R06C Product

Using Infrared and Ground Penetrating Radar for uniformity measurements on New Asphalt Layers

Implementation Assistance Update
by Steve Cooper, FHWA
- Nearly $232 million have been allocated for research under SAFETEA-LU and its extensions.
- Funding for SHRP2 product implementation totals approximately $169 million. This funding came from:
  - MAP-21
  - 4% of SPR funds being used for SHRP2 implementation
  - FHWA is providing additional funding
- To utilize funding effectively, FHWA and AASHTO have developed a SHRP2 implementation plan.
Renewal:

- R06A: Nondestructive Testing Technologies to Identify Bridge Deck Deterioration
- **R06C**: Using IR and GPR for Uniformity Measurements on New HMA Layers
- R06E: Real-time smoothness Measurements on PCC
- 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: Composite Pavement Systems

Capacity:

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

Reliability:

- L02/05/08: Reliability Data and Analysis
GPR - Two (2) Proof of Concept Agencies announced:
   NE DOT    ME DOT

IR - Ten (10) Lead Adopter Incentives announced:
   AL DOT    MO DOT    ME DOT    Fed Lands
   AK DOT    NC DOT    VA DOT
   IL DOT    NJ DOT    WV DOT

TECHNICAL ASSISTANCE:
   ➢ AASHTO contracted to provide support (Kick-off Mtg Scheduled – Oct 28th)
   ➢ IR:
      ✓ Fielding of Equipment for Demo Projects
      ✓ Conduct Multi-State Showcase
      ✓ Provide 9 ea. 4-hr Workshops
      ✓ Doc. Of Result/Case Studies
      ✓ Marketing & Communication
   ➢ GPR:
      ✓ Oversee Validation (Plan, Field Equipment, Provide Tech. Assistance, Oversight)
      ✓ Education (Document & Present Findings)
The Challenge

- Develop solutions to measure and quantify non-uniformity of asphalt mixture construction

Localized non-uniform areas fail prematurely. Random testing seldom catches problem

Increased use of night paving makes inspection more difficult
SHRP2 Solutions

Thermal Profile during Placement: Pave-IR

Density uniformity after Compaction: Rolling Density Meter

Cold spots generally become low density

Measures density at 6 in. intervals non-destructively

SHRP2 R09 | July 2013
• **What is it**
  – Automated system for
    • Measuring temperature uniformity of new asphalt mat immediately after placement
    • Documentation of paver stops
  – Draft Test procedure and Specifications proposed in SHRP 2 Report

• **Implementation in DOT’s**
  – Texas, Minnesota, Washington and Ohio

• **Commercial System**
  – Yes through MOBA corporation
Rolling Density Meter

- Real-time measurement of surface dielectric of asphalt mixture using GPR
- Operator establishes correlation of dielectric with mat density from field cores
- Once established automated output of final mat density (air voids)
- 6 in. reporting interval yields substantially increased testing coverage
- With multiple passes can test nearly 100% of constructed area
- Tests final product that agency is buying
Benefits of R06C Products

- Pave-IR and GPR technologies potentially foster more uniformly constructed and longer-lasting asphalt mixture construction.

- Real-time temperature quality control allows for prompt adjustments by the paving crew, thereby minimizing segregation problems.

- The GPR Rolling Density Meter potentially reduces reliance on single-point density gauges and provides almost 100% pavement testing coverage.
RENEWAL
• 3D Utility Location Data Repository (R01A)
• Performance Specifications for Rapid Renewal (R07)
• Railroad-DOT Mitigation Strategies (R16)

CAPACITY
• Capacity Process Bundle (C02/08/09/12/15)
Round 5 Application Timeline

- Announcement Webinars
  Planned for Dec 2014

- Round 5 Application Period
  Jan 16 - Feb 13, 2015

- Round 5 Announcement
  March 27, 2015

- More information and apply online at
  www.fhwa.dot.gov/goshrp2
Contact Information

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