FHWA UPDATE

2015 Subcommittee on Maintenance
Des Moines, Iowa
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Operations Engineer
Federal Highway Administration, South Dakota
Web Based Training

International Slurry Surfacing Association

How to Construct High Quality

- Slurry Seal and Micro Surfacing / Part 1 & 2
- Chip Seal Treatments

Courses in the Development

• Best Construction Practices
  - for Operating a Spreader Box used with Slurry/Micro Surfacing Materials
  - for Crack Sealing and Joint Filling of Asphalt and Concrete Pavements

More web based training, development of technical documents such as case studies, executive briefs on pavement preservation with ISSA
Web Based Training

American Concrete Paving Association
• Best Practices for Handling Aggregates for Concrete Paving
• Worker Safety On Concrete Pavement Construction Sites
• Best Practices for Constructing Smooth Concrete Pavements
• Proper Use of Stringless Slipform Paving Technology

More web based training, development of technical documents such as case studies, executive briefs on pavement preservation with ACPA.

FHWA Construction Web Page with links to ISSA & ACPA Web Based Training Courses
• http://www.fhwa.dot.gov/construction/wbt.cfm
Web Based Training

Center for Transportation Infrastructure Systems

• Asphalt String-Less Paving (ASP) Training Course
  – http://ctis.utep.edu/asphaltstring/

• Intelligent Compaction Training Course
  – http://ctis.utep.edu/ic_trainingcourse/
Leadership Training

Maintenance Leadership Academy (NHI-134063)

• Eight Weeks of Blended Learning
  – Describe the use of maintenance administration in achieving highway agency goals.
  – Describe how various treatments fit into an overall system preservation program and when to implement them.
  – Identify appropriate drainage maintenance and roadside management techniques.
  – Describe the maintenance manager's roles and responsibilities for developing, implementing, and managing a comprehensive plan for dealing with weather-related events.
  – Explain the maintenance and use of traffic control devices (including work zone plans, work zone traffic control devices, signs, striping, guardrails, and median barriers) in maintenance operations.
  – Describe how environmental protection issues, regulations and control measures affect highway maintenance activities.

Held in Texas and Arizona this year

To request contact NHI at 877-558-6873 or nhicustomerservice@dot.gov
Ongoing Research

Best Practices for Pavement Utility Cuts

• Analyze the effectiveness of various approaches to repair/replace pavements that have been, or will be subject to utility cuts. Provide guidance on strategies that will allow agencies to specify utility cut performance requirements so that they suffer minimal damage to their roadways and ensure efficient and lasting replacements.

Contact: Morgan Kessler, 202-493-3187 or morgan.kessler@dot.gov

Pavement Research Database

• Build upon the Asphalt Research Consortium (ARC) database deliverable and the Research Information Management System (RIMS) at the Turner-Fairbank Highway Research Center (TFHRC) to support a system to store, manage and access and disseminate material characterization laboratory data and other data resulting from pavement projects at FHWA.

Contact: Eric Weaver, 202-493-3153 or eric.weaver@dot.gov
Ongoing Research

Porous-Graded Asphalts

• Advance the current knowledge and state-of-the-practice in the sciences and technologies utilized in the planning, design, construction, operation, maintenance and management of the porous-graded asphalt (PGA) used in the Nation’s highways.

Contact: Eric Weaver, 202-493-3153 or eric.weaver@dot.gov

Recycle-in-Place Methods Energy Analysis

• The objective of this project is to analyze the true and total energy costs among the recycled-in-place methods, and to summarize the results in the form of guidance for use by state and local transportation agencies.

Contact: Morgan Kessler, 202-493-3187 or morgen.kessler@dot.gov
Ongoing Research

Pavement Friction
• Determine criteria and develop methods for establishing investigatory levels for pavement friction and macro texture; Identify and demonstrate state of the art friction measurement equipment; Develop Pavement Friction Management Programs in four States.
Contact: Jim Sherwood, 202-493-3150 or jim.sherwood@dot.gov

Flooded Pavement Assessment
• Examine methods to assess highway infrastructure that have experienced flooding and/or that are in a flooded condition. This project will recommend methods to assess the capacity of the roadway to carry emergency traffic while it is flooded as well as methods to assess the long term impacts of flooding.
Contact: Jim Sherwood, 202-493-3150 or jim.sherwood@dot.gov
Ongoing Research

Remaining Service Life

- Define and develop methodologies for the determination of pavement remaining service life that is consistent and unmistakable under varying business needs. Based on structural condition, user satisfaction and safety and includes both project and network level applications.

Contact: Nadarajah Sivaneswaran (Siva), 202-493-3147 or Nadarajah.Sivaneswaran@dot.gov

Application and Validation of Remaining Service Interval Framework to Pavements

- It is critical that the concept be validated through application to real-world problems. To this end, it is desired that the RSI concept be applied to two or more State highway administration (SHA) pavement networks through the use of SHA pavement management data and its value as a replacement to RSL be critically evaluated.

Contact: Nadarajah Sivaneswaran (Siva), 202-493-3147 or Nadarajah.Sivaneswaran@dot.gov
Ongoing Research

Pavement Sensors

• Investigate the feasibility of using radio frequency identification and other technologies to develop inexpensive sensors that could routinely be placed during paving. Show how States can use the RFID tags to relate construction/materials data to an agency’s pavement management system.

Contact: Katherine Petros, 202-493-3154 or katherine.petros@dot.gov

Enhancement of Pavement Sensors

• Take advantage of the advances made in earlier projects to develop self-powered wireless sensors that can be easily placed or tossed into the paving materials onsite during construction or at the materials plant with minimal interruption to the pavement operation and periodically upload the data wirelessly and using it to enhance pavement management systems.

Contact: Fred Faridazar, 202-493-3076 or fred.faridazar@dot.gov
Ongoing Research

Pavement Management Data

- Develop methodologies for the determination of optimum frequency, sample size and accuracy required for various pavement condition data items for effective pavement management. Develop best practices and guidelines to integrate design, material and construction information within pavement management system; recommend procedures to guide the selection of optimum timing and treatment for pavement preservation and rehabilitation of a pavement section to achieve lowest life cycle cost; and recommend procedures to comprehensively quantify the effectiveness of pavement preservation program at the network level.

Contact: Nadarajah Sivaneswaran (Siva), 202-493-3147 or Nadarajah.Sivaneswaran@dot.gov
Planned Research

• The Impacts of Automated Machine Guidance on Achieving Smoothness

• Performance Measures – Next Generation

• Asset Management Plan – Tool Development & Deployment

• Cost/Benefit of Tracking Assets Within a Transportation Asset Management Plan
Planned Research

Case Studies of Transportation Corridor Strategies
• Case study of 4 road sections and 2 bridges regarding their long-term (30 - 50 year) costs and strategies (reconstruction, rehabilitation, preservation, and maintenance costs) to maintain the transportation facility in a state of good repair.

Construction Quality Assurance
• 3 Case Studies of leading states regarding the Quality Assurance procedures and specifications for contracting and constructing micro surface, slurry seal, and chip seal pavement treatments for asphalt pavements. (Nevada DOT)
• 3 Case Studies of leading state regarding the Quality Assurance procedures and specifications for contracting and constructing spall repair, concrete grinding, panel repair, stitching for concrete pavements.

Contact: Bryan Cawley, 202-366-1333, bryan.cawley@dot.gov
Pavement Related State Reports

• The Minnesota Department of Transportation has recently released a few reports:
  – One summarizes lessons learned in evaluating the bonding strength of hot mix asphalt layers.
    • Tack Coat Testing: Measuring Field Bond Strength
  – The other summarizes efforts of using the disk-shaped compact tension (DCT) test to measure thermal fracture properties of asphalt mixtures on asphalt paving projects.
    • DCT Low Temperature Fracture Testing Pilot Project
Pavement Related State Reports

• The Oregon Department of Transportation has released a report that compares hot mix asphalt concrete pavements sections that have displayed top-down cracking within three years of construction with those that have not displayed any cracking.
  – **Premature Asphalt Concrete Pavement Cracking**
Pavement Related State Reports

AASHTO Research Advisory Committee

• Intelligent Compaction for Soil and Asphalt Pavement
  – Indiana Department of Transportation conducted a study of the use of Intelligent Compaction for soil and asphalt pavement.
  – Survey Results at SCOR/RAC
    SPR3804_SummarySurveyandInterview.pdf
Traffic Management Plan Needed?
or Congestion Plan?
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