




SHRP2 SOLUTIONS
STRATEGIC HIGHWAY RESEARCH PROGRAM

Overview & Pavement Update



Thomas Van
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U.S. Department of Transportation
Federal Highway Administration

AMERICAN ASSOCIATION OF
STATE HIGHWAY AND
TRANSPORTATION OFFICIALS
AASHTO
THE VOICE OF TRANSPORTATION



What is SHRP2?

Tools to save lives, save money, save time.



- Products developed from objective, credible research



- Solutions that respond to challenges of the transportation community – safety, aging infrastructure, congestion



- Collaborative effort of AASHTO, FHWA, and TRB
- Tested products, refined in the field

SHRP2 Solutions offer new technologies and processes to enhance the efficiency of transportation agencies

Focus Areas



Safety: fostering safer driving through analysis of driver, roadway and vehicle factors in crashes, near crashes, and ordinary driving



Renewal: rapid maintenance and repair of the deteriorating infrastructure using already-available resources, innovations and technologies



Capacity: planning and designing a highway system that offers minimum disruption and meets the environmental, and economic needs of the community

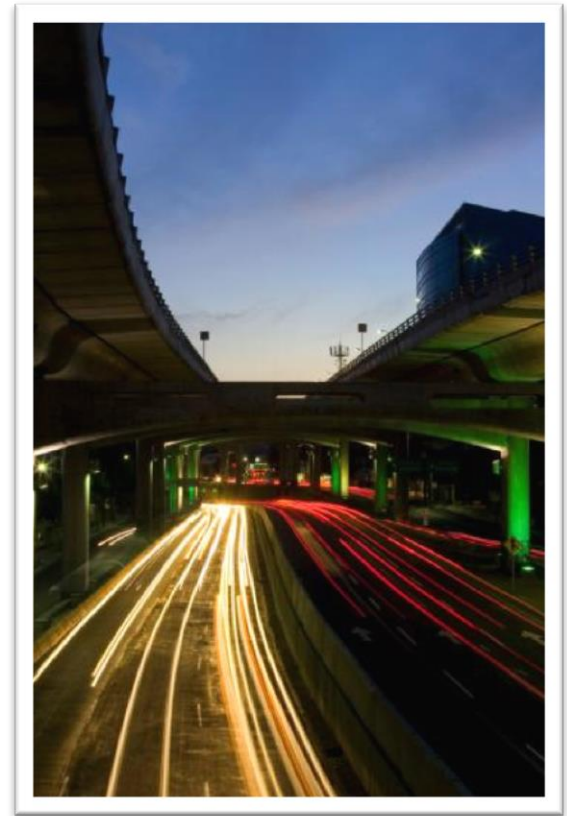


Reliability: reducing congestion and creating more predictable travel times through better operations

Implementing SHRP2 Solutions

Moving Forward

- 66 high-priority products introduced over the next several years
- Users run the gamut of the transportation industry
- Selected products integrated into current transportation practices



Renewal Product Overview

Project Management & Design

- Risk management
- Managing complex projects
- Performance specifications
- Work zone impact software
- Fatigue risk management
- Geotechnical solutions

Pavements

- Preservation for high volume roadways
- Composite pavement systems
- Modular pavement solutions
- Using existing pavements in place

Structures

- Bridge designs for rapid renewal
- Service life guide, systems, and components for 100-year bridges

Non-Destructive Testing

- NDTools - Concrete Bridge Decks
- Fingerprinting construction materials
- Tunnel lining defects
- Asphalt pavement QC
- Pavement delamination
- Pavement smoothness

Utilities and Railroads

- Utility locating technologies
- 3-D Utility location technology
- Practices to expedite DOT/Railroad coordination

SHRP2 Implementation Assistance Program



FHWA Assistance Opportunities

- Designed to help State DOTs, MPOs, local agencies, and other interested organizations deploy SHRP2 Solutions
- Round 1 - Announced in May, 2013
- Round 2 - Announced Sept 6, 2013
- Round 3
 - Application Period Jan 17 – Feb 14, 2014
 - Announcement Anticipated mid-to-late Mar 2014
- Round 4 - Anticipate in Jun 2014

Implementation Assistance Levels of Engagement



Proof of Concept Pilot

- Funds for piloting products to evaluate readiness for implementation
- Contractor support to collect data and evaluate the application

Lead Adopter Incentive

- Funds for early adopters to offset implementation cost and mitigate risks
- Recipients required to provide specific deliverables designed to further refine the product, and possibly “champion” the product to other States and localities

User Incentive

- Funds for implementation support activities after early adopter use
- Used to conduct internal assessments, build capacity, implement system process changes, organize peer exchanges, or offset other implementation costs

Implementation Assistance: Round 1



- **Recipients:** 34 states, DC, 11 regional/MPOs, 1 tribal entity
- **108 total projects** undertaken through the program:
 - R04 - Innovative Bridge Designs for Rapid Renewal: 9 projects
 - R09 - Managing Risk in Rapid Renewal Projects: 2 projects
 - R10 - Innovative Strategies for Managing Complex Projects: 5 projects
 - **R26 - Preservation on High-Vol-Traffic Roadways: 51 projects**
 - C06 - Implementing Eco-Logical 14 projects
 - L01/06 - Organizing for Reliability Tools: 27 projects

R26 - Preservation for High Traffic Volume Roadways

Goal of the Product :

Provide effective guidance that will enable transportation agencies to extend the service life of a roadway, save construction or rehab costs, and reduce work zone accidents.

Objectives of Product:

Step-by-step process to identify the best repair techniques based on specific pavement needs and conditions

Method for weighing various technical inputs and selecting the most appropriate treatments

Decision matrices



Implementation Assistance: Round 2



- **Recipients:** 18 states, 2 regional/MPOs
- **27 total projects** undertaken in Round 2:
 - **C19 - Expediting Project Delivery:** 12
 - **R07 - Performance Specifications for Rapid Renewal:** 4 Agencies
 - **R09 - Managing Risk in Rapid Renewal Projects:** 4 Agencies
 - **R16 - Railroad-DOT Mitigation Strategies:** 7 Agencies

Renewal Products - Featured

Available Now

Next Generation Project Management Tools

- *Guide for the Process of Managing Risks on Rapid Construction Projects*
 - Practical methods for identifying, assessing, mitigating, allocating, and monitoring risk
 - Includes guide, training, forms, checklists
- *Guide for Project Management Strategies for Complex Projects*
 - Five dimensional project management model
 - Integrates project teams across entire project lifecycle
 - Works for projects of all sizes and complexity
 - Includes guide, forms, training, case studies

R09
R10



Renewal Products - Looking Ahead

Available Now

Long Lasting Infrastructure

Performance Specifications

- Guidelines
- Guide specifications
- Includes pavements, bridges, geotechnical, traffic control

R07



Implementation Assistance


Round 3


- **C20: Freight Demand Modeling & Data Improvement**
- **R02: Web-based Technical Support Tool for Geotechnical Solutions**
- **R05: Precast Concrete Pavement**
- **R15B: Identifying and managing Utility Conflicts**
- **R23: Pavement Renewal**




SHRP 2 R23
Guidelines for Long Life Pavement Renewal

R23

 Introduction
Click to learn about this scoping tool. The tool provides a convenient method for inputting information about an existing pavement and scoping both flexible and rigid long life renewal options for that pavement.

 Resources
Click to learn about content that aids the use of this scoping tool.

 Start Program
Click to assess initial renewal options for existing pavement.

R-23 Pavement Renewal Products

Product

Features



Pavement Guidelines Tool: Interactive Decision Matrix

A web-based application to provide access to products and facilitate use of decision matrix



Project Assessment Manual

A comprehensive guide to data collection and analyses needed for decision-making.



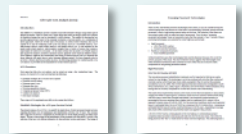
Best Practices: Flexible and Rigid

A key element to long lasting pavements; although, the concept of best practices is not new.



Guide Specifications

Specifications are seldom provided for research focus areas.



LCCA, Emerging Technologies

Not new but packaged for straightforward use and knowledge gain.

Opening Screen from the Interactive Software.

SHRP 2 R23

Guidelines for Long Life Pavement Renewal

v1.0 beta



Introduction

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Start Program

Click to assess initial renewal options for existing pavement.

Screen shot of web-based interactive program

New Load Save Exit Print

Resources Help

Created: 2013-05-16

Updated: 2013-05-16

Example Stripping

1 Project Info
Description

2 Existing Section
Current State

3 Proposed Section
Proposed State

4 Section Distress
Current Distress

5 Renewal Options
Renewal

6 Selection Summary
Design

Renewal Design

| Existing | Proposed | Recommended Design |
|------------------|-------------------|--|
| | | Renewal Type Flexible Design Period 40 years Design ESALs 42 million Subgrade MR 10,000 psi Pre-existing Pavement or Base Modulus 30000 psi Actions Remove and replace existing HMA because of stripping or other materials related distress then overlay with HMA. For stripping this may be limited to the striped layers and for top down cracking it will be limited to the top 2 inches of HMA. Pavement Removed 4" Existing Pavement 11" Estimated Total Design Thickness 12" New Pavement 7" Added Elevation 3" |
| HMA 2" | New Pavement - 7" | |
| HMA 2" | | |
| HMA 3" | HMA 3" | |
| HMA 2" | HMA 2" | |
| Granular Base 6" | Granular Base 6" | |
| Subgrade | Subgrade | |

Flexible Best Practices

Guide Specification

Back

Save

Precast Concrete Paving Technology

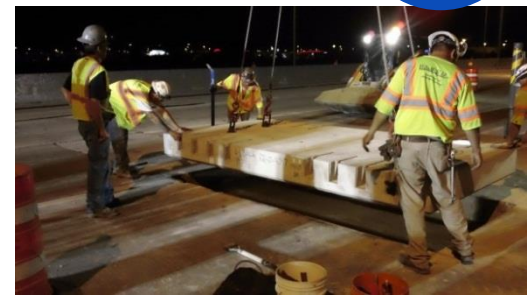
Goal of the Product (R05):

- Fill the gap in knowledge by developing better guidelines and tools for public agencies to use in the selection, design, construction, installation, and maintenance of Precast Concrete Pavement (PCP) systems

Deliverables of the Product:

- Viability of the PCP Technology
- Findings from SHRP2 field testing
- Guidelines for the selection, design, fabrication, acceptance, installation, and maintenance of PCP segments
- Model Specifications for fabrication & installation

R05



Renewal Products – Round 4

Pavement Related

R06E: Rapid Technologies to Enhance Quality Control on Asphalt Pavements



R21: Composite Pavement Systems

- HMA over PCC lower layer
- PCC over PCC lower layer



Renewal Products – Round 4 (Continued)

Pavement Related

Real-Time Smoothness Measurements for QC of PCC Pavements

- Allows for immediate adjustments to equipment and operations
- Minimizes pavement grinding and remediation
- Better quality control

R06e



Non-Destructive Testing Tools

Additional Resources

Product Fact Sheets

<http://shrp2.transportation.org>



SHRP2 Tuesdays

- **November 19:** SHRP2 Economic Impact Tools (C03 and C11)
- **December 3:** Composite Pavement Systems (R21)
- **December 17:** Integrating Freight Considerations (C15)

<http://www.trb.org/StrategicHighwayResearchProgram2/SHRP2/SHRP2Webinars.aspx>

SHRP2 on the Web

- **goSHRP2 website**
www.fhwa.dot.gov/goSHRP2
 - Product details
 - Information about SHRP2 implementation phase
- **SHRP2 @TRB**
www.TRB.org/SHRP2
 - Information about research phase
- **SHRP2 @AASHTO**
<http://SHRP2.transportation.org>
 - Implementation information for AASHTO members

The screenshot shows the SHRP2 Solutions website homepage. The header features the SHRP2 Solutions logo with the tagline 'TOOLS FOR THE ROAD AHEAD' and navigation links for Home, About, Solutions, Your SHRP2, Resources, News & Events, Get Involved, and FAQ. A search bar is also present. The main content area includes a large banner with the text 'Save lives. Save money. Save time.' and a description of the second Strategic Highway Research Program (SHRP2). Below the banner are several sections: 'Your SHRP2' with a list of stakeholders (Transportation Agencies, Private Industry, Research Community, Stakeholders and Users); 'Solution Spotlight' featuring 'Implementing Eco-Logical' with a photo of a bridge; 'Get Involved' with a call to action for funding and support; 'SHRP2 Nationwide' with a map of the United States; 'Talking About SHRP2' with a quote from the South Carolina State Office; 'Tools You Can Use' with a video player; and 'Resources' with a video player. At the bottom, there is a 'Solutions by Focus Area' section with four categories: Safety, Renewal, Reliability, and Capacity, each with a brief description.

THANK YOU



Contact Information

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