

FOCUS

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Asset Management and Safety: States Share Best Practices at Peer Exchange

How can highway safety performance be improved through better transportation asset management (TAM)? How do agencies prioritize safety asset needs?

An *Asset Management and Safety Peer Exchange* held on August 2, 2011, in Cheyenne, Wyoming, brought together managers from State departments of transportation to share best practices and challenges in managing safety assets. Hosted by the Federal Highway Administration (FHWA) and American Association of State Highway and Transportation Officials (AASHTO), the peer exchange drew participants from 13 State transportation agencies.

While pavement and bridge assets often receive greater attention from TAM programs, State transportation departments also maintain an extensive amount of safety hardware and roadside appurtenances. These safety-related assets can include signs, pavement markings, line striping, guardrails and traffic barriers,

traffic signals, lighting, sidewalks, bike lanes, and intelligent transportation system (ITS) equipment. States also have to consider safety-related characteristics of other physical assets, such as pavement friction, shoulder widths, clear zones, and bridge clearances. Using a TAM approach, agencies can more comprehensively view the big picture and evaluate collected data before making decisions on specific safety measures or high priority safety program areas, such as intersections, pedestrian crossings, or cross-median crashes.

A new report released by FHWA, *Asset Management and Safety Peer Exchange* (Pub. No. FHWA-HIF-12-005), summarizes the exchange proceedings. Four sessions covered Total Asset Management, Prioritizing Programming and Budgeting, Inventory Management, and Safety Asset Management in Context. For each session, State practitioners shared best practices within their agencies,

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Sign Up Now to Receive Email Notification for the Online Version of *Focus*

The Federal Highway Administration (FHWA) wants you to receive the latest information on highway infrastructure innovations as quickly as possible. *Focus* is typically posted online up to 2 weeks before the printed copy reaches you in the mail. Send your email address to lgpope@woodwardcom.com and you will be included in the list of subscribers to receive an email notification when each issue of *Focus* is posted online. The email notification would include a short description and a link for each article. It would not include any cumbersome attachments.

FHWA is considering moving the *Focus* newsletter to an online-only distribution. This change would get information to readers faster, reduce costs, and help the environment. An online-only version would continue to provide a printable version for subscribers who prefer to read *Focus* in the traditional eight-page, three-column format.

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



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Asset Management and Safety,

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Highway safety assets can include signs, guardrails and traffic barriers, lighting, and traffic signals.

followed by group discussion and a question and answer session.

To identify priority topics of interest, representatives from 39 States filled out an online survey prior to the exchange. Most respondents indicated that efforts are underway in their agencies to create or expand safety asset inventories, although lack of resources has been an obstacle. The top uses for such inventories to date include project scoping and the planning and scheduling of maintenance work.

Neil Pedersen, former Administrator of the Maryland State Highway Administration (SHA), discussed Maryland's experience with TAM at the exchange and described five core questions that an asset management approach can help answer:

- What is the current state of physical assets?
- What are the required levels of service and performance delivery?
- Which assets are critical to sustained performance?
- What are the best investment strategies for operations, maintenance, replacements, and improvements?
- What is the best long-term funding strategy?

Following a TAM strategy, the Maryland SHA recently inventoried its freeway

lighting, assessed the condition of the assets, and developed a performance goal for the percentage of lights functioning. The agency found that in many cases the electrical conduits were highly deteriorated and that it would be more cost effective to replace them rather than perform rehabilitation. During the replacement, Maryland found that fewer lights were needed than were originally installed, which will result in savings in future energy costs.

Del McOmie, Chief Engineer of the Wyoming Department of Transportation (WYDOT), noted that WYDOT used information on its traffic and safety assets to identify potential safety improvements. For example, WYDOT recently used its TAM inventory data to identify roadway locations with a median width of 12 m (40 ft) or less where cable barriers could potentially be installed.

Steve Lindland of the Oregon Department of Transportation (ODOT) described how the agency launched a TAM pilot project in 2006. Through the pilot, ODOT realized it was important to gather a basic asset inventory that could be collected once and used many times, and that the maintenance of data is critical for its inventory of transportation and safety assets. To share data on its assets within the agency, ODOT developed the Features, Attributes, and Condition Survey—Statewide Transporta-

tion Improvement Program (FACS-STIP) Map Tool and the FACS-STIP Data2Go Tool. The map tool is a Web-based system that integrates roadway inventory data, bridge and culvert locations, crash data, traffic data, and information on current and planned projects. The Data2Go tool stores detailed data for a range of asset types, including pedestrian ramps compliant with the Americans with Disabilities Act (ADA), approach roads, bridges, culverts, pavements, retaining walls, sidewalks, signs, unstable slopes, tunnels, traffic barriers, and traffic signals. ODOT staff can use the tool to query more than 20 databases.

ODOT has used the improved asset data to establish a new "1R" pavement preservation program. Through the program, ODOT is planning pavement preservation work and safety improvements independently, targeting each type of action where it is most needed. In the past, traffic and safety features were addressed only at locations where pavement work was already planned.

"The asset data has been instrumental in setting up the program and helped us to lower project development costs, as we don't have to perform indepth surveys," said Steve Lindland of ODOT. "It is easier to do and takes less time, as well as providing very clear direction on what needs to be done." As part of the "1R"

program, ODOT has allocated \$6 million per year to upgrade traffic barrier safety features. After compiling a statewide inventory of traffic barriers, for example, ODOT has now started a 10-year program to upgrade the traffic barrier assets. ODOT also compiled an inventory of sidewalks and ADA ramps in urban areas in 2011 and is now looking at necessary upgrades.

The Virginia Department of Transportation (VDOT) has better defined its asset data needs by organizing Communities of Interest (COI). These communities feature representatives from across the agency, including staff from district offices and the traffic engineering, structures, and IT departments. As Vanloan Nguyen of VDOT highlighted, the Traffic and Safety Assets COI has reviewed the agency's asset data needs and is now developing and implementing improvements in data collection. These include defining a standard data dictionary for traffic and safety assets, building an asset "data mart," and improving data on asset age and condition.

Also highlighted at the Peer Exchange was FHWA's Model Inventory of Roadway Elements (MIRE). Featuring more than 200 data elements, MIRE can be used as a guide to improve data inventories and support the adoption of performance measures. MIRE also provides a data dictionary with definitions and attributes for each listed element. To learn more about MIRE or to download a copy of MIRE Version 1.0 (Pub. No. FHWA-SA-10-018), visit www.mireinfo.org.

For more details on State experiences with asset management and safety, download a copy of *Asset Management and Safety Peer Exchange* at www.fhwa.dot.gov/asset/hif12005/hif12005.pdf. To learn more about managing safety assets, contact Steve Gaj at FHWA, 202-366-1336 (email: stephen.gaj@dot.gov). For additional information on MIRE, contact Robert Pollack at FHWA, 202-366-5019 (email: robert.pollack@dot.gov). *

Infrastructure Innovation Webinars

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

New SHRP 2 Tools for Underground Utility Location Data Collection and Analysis

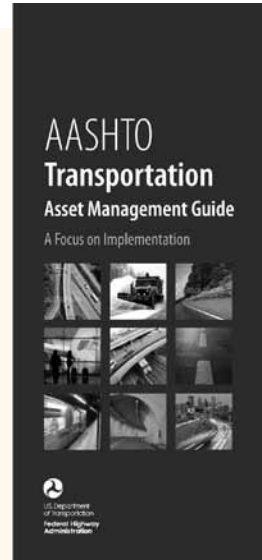
February 15, 2012, 1–3 p.m. (eastern standard time)

Conducted by the Transportation Research Board's (TRB) second Strategic Highway Research Program (SHRP 2), in cooperation with the Federal Highway Administration (FHWA), the Webinar will explore preliminary field testing results for new tools that can be used to detect the location and characteristics of underground utilities. Topics covered by the session include how the new tools differ from the ones being used today and additional capabilities that they provide. A previous Webinar held in August 2011 provided information on the design and intended use of the new tools. To download a free recording of the August Webinar, visit www.trb.org/StrategicHighwayResearchProgram2SHRP2/RenewalWebinars.aspx.

To register for the February SHRP 2 Webinar, visit www.trb.org/StrategicHighwayResearchProgram2SHRP2/Blank2.aspx. For additional information, contact Patrick Zelinski at TRB, 202-334-1916 (email: pzelinski@nas.edu).

Transportation Asset Management Guide: A Focus on Implementation Webinar Series

Hosted by the American Association of State Highway and Transportation Officials, videos and presentations from this Webinar series are posted at <http://tam.transportation.org/Pages/Webinars.aspx>. The series includes Applying the Guide, Guide Overview and Getting Started, the Transportation Asset Management Plan (TAMP), and Tools and Techniques for Implementing the TAMP. *



More information about the AASHTO Transportation Asset Management Guide is available at www.fhwa.dot.gov/asset/hif10023.cfm.

An Introduction to Bridge Construction Inspection Safety Training

A new Web-based course offered by the Federal Highway Administration (FHWA) highlights safety standards for bridge construction inspectors.

Bridge Construction Inspection: Inspector Safety (Course No. FHWA-NHI-134111) discusses an inspector's safety responsibilities, as well as personal protective equipment to use for inspections and potential hazards that an inspector may encounter. Bridge construction site, trenching and excavation, and painting hazards are all examined. Also discussed are hazards relating to confined spaces and construction over waterways. Safety standards of the Occupational Safety and Health Administration and American National Standards Institute are referenced in the training.

The 1-hour free training is designed for anyone performing bridge construction inspections for either transportation agencies or consultants. While the course focuses on the entry-level inspector, it can also be a useful refresher for construction inspectors at any skill level.

Developed by the Transportation Curriculum Coordination Council (TCCC), the course is available through FHWA's National Highway Institute (NHI). Launched in 2000, the TCCC is a partnership that includes representatives from FHWA, NHI, regional State training and certification groups, several American Association of State Highway and Transportation Officials subcommittees, and industry associations. More than 100 Web training courses developed by the TCCC are available from NHI.

For more information on all TCCC training courses or to register for a course, visit www.nhi.fhwa.dot.gov. To keep up to date on new courses as they are added, visit www.nhi.fhwa.dot.gov/training/new_updated_courses.aspx. Newly available courses in 2012 include Superpave for Construction (Course No. FHWA-NHI-131134), Aggregate Sampling Basics (Course No. FHWA-NHI-131135), and Materials Testing: Reducing Aggregate Samples (Course No. FHWA-NHI-131136). Information on TCCC courses is also available by contacting Jason Harrington at FHWA, 202-366-1576 (email: jason.harrington@dot.gov). *

The 1-hour free training is designed for anyone performing bridge construction inspections for either transportation agencies or consultants.

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FHWA's new Bridge Construction Inspection course discusses an inspector's safety responsibilities and potential hazards that an inspector may encounter.

FHWA Solicits Proposals for Technology Partnerships Program

The Federal Highway Administration (FHWA) is soliciting proposals for the fourth round of grants to be awarded under its Highways for LIFE Technology Partnerships Program.

Launched in 2007, the program is designed to fund proven innovations that have been developed to a late-stage prototype but require further development, testing, and evaluation in a real-world setting before they are ready for commercialization or widespread application.

The 2012 solicitation focuses on working with the highway industry to accelerate the adoption of innovations that 1) can potentially directly reduce crashes or crash severity, or 2) can significantly enhance decisionmaking about the deployment of treatments to reduce crashes and crash severity, as well as improve understanding of the treatments' effectiveness.

Technologies in the first category could include static or dynamic traffic control devices, roadside safety hardware, or pavement treatments. In the second category, innovations could include roadway surface condition monitoring tools or data mining technologies.

Since 2007, the Technology Partnerships Program has awarded eight grants to industry. Innovations funded include the All-Weather Pavement Marking System, which incorporates wet-reflective optical elements into a specially designed pavement marking paint to make it easier for drivers to see markings on wet roads. Another innovation, the Asphalt Binder Cracking Device, simulates pavement cracking to help agencies predict and prevent asphalt failure caused by cracking at low temperatures. Funding was also awarded to demonstrate the use of precast bridge bents in seismic regions.

To view the 2012 grant solicitation, visit <http://apply07.grants.gov/apply/opportunities/instructions/oppDTFH61-12-RA-00002-cfda20.200-instructions.pdf>. The closing date is May 3, 2012. Each grant award may range from \$250,000 to \$1 million for up to 2 years of work. Subject to available funding, FHWA anticipates awarding up to \$5 million through this solicitation. Competition is open to all sources, including international companies.

For more information on the Technology Partnerships Program, contact Julie Zirlin at FHWA, 202-366-9105 (email: julie.zirlin@dot.gov), or visit www.fhwa.dot.gov/hfl/tech.cfm. *

© EZ Asphalt Technology



Innovations funded by FHWA's Technology Partnerships Program include the Asphalt Binder Cracking Device, which simulates pavement cracking to help agencies predict and prevent asphalt failure caused by cracking at low temperatures.



The All-Weather Pavement Marking System makes it easier for drivers to see markings on wet roads.

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Visit the Online ASR Reference Center

Find the most current information on alkali-silica reactivity (ASR) at the Federal Highway Administration's (FHWA) online ASR Reference Center (www.fhwa.dot.gov/pavement/concrete/asr.cfm). Launched under FHWA's ASR Development and Deployment Program in 2009, the recently updated center contains more than 300 specifications, guidance documents, test methods, and other references on ASR.

"The center is designed to provide highway engineers and other practitioners with resources and information on ASR that are readily accessible," said Gina Ahlstrom of FHWA.

ASR occurs when silica in some aggregates and alkalis in concrete combine with water to form a gel-like substance. As the gel absorbs water and expands, it can cause the concrete to crack. Over time, the cracks enable other forms of distress to occur, such as freeze-thaw damage or corrosion. This can lead to premature deterioration and loss of service life for concrete pavements and structures. FHWA's ASR Development and Deployment Program focuses on providing information about ASR and implementing technologies that can prevent and mitigate the problem.

Designed for quick and easy access, the Reference Center features an introductory overview of ASR, as well as research reports, State specifications, and guidance documents. Also featured on the site are case studies from around the world, including field trial summaries that document ASR treatment methods and test results. Visitors can also find specifications and guidance from international agencies, such as the Canadian



A highway worker uses a ruler to examine a concrete median barrier affected by alkali-silica reactivity (ASR). To learn more about ASR, visit www.fhwa.dot.gov/pavement/concrete/asr.cfm.



Standards Association and the International Union of Laboratories and Experts in Construction Materials, Systems, and Structures.

Two new documents being developed by FHWA, *Alkali-Silica Reactivity Field Identification Handbook* and *Alkali-Silica Reactivity Surveying and Tracking Guidelines*, will be available by this summer.

To contribute information to the ASR Reference Center or suggest resources to be added, contact Jesse Kwilosz at The Transtec Group, Jesse@TheTranstecGroup.com.

Updates on ASR can be found in FHWA's free quarterly technical update, *Reactive Solutions*. The update is available at www.fhwa.dot.gov/pavement/concrete/reactive/index.cfm. To subscribe, send an email to asrnewsletter@transtec.us.

For more information on the ASR Development and Deployment Program, contact Gina Ahlstrom at FHWA, 202-366-4612 (email: gina.ahlstrom@dot.gov), or visit www.fhwa.dot.gov/pavement/concrete/asr.cfm. *

Highway Technology Calendar

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

Federal Highway Administration (FHWA) Intelligent Compaction (IC) Workshops

February 28, 2012, Salt Lake City, UT
May 3, 2012, Minneapolis, MN

The workshops will highlight the fundamentals of IC and discuss the route to successful IC implementation. The training is designed for State agency staff, professionals in the earthwork and paving industries, IC roller vendors, and global positioning system vendors.

Contact: George Chang at The Transtec Group, 512-451-6233, ext. 227 (email: gkchang@thetranstecgroup.com), or Lee Gallivan at FHWA, 317-226-7493 (email: victor.gallivan@dot.gov). Registration information is available at www.IntelligentCompaction.com.

Ninth National Conference on Transportation Asset Management: Making Asset Management Work in Your Organization

April 16–18, 2012, San Diego, CA

Sponsored by the Transportation Research Board (TRB), American Association of State Highway and Transportation Officials (AASHTO), and FHWA, conference topics include asset management implementation; pavements and bridges; beyond pavements and bridges (featuring assets such as intelligent transportation systems and signs); and transit state of good repair.

Contact: Francine Shaw-Whitson at FHWA, 202-366-8028 (email: francine.shaw-whitson@dot.gov), or visit www.trb.org/conferences/assetmanagement2012.

North American Steel Construction Conference (NASCC) April 18–20, 2012, Grapevine, TX

The conference provides structural engineers, State bridge engineers, steel fabricators, erectors, detailers, architects, and educators with information on the latest design and construction techniques. Participants can attend the Structural Stability Research Council's Annual Stability Conference, which is held in conjunction with the NASCC. NASCC registration also includes admission to the World Steel Bridge Symposium.

Contact: Brian Kozy at FHWA, 202-493-0341 (email: brian.kozy@dot.gov), or visit www.aisc.org/nascc.

2012 Design-Build in Transportation Conference April 25–27, 2012, Phoenix, AZ

Join transportation leaders in discussing lessons learned in the use of the design-build project delivery method for transportation projects. Discussions will cover choosing the right delivery method, contracting approaches, risk allocation, and performance contracting. The conference is cosponsored by FHWA, AASHTO, and industry groups.

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

2012 International Conference on Winter Maintenance and Surface Transportation Weather

April 30–May 3, 2012, Coralville, IA

Sponsored by TRB, the Iowa Department of Transportation, AASHTO, and FHWA, the conference will cover both the state-of-the-art and the state-of-the-practice in improving snow removal and ice control operations. Sessions will highlight performance measures, road weath-

er and surface condition data collection, innovative equipment and materials, and large-volume snow control, among other topics.

Contact: For more information, visit www.trb.org/Calendar/Blurbs/2012_International_Conference_on_Winter_Maintenanc_164319.aspx.

Seventh RILEM International Conference on Cracking in Pavements

June 20–22, 2012, Delft, Netherlands

Conference topics will spotlight the detection, prediction, and mitigation of cracking in pavements; laboratory and field model validation; and accelerated pavement testing. Organized by RILEM (the International Union of Laboratories and Experts in Construction Materials, Systems, and Structures), conference partners include FHWA and AASHTO.

Contact: Katherine Petros at FHWA, 202-493-3154 (email: katherine.petros@dot.gov), or visit www.rilem2012.org.

International Conference on Long-Life Concrete Pavements

September 18–21, 2012, Seattle, WA

Organized by FHWA, in partnership with the National Concrete Pavement Technology Center, the conference will address aspects of concrete pavement design, construction, and materials technologies that result in long-life, sustainable concrete pavements. A mini-symposium on concrete paving durability will be held on the final day of the conference.

Contact: Shiraz Tayabji at Fugro Consultants, Inc., 410-302-0831 (email: stayabji@aol.com), or Sam Tyson at FHWA, 202-366-1326 (email: sam.tyson@dot.gov). Conference information is also available at www.fhwa.dot.gov/pavement/concrete/2012conf.cfm. *

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

LTPP Program Releases New Data

The world's largest and most comprehensive pavement performance database is at your fingertips with the debut of Standard Data Release (SDR) 26 from the Federal Highway Administration's (FHWA) Long-Term Pavement Performance (LTPP) program. Available at no charge on DVD, the SDR is in Microsoft Access® format.

The release contains the complete LTPP pavement performance database. An accompanying Reference Library DVD provides information on software utilities, resource documents, and research reports that support the database.

Since the LTPP program began in 1987, data have been collected on the performance of nearly 2,500 in-service pavement test sections throughout the United States and Canada. Translated into an array of products and tools for pavement engineers, LTPP data have also played an important role in validating and calibrating the *Mechanistic-Empirical Pavement Design Guide*.

To obtain a copy of SDR 26, contact LTPP Customer Support Services at 202-493-3035 (email: ltppinfo@dot.gov). For more information about LTPP products or to access the LTPP database online, visit www.ltpp-products.com. *

