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Photo Courtesy Rutgers University, Nenad Gucunski

Saving Lives through New Responder Training Program

More than 55,000 traffic incident responders in 43 states and the District of Columbia have been trained using a new curriculum developed through SHRP2. The **National Traffic Incident Management (TIM) Responder Training** program (L12) was designed to build teams of well-trained responders, including police, fire, highway workers, emergency medical, towing and public works, who collaborate on-scene. Participants learn “quick clearance” techniques such as the correct placement of response equipment and traffic control devices and how to create a safe work area. This SHRP2 program will enable responders to more quickly clear crashes, which will reduce secondary accidents and traveler delays due to resulting congestion. So convinced of its value, several states are now requiring their state police, highway patrol, and DOT responders to take the training.

In May 2014, the **Tennessee Department of Transportation (TDOT)** partnered with the state’s Department of Safety to construct the nation’s first traffic incident management training facility outside of Nashville. Sections of interstate and two-lane roads will be constructed and used to simulate actual crash conditions as part of the hands-on TIM training. The facility will be available to all responders and is expected to be completed by the Fall of 2014.

Contact: Phillip “Brad” Freeze, Director of Traffic Operations, TDOT, Phillip.B.Freeze@tn.gov, 615-741-5017.

Improving Transportation Systems Management and Operations

Using the SHRP2 **Organizing for Reliability** (L06) product, 32 transportation agencies are now working through a methodical approach to identify and assess their current operational capabilities, develop actions plans based on best practices, and begin an implementation process. Their goal: to improve highway management processes, reduce unexpected congestion, and increase the reliability of travel times.

As one example, the **Ohio Department of Transportation (ODOT)** as part of its action plan will be sending two teams on five benchmarking trips to states that are considered highly effective in several operational areas. The teams include representatives from ODOT as well as from city and county governments and metropolitan planning organizations across the state. At the conclusion of the benchmarking trips in early 2015, ODOT will prepare a set of recommendations to its executive management team that includes an assessment of what they’ve learned regarding core functions, staffing, organization, measurable, budgets, or new technology.

A related SHRP2 effort to build an **Enhanced Knowledge Transfer System** (L17) – an actively managed website on transportation systems management and operations – is also underway. It is expected to become a central piece of the National Operations Center of Excellence, also currently under development. The new website and Center are expected to be launched in January 2015. The website will contain easily searchable content spanning the entire spectrum of operations activities, all related SHRP2 products, a users’ forum, and other types of services.

Contact: Mike Flynn, Assistant Director for Field Operations, ODOT, mike.flynn@dot.state.oh.us, 614-387-5177.

SHRP2 Solutions in Action – Meeting the Needs of the 21st Century Transportation Network



New Safety Database Available to States

A new safety database will soon be in the hands of transportation agencies seeking to develop improved methods for reducing crashes and improving highway safety.

Through the FHWA/AASHTO Implementation Assistance Program, results from the Naturalistic Driving Study (NDS) and Roadway Information Database will be made available to state departments of transportation interested in analyzing the data to identify crash causation factors and develop effective countermeasures such as road designs or public safety campaigns that will address their unique safety concerns.

The NDS will enable a better understanding of what happens in the vehicle and how the driver interacts with the roadway, the environment, other vehicles, and vulnerable road users such as pedestrians and bicyclists.



As of summer 2014, bridges are under construction, pavement placed, and complex projects are moving forward using the innovations developed through the second Strategic Highway Research Program (SHRP2). Looking across the entire spectrum of SHRP2 Solutions, every state and the District of Columbia is engaged in implementing at least one SHRP2 product.

Overall, SHRP2 is investing more than \$126 million at the federal, state, and local levels to improve safety, rebuild our aging highways and bridges, and increase mobility for the traveling public.

Implementation activities span the full range of transportation responsibilities – from the **New York Department of Transportation’s** I-84 bridge replacement program, dubbed “Two years versus two weekends” to illustrate the actual reduction in disruption time to drivers – to workshops being held in **Alabama, Rhode Island, and Minnesota** on new pavement preservation techniques for high-volume roadways – to a partnership between the **New Hampshire Department of Transportation** and the state’s Natural Heritage Bureau to assess wetlands impacted by roadway projects as part of the **Implementing Eco-Logical** product.

Clearly **peers** speaking to **peers** about how they are implementing specific SHRP2 products are key to making this program successful. This brochure offers a quick snapshot of the approach some states are taking to implement specific products. In addition to the SHRP2 Solutions mentioned here, additional products are available to the states and other transportation agencies and can be found at the Federal Highway Administration (FHWA), American Association of State Highway and Transportation Officials (AASHTO), and Transportation Research Board (TRB) websites.

What’s ahead?

More products will be rolled out in 2015. A tentative list and approximate dates are included here so that transportation agencies can assess what products might best complement their work plans.

SHRP2 Solutions in Action



Better Managing Risk in Florida

The Challenge: The **Florida Department of Transportation (FLDOT)** initiated a change to the state’s risk management culture in 2007 following its participation in a FHWA-TRB sponsored pilot training course on risk management. Since that initial training, FLDOT moved to implement a formal risk management program in the project development process that includes a Statewide Risk Analysis Team and regional teams that conduct risk workshops on projects with total costs more than \$100 million. But with many complex projects on the horizon, FLDOT officials wanted to do more.



Photo Courtesy Florida DOT

The Solution: FLDOT is now receiving implementation assistance for **Managing Risk in Renewal Projects** (R09), through both Proof of Concept and Lead Adopter opportunities. FLDOT conducted a risk *analysis* workshop on the Gateway Express project in Pinellas County in September 2013 under the Proof of Concept assistance. Under the Lead Adopter assistance, FLDOT plans to conduct another risk *analysis* workshop on the SR-40 project, located in Marion and Volusia counties, as well as a risk *response* workshop, which includes actions to manage and mitigate identified risks on the Gateway Express project. In addition, FLDOT plans a two-day train-the-facilitator session for its staff and is acquiring risk analysis/management software.

Contact: Phillip “Greg” Davis, State Estimates Engineer, FLDOT, greg.davis@dot.state.fl.us, 850-414-4170.

More SHRP2 Products Tentatively Scheduled for 2015

Round Five	
Planning Process Bundle (C02/08/09/12/15)	Performance Specifications for Rapid Renewal (R07)
3D Utility Location Data Repository (R01A)	Railroad-DOT Mitigation Strategies (R16)
Round Six	
PlanWorks (C01)	Advanced Methods to Identifying Pavement Delamination (R06D)
Nondestructive Testing for Concrete Bridge Decks (R06A)	WISE: Workzone Impact Estimation Software (R11)
Techniques to Fingerprint Construction Materials (R06B)	Service Life Design for Bridges (R19A)
	Service Limit State Design for Bridges (R19B)

For more information on these and any other SHRP2 Solutions, contact Pam Hutton, AASHTO’s SHRP2 Implementation Manager, phutton@aaashto.org, 303-263-1212.

<http://www.fhwa.dot.gov/goshrp2/> or <http://SHRP2.transportation.org>





Using SHRP2 to Support Freight Movement in Wisconsin

The Challenge: Wisconsin's leadership has prioritized the efficient movement of freight at the executive level. The Governor's Freight Friendly Wisconsin initiative, the freight industry summit, and related efforts at the **Wisconsin Department of Transportation** (WisDOT) are all aimed at providing leadership in the development and operation of an accessible freight network both today and into the future. Forecasting the full freight supply chain statewide and integrating this with localized truck tours in urban areas of Wisconsin continues to be a challenge.

The Solution: By using the SHRP2 solution, **Freight Modeling and Data Improvements (C20)**, WisDOT will develop freight modeling practices, tools, and data to examine the complex logistics practices of the freight industry. WisDOT will work with Wisconsin's metropolitan planning organizations, a freight study committee, and stakeholders to develop the toolset. The toolset will include a statewide supply chain model and a tour-based local metropolitan area freight model. The toolset will help analysts evaluate first and last mile connections; the economics of moving freight; policies that affect the characteristics of shipment, pick-up, and delivery times; and regulations such as truck size and weight. This effort will support business and economic development decisions, build collaboration with stakeholders, and improve freight tools.

Contact: Jennifer Murray, Traffic Forecasting Section Chief, WisDOT, jennifer.murray@dot.wi.gov, 608-264-8722.



Photo Courtesy Wisconsin DOT

Using SHRP2's Performance Specifications to Leverage Intelligent Compaction in Alabama

The Challenge: The **Alabama Department of Transportation** (ALDOT) plans to begin using intelligent compaction to gain improvements in their quality control process and to increase the productivity of their contractors while increasing cost savings for all involved. The improvement in quality control would provide more detailed knowledge of the roadway mat stiffness while allowing for real-time correction by the contractor. In order to engage the ALDOT staff and their contractors, ALDOT is combining this new process with a second innovation – the SHRP2 solution, **Performance Specifications for Rapid Renewal (R07)**.

The Solution: Using performance specifications instead of method specifications will enable the contractors and ALDOT to see the benefits of both new processes. Currently the only test methods for assessing the roadway mat are core testing, which is destructive in nature, and nuclear density testing via the back scatter method—both of which are point-based tests. A performance-based specification will allow ALDOT to assess the entire roadway mat and provide real-time quality control for the contractor in asphalt lay-down operations. The current timetable would be to incorporate a SHRP2-based performance specification for two



Photo Courtesy Alabama DOT



projects set up specifically to use intelligent compaction in the late 2014 or early 2015 paving season.

Contact: Lyndi Blackburn, Assistant State Materials and Test Engineer, Alabama ALDOT, blackburnl@dot.state.al.us, 334-206-2203.

Building Bridges More Quickly in Rhode Island

The Challenge: Rhode Island has a growing number of heavily traveled, older bridges that need to be replaced. Using the **Innovative Bridge Design** product (R04), the **Rhode Island Department of Transportation** (RIDOT) will be able to rebuild them quickly, with work occurring over weekends instead of months. The existing Warren Avenue bridge was built in 1959 and carries an on-ramp to I-195 West. It is a critical link that cannot be out of service for an extended period of time.

The Solution: The bridge being replaced has timber bracing under its piers. The simple span replacement bridge will be built with precast elements for the superstructure, consisting of a concrete deck with two beams. Grouted splicers will be used to connect the superstructure elements together. The superstructure will be erected using two modular units with the deck precast onto the support beams and a single closure pour used to knit the two units together. Crushed stone will be used as structural fill behind the abutments to speed the placement and further shorten the closure time of the ramp. The total closure time is expected to be less than 30 days; the project carries significant incentives and disincentives for the contractor.

The estimated cost of the precast elements is \$1 million, and the total construction estimate is \$2.9 million. The project is currently under construction and the bridge installation is set for mid-Fall 2014. Rhode Island will hold a showcase later this year to share lessons learned.

Contact: John W. Preiss, P.E., Chief Civil Engineer, RIDOT, jpreiss@dot.ri.gov, 401-222-2053.



Photo Courtesy Rhode Island DOT

Identifying Utilities Earlier in the Process in Oklahoma

The Challenge: With the existing project development processes used by the **Oklahoma Department of Transportation** (ODOT), communication on utility conflicts only occurs at certain points between the Roadway Design Division and Utilities Branch (UB). At the project scoping stage, utilities are discussed with the representatives from design, right-of-way, and survey. At the 30-percent-design stage, the UB becomes involved with the project and determines if utilities will need to be relocated. The UB does not generally review the design again until 60 percent completion of the plans.



Photo Courtesy Oklahoma DOT | Route 60/Osage County project is expected to use UCM.



At that point, the UB and Roadway Design will have discussions on utility conflicts impacted by the design, such as the location of drainage structures. With growing pressure to more closely manage the budget and schedule on construction projects, ODOT is seeking to test SHRP2's **Utility Conflict Matrix (UCM)** (R15B) to identify alternatives to reduce the instances of utility impacts.

The Solution: ODOT is revising the utility section of its Design Manual to improve its processes and procedures, and has identified utility accommodations as a way to expedite and improve the project delivery processes. ODOT is expected to customize the UCM for use in the design process to coordinate utility relocations with utility companies, and track utility relocation status. The UCM would also be used by ODOT's Project Management staff to track the status of utility conflict resolutions during preconstruction. As part of implementation, ODOT plans to host a training course for product users.

Contact: Marvin Bright, Utilities Branch Manager, ODOT, MBright@odot.org, 405-521-2641.

Improving Project Delivery Schedules While Protecting Salmon Habitat in Maine

The Challenge: When the area mapped under the Endangered Species Act (ESA) for Atlantic Salmon Distinct Population Segment was expanded and critical habitat added, the **Maine Department of Transportation** (MaineDOT) found that almost half of the state's river basins were affected. With up to 200 stream-related transportation projects conducted each year (about 25% of which were within the mapped area), MaineDOT found that each consultation required under the federal ESA law could take between two and three years to be completed by the U.S. Fish and Wildlife Service (USFWS). Unfortunately, as a result, all projects related to the salmon habitat were missing their original target date for completing consultation as well as encountering delays in construction.

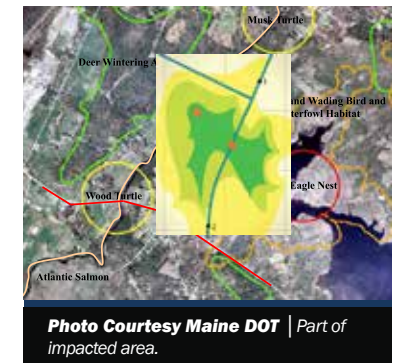


Photo Courtesy Maine DOT | Part of impacted area.

The Solution: Through the Implementation Assistance Program for **Implementing Eco-Logical (C06)**, MaineDOT is now undertaking a multi-pronged approach to improve project delivery while ensuring salmon habitat is protected. First, MaineDOT is screening projects before they are included in the work plan in conjunction with the USFWS to identify top priorities for field work and "fully accessible" designs. MaineDOT is also developing a programmatic biological assessment as well as a mitigation plan with specific options and fees identified. A project database will also include a commitments tracking database to monitor noise and other factors that will help identify certain construction methods to be used in various scenarios. Through these efforts, MaineDOT hopes to meet the ESA requirements while moving ahead with needed transportation projects.

Contact: Judy Gates, Director of the MDOT Environmental Office, judy.gates@maine.gov, 207-624-3100.