

FHWA R&T Now ~July 2009~

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

GENERAL/ADMINISTRATIVE

-U.S. Transportation Secretary Ray LaHood: Overall Traffic Fatalities Reach Record Low-

The U.S. Department of Transportation today announced that the number of overall traffic fatalities reported in 2008 hit their lowest level since 1961 and that fatalities in the first three months of 2009 continue to decrease.

<http://www.dot.gov/affairs/2009/dot9309.htm>

-Mendez Confirmed as Federal Highway Administrator-

Former Arizona state transportation official Victor Mendez has been confirmed by the U.S. Senate as Administrator of the Federal Highway Administration (FHWA). "Victor's lengthy record of delivering major infrastructure projects on time and his enthusiasm for innovative solutions to complex transportation problems make him an excellent addition to the team," said Jeff Paniati, FHWA's Executive Director, who had been serving as Acting Administrator since January 20. "His leadership and experience are exactly what the nation's highways need right now. "Mendez, the former director of Arizona's Department of Transportation, will begin on July 20th and will deal with critical and timely issues in his role as the nation's top federal highway official, including implementing the American Reinvestment and Recovery Act, the largest new investment in the nation's infrastructure in years, and the reauthorization of the surface transportation law, which will guide federal investment in the nation's network of roads and bridges for years to come.

<http://www.fhwa.dot.gov/pressroom/mendez090713.htm>

-Annual Study on Nationwide Traffic Congestion Released July 08-

The Texas Transportation Institute (TTI) distributed the findings of its annual Urban Mobility Report on July 8, 2009. Sponsors of the study, established in 1982, include the University Transportation Center for Mobility, the American Road and Transportation Builders Association Transportation Development Foundation and the American Public Transportation Association. The study's findings are intended to provide a collection of easily understood measures to support national and local decision-making related to understanding the congestion problem and identifying solutions.

<http://mobility.tamu.edu/ums>

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-Diverging Diamond Interchange – Springfield Missouri-

The first Diverging Diamond Interchange (DDI) in the United States was opened to traffic on June 22, 2009 in Springfield, Missouri. The Missouri Division began promoting the DDI concept in 2004, and the Missouri DOT took the lead in embracing the concept. The Office of Research and Development at Turner-Fairbank worked closely with MoDOT, building a model of a DDI in the Highway Driving Simulator. The DDI design improves both safety and mobility by minimizing signal phases and more effectively serving

left turning motorists. Additionally, the design eliminates the need for exclusive left turn lanes on the bridge, significantly reducing project cost. MoDOT is planning a similar Diverging Diamond project at another location in Springfield, and similar projects are underway in Kansas City and St. Louis. Following Missouri's lead, a number of other states are on track to build Diverging Diamond Interchanges. For additional information about this project, please contact Felix Gonzalez or Brian Chandler at the FHWA Missouri Division, 573-636-7104.

ADVANCED RESEARCH

-FHWA Received Exploratory Advanced Research Proposals; Solicitation Remains Open until September 23-

The FHWA Exploratory Advanced Research (EAR) Program received and is reviewing proposals in response to a Broad Agency Announcement on 12 topics in the four focus areas: nanoscale research, concepts for integrated highway safety and systems operations, new technologies and advanced policies for energy and resource conservation systems, and macro, mega-regional and national scale modeling systems. June 24, 2009, was the deadline for proposals that could be funded in FY 2009. The solicitation remains open until September 23, 2009, for awards funded in FY 2010. The EAR Program plans to award around \$11.6 million to proposals responding to the solicitation. For more information, please see <http://www.fhwa.dot.gov/advancedresearch/index.cfm> or contact:

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-Exploratory Advanced Research at CUTC Meeting-

At the recent Council of University Transportation Centers (CUTC) meeting hosted by the University of Massachusetts in Amherst, David Kuehn, the FHWA Exploratory Advanced Research (EAR) Program Manager, discussed the role of EAR in preparing for the future of transportation with three university researchers. The panel consisted of Dr. Avanash Unnikrishna who has done research on "Intersection Control for Autonomous Vehicles" at the University of Texas Austin (and will be starting at the University of West Virginia in the fall); Dr. Zachary C. Grasley, who is researching "High Performance, Stress Relaxing Cementitious Composites for Crack Free Pavements and Transportation Structures" at Texas A&M; and Dr. Steven E. Shladover, who is researching "Development and Evaluation of Selected Mobility Applications for VII" at University of California, Berkeley. The EAR Program funds exploratory advanced research across the range of issues that are critical to the transportation industry. FHWA awarded 17 projects through the EAR Program based on full and open competitions during FY 2007 and FY 2008 involving 15 different universities and colleges. For more information, see:

<http://www.fhwa.dot.gov/advancedresearch/index.cfm>

-FHWA Investigates Smart Particles-

The FHWA Exploratory Advanced Research (EAR) program and Office of Infrastructure R&D hosted a market research meeting on June 18 titled "Smart sensors for hydraulic research." The purpose of the meeting was to discuss the applicability and feasibility of using smart particle sensors to perform in-situ hydraulic research, with the focus being on measuring evolving scour conditions at bridges in real time, and during extreme storm events. Representatives from industry and academia presented their ideas to the other meeting attendees and government review panel composed of experts from the US Army Corps of Engineers, National Institute of Standards and Technology, US Geological Survey, US Naval Academy, and Oak Ridge National Laboratory. The presentations were followed with productive discussion and

brainstorming sessions, and a follow-up meeting is being planned for this fall. For more information, please see:

<https://www.fbo.gov/index?s=opportunity&mode=form&id=5829f8f336c4d4ce108d583400b0a52e&tab=core&cvview=0>

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-Technology Makes Research Easier-

The FHWA Exploratory Advanced Research (EAR) Program sponsored a second in an occasional series of workshops on reference skills for researchers. The workshop held on Thursday, June 25, 2009, provided information on "Leveraging the Power of the Internet: Research Scanning Using RSS." Using RSS can save time and effort staying current with ongoing research. For more information or suggestions about other topics on research reference skills, contact:

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-Fact Sheet: Increasing Highway Throughput Communications and Control Technologies to Improve Traffic Flow-

How can the new capabilities of intelligent vehicles and highway infrastructure be used to reduce congestion and effectively increase highway capacity? This question is the focus of "Development and Evaluation of Selected Mobility Applications for VII," an Exploratory Advanced Research (EAR) Program project launched by the Federal Highway Administration (FHWA) in 2007. Researchers at the Partners for Advanced Transit and Highways (PATH) program of the University of California, Berkeley, are conducting the 3-year project in cooperation with Caltrans.

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<http://www.fhwa.dot.gov/advancedresearch/pubs/inchwyfact.cfm>

-Fact Sheet: Seeing in the Dark Improving Understanding of Driver Visibility Requirements at Night-

What visual cues aid drivers the most as they drive at night? Advancing knowledge and understanding of how drivers acquire and act on visual information while driving at night is the goal of "Increased Understanding of Driver Visibility Requirements," an Exploratory Advanced Research (EAR) Program project launched by the Federal Highway Administration (FHWA) in 2008.

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<http://www.fhwa.dot.gov/advancedresearch/pubs/seedarkear.cfm>

INFRASTRUCTURE

-TFHRC Chemistry Laboratory Develops New Method for Detecting REOB in Asphalt-

The chemistry laboratory at the Turner Fairbank Highway Research Center (TFHRC) has developed a method for detecting recycled engine oil bottoms (REOB) in asphalt. These are residues from recycling of used engine oils. Their use in asphalt has become widespread. Conventional analysis might indicate

incorrectly that the asphalt was modified with phosphoric acid. The new method is able to distinguish between phosphoric acid and REOB.

<http://www.fhwa.dot.gov/pavement/asphalt/labs/binder/colorimetric.cfm>

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-Hydrodynamic Forces on Inundated Bridge Decks-

When a bridge crossing a waterway is partially or entirely submerged during a flood event, its deck may be subjected to significant hydrodynamic loading. The proper estimation of loading exerted by the flow on the structure is important for design and evaluation of vulnerability. This report uses a combination of reduced scale experiments and computer modeling to investigate the forces on inundated bridges.

<http://www.tfhrc.gov/structur/pubs/09028/index.htm>

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-Corrosion Resistant Alloys for Reinforced Concrete-

Deterioration of concrete bridges because of reinforcing steel corrosion has been recognized for 4-plus decades as a major technical and economic challenge for the United States. As an option for addressing this problem, renewed interest has focused on corrosion resistant reinforcements, stainless steels in particular.

<http://www.tfhrc.gov/structur/pubs/09020/index.htm>

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SAFETY

-Techbrief: Safety Evaluation of Lane and Shoulder Width Combinations on Rural, Two-Lane, Undivided Roads-

This document is a technical summary of the Federal Highway Administration report Safety Evaluation of Lane and Shoulder Width Combinations on Rural, Two-Lane, Undivided Roads (FHWA-HRT-09-031).

<http://www.tfhrc.gov/safety/pubs/09032/index.htm>

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-Safety Evaluation of Lane and Shoulder Width Combinations on Rural, Two-Lane, Undivided Roads-

The goal of this research was to estimate the safety effectiveness of various lane and shoulder width combinations on rural, two-lane, undivided roads in the Evaluation of Low-Cost Safety Improvements Pooled Fund Study (ELCSI-PFS) Phase II. This evaluation intends to identify optimal lane and shoulder width combinations for fixed total paved widths as a countermeasure for roadway departure crashes.

<http://www.tfhrc.gov/safety/pubs/09031/index.htm>

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-Techbrief: Safety Evaluation of Advance Street Name Signs-

The general conclusion from this research is that advance street name signs have a minimal effect on the total number of crashes at signalized intersections.

<http://www.tfsrc.gov/safety/pubs/09030/index.htm>

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-Safety Evaluation of Advance Street Name Signs-

The goal of this research was to evaluate and estimate the safety effectiveness of advance street name signs at signalized intersections in the Evaluation of Low-Cost Safety Improvements Pooled Fund Study (ELCSI-PFS), Phase II. This strategy is intended to reduce the frequency of older driver crashes and crashes related to way-finding (i.e., rear-end and sideswipe crashes) at signalized intersections.

<http://www.tfsrc.gov/safety/pubs/09029/index.htm>

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-Techbrief: Safety Evaluation of Offset Improvements for Left-Turn Lanes-

This document is a technical summary of the Federal Highway Administration report, *Safety Evaluation of Offset Improvements for Left-Turn Lanes* (FHWA-HRT-09-035),

<http://www.tfsrc.gov/safety/pubs/09036/index.htm>

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-Safety Evaluation of Offset Improvements for Left-Turn Lanes-

The goal of this research was to evaluate and estimate the safety effectiveness of offset improvements for left-turn lanes in the Evaluation of Low-Cost Safety Improvements Pooled Fund Study (ELCSI-PFS) Phase II. This strategy is intended to reduce the frequency of crashes by providing better visibility for drivers that are turning left.

<http://www.tfsrc.gov/safety/pubs/09035/index.htm>

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OPPORTUNITIES

-Federal Highway Administration to Provide \$2 Million to Spur Highway Innovations that Reduce Congestion and Improve Safety-

Two million dollars in Federal funding will be available to test new technologies that can reduce congestion from construction and improve safety and quality. The FHWA will award \$2 million through a third solicitation under the Highways for LIFE Program in addition to the \$2,373,000 previously awarded. The funds promote testing and evaluation of emerging technologies to move them closer to implementation. A solicitation for proposals will be issued in the latter part of August 2009. Both for-profit, private companies and industries, and non-profit domestic and international organizations can apply.

FHWA encourages partnership with State and local governments and academic institutions. For more information on previous awardees, see:

<http://www.fhwa.dot.gov/hfl/tech.cfm>

To sign up to receive an email notification when the 2009 solicitation is published, go to:

<http://www.fhwa.dot.gov/hfl/partnerships/notify.cfm>

RECENT PERIODICALS

-FOCUS Newsletter -- June 2009-

This issue includes: A State of the Practice Guide to Prefabricated Bridge Elements and Systems; Highways for LIFE Extends 2009 Project Solicitation; State Experiences with FHWA RealCost Software Showcased at Technical Forum; Excellence in Utility Relocation and Accommodation 2009; FHWA Offers Training Course on Bridge Safety Inspections; and, Highway Technology Calendar.

<http://www.tfsrc.gov/focus/june09/index.htm>

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-FOCUS Newsletter – May 2009-

This issue includes: Bridge Preservation: The Time Is Now; FHWA Webinar Spotlights Advancements in Bridge Inspection; The Fundamentals of Life Cycle Cost Analysis; Highway Technology Calendar; Rapid Repair with Precast Concrete Pavement Technology, and, ARRA Updates Available Online.

<http://www.tfsrc.gov/focus/may09/index.htm>

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-Public Roads – July/August 2009-

This issue includes: 1. Safe Routes to School—Making a Big Difference Via Small Steps. 2. The Color of Safety. 3. Reconstructing Snoqualmie Pass. 4. A New Left Turn. 5. Retaining Walls Are Assets Too!

<http://www.tfsrc.gov/pubrds/09julyaug/index.htm>

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-Public Roads – May/June 2009-

This issue includes: 1. Peering Into the Unknown. 2. A Mix of Innovations Succeeds in Minnesota. 3. Exploring Vehicle Size and Weight Solutions. 4. Using CRFs to Improve Highway Safety. 5. Traffic Safety Education for Nonengineers.

<http://www.tfsrc.gov/pubrds/09june/index.htm>

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-LTPP Newsletter- Spring 2009-

This issue includes: LTPP is Moving Forward with the Collection of Traffic Data; LTPP Database Tips; In Brief: Relationships Between Laboratory-Measured and Field-Derived Properties of Pavement Layers; and, New Publications.

<http://www.fhwa.dot.gov/pavement/ltp/news.cfm>

-Transportation and Climate Change Newsletter –June 2009-

This issue includes: Transportation Legislation Introduced; House Passes Climate Change Legislation; Global Climate Change Impacts in the United States Report Released; DOT, HUD, and EPA Announce Partnership for Sustainable Communities; EPA Grants Available to Develop Local and Tribal Government “Climate Showcase Communities”; CCAP Releases Two Climate Change Studies; EPA Grants Waiver to California; Washington Governor Directs State Agencies to Lead on Climate Change; and, 2009 Transportation, Planning, Land Use and Air Quality Conference to Focus on Climate Change.

<http://www.fhwa.dot.gov/hep/climatechange/newsletter/ccnews0609.htm>

-Transportation and Climate Change Newsletter – May 2009-

This issue includes: House Energy and Commerce Committee Approves HRT 2454; EPA and DOT to Conduct Joint Rulemaking on GHG and CAFÉ Standards; EPA Announces 2008 Clean Air Excellence Awards; Robert Ritter Named FHWA Sustainable Transport and Climate Change Team Leader; New York City Climate Change Risk; Impacts of Climate Change in Washington State; DOE Funding Available for Transportation Projects that Conserve Energy; and, 2009 Transportation, Planning, Land Use and Air Quality Conference to focus on Climate Change.

<http://www.fhwa.dot.gov/hep/climatechange/newsletter/ccnews0509.htm>

Links:

Turner-Fairbank Highway Research Center: www.tfsrc.gov

Resource Center: <http://www.fhwa.dot.gov/resourcecenter/>

National Highway Institute: <http://www.nhi.fhwa.dot.gov/home.aspx>

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

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