Pavement Technical Working Group

AASHTO Standing Committee on Highways, Subcommittee on Maintenance
July 28, 2014  3:30 pm - 5:30 pm
Charleston, West Virginia

George Conner, Alabama DOT – Chair
Anita Bush, Nevada DOT – Vice Chair
Scott Capps, North Carolina DOT – Vice Chair
Marc Hoelscher -  FHWA Liaison
Monday July 28, 2014 PTWG AGENDA

Please Sign Attendance Sheet

Welcome and General PTWG Committee Business
- Overview of Pavement TWG
- Membership
- Mission Statement and Goals
- Focus Areas
- FY 2015 Work Plan Goals
- Pavement TWG Research Problem Statements, Topics and Schedule
- Introduction and Call for Resolutions

Updates from AASHTO Partners
- Updates on NCPP, TSP2 and Regional Partnerships (including National Conference and International Conference) - Larry Galehouse, Executive Director, National Center for Pavement Preservation
- Industry Update – FP2 – Rod Birdsall
- FHWA Update – Marc Hoelscher
- Proposal for Preservation Certification - Larry Galehouse

Evaluation and Modification of TWG Priorities – George Conner, Anita Bush
- Review 2013 Results
- 2014 Priorities

Technical Presentation
- Maintenance of OGFC: The North Carolina Experience – Colin Durante

Adjourn at 5:30 pm
Welcome and Opening Remarks
George Conner, ALDOT, PTWG Chair

Please Sign Attendance Sheet

Self-Introductions

Overview of Pavement TWG
  Membership
  Mission Statement and Goals
  Focus Areas
Membership

- Each State is allowed 3 delegates to the AASHTO SCOM
  - Pavements account for approximately 50% of every State DOT budget.
  - One delegate per state – minimum – recommended for PTWG membership.
AASHTO SCOM Meeting Locations

2019 Michigan
2018 North Carolina
2017 Rhode Island
2016 Nevada
2015 Des Moines, Iowa

--- 2014 Charleston, West Virginia ---

2013 Burlington, Vermont
2012 Seattle, Washington
2011 Louisville, Kentucky
2010 Savannah, Georgia
2009 Annapolis, Maryland
2008 Monterey, California
2007 Madison, Wisconsin
2006 Charleston, South Carolina
2005 Lincoln, New Hampshire
2004 Bismarck, North Dakota
2003 Duluth, Minnesota
2002 Orange Beach, Alabama
2001 Hershey, Pennsylvania

Everyone please stand,
When your first meeting is called,
Please sit down.

Last DOT person standing
wins a prize!
SCOM Mission

The mission of the Subcommittee on Maintenance is to provide technical and policy guidance to the member states and support to the AASHTO organization to preserve and maintain a healthy and reliable highway infrastructure that meets the performance expectations of its customers.
The SCOM will be the leader for preserving and maintaining a world class highway system.
## PTWG Focus Areas

### SCOM Organizational and Functional Matrix

<table>
<thead>
<tr>
<th>Technical Working Groups (Communities of Interest)</th>
<th>Strategic Focus Areas</th>
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<td><strong>Pavement</strong></td>
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<td><strong>Primary Activities</strong></td>
<td>Writing Guidelines and Standards, Updating Manuals, Identifying and Communicating Good Practices, Project/Program Delivery, Website maintenance, Newsletters, Basic Governance, Technical Service Group Coordination</td>
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</table>
PTWG Focus Areas

• Focus Areas
  – Research
  – Workforce Development
  – Performance Measures
  – Environment

• Reports

• Task Forces
FY 2015 Work Plan Goals – Top 5

• Promote the Transportation System Preservation Technical Services Program (TSP2) to AASHTO members.

• Support efforts to quantify the contributions of pavement preservation to safety and risk-based asset management programs.

• Support TC3 and other groups in the development of various training and certification programs.

• Assist in the development and implementation of Performance Measures to meet AASHTO member’s pavement preservation program needs.

• Assist in the development and promotion of Pavement Preservation Life Cycle Assessment methodologies, including the demonstration of environmental benefits.
Additional FY 2015 Work Plan Items (1/3)

• Sustain high level of maintenance interest and involvement in Transportation System Preservation (TSP)
• Expand Regional Pavement Preservation Partnerships to include more LPA’s, LTAP Centers, and MPOs
• Enhance internal communications of the PTWG: expand membership and e-mail list; and conduct two telephone conference calls and/or webinars involving roundtable discussions for members
• Review TRB/NCHRP Completed Research for possible publication as AASHTO Manuals or presentations in a series of “Pavement Preservation Book Club” webinars
Additional FY 2015 Work Plan Items (2/3)

• Implement SHRP-2 products (R-26 and R-23) that are useful to pavement preservation and maintenance

• Prepare research implementation recommendations associated with 2011 14-24 Communicating the Value of Preservation: A Playbook – NCHRP 742
Additional FY 2015 Work Plan Items (3/3)

• Proposed research:
  – Condition Based and Non-Condition Based Triggers for the Placement of Thin Surface Treatments Used in Pavement Preservation
  – Manufacture, Selection, Application and Performance of Asphalt Emulsion Treatments for Use in Highway Pavement Preservation Treatments
  – Defining Comparable Pavement Cracking Data
PTWG Research Problem Statements, Topics and Schedule

• Completed & Ongoing Research
  – Developing a Pavement-Maintenance Database System
    • Research is underway
  – Training and Certification of Maintenance Workers
    • Training Synthesis getting started
    • First Panel Meeting: September 19, 2014, Washington, DC
  – Communicating the Value of Preservation: A Playbook
    • NCHRP Report 742
  – Pavement Patching Practices
    • NCHRP 44-4
PTWG Research Problem Statements, Topics and Schedule

• New Research Problem Statements
  – Maintenance Manual Update

• Proposed Topics – From PTWG Membership

• Schedule
  – August 15, 2014 – Final Version of Problem Statement Due to SCOM Vice Chair
Research ➔ AASHTO Documents 1/2


– 2009 20-81 Challenges and Successes in Attracting and Retaining a Skilled Transportation Workforce – NCHRP Report 685. Discuss with TCCC Representative

– 2010 10-82 Performance-Related Specifications for Pavement Preservation Treatments. Interim Reports

Research → AASHTO Documents 2/2


Introduction and Call for Resolutions

• Update on 2013 Resolution Regarding ADA and Pavement Preservation
Updates from AASHTO Partners

Updates on NCPP, TSP2 and Regional Partnerships (including National Conference and International Conference) - Larry Galehouse, Executive Director, National Center for Pavement Preservation

Industry Update – FP2 - Rod Birdsall

FHWA Update - Marc Hoelscher

Proposal for Preservation Certification - Larry Galehouse
Evaluation and Modification of TWG Priorities

Review 2013 Results

Handout provided

2014 Priorities

Your Top 3 Issues in PAVEMENT MAINTENANCE
Use Sticky Notes – one issue per sticky
Put each sticky onto white board (10 min)
(Vice Chairs will sort into categories – report later.)

Please Use Notecards for Work Plan Goal Changes or additions. We will collect the notecards later in the meeting.
Technical Presentation

Maintenance of OGFC: The North Carolina Experience – Colin Durante
Pavements Technical Working Group

NEXT MEETINGS

Tuesday July 29, 2014          8:00 am - 9:45 am
Wednesday July 30, 2014    10:15 am - 11:45 am

Salon D
National Center for Pavement Preservation Activities Update

Subcommittee on Maintenance Pavement Technical Working Group

July 28, 2014

Larry Galehouse, P.E., P.S.
Director, National Center for Pavement Preservation
Local Pavement Preservation Councils

Purpose

• Increase the general understanding of pavement preservation.
• Encourage and support the use of pavement preservation through education and training.
NCPP Training

• Gave 23 training classes in the past 12 months

• Developing 2 Web-based Training Courses for ISSA & FHWA
NCPP Miscellaneous Meetings

- 2014 National Bridge Preservation Conference - 515 Registrants
- 2014 National Equipment Management Conference – 353 Registrants
- 2014 Regional In-place Recycling Meeting
Developed 4 YouTube preservation videos

Created Apple Apps of the FHWA Checklist series of 15 preservation treatments, TSP•2 & NCPP info, and YouTube video links (free available in App Store - NCPP)

Produced 253 Speaker video presentations with corresponding slides
Web Outreach

- Manage and maintain 3 websites
  - NCPP (www.pavementpreservation.org)
  - TSP•2 (www.tsp2.org)
    (www.tsp2bridge.pavementpreservation.org)
    (www.tsp2pavement.pavementpreservation.org)
  - EMTSP (www.emtsp.org)

- Initiated 14 web-based surveys for TSP•2 and EMTSP

- Establish on-line registration and payment for NCPP, TSP•2, EMTSP, Recycling Workshops and others.
James B. Sorenson Memorial Pavement Preservation Scholarship

Recipients:
2011-12  Alex Rousseau
2012-13  Michael Krcmarik
2013-14  Aric Thorne
Introduction to the Appraisal System

The Technical Appraisal System is administered and hosted by the National Center for Pavement Preservation (NCPP), and is supported by the Federal Highway Administration (FHWA). Surveys of the individual state departments of transportation began in early August 2005 and are ongoing. New survey results are added as they become available, so check back frequently.

To the extent practical, state appraisal responses have been quantified to obtain national, aggregate trends with respect to the implementation and acceptance of pavement preservation practices.

Select a survey section below to view the national average responses for that section.

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<th>Section</th>
<th>Part(s)</th>
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<td>1</td>
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<td>Pre-Conference Self-Assessment (State)</td>
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<td>VII</td>
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<td>Performance Monitoring and Research/Development</td>
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Creating the Research Needs

Center Advisory Committee

Rocky Mountain West
Pavement Preservation Partnership
Research Task Force

Midwestern
Pavement Preservation Partnership
Research Task Force

Northeast
Pavement Preservation Partnership
Research Task Force

Southeast
Pavement Preservation Partnership
Research Task Force
Creating the Research Needs Through TSP•2 Partnerships

1. Development of Protocols and Procedures for Selecting, Monitoring and Evaluating the Performance of Pavement Preservation Treatments

2. Development of an Acceptance Test for Chip Seal Projects

3. Addressing Performance Variability in Pavement Preservation
Midwestern: September 2-5, 2014
*SHRP2 R 26
Minneapolis, Minnesota

Rocky Mountain West: October 8-10, 2014
Phoenix, Arizona

Northeast: April 7-9, 2015
Wilmington, Delaware

Southeast: May 12-14, 2015
Charleston, South Carolina

2016 National Pavement Preservation Conference
September 27-30, 2016 - Nashville, TN
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<td>1. Preservation Products, Processes, and Performance Evaluations</td>
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<td>3. Contractor Certification</td>
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<td>Northeast:</td>
<td>1. Project Database and Promotion, Marketing, and Public Relations</td>
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<td>Southeast:</td>
<td>1. Integrating Pavement Preservation into PMS</td>
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<td>3. Specifications</td>
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<td>Rocky Mountain</td>
<td>1. Promotional</td>
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<td>West:</td>
<td>2. Research</td>
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<td>3. Cost Effectiveness</td>
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Project Objectives

• Update / Expand Roadmap from after 2008
  - Identify and Document R&D Preservation Projects

• Identify Gaps
  - Roadmap Strategies & Problem Statements

• Online Database
  - Develop / Maintain / Update
  - Users Search / Contribute Updates
Transportation System Preservation Research, Development, and Implementation Roadmap

- Database View
- No Abstract View
- Add/Edit Entry
- State DOT Research Count
- Search Tutorial
- Return to TSP 2
This is a tutorial on how to use the full featured search engine on the Research Roadmap Database.

After opening the database view as shown below there are two main features that will be covered. The search and filter options.

**Search**

After clicking on the search button there will be two new rows added to each column. These are the search parameters that a user can use to filter.
Defect repair, for example potholes, is one of the most common and expensive tasks of road maintenance. One of the difficulties of this form of asset management is in identifying these defects early. Although a defect may take many years to initiate, once begun they can propagate rapidly with further deterioration increasing the cost and subsequent repair time. This paper introduces a methodology to collect real time acceleration data from smartphones operated by the road going public. Smartphones are rapidly becoming cheaper, more reliable, more utilized and importantly, more powerful. This paper describes an analysis technique which takes smartphone accelerations to create profiles and identify likely defects and their corresponding severity. A trial test section was compared between visual survey and the defect detection algorithm in this paper with good correlation to the position and severity of identified defects. The detection algorithm clustered likely defects from a series of repeated runs at various speeds. The precision and accuracy in this test trial show that a full network application is possible from the current smartphone technology.
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Questions?

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Okemos, Michigan  48864
(517) 432-8220 • Fax: (517) 432-8223
email: galehou3@egr.msu.edu
www.pavementpreservation.org
www.tsp2.org
Pavement Preservation Industry Update

Rod Birdsall
President
FP² Inc.

2014 AASHTO Subcommittee on Maintenance
July 28, 2013
Charleston, WV
Presentation Outline

• What is FP² Inc.?  
• Supporters  
• MAP-21  
• NCAT Preservation Group Study  
• ADA  
• Q/A
What is FP²

• What is FP² Inc?
  ➢ An Industry supported trade association

• Purpose of FP² Inc?
  ➢ Promoting the importance of protecting and preserving the huge investment in our nation’s pavement infrastructure
Supporters

• Who supports FP² Inc?
  ➢ Associations
  ➢ Contractors
  ➢ Material Suppliers
  ➢ Chemical suppliers
  ➢ Equipment manufactures
  ➢ Consultants
What do we do?

- FP² Inc. financially supports
  - The National Center for Pavement Preservation at Michigan State University
- FP² Inc. works closely with
  - Regional Preservation Centers in California and Texas
  - Regional Preservation Partnerships in the Northeast, Southeast, Midwest, and Rocky Mountain West
  - Federal Highway Administration
What do we do?

• Advocate for Pavement Preservation Legislation
• Publish Pavement Preservation Journal
• Support Pavement Preservation Research
MAP-21

- 600 page, 27 month, reauthorization bill signed by the President on July 6, 2012
- 125 rulemakings statutorily mandated by Congress
- Many other changes to law which Agency must analyze….more rulemaking
- Expires 30 September, 2014
- May be extended through May, 2015
- Pavement Preservation language is included in the policy and definition sections of the statute
- Pavement Preservation projects are now eligible to receive federal funds
- Helped to frame the debate for Asset Management and Pavement Preservation
MAP-21-What’s Next?

• The Agency is in the process of issuing performance standards required in the legislation
• FP2 remains engaged in this process to ensure that preservation outcomes remain as intended
• Next round of legislation-when? A reauthorization bill has been introduced in the Senate
• Discussions and actions by the Senate Finance and Appropriations Committees under way regarding funding
NCAT Preservation Group Study

• Seven states and FP2 Inc. are full funding partners for the three year study
• Twenty Five test sections constructed on Lee County, AL 159 in August, 2012
• Several treatments on the NCAT track
NCAT Pavement Test Track at Auburn University

• 2012 Pavement Preservation Study
Off-Track “PG” Test Section
NCAT Preservation Group Study

• Monitoring continues under the current contract

• Continued monitoring of Lee Road 159 under discussion

• “Trigger Values” for preservation treatments on the track are have been set with the funding partners and treatments will be applied when they are reached
NCAT Preservation Group Study

- 2012 Track meeting to be held March 3-5, 2015 at Auburn
- NCAT soliciting more partners for the 2015 Preservation Group experiment
- Attempting to locate a four lane US highway near Auburn for additional study
- NCAT discussing potential interaction with MN Road for the 2015 experiment
Americans with Disabilities Act

- The issue—“Alterations” to the pavement surface
- Title II, Section 202 in the original ADA act deals with alterations
- Act mandates compliance when reconstruction, rehabilitation, resurfacing, and widening are planned
- Maintenance activities are exempt
Americans with Disabilities Act

• 1993 lawsuit, Disabled in Action vs. Penn DOT and the City of Philadelphia

• Sorenson’s activities regarding waivers for preservation treatments

• Geiger Memorandum September, 2015

• Architectural & Transportation Barriers Compliance Board (now US Access Board) request for public comment on Accessibility Guideline for Pedestrians in the Public R/W in mid-2011
Americans with Disabilities Act

- FP² Inc. provided comments in November 2011 specifically exempting preservation treatments
- Attempted to follow course of action-discussions between DOJ and FHWA
- Joint DOJ/DOT Joint Technical Assistance document dated June 28, 2013 “clarifies” the original intent of ADA regarding alterations
<table>
<thead>
<tr>
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<th>Excludes</th>
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<tbody>
<tr>
<td>Overlays w/wo milling</td>
<td>Striping</td>
</tr>
<tr>
<td>New layers of Asphalt</td>
<td>Crack sealing</td>
</tr>
<tr>
<td>PCC rehab and reconstruction</td>
<td>Chips Seals</td>
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<tr>
<td>OGFC</td>
<td>Fog seals</td>
</tr>
<tr>
<td>Microsurfacing</td>
<td>Scrub seals</td>
</tr>
<tr>
<td>Thin lift overlay</td>
<td>Dowel bar retrofit</td>
</tr>
<tr>
<td>Cape Seals</td>
<td>Diamond grinding</td>
</tr>
<tr>
<td>CIR</td>
<td>Patching</td>
</tr>
</tbody>
</table>
ADA-what’s next?

• CA Center survey results and CCSA survey underway.
• Survey by NACE?
• Other actions?
FP² Inc.-what’s next?

- Fall PP Partnership meetings, Minneapolis & Phoenix
- Engage with Congress on new transportation legislation-several days of meetings to date
FP2 Contributors

Corporate Sponsors

Sponsoring Associations
Questions?
FHWA UPDATE

2014 Subcommittee on Maintenance Meeting
Charleston, West Virginia
July 28, 2014

Marc Hoelscher, PE
Quality/Operations Engineer
Federal Highway Administration
Pavement Management

• Organizing Peer Exchanges
  – Number of topics related to Pavement Management Systems

• Comprehensive Workshop
  • Contact – Luis Rodriquez
Pavement Preservation

• SHRP2 Project R26
  – Preservation Approaches for High-Traffic-Volume Roadways
    • 14 states participating in the program
    • Holding workshops, showcases and peer-to-peer exchanges
    • Workshop in Minneapolis, September 2-5 in conjunction with MWPPP

• Asphalt Emulsion Task Force
  – Completed Specifications
    • Chip Sealing
    • Microsurfacing

• All of the TCCC courses are on the NHI website
Pavement Preservation
Web Based Training/International Slurry Surfacing Association (ISSA)

- Developed Courses
  - How to Construct High Quality
    - Slurry Seal and Micro Surfacing / Part 1 & 2
    - Chip Seal Treatments

  [http://www.fhwa.dot.gov/construction/wbt.cfm](http://www.fhwa.dot.gov/construction/wbt.cfm)

  ISSA Course Registration Page

- Courses in the Development – available end of year
  - 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 to come with ISSA and Asphalt Emulsion Manufacturers Association
Pavement Preservation

- FHWA Pavement Preservation Checklist Series:
  - [https://www.pavementpreservation.org/fhwa-resources/fhwa-preservation-brochures/](https://www.pavementpreservation.org/fhwa-resources/fhwa-preservation-brochures/)
Pavement Preservation

• Pavement Preservation Application
Ongoing and Planned Research

Preservation, Maintenance and Pavement Management

• Remaining Service Life
• Application and Validation of Remaining Service Interval Framework to Pavements
• Pavement Sensors
• Enhancement of Pavement Sensors
• Pavement Management Data
Ongoing and Planned Research

Preservation, Maintenance and Pavement Management (cont.)

• Network Level Pavement Structural Evaluation
• TPF-5(282) Demonstration of Network Level Pavement Structure Evaluation with Traffic Speed Deflectometer (TSD)

Projects Not Yet Awarded

• Performance Measures – Next Generation
• Asset Management Plan – Tool Development & Deployment
MAINTENANCE of OGFC PAVEMENTS
THE NORTH CAROLINA EXPERIENCE

2014 Subcommittee on Maintenance
July 28, 2014
Charleston, West Virginia

Cecil Jones, PE
Diversified Engineering Services, Inc.

Colin Durante
Pavement Technology, Inc.
Project History

- I-40 near Wilmington, NC
- OGFC Placed in 2001
- Other Sections Failed
  - Severe Raveling
  - Poor Surface Friction
  - OGFC Removed & Replaced
- Similar Pattern Beginning
Issues Faced

- OGFC Raveling
- Lower Surface Friction
  - Wet crashes increasing
- Needed Attention
- Funding Not Available to Replace
- DOT Seeking Options
Issues Faced

- Pavement Preservation not Possible
  - Well past the “top of the curve”
- When Will It Fail?
- Can Failure be Delayed?
- What Options Exist?
- How to Fund?
- Some Action Required Soon
Issues Faced

- How to Extend Life Until Funds Available?
- How to Restore Friction and Reduce Wet Crashes?
How can issues be addressed?

Texturing solves friction, but not raveling.

Rejuvenation may retard raveling, but decreases friction (at least temporarily).

Combination of technologies may solve both issues.
Project Design

- **Performance Specification**
  - Outflow Meter (ASTM E2380) Results average 10 seconds or less per lot
  - Recovered Binder Exhibit 20% Viscosity improvement two weeks after treatment (AASHTO T 316)
  - Friction Testing (ASTM 274) Required
    - No limits set

- **First time used in Combination**
  - Some risk involved
Project Design Concerns

Texturing
- May break aggregate bond
- Will not prevent future polishing

Rejuvenating
- First use on OGFC in NC
- Net friction improvement should be positive
- Highly oxidized Polymer Modified Binder
Project Design

- Five Sections, 18.6 Lane Miles
- Retain Existing Pavement Markings
  - Texturing between markings
  - Rejuvenator will not discolor markings
- Testing By Contractor
  - Outflow Meter by Contractor, observed by DOT
  - Viscosity testing by independent lab
  - Friction testing by independent consultant (and DOT)
Project Sequence

- Pre construction viscosity readings
- Initial Outflow and skid readings
- Texturing (two tandem units)
- Outflow and skid readings taken
- Rejuvenator application
- Outflow and skid readings taken
- Opened to traffic within 30 minutes
- Post construction viscosity readings taken 2 weeks later
Initial Results

- Performance Requirements Met
  - OGFC Outflow improved 39%
  - Dense graded Outflow improved 73%
  - Viscosity improved 32.4%
  - Skid number improved ~30%
Texturing

Before Texturing

Post Texturing
Post Construction

Current Status

- Accident Data analyzed by DOT
- No visible raveling of aggregates
- Surface Aggregates Polishing
Accident Data

- After 1.5 years compared to previous 3 years (as reported Feb. 20, 2014)
  - 14% Decrease in total crashes
    - Range -83% to +33%
  - 72% Decrease in wet crashes
    - Range -100% to -35%
  - 16% Decrease in lane departure crashes
    - Range -78% to + 35%
  - 75% Decrease in lane departure wet crashes
    - Range -100% to -35%
Observations

- Project a Success
- Skid Numbers Near Original Readings
  - Texturing may still be providing surface drainage on individual aggregate particles
- Rejuvenation Reducing Brittleness of Binder
  - Aggregates not raveling
Observations

- Project Should Extend Service Life
  - Until funding becomes available for replacement
  - Resolved urgency of action
- DOT Continues to Monitor Accidents
- Track Pavement Condition Survey Data
- Technique Seems Appropriate for Pavement Preservation (earlier during the service life)
Project Cost

Approximately $2.20 per Square Yard
Including All Pre Construction and Post Construction Testing
Questions?
Pavement Technical Working Group
AASHTO Standing Committee on Highways, Subcommittee on Maintenance
July 29, 2013  8:00 am - 9:45 am
Charleston, West Virginia

George Conner, Alabama DOT – Chair
Anita Bush, Nevada DOT – Vice Chair
Scott Capps, North Carolina DOT – Vice Chair
Marc Hoelscher - FHWA Liaison
Tuesday, July 29, 2014 PTWG Agenda (1/2)
- Snapshot -

• **Sign Attendance Sheet**
• **Sign Cards**
  – Butch Wlaschin (retirement)
  – Steve Mueller (thank you)
• **Evaluation and Modification of PTWG Priorities**
• **AASHTO Partner Updates (continued from previous session)**
Tuesday, July 29, 2014 PTWG Agenda (2/2)

-Snapshot-

• Technical Presentations
  – Funding Issues for Pavements – The Alabama Experience
  – Durability of OGFC Safety Layers
    • Survey results
    • NCDOT/SCDOT Experiences

• PTWG Annual Business Meeting

• Adjourn at 9:45 pm
Evaluation and Modification of PTWG Priorities

- **Review 2013 Issues**
  - Handout

- **New Issues for 2014**
  - Your Top Three Issues in Pavement Maintenance
  - Sticky Notes – one issue per sticky
  - Turn in sticky notes
  - Vice Chairs will sort into categories & report later
Partner Updates (continued)

- **FHWA Update**
  - Marc Hoelscher

- **Proposal for Preservation Certification**
  - Larry Galehouse
Technical Presentations

• Funding Issues for Pavements – The Alabama Experience
  – George Conner

• Durability of OGFC Safety Layers – Survey results and NCDOT/SCDOT Experiences
  – Jim Feda, SCDOT
  – Scott Capps, NCDOT
PTWG Annual Business Meeting

• 2015 Work Plan Updates
• Updates on Resolutions
  – Topic Identification and Volunteers
• Research Needs Statements
  – Topic Identification and Volunteers
Pavement Maintenance Issue Categories 1/1

- Summary Handouts Provided during Wednesday Session
Proposed Resolutions

• Support for Pavement Preservation Expert Technical Group (ETG)
  – Anita Bush
2015 Work Plan Updates

• Promote the Transportation System Preservation Technical Services Program (TSP2) to AASHTO members.

• Support efforts to quantify the contributions of pavement preservation to safety and risk-based asset management programs.

• Support TC3 and other groups in the development of various training and certification programs.

• Assist in the development and implementation of Performance Measures to meet AASHTO member’s pavement preservation program needs.

• Assist in the development and promotion of Pavement Preservation Life Cycle Assessment methodologies, including the demonstration of environmental benefits.
Research Needs Statements Topics (1/2)

• Condition Based and Non-Condition Based Triggers for the Placement of Thin Surface Treatments Used in Pavement Preservation

• Manufacture, Selection, Application and Performance of Asphalt Emulsion Treatments for Use in Highway Pavement Preservation Treatments

• Defining Comparable Pavement Cracking Data
Research Needs Statements Topics (2/2)

- Review of Recent Trends in Portland Cement Concrete Pavement (PCCP) Joint-Sealing Practices and Performance
- Maintenance Manual Update
  - Collaborate with BTWG
- Proposed Topics from PTWG Membership?
- Schedule
  - August 15, 2014: Final Version of Problem Statement Due to SCOM Vice Chair
Pavement Technical Working Group

NEXT MEETING

Wednesday July 30, 2013    10:15 am - 11:45 am

Salon D
ALDOT’s Funding Plan

- Historical Trends in Funding
- Critical Issues and Needs
Historical Trends in Funding

- Last state gas tax increase was 5¢ in 1992
- Last federal gas tax increase was 5¢ in 1993 [however, not available until 1997]
State Highway Revenue

Revenue

Per Gal Tax

1991 1993 1995 1997 1999 2001 2003 2005 2007 2009 2011

$100,000,000 $200,000,000 $300,000,000 $400,000,000 $500,000,000 $600,000,000
## Historical Federal Funding Levels

<table>
<thead>
<tr>
<th>Program</th>
<th>Years</th>
<th>Average Funding ($ Millions)</th>
<th>Range of Funding ($ Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISTEA</td>
<td>92 - 97</td>
<td>$283</td>
<td>$240 - $368</td>
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<tr>
<td>TEA-21</td>
<td>98 - 03</td>
<td>$560</td>
<td>$463 - $618</td>
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<tr>
<td>SAFETEA-LU</td>
<td>05 - 09</td>
<td>$731</td>
<td>$697 - $788</td>
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<tr>
<td>MAP-21</td>
<td>13 - 14</td>
<td>$737</td>
<td>$733 - $741</td>
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</table>
Total State and Federal Highway Revenue

Projected thru 2014

Federal
State
Total

$2,000,000,000
$1,800,000,000
$1,600,000,000
$1,400,000,000
$1,200,000,000
$1,000,000,000
$800,000,000
$600,000,000
$400,000,000
$200,000,000

1991 1993 1995 1997 1999 2001 2003 2005 2007 2009 2011 2013
Construction costs are 2 to 2½ times more than 20 years ago.
State of Alabama
Transportation Infrastructure Funding

1991  2012
State of Alabama
Transportation Infrastructure Funding

$514 million

1991  2012
State of Alabama
Transportation Infrastructure Funding

1991
$514 million

2012
$1,213 million
State of Alabama
Transportation Infrastructure Funding

1991
$514 million

2012
$630 million

Inflation

$92.3 m
New Diversion

$493 million
Funding in 1991 Dollars
[with Diversions and without Stimulus]

Adjusted Revenue

$788m
Funding in 1991 Dollars
[with Diversions and without Stimulus]

Adjusted Revenue

$788m

$493
Funding in 1991 Dollars
[with Diversions and without Stimulus]

Adjusted Revenue

35 % Drop

$788m

$493
Historical Trends in Funding
1991 to 2010

- 140% more money today than 1991, but relatively no change in total revenue since 2005.
- Purchasing power about the same today as 1991 and 35% less than 10 years ago due to inflation.
What else can affect funding?
WASHINGTON — The average gas mileage of new cars and trucks will have to nearly double by 2025 under regulations that were finalized Tuesday by the Obama administration.

The new rules will require the fleet of new cars and trucks to average 54.5 miles per gallon in 13 years. The requirement had stayed at 27.5 miles per gallon for 21 years before being increased slightly a year ago. The regulations will bring dramatic changes to the cars and trucks in U.S. showrooms and drive automakers to introduce new technology to make vehicles cleaner and more efficient.

The administration says the changes will save families more than $1.7 trillion in fuel costs and bring consumers lasting value.

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The administration says the changes will save families more than $1.7 trillion in fuel costs and bring consumers lasting value.
CRITICAL ISSUES AND NEEDS

- In terms of purchasing power, we are back to the 1991 level, just prior to the last state and federal tax increase.
- Level funding since 2005 expected to continue through 2014.
- Fuel economy will further devastate the highway program.
- Federal highway trust fund solvency is an issue
### HIGHWAY REVENUE

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<td>Estimated Federal Funds</td>
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<td><strong>Total</strong></td>
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<tr>
<td>Description</td>
<td>Amount</td>
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<tr>
<td>BEGINNING BALANCE</td>
<td>$1,213,355,000</td>
</tr>
<tr>
<td>State Funds to Others</td>
<td>$ 87,500,000</td>
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<tr>
<td>Administrative Office of Courts</td>
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<tr>
<td>Public Safety</td>
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<tr>
<td>Revenue Department</td>
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<td>State Personnel</td>
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<td>Industrial Access Appropriation</td>
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<td>County Engineer Salary Support</td>
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<td>Captive County Insurance</td>
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**Total** $87,500,000
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<td>$87,500,000</td>
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<tr>
<td>Federal Funds to Others</td>
<td>$130,427,000</td>
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## ALLOCATION OF FEDERAL FUNDS TO CITIES AND COUNTIES

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<th>Category</th>
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<tr>
<td>LARGE URBAN AREAS</td>
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<td>SMALL URBAN AREAS</td>
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<td>COUNTIES (Including Off-System Bridge)</td>
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<td>GARVEE BOND PAYMENT</td>
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**Total** $130,427,000
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<tr>
<td>ALDOT Overhead</td>
<td>$72,625,000</td>
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<tr>
<td>Description</td>
<td>Amount</td>
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<td>ALDOT Overhead</td>
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<tr>
<td>Routine/Emergency Maintenance</td>
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<tr>
<td>Safety</td>
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<tr>
<td>Interstate Maintenance</td>
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<tr>
<td>Interstate Maintenance</td>
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<tr>
<td>Bridge Replacement</td>
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<td>Interstate Maintenance</td>
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<tr>
<td>Bridge Replacement</td>
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<tr>
<td>Resurfacing</td>
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<td>$ 87,500,000</td>
</tr>
<tr>
<td>Federal Funds to Others</td>
<td>$ 130,427,000</td>
</tr>
<tr>
<td>ALDOT Overhead</td>
<td>$ 72,625,000</td>
</tr>
<tr>
<td>Routine/Emergency Maintenance</td>
<td>$ 147,500,000</td>
</tr>
<tr>
<td>Safety</td>
<td>$ 60,420,000</td>
</tr>
<tr>
<td>Interstate Maintenance</td>
<td>$ 170,000,000</td>
</tr>
<tr>
<td>Bridge Replacement</td>
<td>$ 80,000,000</td>
</tr>
<tr>
<td>Resurfacing</td>
<td>$ 260,000,000</td>
</tr>
<tr>
<td>Capacity/System Enhancement/APD</td>
<td>$ 150,000,000</td>
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</table>
## ALLOCATION OF FUNDS

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
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<tbody>
<tr>
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<tr>
<td>State Funds to Others</td>
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<tr>
<td>Federal Funds to Others</td>
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<td>Capacity/System Enhancement/APD</td>
<td>$ 150,000,000</td>
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<tr>
<td>Discretionary</td>
<td>$ 10,000,000</td>
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## ALLOCATION OF FUNDS FY 2013

<table>
<thead>
<tr>
<th>Allocation</th>
<th>Amount</th>
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<tbody>
<tr>
<td><strong>BEGINNING BALANCE</strong></td>
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<td>Capacity/System Enhancement/APD</td>
<td>$150,000,000</td>
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<td>Discretionary</td>
<td>$10,000,000</td>
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<tr>
<td>Equipment/Land &amp; Building</td>
<td>$11,000,000</td>
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<tr>
<td>ATRIP BONDS</td>
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### ALLOCATION OF FUNDS FY 2014

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<tr>
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<td>ALDOT Overhead</td>
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<tr>
<td>Routine/Emergency Maintenance</td>
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<tr>
<td>Safety</td>
<td>$ 48,420,000</td>
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<tr>
<td>Interstate Maintenance</td>
<td>$ 158,000,000</td>
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<tr>
<td>Bridge Replacement</td>
<td>$ 73,000,000</td>
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<td>Resurfacing</td>
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<tr>
<td>Capacity/System Enhancement/APD</td>
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<tr>
<td>Discretionary</td>
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<tr>
<td>Equipment/Land &amp; Building</td>
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<tr>
<td>Overruns</td>
<td>$ 50,000,000</td>
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<tr>
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# Allocation of Funds FY 2015

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<tr>
<td>State Funds to Others</td>
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<tr>
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<td>Routine/Emergency Maintenance</td>
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<td>Safety</td>
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<tr>
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<tr>
<td>Bridge Replacement</td>
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<tr>
<td>Resurfacing</td>
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FY 2014 Projected Estimates for End-of-Month Cash Balances (as of 1/31/2014)

Highway Account of the Highway Trust Fund (Includes FHWA, FMCSA & NHTSA)

- Actual
- Projected

Shortfall anticipated

Billions of Dollars

Oct  $10.5
Nov  $9.3
Dec  $8.5
Jan  $8.3
Feb  $8.9
Mar  $8.5
Apr  $8.8
May  $8.5
Jun  $5.8
Jul  $4.6
Aug $2.2
Sep $0.4

($0.1)
<table>
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</thead>
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<td>Federal Funds to Others</td>
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<tr>
<td>ALDOT Overhead</td>
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<tr>
<td>Routine/Emergency Maintenance</td>
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<tr>
<td>Safety</td>
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<td>Interstate Maintenance</td>
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<td>Discretionary</td>
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<tr>
<td>ATRIP BONDS</td>
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<td>Emergency Maintenance</td>
<td>$45,000,000</td>
</tr>
<tr>
<td>ENDING BALANCE</td>
<td>$0</td>
</tr>
</tbody>
</table>
Questions
South Carolina Open Graded Friction Course Maintenance Program

Jim Feda, P.E.
Director of Maintenance
SCDOT
Open Graded Friction Course in South Carolina

• Used predominately as a wearing course on interstate routes
• 8 to 10 year service life
• SCDOT Studies show a 28.3 percent reduction in wet weather crashes on interstate routes with OGFC as compared to dense graded pavements
• Subject to extreme raveling as end of service life is reached resulting in the potential for damage claims
Open Graded Friction Course

- More chemicals needed for anti-icing and de-icing during winter weather events
- Very susceptible to damage due to vehicle accidents, flat tires, and snow plows
- Difficult to properly repair using in-house forces
- Most raveling issues that occur early are construction related
History

• Over 2000 lane miles of OGFC currently in place
• In 2011 we had 295 lane miles that had reached or exceeded its life expectancy (0 RSL)
• Another 800 lane miles would reach 0 RSL by 2016
• Other than the OGFC wearing course, these pavements were in good condition
SCDOT OGFC Maintenance Program

• Developed routine maintenance replacement program based on percentage of raveling and age of OGFC
• Funding comes from IM funds and is detailed in our STIP
• Plan is to replace OGFC before end of service life is reached
• Based on award amounts the average cost per lane mile is around $72,573 or $336,282 per centerline mile
Summary

• Maintenance Engineers not happy with OGFC from a maintenance standpoint
• Have looked at ways to improve OGFC through mix design changes and construction practices
• Have looked at application of rejuvenators to reduce raveling and extend service life
• Wet weather crash reduction numbers make it very difficult to eliminate the use of OGFC in South Carolina
North Carolina
### North Carolina

<table>
<thead>
<tr>
<th>Routes</th>
<th>Mileage</th>
</tr>
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<tbody>
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<td>Interstate</td>
<td>1,254.04</td>
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<tr>
<td>Bus. Interstate</td>
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<tr>
<td>US Routes</td>
<td>5,570.16</td>
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<tr>
<td>NC Routes</td>
<td>8,170.77</td>
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<tr>
<td><strong>Total Primary</strong></td>
<td><strong>15,063.65</strong></td>
</tr>
<tr>
<td><strong>Total Secondary</strong></td>
<td><strong>64,514.39</strong></td>
</tr>
<tr>
<td><strong>Total State Maintained Miles</strong></td>
<td><strong>79,578.04</strong></td>
</tr>
</tbody>
</table>
OGFC

643.32 Miles of OGFC

• Longest Section 28 Miles
• Primarily Interstate and US Routes
• Primarily Type FC-2 Modified
## Change in Specification

### TABLE 650-1
OGAFC GRADATION CRITERIA

<table>
<thead>
<tr>
<th>Sieve Size (mm)</th>
<th>Type FC-1</th>
<th>Type FC-1 Modified</th>
<th>Type FC-2 Modified</th>
</tr>
</thead>
<tbody>
<tr>
<td>19.0</td>
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<td>-</td>
<td>100</td>
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<tr>
<td>12.5</td>
<td>100</td>
<td>100</td>
<td>85 - 100</td>
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<td>9.50</td>
<td>75 - 100</td>
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<td>4.75</td>
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<td>25 - 45</td>
<td>15 - 25</td>
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<td>1.0 - 3.0</td>
<td>2.0 - 4.0</td>
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</table>
## Change in Specification

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<tr>
<td>12.5</td>
<td>100</td>
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<td>80 - 100</td>
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<tr>
<td>9.50</td>
<td>75 - 100</td>
<td>75 - 100</td>
<td>55 - 80</td>
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<tr>
<td>4.75</td>
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<td>0.075</td>
<td>1.0 - 3.0</td>
<td>1.0 - 3.0</td>
<td>2.0 - 4.0</td>
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NCAT Survey Results

File
Surface Abrasion and Rejuvenation
Surface Abrasion and Rejuvenation
Surface Abrasion and Rejuvenation
Surface Abrasion and Rejuvenation
Surface Abrasion and Rejuvenation
Questions ?
OGFC Survey Results

Pavement TWG
2014 AASHTO SCOM
Charleston, WV
## Survey Respondents

<table>
<thead>
<tr>
<th>States/Provinces</th>
<th>Alabama</th>
<th>Manitoba</th>
<th>Ohio</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Arkansas</td>
<td>Michigan</td>
<td>Oklahoma</td>
</tr>
<tr>
<td>Colorado</td>
<td>Minnesota</td>
<td>South Carolina</td>
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<tr>
<td>Delaware</td>
<td>Mississippi</td>
<td>South Dakota</td>
<td></td>
</tr>
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<td>Florida</td>
<td>Missouri</td>
<td>Tennessee</td>
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<tr>
<td>Georgia</td>
<td>Nevada</td>
<td>Utah</td>
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<td>Indiana</td>
<td>New Hampshire</td>
<td>Vermont</td>
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<td>New Jersey</td>
<td>Virginia</td>
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<td>Kansas</td>
<td>North Carolina</td>
<td>West Virginia</td>
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<td>Louisiana</td>
<td>North Dakota</td>
<td>Wyoming</td>
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</table>
1. Does Your State Currently Use OGFCs?

<table>
<thead>
<tr>
<th></th>
<th>Number of Responses</th>
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<tbody>
<tr>
<td>(1d) No</td>
<td>15</td>
</tr>
<tr>
<td>(1e) Yes</td>
<td>16</td>
</tr>
</tbody>
</table>

2014 AASHTO SCOM
1. Does Your State Currently Use OGFCs?

No:
Yes:
No Response:
2. OGFCs Used on What Types of Roads in Your State

Number of Responses

- (2f) Interstates: 15
- (2g) Major Arterials: 13
- (2h) Minor Arterials: 9
- (2i) Collectors and Locals: 3
- (2j) Other (See Handout): 3
3. How Long Has Your State Been Using OGFCs?

Number of Responses

<table>
<thead>
<tr>
<th>Years Range</th>
<th>Number of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Yrs or Less</td>
<td>4</td>
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<tr>
<td>11 to 20 Yrs</td>
<td>6</td>
</tr>
<tr>
<td>More than 20 Years</td>
<td>6</td>
</tr>
</tbody>
</table>

2014 AASHTO SCOM
3. How Long Has Your State Been Using OGFCs?

- 10 Years or less: 
- 11 to 20 Years: 
- > 20 Years:
4. What is The Average Life Expectancy of Your OGFCs?

Number of Responses

- (4n) Less than 1 Yr: 2 responses
- (4o) 1 to 4 Yrs: 11 responses
- (4p) 5 to 7 Yrs: 11 responses
- (4q) 8 to 10 Yrs: 3 responses
- (4r) More than 10 Yrs: 3 responses

2014 AASHTO SCOM
5. General Opinion on the Hydraulic Performance of OGFCs?

Number of Responses

- (5s) Perform Well: 12 responses
- (5t) Average Performance: 3 responses
- (5u) Don't Perform as Expected: 0 responses

2014 AASHTO SCOM
5. General Opinion on the Hydraulic Performance of OGFCs?

Hydraulic Performance on OGFCs

Well:

Average:
6. General Opinion on the Durability and Performance of OGFCs?

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>(6v) Last as Expected and Perform Well</td>
<td>8</td>
</tr>
<tr>
<td>(6w) Average Durability and Performance</td>
<td>7</td>
</tr>
<tr>
<td>(6x) Don't Perform as Intended</td>
<td>2</td>
</tr>
</tbody>
</table>

2014 AASHTO SCOM
6. General Opinion on the **Durability and Performance** of OGFCs?

![Map showing durability and performance of OGFCs across the United States. The states are color-coded to indicate different performance levels: well, average, not as expected.](image)

- **Well:** States with high positive performance.
- **Average:** States with moderate performance.
- **Not as Expected:** States with lower performance.

*2014 AASHTO SCOM*
7. Special Maintenance Activities to Extend/Account for Hydraulic Performance

![Number of Responses](chart)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Number of Responses</th>
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</thead>
<tbody>
<tr>
<td>(7y) Reduced Sand Application</td>
<td>3</td>
</tr>
<tr>
<td>(7z) Greater Salt Brine Application</td>
<td>6</td>
</tr>
<tr>
<td>(7aa) Vacuuming</td>
<td>1</td>
</tr>
<tr>
<td>(7ab) Washing/Flushing</td>
<td>0</td>
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<tr>
<td>(7ac) Other (see sheets)</td>
<td>2</td>
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</table>
8. Issues with OGFC Performance During 2013-2014 Winter Season?

Number of Responses

- (8ad) Yes: 7 responses
- (8ae) No: 6 responses
- (8af) Don't Know: 2 responses
8. Issues with OGFC Performance During 2013-2014 Winter Season?

Yes: [Map representation]
No: [Map representation]
Don’t Know: [Map representation]
No Response: [Map representation]
9. Describe Type and Extent of Issues with OGFCs

• Eight States responded
• See attached sheets for individual comments
10. Method Used to Repair Pavements with OGFC Damage

Number of Responses

- (10ah) Mill OGFC, Replace OGFC: 6
- (10ai) Mill OGFC, Replace HMA: 9
- (10aj) Mill OGFC Plus, Replace HMA: 2
- (10ak) Mill OGFC Plus, Replace HMA and OGFC: 5
- (10al) OGFC Remains: 4
- (10am) Other: 6

See attached sheet for responses.
11. Does Your State’s Training Program Include a Module on OGFCs?

<table>
<thead>
<tr>
<th>Option</th>
<th>Number of Responses</th>
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<tr>
<td>(11an) Yes</td>
<td>1</td>
</tr>
<tr>
<td>(11ao) No</td>
<td>7</td>
</tr>
<tr>
<td>(11ap) Don't Know</td>
<td>8</td>
</tr>
</tbody>
</table>
11. Does Your State’s Training Program Include a Module on OGFCs?

Yes: [Map Indicating Yes States]
No: [Map Indicating No States]
Don’t Know: [Map Indicating Don’t Know States]
12. Do you have other comments concerning OGFCs?

- Nine States responded
- See attached sheets for individual comments
Pavement Technical Working Group
AASHTO Standing Committee on Highways, Subcommittee on Maintenance
July 30, 2013  10:15 am - 11:45 am
Charleston, West Virginia

George Conner, Alabama DOT – Chair
Anita Bush, Nevada DOT – Vice Chair
Scott Capps, North Carolina DOT – Vice Chair
Marc Hoelscher - FHWA Liaison
Wednesday July 30, 2014 PTWG AGENDA

Please Sign Attendance Sheet

Thank you card – Carlos Braceras

**Updates from AASHTO Partners**
- TRB & NCHRP Updates – James Bryant
- SHRP2 Update for Pavement Preservation R-26 – David Peshkin

**PTWG Annual Business Meeting**
- Leadership Changes for PTWG
- Report on Evaluation and Modification of PTWG Priorities
- Discussion and Approval of:
  - FY 2015 PTWG Research Problem Statements
  - FY 2015 Resolutions
  - FY 2015 Work Plan
- 2015 AASHTO/TRB Conference on Transportation Infrastructure Maintenance and Operations Call for Abstracts

- Other Business

Adjourn at 11:45 am
Updates from AASHTO Partners

TRB & NCHRP Updates
– James Bryant

SHRP2 Update for Pavement Preservation R-26
– David Peshkin
PTWG Annual Business Meeting

Leadership Changes for PTWG

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- FY 2015 PTWG Research Problem Statements
- FY 2015 Resolutions
- FY 2015 Work Plan

2015 AASHTO/TRB Conference on Transportation Infrastructure Maintenance and Operations Call for Abstracts

Other Business
Report on Evaluation and Modification of PTWG Priorities

• Summary Handouts of PTWG Priorities
Research Needs Statements Topics

• Condition Based and Non-Condition Based Triggers for the Placement of Thin Surface Treatments Used in Pavement Preservation
  – Assignment

• Manufacture, Selection, Application and Performance of Asphalt Emulsion Treatments for Use in Highway Pavement Preservation Treatments
  – Assignment
Research Needs Statements Topics

• Review of Recent Trends in Portland Cement Concrete Pavement (PCCP) Joint-Sealing Practices and Performance
  – Assignment

• Maintenance Manual Update
  – Collaborate with BTWG
Proposed Resolutions

• Support for Pavement Preservation Expert Technical Group (ETG)
  – Anita Bush
FY 2015 Work Plan Goals – Top 5

• Promote the Transportation System Preservation Technical Services Program (TSP\(^2\)) to AASHTO members.

• Support efforts to quantify the contributions of pavement preservation to safety and risk-based asset management programs.

• Support TC3 and other groups in the development of various training and certification programs.

• Assist in the development and implementation of Performance Measures to meet AASHTO member’s pavement preservation program needs.

• Assist in the development and promotion of Pavement Preservation Life Cycle Assessment methodologies, including the demonstration of environmental benefits.
Additional FY 2015 Work Plan Items (1/2)

- Sustain high level of maintenance interest and involvement in Transportation System Preservation (TSP)
- Expand Regional Pavement Preservation Partnerships to include more LPA’s, LTAP Centers, and MPOs
- Enhance internal communications of the PTWG: expand membership and e-mail list; and conduct two telephone conference calls and/or webinars involving roundtable discussions for members
- Review TRB/NCHRP Completed Research for possible publication as AASHTO Manuals or presentations in a series of “Pavement Preservation Book Club” webinars
- Implement SHRP-2 products (R-26 and R-23) that are useful to pavement preservation and maintenance
Additional FY 2015 Work Plan Items (2/2)

• Prepare research implementation recommendations associated with 2011 14-24 Communicating the Value of Preservation: A Playbook – NCHRP 742

FY 2014 PTWG Key Accomplishments

• Promoted the Transportation System Preservation Technical Services Program. (TSP²) to AASHTO Members.
• Supported the expansion of Regional Pavement Preservation Partnerships.
2015 AASHTO/TRB Conference on Transportation Infrastructure Maintenance and Operations Call for Abstracts

• Best practices for pavement preservation treatments
• Network perspective on the allocation and justification of resources to meet preventive maintenance needs
• Quantifying the short-term and long-term benefits of effective pavement preservation treatments and programs
2015 AASHTO/TRB Conference on Transportation Infrastructure Maintenance and Operations Call for Abstracts

• Pavement preservation and maintenance guidelines, specifications, terminology and best management practices
• Using new technologies and materials to cost-effectively extend pavement life
• Incorporating sustainability into pavement maintenance
• Workforce training for pavement preservation
Pavement Technical Working Group

NEXT MEETING

We look forward to seeing you next year in Des Moines, Iowa!

(and throughout the year on telephone calls and webinars)
National Cooperative Highway Research Program (NCHRP)

Research on Maintenance Aspects of Highway Pavements

Report to the AASHTO Highway Subcommittee on Maintenance/TWG on Pavement Maintenance
Charleston, West Virginia, July 2014
(NCHRP Liaison: Amir N. Hanna)
NCHRP - National Cooperative Highway Research Program

- An AASHTO program sponsored by state DOTs
- Started in 1962
- Annual funding ~ $40 million/year
- Contributes to advancements in all aspects of highways
- 8 fields of research (Administration, Planning, Design, Materials and Construction, Soils and Geology, Maintenance, Traffic, and Special Projects)
- 25 Subject areas (e.g., economics, forecasting, pavements, bituminous materials, mechanics and foundations, snow and ice control, maintenance of ways and structures, equipment, illumination and visibility, and special projects)
NCHRP: Goal-Oriented Research

• Responds to state DOT needs: DOTs and AASHTO committees propose research topics; SCOR selects projects.
• Ensures applicability of the results: state DOTs and other sectors of the highway industry participate in monitoring the research.
• Results are published by NCHRP (reports, digests, synthesis, CD-ROMs, and Web documents) or by AASHTO (guides/manuals, specifications, and test methods), and often adopted by state DOTs and other organizations.
Scope of NCHRP Projects Related to Maintenance

- Pavement Maintenance
- Snow and Ice Control
- Bridges and Structures
- Roadside
- Maintenance Equipment
- Workforce Development
- Etc.
Three Types of NCHRP Projects
(of Interest to the AASHTO Highway Subcommittee on Maintenance)

• Research Projects
  Selected by SCOR once/year (March).

• Research for AASHTO Standing Committee on Highways (20-07 projects)
  Selected by NCHRP Project Panel SP20-07 twice/year (May and October).

• Synthesis of Information Related to Highway Problems (20-05 projects)
  Selected by NCHRP Project Panel SP20-05 once/year (May).
Publication/Dissemination of Project Reports

😊 Published by AASHTO
😊 Available on AASHTO (SCOM) Website
😊 Published in the NCHRP publication series (as NCHRP reports, syntheses, or research results digests)
😊 Summarized and made available on NCHRP Website
Recent Publications

• AASHTO Maintenance Manual for Roadways and Bridges (2007)

• Manual for Emulsion-Based Chip Seals for Pavement Preservation (NCHRP Report 680)

• Determining Highway Maintenance Costs (NCHRP Report 688)
Ongoing NCHRP Projects - 1

- Project 1-48: Developing Information for Integrating Preservation into Pavement Design and Analysis Procedures

- Project 9-50: Performance-Related Specifications for Asphaltic Binders Used in Preservation Surface Treatments

- Project 10-82A: Performance Related Specifications for Pavement Preservation Treatments

- Project 14-20A: Consequences of Delayed Maintenance of Highway Assets
Ongoing NCHRP Projects - 2

- Project 14-25: Guide for Selecting Level-of-Service Targets for Maintaining and Operating Highway Assets
- Project 14-31: Developing a Pavement-Maintenance Database System
- Project 14-33: Pavement Performance Measures that Consider the Contributions of Preservation Treatments
- Project 20-7(340): Guidelines for Collecting, Processing, and Managing Roadway Asset Inventory Data
Programmed for FY 2015:

- 12 Continuation projects ($8,780,000)
- 46 New projects ($19,850,000)
- 3 Contingent projects (1,300,000)
- Total 48 projects ($28,630,000) in 18 problem areas (bridges, maintenance, materials, pavements, etc.)
- 3 Projects (+ 1 contingent project) related to maintenance (from 6 submitted by SCOM)/none related to pavement maintenance.
NCHRP FY 2016 Program

• July 9, 2014: Solicitation of FY 2015 problem statements

• Sept. 15, 2014: End date for problem statements
  (maybe submitted by the SCOM, individual state DOTs, or FHWA) – See NCHRP website for format (ensure clarity of the objective and anticipated product of the research).

• March 24-25, 2015: SCOR meeting/project selection
More Information

NCHRP: Advancing transportation and meeting states’ needs for more than half a century

- http://www.trb.org ........ NCHRP
- Contact: Amir N. Hanna
  ahanna@nas.edu
  202/334-1432
Maintenance & Preservation Section

AHD10  Maintenance and Operations Management
AHD15  Maintenance and Operations Personnel
AHD18  Pavement Preservation
AHD20  Pavement Maintenance
AHD25  Sealants and Fillers for Joints and Cracks
AHD30  Structures Maintenance
AHD35  Bridge Management
AHD37  Bridge Preservation (New Committee)
Maintenance & Preservation Section

AHD40  Polymer Concretes, Adhesives, and Sealers
AHD45  Corrosion
AHD50  Roadside Maintenance Operations
AHD55  Signing and Marking Materials
AHD60  Maintenance Equipment
AHD65  Winter Maintenance
AH010  Surface Transportation Weather*

*Technically AH010 is not a formal member of AHD00 but it is closely linked with AHD65
Practice Ready Papers

Practice-ready = results presented and discussed make a contribution to the solution of current or future problems or issues for practitioners and is ready for immediate implementation or requires minimal additional research or implementation effort.

http://prp.trb.org/
Getting Involved

Committee Membership

• Up to two additional members employed by state DOTs may be appointed without it counting against the 25 member limit for a committee.

  ➢ This is not intended for committees to move existing committee members into the State DOT slots.

  ➢ Intended to create space for 2 additional State DOT members
Getting Connected

Webinars

- TRB conducted a record 63 webinars in 2013
- TRB estimates over 23,000 webinar participants (over 13,000 State DOT Participants)
- TRB Webinars are free for State DOT Employees

2014: 76 planned webinars

TRB Sponsors can attend webinars at no cost and have access to all past webinars
MyTRB Goal:
To centralize the functionalities that TRB volunteers and friends need to carry out their roles within TRB. The initial launch of the system focuses on standing committee related activities; however, the functionalities the system supports is expected to expand over time.

MyTRB will allow you to do the following:
• maintain your own contact information and profile
• nominate yourself as a friend of a committee or task force
• manage your publication subscriptions
• accept invitations to join standing committees and task forces
2015 AASHTO/TRB Conference on Transportation Infrastructure Maintenance and Operations

The conference in 2015 will focus on Practical Innovations in Maintenance Operations and Management.

Abstracts Due: September 15, 2014
Abstracts Reviewed by AASHTO TWGS: September – October
Authors Notified: November 2014
Full Manuscripts Due: February 1, 2015
Registration Opens in September!
The Lay of the Land
Wi-Fi Everywhere!
Bigger & Better Exhibits!
Sessions in Convention Center
Meetings in Marquis
Food & Beverage Outlets
Corridors to the Future!
James Bryant

TRB Maintenance & Preservation

Jbryant@nas.edu

202-596-2087
SHRP 2 R26 Implementation
Preservation Approaches for High Traffic Volume Roadways

AASHTO Subcommittee on Maintenance Pavement Technical Working Group

July 30, 2014
Charleston, West Virginia

Presented by:
David Peshkin, P.E.
SHRP 2 R26: A Review

- Pavement preservation for high-volume roadways
- Definitions of “high volume”
- Synthesis of practices
- Guidance on project and treatment selection
SHRP2 R26 Implementation

• AASHTO
• FHWA
• SHRP 2
• Their partners
Implementation Assistance

- Pennsylvania
- Arizona
- Tennessee
- Kentucky
- Maine
- Wisconsin
- Delaware
- Georgia
- Rhode Island
- Missouri
- Minnesota
- Massachusetts
- D.C.
Other Implementation Activities

• Quarterly User Group calls
• Outreach
  – Workshops
  – Showcases
  – Peer
• Tools
  – Data collection guide
  – Selection tools
  – Others
Technical Support

• Project selection
• Treatment selection
• Tool customization
• Construction
• Pre-evaluation
• Post-evaluation/monitoring
QUESTIONS?

DAVID PESHKIN, P.E.
APPLIED PAVEMENT TECHNOLOGY, INC.
DPESHKIN@APPLIEDPAVEMENT.COM
217.398.3977
Chair: George Conner - Alabama, Vice Chair: Anita Bush - Nevada, Vice Chair: Scott Capps - North Carolina, FHWA Liaison: Marc Hoelscher

Scheduled Meeting Time 3:30 to 5:30

George welcomed the group and covered the agenda for the afternoon.

Introductions

Went over structure and purpose of membership

Covered past and future meetings, SCOM Mission, Vision and Focus Areas

Covered FY 2015 TOP 5 Work Plan Goals

- Supporting the effort to better quantify pavement preservation to safety and risk based asset management.

- Performance measures such and IRI and pavement condition, what is important to the life of the pavement.

Need to do some webinars and conference calls within this group throughout the year.

Defining Comparable Pavement Cracking Data – Made it through the process.

Draft problem statement handed out Review of Recent Trends in Portland Cement Concrete Pavement (PCCP) Joint-Sealing Practices


- What all has changed since 2007? Current manual has outdated material that needs to be updated.

- Chris Christopher thought we could get a full update of the Maintenance Manual, Collaborate with the BTWG.

Other ideas for research problem statements from membership

- Katie Zimmerman, Applied Pavement Technologies Help organizations to establish performance measures and targets qualitatively. Synthesis on performance measures

- OGFC best practices who is using it, who is not, how is it going, best practices. Jim Feda – SCDOT, mentioned Dr. Putnam OGFC, George - NCAT

- Mark McConnell, MS- Synthesis best practice for snow and ice.
Curt Beckemeyer, ARA, supports the research problem statements presented by the PTWG Leadership

Condition Based and Non-Condition Based Triggers for the Placement of Thin Surface Treatments Used in Pavement Preservation

Manufacture, Selection, Application and Performance of Asphalt Emulsion Treatments for Use in Highway Pavement Preservation Treatments

Larry Galehouse, NCPP – Regional TSP2 Task force, research needs statements to be provided to the PTWG.

**August 15, 2014 – Final version of Problem Statement Due to SCOM vice Chair**


2008 14-18 Determining Actual Cost of Performing Routine and Preventive Maintenance Operations on Highway Systems – NCHRP Repots 688 – **Recommendation is to support this as an AASHTO publication.**

2009 20-81 Challenges and Success in Attracting and Retaining a Skilled Transportation Workforce – NCHRP Report 685. Jim Feda, SCDOT, Collection of case studies of programs in place in retaining a skilled workforce. Jim Feda involved in this research. George is made a recommendation to carry this forward into an AASHTO document. **Recommendation is to support this as an AASHTO publication.**

2010 10-82, Performance Related Specifications for Pavement Preservation Treatments. **Interim Reports**

2010 14-20, Consequences of Delayed Maintenance - NCHRP Interim Report Process Documents. **Interim Reports**

2010 14-21, Resource Allocation Logic Framework to Meet Highway Asset Preservation – NCHRP Report 736. **Not recommended to be an AASHTO publication**


2011 14-24, Communicating the Value of Preservation: A Playbook – NCHRP 742 Recommendation is to support this as an AASHTO publication.

ADA accommodations on pavement preservation projects – issue with the way alterations were assigned. Resolution communicated to review and reconsider. Resolution did not pass SCOH.

Presentations

Updates on NCPP, TSP2 and Regional Partnerships (including National Conference and International Conference) – Larry Galehouse, Executive Director, National Center for Pavement Preservation

  Updating the research road map – NCPP charged to update the road map.

  Push on implementing research, new database within NCPP for research.

Industry Update – FP2 - Rod Birdsall

  Three focuses – MAP21, performance standards, NCAT

  ADA & Alterations of the pavement surface

Maintenance of OGFC: The North Carolina Experience – Colin Durante

Adjourn 5:30

Marc Hoelscher
SCOM 2014 PTWG Breakout Session Notes, Tuesday, July 29

Chair: George Conner, Alabama, Vice Chair: Anita Bush, Nevada, Vice Chair: Scott Capps, North Carolina, FHWA Liaison: Marc Hoelscher

Scheduled Meeting Time - 8:00 to 9:45

George covered thank you cards for Butch W. & Steve M.

Evaluation and Modification of PTWG Priorities

Summary of 2013 top three priorities handout was provided to the group to look over for an exercise later in the morning.

FHWA update – preservation memo clarification, get concerns directly to Bryan C.

Larry Galehouse NCPP – A proposed framework or The National Center for Pavement Preservation - Agency Employee Certification Program

Start as a pilot and then after a period of time see if the consistency and quality of treatments have improved and reevaluate.

Also looking into contractor certification down the road

Rod – What is the best avenue for implementation?

Larry - Wrote similar framework for contractors. Two people would be trained through ISSA and then those two would train 80% of the workforce and then develop a plan. Also equipment maintenance and up keep program. This is a voluntary program for an Agency.

Rod – On the right track for the agencies how do we get this promoted to the industry.

Colin – Take this a step at a time.

PPETG – Laboratory accreditation is coming on pavement preservation treatment mix designs. Accredited lab and certified lab personnel.

Larry – We need to continue raising the bar on pavement preservation activities, such as certification.

Anita, who should be certified? Agencies make that decision within their own organization.

George – A very important item to consider. Conduct a webinar on this topic sometime this year with the PTWG membership.
Thank you cards circulated for Steve Mueller

John – Look into pavement warranty specification

George – Maintenance manual update in one 20-07 project, with the BTWG taking the lead on this.

George provide a summary on the tours, River Gorge Bridge and Memorial Tunnel Tour

Presentation by George on ALDOT Highway Funding Update

Case Study presented to the group

Diversion of state funding to other state programs, i.e. highway patrol, etc.

Purchasing power back to 1991 levels

$87,500,000 state gas tax funds to eight other state programs.

$130,427,000 Federal-aid to seven other program areas.

What would the shortfall of funding do to workforce? Impact, such as construction folks being moved to maintenance.

Anita went over the results of the OGFC survey responses from the states.

Rod - A wide range of binders that are used with OFGC, would have been a good question to add to the survey.

It was mentioned that Oregon, Florida, Mass, and others that did not respond to the survey that are users of OGFC.

Question eight will be touched on by Jim Feda during his presentation

University of Tennessee is doing a survey on OGFC

Presentation on South Carolina Open Graded Friction Course Maintenance Program – Jim Feda

Maintenance perspective

Majority as wearing course on interstate routes

Issues – more chemicals needed for anti-icing, very susceptible to damage due vehicle accidents, etc.

Difficult to properly repair with in-house personnel
Using PG76-22 and other modified mixes.

No issues with ground in rumble strips

Day light to mid should line outside and inside.

Presentation Scott Capps, NCDOT – OGFC

14 Divisions -643 miles of OGFC

Type FC-2 Modified primarily used within NC specification.

NCAT survey information on OGFC

Skidabrader used in NC for a surface abrasion and rejuvenation

NC uses set-a-side funding to put down product and then monitor with report outs.

Get on the surface early, do not wait to vacuum.

Couple more items

PTWG priority update tomorrow

Proposed resolutions – PPETG

Work plan updates TOP 5 are ok the grop

Other proposed topics coming from the pavement partnerships at a later date

Adjourn – 10:00

Marc Hoelscher
SCOM 2014 PTWG Breakout Session Notes, Wednesday, July 30

Chair: George Conner, Alabama, Vice Chair: Anita Bush, Nevada, Vice Chair: Scott Capps, North Carolina, FHWA Liaison: Marc Hoelscher

Scheduled Meeting Time - 10:15 to 11:45

Thank you Cards for Butch W., Steve M., Carlos B.

Handout for PTWG evaluation of priorities was provided to the group.

Reminder to sign the attendance sheet

James Bryant – TRB presentation

New Committee AHD37 Bridge Preservation

Practice ready papers data base http://prp.trb.org

Committee management site http://Mytrb.org

TRB conference for next year – Abstracts are due September 15, 2014

Abstracts reviewed by AASHTO TWGS September – October

Author’s notified November of 2014 with full manuscripts due February 1, 2015

Registration opens in September

James Bryant – NCHRP update for Amir Hanna

Support by AASHTO state - $40 million/year 8 fields of research and 25 subject areas

AASHTO Subcommittee on Research selects the projects

12 continuation projects, 46 new projects

September 15, 2014 end date for new problem statements, clarity of objective and what results are to be achieved.

OGFC survey to Larry Galehouse to be posted to NCPP site

David Peshkin – R26 update Pavement Preservation for High-Volume- Roadways

Definitions for “High Volumes”

Guidance on project and treatment selection

Implementation of R26 – AASHTO, FHWA, SHRP 2, their partners
Fourteen agencies received assistance, approximately $100k

Quarterly group calls

Outreach - workshops, showcases, peer exchanges

Tools – data collection guide (before, during and after treatment application), selection tools, others

Technical Support – project selection, treatment selection, tool customization

Questions – Nathan Moore – What treatments are being utilized/underutilized? Utilized - thin overlays leading the charge, then crack sealing; underutilized – chip seals

Comment – What we know is where we use PP at locations that are not used at the right location we are looking at failure.

Comment on pushing the limit of PP treatments on high volume roads to see what/how various treatments will perform.

George covered PTWG leadership changes to come.

George summarized the results of the PTWG priority results that will be used to help with direction of the PTWG. The PTWG will use the results of the exercise during the quarterly conference calls to help set the direction of this TWG

**Research Needs Statements**

Modify statement to – *Condition Based and Non-Condition Based* Triggers and timings for the Placement of Thin Surface Treatments Used in Pavement Preservation Treatments for Asphalt Pavements

Rewritten - Triggers and timings for the Placement of Pavement Preservation Treatments for Asphalt Pavements

What would the product be?

Include in the write-up - *Condition based and non-condition based*

Assignment - Initial draft David Peshkin and Kent NAPA, with Anita to finalize with the group.

Manufacture, Selection, Application and Performance of Asphalt Emulsion Treatments for Use in Highway Pavement Preservation Treatments.
Might fall under ETF – there is a lot of activity in ETF as they have met twice in the past year – Larry G. recommends to hold off to see where ETF is taking this topic within the next year.

After group discussion George recommended deferring and taking it up next year, group agreed.


Anita, e-mail from Jim McGraw from MNDOT, seal or not seal the joints. Goal is to have syntheses to see what has happened in the past and document the current state of practice.

Larry G. - ISU completed a manual on this subject.

Jim Feda recommended holding off for a year. No objection if it was delayed.

Ultimately the group decided to move forward with this research needs statement.

Resolutions

Support for FHWA Pavement Preservation Expert Task Group

Group supports this resolution with a few modifications.

Support for Continuing and Expanding Pavement Preservation Research

Group Supports

Adjourn 12:00

Marc Hoelscher
# 2014 AASHTO Subcommittee on Maintenance - Pavement Technical Working Group

Charleston, West Virginia

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The table above lists the members of the 2014 AASHTO Subcommittee on Maintenance - Pavement Technical Working Group in Charleston, West Virginia.
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