PAVEMENT PRESERVATION EXPERT TASK GROUP
(PPETG)

&

Emulsion Task Force
(ETF)

MPPP – Minneapolis - Sept. 2-3, 2014
• Established in 1991 – (Jim Sorenson)

• Promote the institutionalization of the concepts of pavement preservation

• Parent group of “Emulsion Task Force”
The FHWA PPETG will advance and improve the state of the practice in the area of pavement preservation by working collaboratively with federal, state, local agencies, industry, and academic interests.
Mission

• Pavement Preservation

“A program employing a network level, long-term strategy that enhances pavement performance by using an integrated, cost-effective set of practices that extend pavement life, improve safety and meet motorist expectations”
Components of Pavement Preservation

- Minor Rehabilitation
- Preventative Maintenance
- Routine Maintenance
Goals

• Pavement preservation acceptance and implementation by Agencies

• Support preservation programs at the federal, state, and local levels

• Identify and address customer needs

• Support preservation centers for excellence/regional organizations

• Integrate pavement preservation into pavement management
Working Topics

• Advocate the implementation of Pavement Preservation
• Expand Training and Certification Efforts
• In Conjunction with the Pavement Preservation Road Map Advance Pavement Preservation Research
• Examine Impacts of New Policies on Pavement Preservation Implementation
• MAP21 – Recognizes Pavement Preservation

(cont)
• **Endorse Advancement** of New Treatments and Technologies in Pavement Preservation

• **Sanction** and Support Emulsion Task Force Efforts
PPETG Emulsion Task Force (ETF)
✓ Idea for ETF conceived at AEMA-ISSA-ARRA meeting February 2008 under guidance of Jim Sorenson, FHWA
✓ Identified need for industry expertise and involvement in ongoing research activities pertaining to asphalt emulsions and finished product systems
✓ First meeting in Newport Beach, CA April 7-8, 2008
Advance the Effort to Develop Performance Based Methods & Specification for Emulsions

- Protocols for design
- Protocols for performance
- Protocols for inspection & acceptance

Encourage Adoption of Uniform National Standards
Current Membership

Co-Chair- Chris Lubbers - Kraton Polymers
Co-Chair- Colin Franco RI DoT, TSP2,
PPETG, SOMtrls, RRAC, SHRP2

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

1. Residue Recovery and Testing
   • Arlis Kadrmas (Chair)  BASF - AEMA

2. Design Group
   • Spray – Gary Hicks (Co-chair) - CSU
   • Mix – Jim Moulthrop (Co-chair) - Fugro FP2

3. Supplier Certification and Quality Assurance
   • Tom Wood (Chair) - MnDOT

4. Recycling Emulsions
   • Todd Thomas (Chair) - COLAS ARRA

5. Research
   • Darren Hazlett (Chair) – TxDOT

SWG (Special Working Group) – Cood the emulsion binder specifications among all the subcommittee/among treatments
Original Tasks

✓ Review needs for Preservation Materials Research
  - Emulsion & Aggregate

✓ Evaluate existing R&D Roadmap Problem Statements in the Area of Emulsions

✓ Evaluate Work Plans and Review Ongoing Research in PP Emulsion

( cont )
✓ Coordinate and Share Activities and Results with Existing Superpave binder/mix/modeling ETGs
✓ Facilitate Adoption of New Findings and Research Results Through Appropriate AASHTO / ASTM Channels
✓ AEMA / ISSA / ARRA Coordination
Added Tasks

- Develop Performance Specifications and Design Standards for Adoption by AASHTO for All Emulsion Treatments and Uses in Pavement
- Work with the PPETG to Facilitate Adoption of Emulsion Treatments in Pavement Preservation
Emulsion Use and Performance Survey

- Emulsion Product/System Evaluation
- **Identify/prioritize** widely used emulsion applications
- Define **2 critical distresses** and mechanism of **failure** for priority application
- Determine testing needs
  - Existing Tests which are applicable
  - Research needs for new test methods
- Conducted by Andrew Hanz of Univ. Wisconsin Madison and Colin Franco of RIDOT
Survey Results

• Top Emulsion Product **Usage Priority**
  – Chipseals = 100%
  – Tack Coat = 66.7%
  – Microsurfacing = 62%

• Modes of **Failure Defined**- e.g: Chipseals
  – Chip Loss
  – Bleeding
  – Binder Cracking (Reflective or Environmental)
  – Underlying Mechanisms Identified

• Existing Tests Available- 84% Yes
AASHTO Standards 2010

Four Standards submitted to AASHTO for Adoption

1. Standard Practice for **Certifying** Suppliers of Emulsified Asphalt – Provision (PP 71)

2. **Recovering Residue** from Emulsified Asphalt using Low Temperature Evaporative Techniques – Provision (PP 72)

3. Determining **Asphalt Binder Bond Strength** by Means of the Bitumen Bond Strength Test (BBS) – Provision (TP 91)

4. **Performance-Graded** Asphalt Binder for Surface Treatments (Surface Performance Graded (SPG) Spec) – tabled
AASHTO Standards 2011

• Six Provisional Standards submitted to AASHTO (currently being reviewed by ETF)

1. Test for Determining the Strain Sensitivity of Asphalt Emulsion Residue Using Strain Sweeps Performed on a Dynamic Shear Rheometer (DSR)
2. Test for Embedment Depth of Chip Seal Aggregates in the Lab and the Field
3. Test for Laboratory Chip Loss from Emulsified Asphalt Chip Seal
4. Test for Measuring Moisture Loss from Chip Seals
5. Test for Recovery of Asphalt from Emulsion by Stirred-Can Method
6. Test for Field Emulsion Viscosity
• Best Practices Document (draft)
  • This was the original deliverable for Chip Seal and Micro-surfacing.

• Low Temperature Recovery Method
  • Plan for Interlab Study and data collection (ongoing) TP 72
ETF
Re-energized Mission
June 2013
ETF Reenergized Mission - 2013

1) Advance the Effort to Develop Performance Based Methods & Specification for Emulsions

2) Encourage Adoption of Uniform National Standards
   - Develop AASHTO STDs for all the Emulsion Treatments (listed on next slide)
     a) Design Specs
     b) Design Practices
     c) Construction Guide Specs
Emulsion Treatments

1. Chip Seal
2. Micro surfacing
3. Tack Coat
4. Fog Seal
5. Scrub
6. Sand Seal
7. Slurry Seal
8. Foam Asphalt Stabilization
9. Bonded Surface Treatment (NOVA Chip)
10. Cold Mixes
   » Virgin
   » Recycled
   » CIR
To Accomplish Reenergized Mission

- ETF subcommittees should establish:
  1. Short term plan (1 year)
  2. Long term plan (3 years)
Next Steps (cont.)

- Short term Plan (Accomplished) – Drafting AASHTO Stds for:
  - Micro-surfacing
  - Chip Seal
    - a) Design Specification
    - b) Design Practice
    - c) Construction Guide Spec

- Certification: Protocols for various treatments

- Research
  - Studies
  - Update Roadmap
Next Steps (cont.)

• Draft AASHTO standards for:
  • Tack Coat
  • Fog Seal
  • Scrub
  • Sand Seal
  • Slurry Seal
  • Foam Asphalt Stabilization
  • Bonded Surface Treatment (NOVA Chip)
  • Cold Mixes
    • Virgin
    • Recycled
    • CIR
Next Steps (cont.)

**Long term Plans**
- Promoting Emulsion Technologies through ETG
- Large Scale Studies
  - NCHRP
  - Pooled Fund
- QA Protocols for Emulsion Treatments
- Develop a PG Specification for Emulsion Using Superpave Principles.
Accomplishments

Micro-surfacing

• Micro Surfacing Design (Draft Standard)

• Materials for Micro Surfacing (Draft Standard)

• Construction Guidelines (Draft)

• Best Practices (Draft)
Accomplishments (cont.)

**Chip Seal**

• Emulsified Asphalt Chip Seal Design Practice (Draft Standard)

• Materials for Emulsified Asphalt Chip Seal (Draft Standard)

• Construction Guide Spec

• Best Practices (Draft)
Accomplishments (cont.)

Emulsion Binder Specifications

• M 140 – Revised to 2014

• M 208 – Revised to 2014

• M 316 – Revised to 2014
Questions