



**PAVEMENT PRESERVATION EXPERT TASK
GROUP
(**PPETG**)**

&

**Emulsion Task Force
(**ETF**)**

MPPP – Minneapolis - Sept. 2-3, 2014

Background

- Established in 1991 – (Jim Sorenson)
- Promote the institutionalization of the concepts of pavement preservation
- Parent group of **“Emulsion Task Force”**

Mission

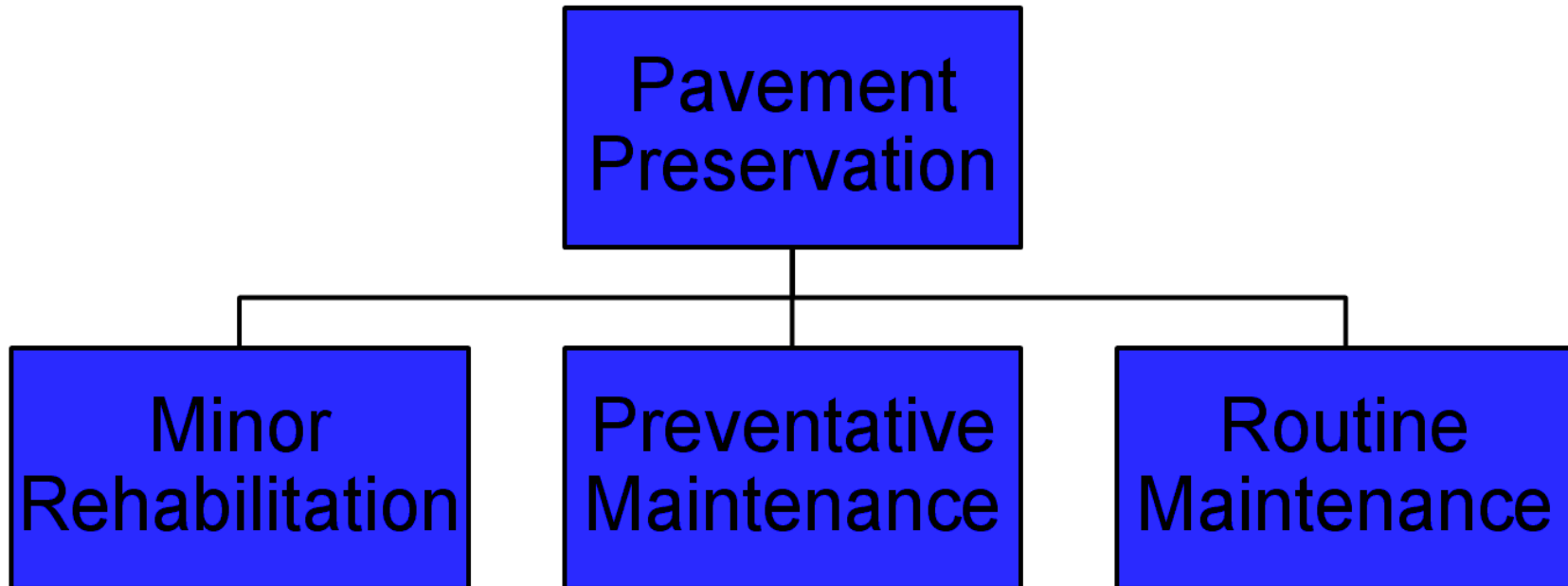
- The **FHWA PPETG** will advance and improve the state of the practice in the area of **pavement preservation** by working collaboratively with federal, state, local agencies, industry, and academic interests.

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



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)

Working Topics (cont.)

- **Endorse Advancement** of New Treatments and Technologies in Pavement Preservation
- **Sanction** and Support Emulsion Task Force Efforts

PPETG Emulsion Task Force (ETF)

History

- ✓ **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

Original Mandate

- ✓ ***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)** – Coord 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)

Original Tasks (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

Deliverables – Pre 2013

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

Deliverables – Pre 2013

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

Deliverables – Pre 2013

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

Deliverables – Pre 2013

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**

Deliverables – Pre 2013

- 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

ETF Reenergized Mission - 2013

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

Next Steps

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

