



## New Opportunities to Implement SHRP2 Solutions Round 4 Offers 12 Products for Transportation Agencies

### Round 4 products

#### Renewal

- Nondestructive Testing for Concrete Bridge Decks (R06A)
- Nondestructive Testing for Tunnel Linings (R06G)
- Service Life Design for Bridges (R19A)
- New Composite Pavement Systems (R21)
- Tools to Improve PCC Pavement Smoothness During Construction (R06E)

- Technologies to Enhance Quality Control on Asphalt Pavements (R06C)
- Managing Risk in Rapid Renewal Projects (R09)
- Project Management Strategies for Complex Projects (R10)

#### Capacity

- Economic Analysis Tools (C03/C11)
- Advanced Travel Analysis Tools (C10/C04/C05/C16)

#### Reliability

- Reliability Data and Analysis Tools (L02/L05/L07/L08/C11)

#### Safety

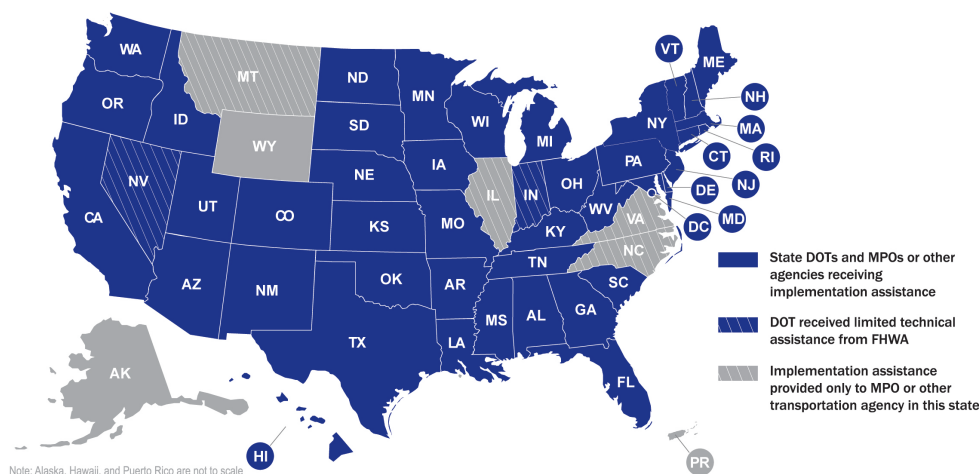
- Concept to Countermeasure – Research to Deployment Using the SHRP2 Safety Databases

Products to help renew your aging infrastructure, identify economic benefits of transportation improvements, build stronger systems management and operational capabilities, and research and develop new methods to improve safety will be available through Round 4 of the FHWA/AASHTO SHRP2 Implementation Assistance Program (IAP).

The IAP offers technical and financial assistance to transportation agencies who want to implement the innovative processes, technologies, and tools developed through the second Strategic Highway Research Program.

The application process for a dozen SHRP2 products will open on May 30, 2014. Webinars will be held in May to discuss the products, how they can be used within a transportation agency, and the IAP opportunity and criteria. Links to each webinar can be found at GoSHRP2 at <http://www.fhwa.dot.gov/goshrp2/> and at <http://SHRP2.transportation.org>.

### Transportation Agencies Begin Implementing SHRP2 Rounds 1, 2, and 3 Products – FHWA/AASHTO Implementation Assistance Program



## Products to Improve Pavements

### Technologies to Enhance Quality Control on Asphalt Pavements (R06C)

#### ▶ What is the Product?

- Guidelines to use infrared (IR) imaging and ground-penetrating radar (GPR) for uniformity measurements on new asphalt concrete (AC) layers.
- IR truck-mounted, automated systems to measure the real-time temperature uniformity of mat immediately after placement and when paver stops.
- Recommendations for equipment and testing protocols for testing the thermal uniformity of entire surface area during new AC construction.

#### ▶ How can my DOT use these SHRP2 Solutions?

- Obtain more uniformly constructed hot-mix asphalt and warm-mix asphalt layers.
- Simplify operator set up and calibration with real-time data processing.
- Allow prompt corrective action during construction operations and help contractors achieve their performance goals.
- Improve quality verification at lower temperatures and night paving.
- Introduce contractors to inspection tools that may help eliminate segregation, and reduce maintenance budgets.

### Tools to Improve PCC Pavement Smoothness During Construction (R06E)

#### ▶ What is the Product?

- New, proven technologies that measure concrete pavement smoothness in real time during construction.
- Construction guidance to expedite the implementation of these technologies.

#### ▶ How can my DOT use these SHRP2 Solutions?

- Improve process controls and produce a better quality product by allowing adjustments of equipment and operations to correct surface irregularities while the concrete is still workable.
- Provide higher-quality, lower-cost pavement, constructed faster and with less impact on the traveling public.
- Mitigate risks and improve cost savings for agencies as well as bonus earnings for contractors.

SAVE MONEY 



### New Composite Pavement Systems (R21)

#### ▶ What is the Product?

- Step-by-step guidance on how and when to use two types of composite pavements - Hot-Mix Asphalt (HMA) over Portland Cement Concrete (PCC), and PCC over PCC (constructed wet on wet) using procedures consistent with the Mechanistic-Empirical Pavement Design Guide (MEPDG).
- New guidance for constructing cost-effective, safe, and longer-lasting composite pavement systems, including state-of-the-art guidelines, techniques, and specifications for constructing composite pavements.
- Detailed performance data on existing composite pavement systems.

#### ▶ How can my DOT use these SHRP2 Solutions?

- For Hot-Mix Asphalt (HMA) over Portland Cement Concrete (PCC):

SAVE LIVES 

## Use New Research Data to Tackle Safety Programs, Roadway Designs

### Concept to Countermeasure – Research to Deployment Using the SHRP2 Safety Databases

#### What is the Product?

- Data from the Naturalistic Driving Study from 3,150 drivers over a three-year period.
- Includes driver behavior - before and during crashes and near-crash events; vehicle speeds; acceleration; braking; vehicle controls; lane position; forward radar and video views to the front and rear of the vehicle and on the driver's face and hands.
- Data from Roadway Information Database of 12,500 center-line miles of roadway as well as cell phone records and supplemental information including crash histories, traffic, weather, work zones, and safety campaigns.

#### How can my DOT use these SHRP2 Solutions?

- Conduct research leading to the development of new or improved safety countermeasures, driver education efforts, and enforcement strategies
- Generate targeted safety programs based on the definitive source of information on driver performance and behavior.
- Recommend improvements to current design.



Photo Credit: TRB, SHRP2



- Create a better surface for travelers – smoother, less noise, and friction.
- Optimize efficient design and life-cycle cost analysis procedures engaging both sides of the materials community (concrete and asphalt).
- For Portland Cement Concrete (PCC) over PCC (constructed wet on wet):
  - Provide more durable, longer-life pavements by optimizing design and materials.
  - Benefit highway users through less noise, longevity, fewer lane closures, lack of delay, and minimal impacts.
  - Provide localized opportunities and additional jobs by potentially decreasing long hauls for locations with limited access to quality aggregate.

- Body of knowledge relating to bridge durability under different exposure conditions and constraints to establish an array of options capable of enhancing service life.



- ▶ How can my DOT use these SHRP2 Solutions?
  - Apply a formal approach to service life design for bridges either programmatically or individually.
  - Plan, design, construct, evaluate, and preserve bridges and bridge components for a targeted service life.
  - Create a uniform process for designing bridges for service life, culminating with a Life Cycle Cost Analysis to assist in the decision making process.

## Products to Improve Structures

### Nondestructive Testing For Concrete Bridge Decks (R06A)

- ▶ What is the Product?
  - Collection of geophysical technologies for evaluating and inspecting concrete bridge decks.
  - Web-based evaluation tool to select appropriate NDT technologies for specific applications.
  - A NDT respository for recommended test procedures, guidelines, results, equipment, specifications, and other information.
- ▶ How can my DOT use these SHRP2 Solutions?
  - Provide greater inspection accuracy, more detailed and objective condition assessment data, and identify progression of deterioration.
  - Evaluate the appropriate NDT technologies for specific defect types and conditions and smarter preventative maintenance programs.
  - Minimize road closures and delays due to inspection.
  - Fulfill asset management requirements under MAP-21.

### Nondestructive Testing for Tunnel Linings (R06G)

- ▶ What is the Product?
  - Information on mobile and hand-held NDT methods for mapping voids, debonding, delaminations, moisture, and other defects behind or within tunnel linings.
  - User's manual and guide for evaluating the best NDT technologies for specific situations.
  - Web-based evaluation tool to select appropriate NDT technologies for specific applications.
- ▶ How can my DOT use these SHRP2 Solutions?
  - Provide greater inspection accuracy, more detailed and objective condition assessment data and progression of deterioration.
  - Obtain detailed tunnel defect scans in small closure windows.
  - Establish a baseline to monitor tunnel conditions over time.
  - Meet new national tunnel inspection requirements.
  - Minimize road closures and delays due to inspection and perform Quality Assurance for other inspections.

### Service Life Design for Bridges (R19A)

- ▶ What is the Product?
  - Design guide with procedures for systematically designing for service life and durability for both new and existing bridges.
  - 12-step framework applicable to all bridges and adaptable to specifics that vary from bridge to bridge.

## Products to Improve Project Delivery

### Managing Risk in Rapid Renewal Projects (R09)

- ▶ What is the Product?
  - A formal risk management process with practical methods to identify, assess, evaluate, mitigate, allocate, monitor, and manage risk.
  - Case studies, a risk/action checklist, implementation tools, a risk register, and a training course for conducting risk assessments.
- ▶ How can my DOT use these SHRP2 Solutions?
  - Enable project managers to better manage their budgets and schedules by anticipating and managing risks.
  - Bring more discipline to existing management processes by allowing project managers to establish appropriate budgets, milestones, and contingencies.
  - Can be used on projects of any size and type.
  - Attractive for states using PPPs, design-build, and other alternative delivery methods.

### Project Management Strategies for Complex Projects (R10)

- ▶ What is the Product?
  - Guide that incorporates a five-dimensional project management approach; adding project context and financing to the three standard factors of cost, schedule, and technical.
  - Step-by-step process to assess project complexity, define critical project success factors, evaluate resources, and address project needs.
  - Includes case studies, application tools, and training material.
- ▶ How can my DOT use these SHRP2 Solutions?
  - Address all aspects of managing a complex project much earlier in the project life.
  - Consider critical success factors, human resources, administrative and financial arrangements, communications, risk management plan, and project action plans.
  - Integrate teams as early as possible in projects to develop action plans and identify resources.

## Products to Assess Capacity Improvements

### Economic Analysis Tools (C03/C11)

- ▶ What is the Product?
  - Database of case studies with pre- and post- data regarding the economic and land development impacts of transportation.
  - Searchable database tool showing impacts for different types of projects and contexts, and a guidance tool to plug-in specific project variables.
  - Spreadsheet-based tool to enable analysis of travel-time reliability, intermodal connectivity, market access, and an accounting framework.
- ▶ How can my DOT use these SHRP2 Solutions?
  - Provide information in early-stage policy/strategy development, “sketch planning”, and public hearing processes.
  - Enable high-level analysis at a lower cost than traditional models.
  - Estimate values of improved access to airports, marine ports, or rail intermodal centers or expansion of these facilities.

### Advanced Travel Analysis Tools (C10/C04/C05/C16)

- ▶ What is the Product?
  - New methods to analyze transportation projects:
    - An integrated dynamic travel model that links travel behavior and dynamic network conditions.
    - Mathematical descriptions of highway-user behavioral responses to congestion, travel-time reliability, and pricing.
    - A guide for modeling the effects of operational strategies to improve capacity and reliability.
    - An easy-to-use strategic assessment tool that allows agencies to test the impacts of policy changes related to demand management, system optimization, and alternative modes.
- ▶ How can my DOT use these SHRP2 Solutions?
  - Understand the benefits of interventions beyond roadway widening such as pricing, demand management, and operational strategies.

- Increase the usefulness of planning models for evaluating operational and pricing alternatives.
- Save time and money by performing better analysis throughout the project life cycle.

## Tools to Improve Planning and Design for a More Reliable Transportation Network

### Reliability Data and Analysis Tools Bundle (L02/05/07/08/C11)

- ▶ What is the Product?
  - Products that support data collection, analysis, and decision making for improving operations and travel-time reliability.
    - Guidebook for building and using a monitoring program for travel-time reliability to help agencies manage network performance. Tools to measure, characterize, and identify the effects of recurring congestion and nonrecurring events; and tips for functional specifications, methods, case studies, and use cases.
    - A spreadsheet tool to analyze the effects of design features on reliability.
    - Tools to incorporate non-recurring congestion factors into the Highway Capacity Manual methods.
    - Guides to incorporate reliability performance measures into the Transportation Planning and Programming Process.
    - Spreadsheet-based tool to enable analysis of travel-time reliability, intermodal connectivity, market access, and an accounting framework.
- ▶ How can my DOT use these SHRP2 Solutions?
  - Apply data integration and analytical tools to move reliability into agency business practices.
  - Enable planning to address both recurring and nonrecurring congestion, including major potential sources of unreliable travel.
  - Estimate the effects of transportation investments on travel time reliability and system operations.

## How Can AASHTO and FHWA Help You Implement SHRP2?



### We can provide:

- **Information** on available funding to implement SHRP2 Solutions
- **Resources** to help you identify the best products to meet your most pressing challenges
- **Technical assistance** and guidance through our committees
- **Training** opportunities
- The power of **peer-to-peer** exchanges

More at: **GoSHRP2** or  
<http://SHRP2.transportation.org>