Latest AASHTO Developments in Specifications for Preservation Treatments

By
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CP2 Center, CSU Chico
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Acknowledgements

- Original PP Expert Task Group (ETG)
  - James Sorenson, FHWA
  - Denny Jackson, WSDOT

- Current PP ETG
  - James Gray, FHWA
  - Anita Bush, NV DOT

- Current Emulsion Task Force (ETF)
  - Colin Franco, RI DOT
  - Chris Luebbers, Kraton
Purpose of the Presentation

- Provide an update on recent ETF activities dealing with pavement preservation
- Discuss the national specifications being developed for asphalt preservation treatments
Pavement Preservation Expert Task Group (PPETG)

- Established in 1991 by Jim Sorenson of FHWA
- Promote the concepts and use of pavement preservation
- Parent group of the ETF
To advance and improve the state of the practice in the area of pavement preservation. Working collaboratively with:

- FHWA
- State Agencies
- Local Agencies
- Industry
- Academia
Working Agenda of PPETG

- Endorse Advancement of New Treatments and Technologies in Pavement Preservation
- Sanction and Support Emulsion Task Force Efforts
PERFORMANCE ENHANCEMENT THROUGH PAVEMENT PRESERVATION

PSI = \int (\text{Distress})

Preservation Treatments
- Fog Seal/Scrub Seal
- Tack Coats
- Chip Seal
- Slurry Seal
- Micro and Microplus
- Thin Overlays (TO)
- TO Plus (sami)

Time in Years

Very Poor
Poor
Fair
Good
Very Good

Crack Seal ($)
Surface Treatment ($$)

Rehab ($$$)

Reconstruction ($$$$$)
PP Emulsion Task Force (ETF)

- Originally part of the ETG and supported by FHWA
- Now is an AASHTO affiliated group supported by the TSP 2 program
- An all volunteer stake holder working group.
Original Mandate

- Develop a National Standard for Emulsified Asphalts—Surface performance grade (SPG)
- Advance the Effort to Develop Performance Based Specification for Emulsion Treatments
  - Protocols for Materials Specs and Design Practices
  - Protocols for performance–Best Practices
  - Protocols for inspection & acceptance–QA
- Encourage Adoption of Uniform National Standards
  - AASHTO – TSP², Regional Partnerships
  - FHWA – ETG
ETF Membership

Co-Chairs
- Colin Franco, RI DOT
- Chris Lubbers – Kraton Polymers, CA

Members From:
- Industry: AEMA/ ARRA/ ISSA/FP²
- Academics: CSU–Chico/ TX A&M/ U.WISC/ NC State, Colorado State U
- State DOT’s: TX, IA, RI, NV, MN
- FHWA
- National Center PP (NCPP)
Current Subcommittees

- **Residue Recovery and Testing** – Arlis Kadrmas (Chair) BASF – AEMA
- **Design Group** – Co Chairs, Gary Hicks – CSU Chico and Jim Moulthrop – Fugro and FP2
- **Supplier Certification and Quality Assurance** – Co-chairs – Larry Galehouse NCPP and Todd Shields, IADOT
- **Recycling Emulsions, Steve Cross** (Chair) – ARRA
- **Research** – Darren Hazlett (Chair) – TXDOT
- **SWG (Special Working Group)** – Emulsion binder specifications for all treatments – Mike Voth (FHWA Lands)
Accomplishments– Pre 2013

- Best Practices Document (draft)
  - Original deliverable for Chip Seals and Micro Surfacing.

- Low Temperature Residue Recovery Method
  - Plan for Inter-lab Study and data collection (ongoing) TP 72
  - Precision and bias study with AMRL for TP 72
ETF Reenergized Mission - 2013

- Advance the Effort to Develop Performance Based Methods & Specification for Emulsions
- Encourage Adoption of Uniform National Standards
- Develop AASHTO STDs for all the Emulsion Treatments (listed on next slide)
  - Materials Specs
  - Test Methods
  - Design Practices
  - Construction Guide Specs
ETF Reenergized Mission—Post 2013, Treatments Requiring Specs

- Chip Seal
- Micro Surfacing
- Tack Coat
- Fog Seal
- Scrub Seal
- Sand Seal
- Slurry Seal

- Foam Asphalt Stabilization
- Thin Bonded Surface Treatment
- Cold Mixes
  - Virgin
  - Recycled
  - CIR
ETF Reenergized Mission – Post 2013

- Construction Guides
  - Chip seals
  - Micros
  - Fog Seals

- Quality Assurance
  - Quality Control
  - Acceptance Decision
  - Independent Assurance
  - Certification
Accomplishments, 2015, Emulsion Binder Specifications

- M 140, Published Fall 2016
- M 208, Published Fall 2016
- M–316, Published Fall 2016
- All new AASHTO Standards
Accomplishments, 2015– Chip Seals and Microsurfacing

- Materials specifications, Published fall 2016
- Design practices, Published fall 2016
- Construction guide specification, being developed under NCHRP project 14–37
- Best practices–Drafts have been prepared
Accomplishments, 2016– Slurry Seals, Fog Seals, CIR

- Materials specifications, to be published in Fall 2017
- Design practice, to be published in Fall of 2017
- Best practices, Work in Progress. Drafts to be worked on and published
Work in Progress, Tack Coat, Scrub Seal, Sand Seal, and Full Depth Reclamation

- Materials specifications, drafts with AASHTO SOM
- Design practice, drafts with AASHTO SOM
- Construction guide specifications. Need NCHRP project statement
- Best practices, work in progress
Work in Progress, Thin Bonded Wearing Courses (aka Novachip) Seals

- Materials specifications
- Design practice
- Construction guide specification. Need NCHRP project statement
- Best practices. Work in progress
## Summary of Progress to Date

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<tr>
<th>Emulsion Treatments</th>
<th>M / MP</th>
<th>T / TP</th>
<th>R</th>
<th>W/ SOM</th>
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Next Steps—Short Term Plan

- Complete drafting of AASHTO standards for remaining emulsion treatments
- Develop QA protocols for emulsion treatments starting with microsurfacing and chip seals
QA Protocols for all Emulsion Treatments

- Materials QA:
  - Acceptance Testing (Agency)
  - QC – Quality Control (Contractor)
  - IA – Independent Assurance (Agency)
  - New Process / Product Acceptance Procedures

- Materials Certification:
  - Agency Acceptance Plans
  - QC Plans (Contractor)
  - Vendor Supplied Material Certifications

- Workmanship QA:
  - Equipment Calibration
  - Construction Process Checks
QA Protocols—cont.

- **Education and Training:**
  - Define the training needs for Agency / Contactor Staff
  - Education and Training Resources, NHI, TCCC, and Industry
  - Certification Program for Contractor / Agency Field Staff

**Note:** National Center for Pavement Preservation is taking the lead on education and training. WRAPP is helping.
Next Steps—Long Term Plan

- Develop a SPG Specification for Emulsion Using Superpave Principles (Original Mandate)

- Promote Large Scale Studies/Research
  - NCHRP
  - Pooled Fund

- Promoting Emulsion Technologies – Up for discussion
Development of SPG Specification for Emulsions using Superpave Principles

- SWG Chair, Mike Voth of FHWA is leading this effort
  - Research and field studies being used for SPG development:
    - TxDOT – Chip seals, Darren Hazlett with Dr. Amy Epps
    - NCHRP project 9–50 – Dr. R. Kim at NC State
    - Federal Lands Chip Seal research by Dr. Gayle King

Note 1. PG - Surface Performance Graded
Note 2. This work will supplement the TxDOT SPG spec currently at the AASHTO SOM.
Development of SPG Specification for Emulsions using Superpave Principles, Plans for 2018

- Develop a draft specification for review by the ETF in the spring of 2018
- Conduct field trials using the specification. TXDOT has already conducted trials with their spec
- Finalize the spec for review by AASHTO in 2019??
Now that the AASHTO Standards exist for some emulsion treatments, we now need to:

- Develop a marketing plan/marketing tools
- Promote the technology to
  - Agencies
  - Industry
  - Academia – create course curricula
- How will this be done?
  - Regional PP groups
  - AASHTO SO Mat, SO Maint, SO Hwy Design,
  - AEMA–ISSA–ARRA
Questions??

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