/geotech/GAM. For more information on geotechnical asset management, contact Matt DeMarco at FHWA, 720-963-3520 (email: matthew.demarco@dot.gov). *

Asset Management Book Club

All Webinars are from 2–3:30 p.m. eastern daylight time.

April 24, 2013

May 22, 2013

June 26, 2013

July 24, 2013

August 28, 2013

September 25, 2013

In 2011 the American Association of State Highway and Transportation Officials (AASHTO) published the *Transportation Asset Management Guide: A Focus on Implementation*, which encourages transportation agencies to use asset management principles. Sponsored by the Federal Highway Administration (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).

Transportation Asset Management Webinar Series

Asset Management and Risk Management

May 8, 2013, 2–3:30 p.m. (eastern daylight time)

The Webinar will explore how transportation agencies successfully integrate principles of risk management into their asset management framework. Presentations will examine ways in which agencies link components of risk management and asset management to improve strategic and operational performance.

The Webinar series is sponsored by AASHTO and FHWA. For more information or to register, visit <http://tam.transportation.org/Pages/Webinars.aspx>. Videos and slides from previous Webinars in the series are posted on the registration page. Previous sessions covered Asset Management and Safety and Asset Management and Performance Management. Information on the upcoming session is also available by contacting Steve Gaj at FHWA, 202-366-1336 (email: stephen.gaj@dot.gov). *

We're All in This Together

National Work Zone Awareness Week 2013

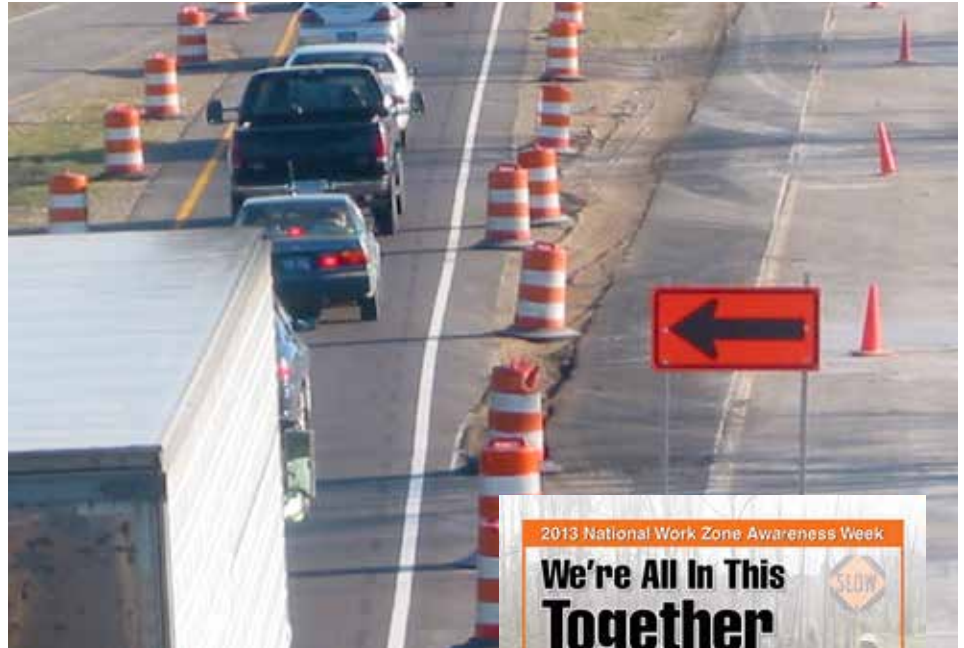
Work Zone Safety: We're All in This Together." This message to motorists, bicyclists, pedestrians, highway workers, law enforcement, and all others that use, construct, and protect the Nation's roadways will kick off National Work Zone Awareness Week (NWZAW) 2013, scheduled for April 15–19. A kick-off event will be held April 16 at an urban work zone in Washington, DC.

"While work zone awareness is certainly needed year round, this extra reminder is provided in April because that's when road construction increases significantly in many parts of the country after winter," said Tracy Scriba of the Federal Highway Administration (FHWA). "We all have an important role in helping to make our work zones operate safely and efficiently."

In 2010, 576 workers and motorists were killed in highway work zones and more than 37,000 were injured. Approximately 85 percent of those killed in work zones are drivers and their passengers.

NWZAW began in 1999 when FHWA, the American Traffic Safety Services Association (ATSSA), American Association of State Highway and Transportation Officials, and the Virginia Department of Transportation (VDOT) 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.

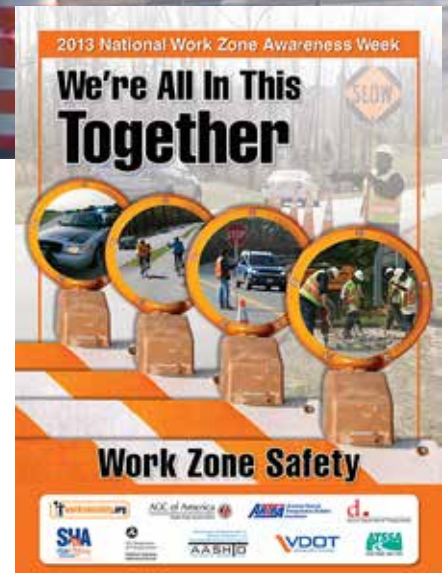
Since 1999, awareness has continued to grow through events, educational and outreach initiatives, and media campaigns sponsored by State transportation agencies and other organizations. States such as Kansas, Mississippi, Missouri, Ore-



New work zone resources available from FHWA include a free online course on Developing Transportation Management Plans for Work Zones.

gon, Rhode Island, Tennessee, and Washington have launched "Go Orange" campaigns where they light public buildings in orange and encourage citizens to wear the color in support of NWZAW. In 2012, for example, the Rhode Island State House was illuminated in orange as a reminder to motorists to drive safely in work zones, while the Washington State Department of Transportation's Web site featured photos of the public Going Orange for Work Zone Safety.

VDOT first held its own NWZAW in 1997 and now joins with the Virginia Department of Motor Vehicles to also recognize Distracted Driving Awareness Month in April. Partnering with the Virginia Transportation Construction Alliance, VDOT's observance of NWZAW has included outreach to high school driver education classes. Virginia also



remembers fallen workers at the VDOT Workers Memorial off I-64 near Afton Mountain.

In Texas, drivers are reminded to "Be Safe. Drive Smart." The Texas Department of Transportation (TxDOT) displayed "office spaces" with desks, filing cabinets, and orange cones outside some of its facilities in 2012, reminding drivers that for many TxDOT employees, their office is the roadway. TxDOT has also produced a work

Highway Technology Calendar

zone best practices video for employees.

New work zone resources available from FHWA include a free online course on Developing Transportation Management Plans (TMPs) for Work Zones. Topics covered in the course include the purpose and content of a TMP, roles and responsibilities, work zone impacts assessments, selection of TMP strategies, and TMP implementation. Designed for self-paced learning, the course is modular and features slides with a voiceover narration. Also included is a Participant Workbook containing exercises to apply the concepts learned throughout the course. To download the course modules, visit www.ops.fhwa.dot.gov/wz/outreach/outreach.htm.

FHWA's National Highway Institute (NHI) offers a Certificate of Accomplishment in Work Zone Safety, which can be obtained after completing four specific NHI work zone courses. The courses cover best practices for designing, operating, and maintaining highway work zones that improve safety for both workers and motorists. For more information, visit www.ops.fhwa.dot.gov/wz/outreach/nhi_wz_courses.htm.

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

Agencies and contractors looking for additional information on training resources can consult the FHWA Work Zone Training Compendium. Organized into nine categories ranging from design to traffic control to worker safe-

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

Seventh National Seismic Conference on Bridges and Highways

May 20–22, 2013, Oakland, CA

Conference sessions will focus on understanding and mitigating damage to the Nation's highway infrastructure from earthquakes and other natural hazards. Sponsors include the Federal Highway Administration (FHWA); California Department of Transportation; Transportation Research Board; American Association of State Highway and Transportation Officials; University at Buffalo, The State University of New York; and the Multidisciplinary Center for Earthquake Engineering Research.

Contact: Phillip Yen at FHWA, 202-366-5604 (email: wen-huei.yen@dot.gov), or visit <http://7nsc.info>.

Second National Covered Bridge Conference

June 5–8, 2013, Dayton, OH

The FHWA National Historic Covered Bridge Preservation Program is sponsoring the conference in partnership with the National Park Service and U.S. Forest Service. Themes include research and rehabilitation projects, best practices for rehabilitation, and continuing threats and challenges to covered bridges, including damage caused by Hurricane Irene and Tropical Storm Lee in 2011. Participants will have the opportunity to tour several historic covered bridges.

Contact: Everett Matias at FHWA, 202-366-6712 (email: everett.matias@dot.gov), or visit www.woodcenter.org/2013-national-covered-bridge-conference.

Fiftieth Annual Petersen Asphalt Research Conference

July 15–17, 2013, Laramie, WY

Organized by the Western Research Institute (WRI), the conference presents current research aimed at understanding and improving asphalt performance. Topics range from fundamental compositional research to applied field engineering. Participants are invited to take part in an open mic discussion.

Contact: Steve Salmans at WRI, 307-721-2306 (email: ssalmans@uwyo.edu), or Jack Youtcheff at FHWA, 202-493-3090 (email: jack.youtcheff@dot.gov). Information is also available at www.petersenasphaltconference.org.

2013 Pavement Performance Prediction Symposium

July 18, 2013, Laramie, WY

Presented by WRI in cooperation with FHWA's Turner-Fairbank Highway Research Center, the symposium will take an indepth look at a single asphalt-related topic.

Contact: Steve Salmans at WRI, 307-721-2306 (email: ssalmans@uwyo.edu), or Jack Youtcheff at FHWA, 202-493-3090 (email: jack.youtcheff@dot.gov). More information on the selected topic will be available at www.petersenasphaltconference.org. *

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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National Work Zone Awareness Week, continued from page 7

ty, the Compendium includes details on format, length, target audience, cost, and point of contact for each training opportunity. To view the Compendium, visit www.ops.fhwa.dot.gov/wz/outreach/outreach.htm.

More details about NWZAW 2013 are available at www.atssa.com and www.ops.fhwa.dot.gov/wz/outreach/wz_awareness.htm.

To learn more about FHWA's work zone safety and mobility resources, visit www.ops.fhwa.dot.gov/wz, or contact Tracy Scriba at FHWA, 202-366-0855 (email: tracy.scriba@dot.gov). *



For more information on FHWA's work zone safety and mobility resources, visit www.ops.fhwa.dot.gov/wz.