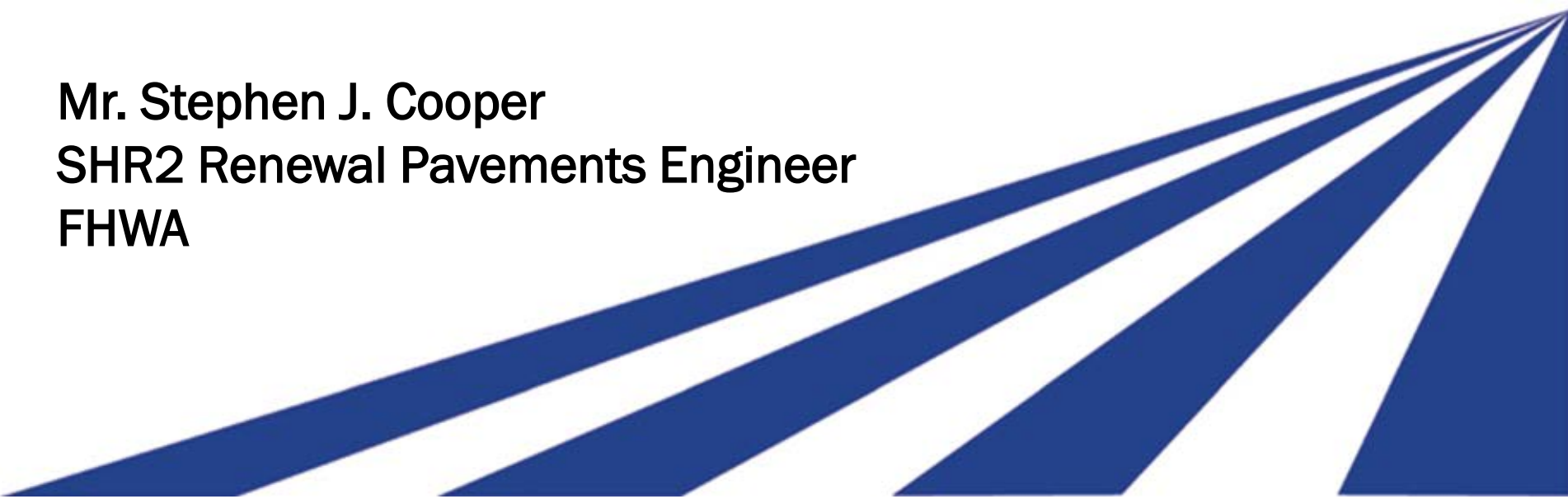


Spring 2014 National Concrete Consortium – SHRP2 Update

April 22nd, 2014



Mr. Stephen J. Cooper
SHR2 Renewal Pavements Engineer
FHWA



SHRP2 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

SHRP2 Implementation Assistance Program

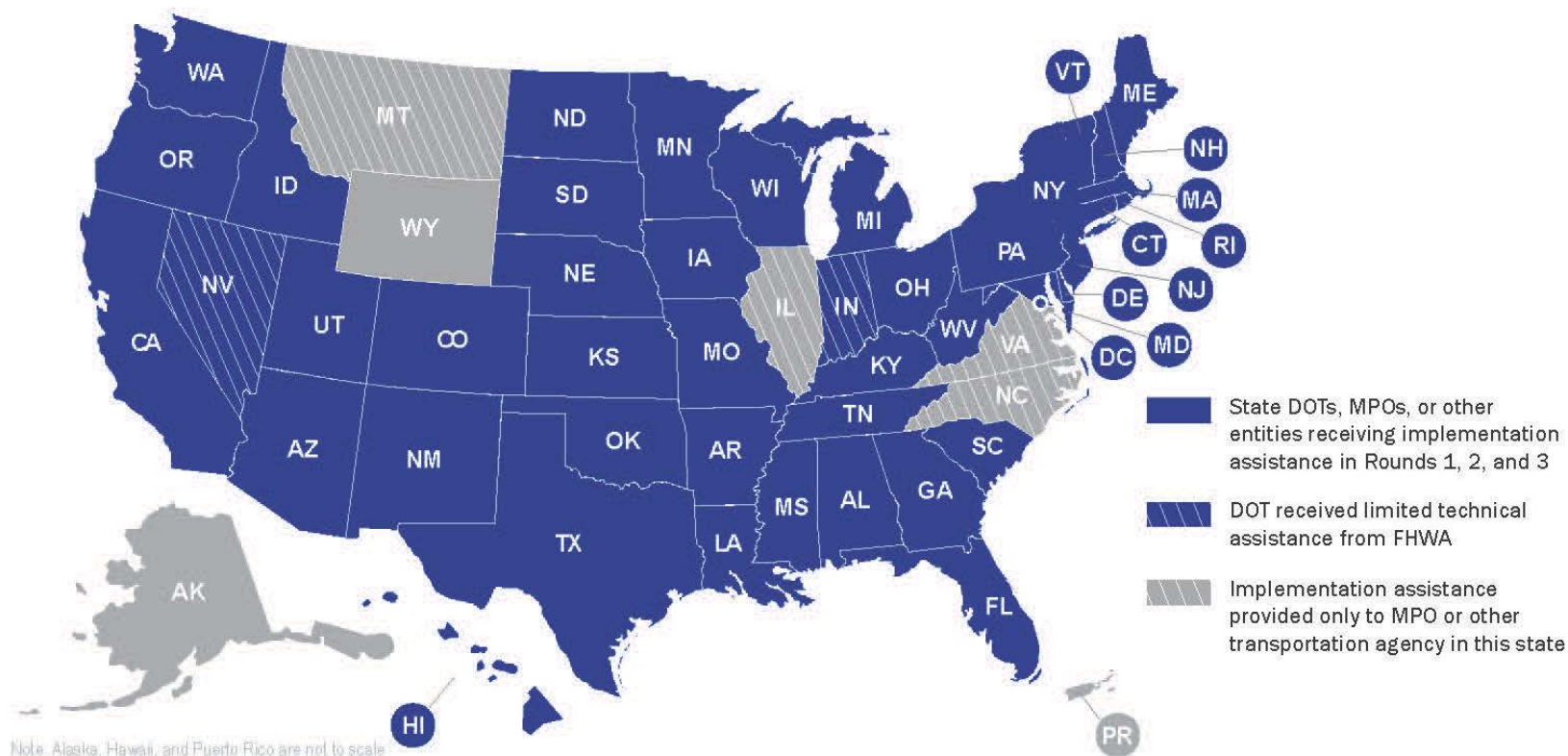
- Designed to help State DOTs, MPOs, local agencies, and other interested organizations deploy SHRP2 Solutions

Proof of Concept Pilot	Lead Adopter Incentive	User Incentive
To evaluate product readiness.	To help offset costs associated with product implementation and risk mitigation.	To support implementation activities, such as conducting internal assessments, changing processes, and organizing peer exchanges.

- 24 SHRP2 products have been offered in Rounds 1-4
- **Round 4** **Application Period** **Recipients Announced**
 May 30-June 27 **August**

Participating States

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



Implementation Assistance Round 3 Highlights



Renewal:

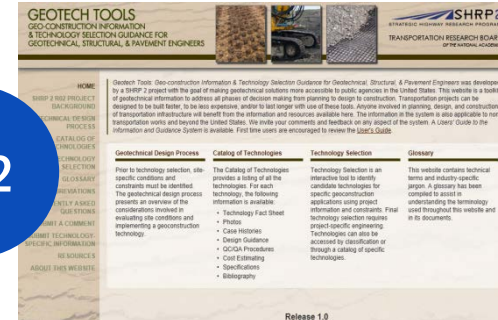
- R02: Web-based Technical Support Tool for Geotechnical Solutions
- R05: Precast Concrete Pavement
- R15B: Identifying and managing Utility Conflicts
- R23: Pavement Renewal Solutions



Capacity:

- C20: Freight Demand Modeling and Data Improvement

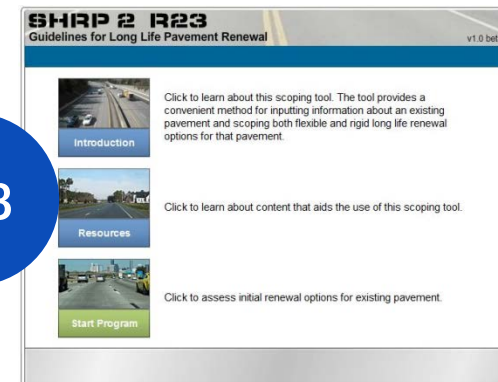
R02



R05



R23



Implementation Assistance Round 4



Renewal:

- R06A: Nondestructive Testing Technologies to Identify Bridge Deck Deterioration
- R06C: Using IR and GPR for Uniformity Measurements on New HMA Layers
- **R06E: Tools to Improve PCC Pavement Smoothness During Construction**
- R06G: Mapping Defects in or Behind Tunnel Linings
- R09: Managing Risk in Rapid Renewal
- R10: Innovative Strategies for Managing Complex Projects
- R19A: Designing & Preserving Bridges to Achieve a 100-Year Service Life
- **R21: New Composite Pavement Systems**

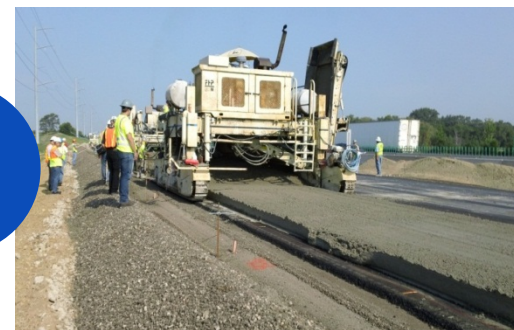
R06E



Capacity:

- C03/C11: Economic Analysis Tools
- C10: Integrated Travel Demand Modeling

R21



Reliability:

- L02/05/08: Reliability Data and Analysis



Safety:

- Concepts to Countermeasure – Research to Deployment Using the SHRP2 Safety Database

Tools to Improve PCC Pavement Smoothness During Construction (R06E)

What is real-time smoothness measurement?

- Innovative tools for evaluating concrete pavement smoothness in real time
- For quality control and process improvement
- Develop understanding about what construction artifacts affect smoothness

Project Deliverables:

- Model Specifications
- Guidelines
- Documentation of profiler performance and recommendations

Real-Time Smoothness Technologies

Real-time smoothness measurements (paver-mounted)



GSI - GOMACO Smoothness Indicator
RTP – Ames Eng. Real-time Profiler

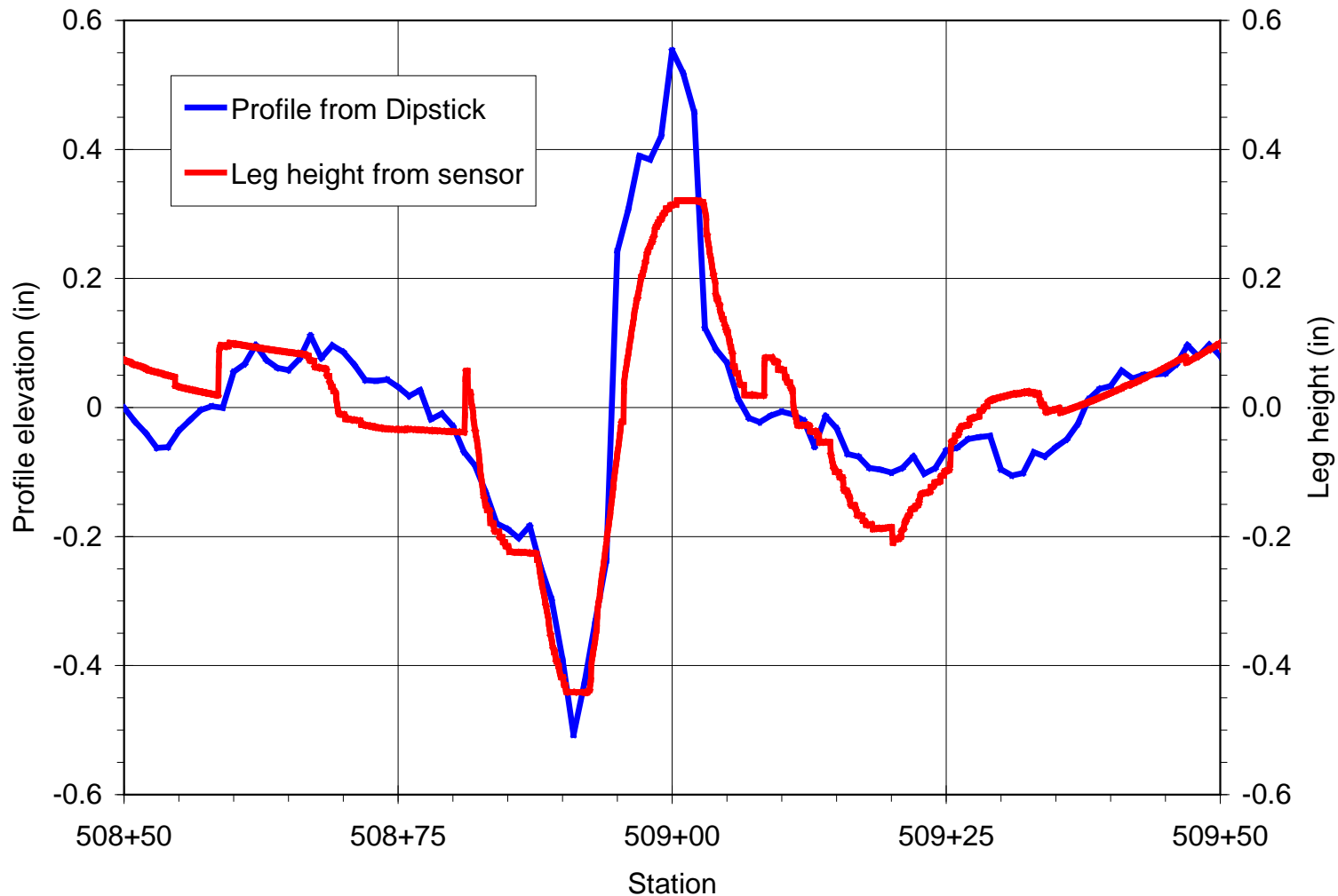
Paver Adjustments



Rough Trackline



Rough Trackline: Profile and Leg Motion



R06E Benefits



- Contractor and agency could “see” things in real-time that used to take 24-48 hours
- Improved the paving process: better quality, efficiency
- Paving crews embraced the technology
- Well suited for:
 - Identifying operational changes on smoothness
 - Tuning the paver
 - Quality control
 - Troubleshooting and correcting problems early

New Composite Pavement Systems (R21)



Challenge

- Composite pavements have a long service life with excellent surface characteristics.
- Limited use due to lack of reliable design and construction guidance.

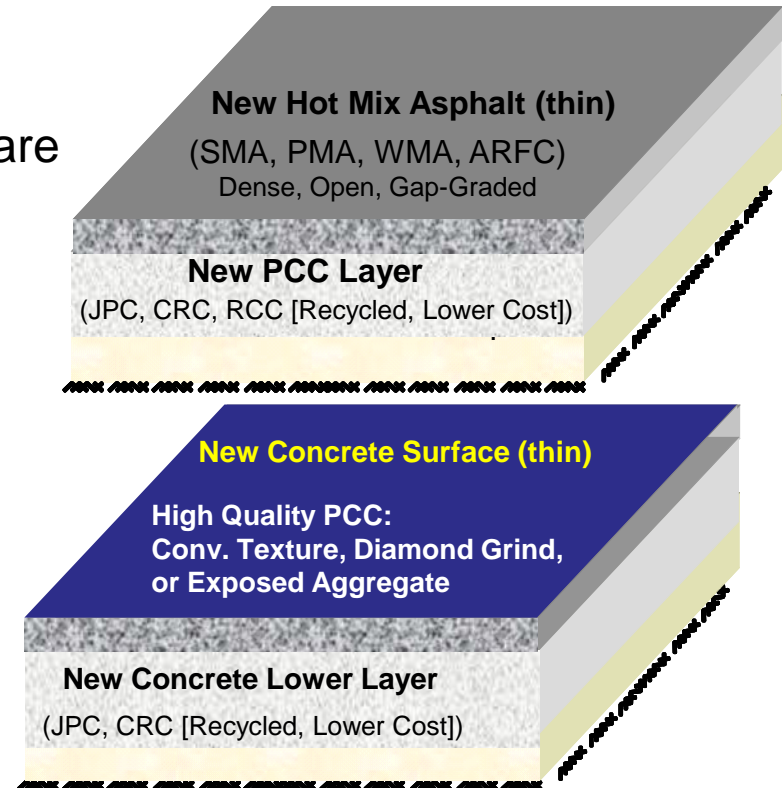
Solution

- Tested and evaluated existing composite pavement systems.
- Step-by-step guidance on designing and constructing two types of composite pavements using procedures consistent with the Mechanistic-Empirical Pavement Design Guide (MEPDG).
 - Hot-Mix Asphalt
 - Portland Cement Concrete

R21 Product Offering

1. HMA/PCC (New-Hot Mix Asphalt over New Concrete)
2. PCC/PCC (New Concrete over New Concrete)

- Pavement Design Guidelines
 - Revisions to AASHTO Pavement ME software
 - Revisions to MEPDG Manual of Practice
 - Life-Cycle Cost Analysis guidelines
- Technical Guidelines
 - Construction Guidelines
 - Materials Guidelines
 - Quality Management Procedures
- Implementation Road Map



R21 Benefits

Benefits of Composite Pavement Systems

- Excellent skid resistance results from the high-quality top layer
- Pavement is resistant to cracking, fatigue, and wear
- A thicker bottom layer is made of lower-cost materials with recycled content
- The replacement or retexturing of the top layer is both economical and quick
- Reduced maintenance needs result in fewer traffic disruptions
- High-quality pavement that is environmentally sustainable; reduces CO2 footprint

Benefits of R21 Solution

- Tested techniques reduce risk of new approach; evidence of low life-cycle costs
- Guidelines and specifications eliminate need for agencies to create their own
- Training tools and case studies address design and construction issues with real-world insight from peers

Round 4

Product Webinars (all times EDT)

Renewal		
Project Delivery Projects (R09, R10)	April 25	2 - 3:30 p.m.
Pavement Products (R21, R06E, R06C)	April 29	2 - 3:30 p.m.
Structures Products (R06A, R06G, R19A)	May 8	2 - 3:30 p.m.
Capacity		
Advanced Travel Analysis Tools (C10/04/05/16)	May 6	2 - 3:30 p.m.
Economic Analysis Tools (C03/C11)	May 9	2 - 3:30 p.m.
Reliability		
Reliability Data and Analysis Tools Bundle (L02/05/07/08)	May 13	2 - 3:30 p.m.
Safety		
Concept to Countermeasure: Research to Deployment Using SHRP2 Safety Databases (Part 1)	April 30	2 - 3:30 p.m.
Concept to Countermeasure: Research to Deployment Using SHRP2 Safety Databases (Part 2)	May 8	11 - 12:30 p.m.

Round 4 Application Timeline

- Round 4 Application Period
May 30-June 27, 2014
- Recipients Announced
Early August 2014
- More information and
apply online at
www.fhwa.dot.gov/goshrp2



THANK YOU



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