

FHWA

PAVEMENT PRESERVATION

EXPERT TASK GROUP

(PPETG)

Emulsion Task Force

(ETF)

SEPPP Annual Meeting

Louisville, KY – May 28th – 30th



- Established in 1991
- 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.



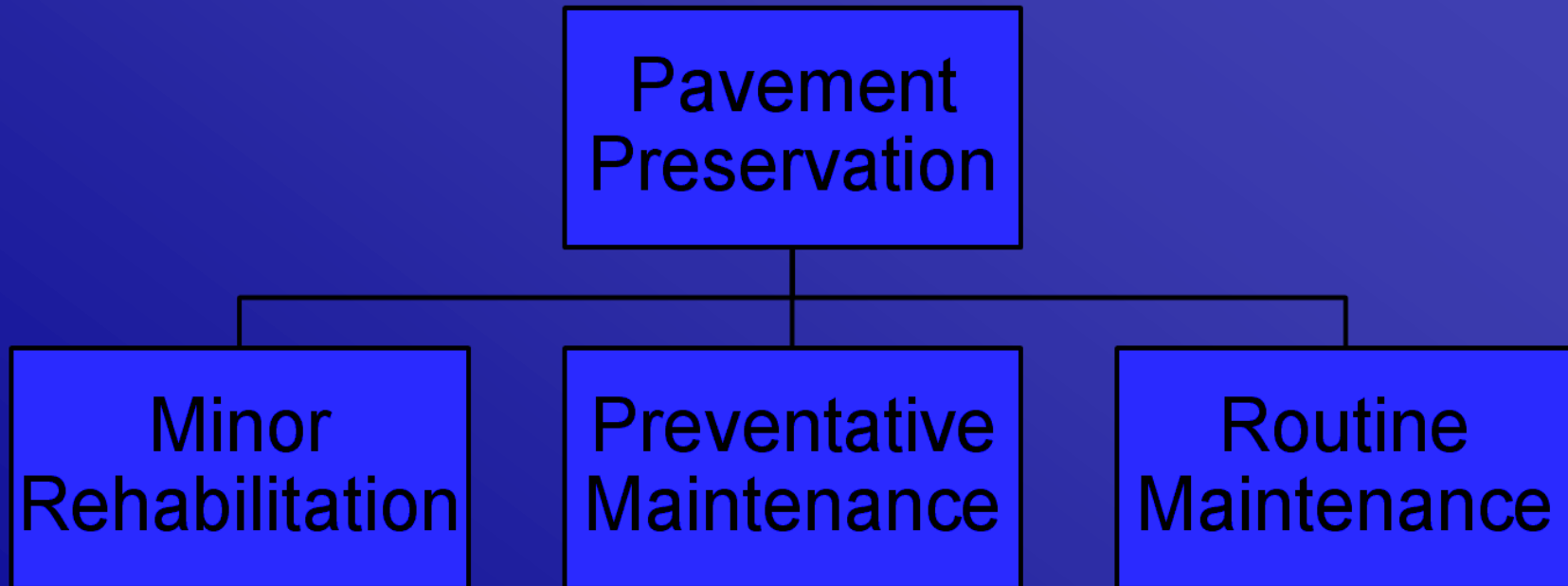
- Pavement Preservation

“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

PPETG



- 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



- 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)



- **Sanction** and Support Emulsion Task Force Efforts
- **Endorse Advancement** of New Treatment Technologies



PPETG Emulsion Task Force

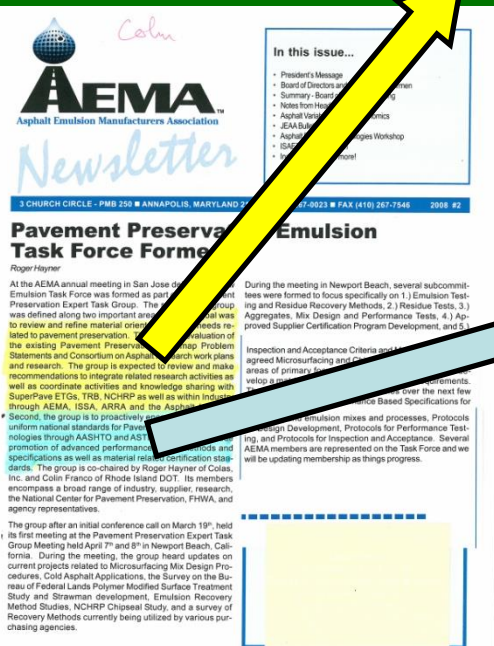
(ETF)



- ✓ **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



“First, its goal was to review and refine material oriented research needs related to pavement preservation. This includes evaluation of the existing Pavement Preservation Roadmap Problem Statements and Consortium on Asphalt Research work plans and research. The group is expected to review and make recommendations to integrate related research activities as well as coordinate activities and knowledge sharing with SuperPave ETGs, TRB, NCHRP as well as within Industry through AEMA, ISSA, ARRA and the Asphalt Institute.”



“Second, the group is to proactively encourage adoption of **uniform national standards** for Pavement Preservation technologies through AASHTO and ASTM. This would include **promotion of advanced performance based methods and specifications** as well as material related certification standards.”



✓ ***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***



- ✓ 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



- ✓ **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



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



Co-Chair- Chris Lubbers, Kraton Polymers

**Co-Chair- Colin Franco RI DoT, TSP2,
PPETG, SOMtrls, RRAC**

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 (NCP)**



Current Subcommittees

ETF

1. Residue Recovery and Testing - 18 members

- Arlis Kadrmas (Chair) BASF - AEMA

2. Design Group

- Spray (17 members) – Gary Hicks (Co-chair) CSU
- Mix (13 members) – Jim Moulthrop (Co-chair) Fugro FP2

3. Supplier Certification and Quality Assurance - 16 members

- Tom Wood (Chair) MnDOT

4. Recycling Emulsions - 9 members

- Todd Thomas (Chair) COLAS ARRA

5. Research - 12 members

- Darren Hazlett (Chair) TxDOT

6. SWG – Update M140/M208/M316+SPG – 5 members

- Mike Voth (Chair) Central Federal Lands

Emulsion – Part III



- 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
 - a) Design Specs
 - b) Design Practices
 - c) Construction Guide Specs



To Accomplish Reenergized Mission

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



- Short term Plan – 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



- Draft AASHTO standards for:
 - Tack Coat
 - Fog Seal
 - Scrub Seal
 - Sand Seal
 - Slurry Seal
 - Cold Mixes
 - CIR



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.



Questions



Original Members

ETF

Co-Chair- Roger Hayner, Colas Inc., AEMA

**Co-Chair- Colin Franco RI DoT, TSP2,
PPETG, SOMtrls, SCOR**

Members From:

- **Industry: AEMA/ ARRA/ ISSA**
- **Academics: CSU/ Tx A&M/ U.WISC/ Cal State**
- **State DOT's: TX, IA, UT, RI, CA, La**
- **FHWA**
- **National Center PP (NCPP)**



Original Subcommittees

ETF

- Emulsion Testing & Residue Recovery Methods
 - Arlis Kadrmas- Chair
- Residue Tests
 - Gayle King- Chair

Note: Subcommittees Combined as of March 2010

- Arlis Kadrmas to chair combined group



Original Subcommittees (cont.)

ETF

- Aggregates, Mix Design, and Performance Tests
 - Mary Stroup-Gardiner- Chair

- Approved Supplier Certification
 - Roger Hayner- Chair

- Inspection & Acceptance
 - Colin Franco- Chair

- Tack Coat Review (Formed 7/26/10)
 - Chris Abadie- Chair

Recycling Emulsions (NEW)



Emulsion Use and Performance Survey

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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 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.
 - This is a working reference document for the 3 standards as well as for determining the gaps and needs for research.
- Low Temperature Recovery Method
 - Plan for Interlab Study and data collection (ongoing)

