



Emulsion Task Force (ETF)

AASHTO TSP²

2018 Annual AMAP Meeting

Phoenix, AZ – Feb. 6th to Feb. 8th, 2018

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Pavement Preservation Expert Task Group (PPETG)

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

Mission of PPETG

To advance and improve the state of the practice in the area of **pavement preservation**.

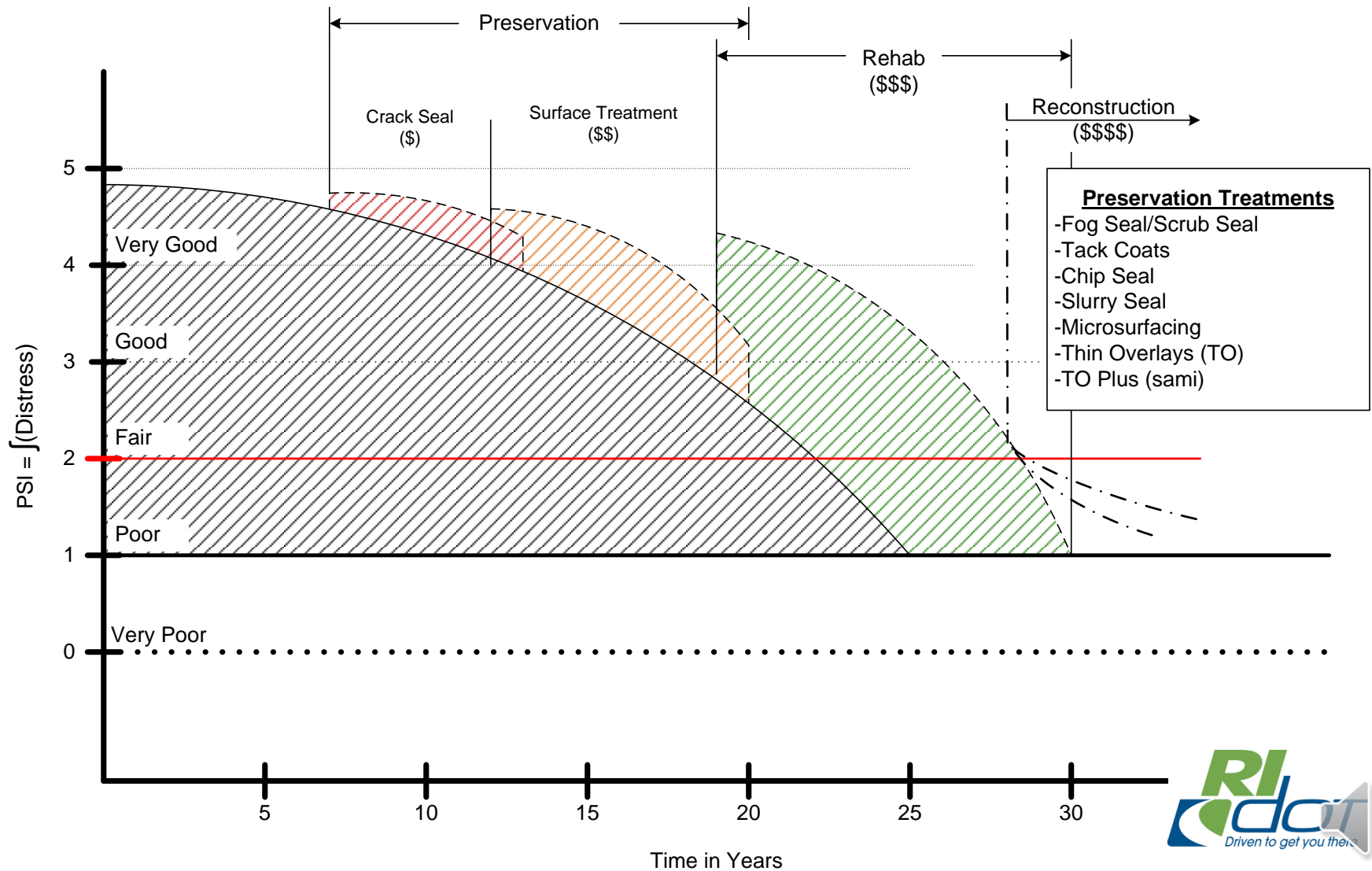
Working collaboratively with:

- Federal
- State
- Local Agencies
- Industry
- Academia

Working Agenda

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

PERFORMANCE ENHANCEMENT THROUGH PAVEMENT PRESERVATION



Original Mandate

- 1) *Develop a National Standard Specification for Emulsion Liquid Binder (SPG)***
- 2) *Advance the Effort to Develop Performance Based Methods & Specification for Emulsions Treatments***
 - *Protocols for design – Materials Specs, Design Practices*
 - *Protocols for Construction – Best Practices, Construction Guide Specs*
 - *Protocols for inspection & acceptance – QA*
- 3) *Encourage Adoption of Uniform National Standards***
 - *AASHTO – TSP², Regional Partnerships*
 - *FHWA - ETG*

Current Membership (2013 – Present)

Co-Chair- Colin Franco RI DoT –

Co-Chair- Chris Lubbers - Kraton Polymers

Members From:

- Industry: AEMA/ ARRA/ ISSA/FP²**
- Academics: CSU/ Tx A&M/ U.WISC/ NC State**
- State DOT's: TX, IA, RI, NV, MN**
- FHWA**
- National Center PP (NCPPI)**

Current Subcommittees (2013 – Present)

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

- Larry Galehouse
- Todd Shields (Co-Chair) - IADOT

4. Recycling Emulsions

- Todd Thomas (Chair) - COLAS ARRA

5. Research

- Darren Hazlett (Chair) – TxDOT



SWG (Special Working Group)

- Mike Voth (FHWA Lands)

Accomplishments – 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

ETF Reenergized Mission - 2013

- 1) Redoubled 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) Materials Specs
 - b) Test Methods
 - c) Design Practices
 - d) Construction Guide Specs
- 3) Develop Best Practices Document for Each Treatment

ETF Reenergized Mission - 2013

Emulsion Treatments Requiring AASHTO STDs

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

Accomplishments 2015 (Cont.)

Emulsion Binder Specifications

- M 140 – Published Fall 2016 – AASHTO STD
- M 208 – Published Fall 2016 – AASHTO STD
- M 316 – Published Fall 2016 – AASHTO STD

Accomplishments 2016

Emulsion Treatment Standards

1) Micro-surfacing

2) Chip Seal

- Materials Specs - Published Fall 2016 - AASHTO STD
- Design Practices - Published Fall 2016 - AASHTO STD
- Construction Guide Spec (CGS) - NCHRP Project 14-37
- Best Practices - Draft

Accomplishments 2017

Emulsion Treatment Standards (Cont.)

1. Slurry Seals

2. Fog Seal

3. CIR (Cold In-place Recycled)

- Design Specifications – To be Published Fall 2017
- Design Practice – To be Published Fall 2017
- Construction guide specs – Work in Progress, need Problem Statements for NCHRP
- Best Practices – Work in Progress, drafts to be worked on and published

Work in Progress

Emulsion Treatment Standards (Cont.)

- 1) Tack Coat
- 2) Scrub Seals
- 3) Sand Seal
- 4) FD Reclamation

- Design Specifications – Draft with AASHTO SOM
- Design Practice – Draft with AASHTO SOM
- Construction guide specs – NCHRP?
- Best Practices – ???

Work in Progress

Emulsion Treatment Standards (Cont.)

1) Nova Chip

- Material Specifications – Draft
- Design Practice – Draft
- Construction guide specs – NCHRP?
- Best Practices – ???

Summary Status of Emulsion Standards

Emulsion Treatments	AASHTO STANDARDS						
	Spec M / MP	Test Method T / TP	Design Practice R	Status w/ SOM	Comments	Construction Guide Specs	Best Practices
Chip Seal	MPxx-16		✓			NCHRP 14-37	
Microsurfacing	MP28-16		✓			NCHRP 14-37	
Tack Coat	✓		✓	2016			
Fog Seal	MP		✗			NCHRP 14-37	
Scrub Seal	✓		✓	2017			
Sand Seal	✓		✓	2017			
Slurry Seal	MP32-17		✓				
Foam Asphalt Stabilization							
Cold Mixes							
Reclamation: CIR	✓	MP31-17	✓			NCHRP 9-62	

Emulsion Binder Standards	M / MP	T / TP	R	W/ SOM
Emulsified Asphalt	M140-16			
Cationic Emulsified Asphalt	M208-16			
Polymer-Modified Cationic Emulsified Asphalt	M316-16			

Legend

M=Material Specs

T=Test Methods

R=Design Practices

P=Provisional

xx=Year, Latest Edition

✓ = Draft submitted to SOM



Ongoing Effort

- 1) Develop SPG Spec and complete drafting of AASHTO STDs for remaining Emulsion treatments
- 2) QA Protocols for Emulsion treatments starting with microsurface and chip seals
- 3) Research
 - Studies
 - Update PP Research Roadmap

Development of a **SPG Specification** for Emulsion using Superpave Principles

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

Note: (1) SPG - Surface Performance Graded

(2) This work will supplement the TxDOT SPG spec currently at the AASHTO SOM.

QA Protocols - Emulsion

- Work to develop QA Program for All Emulsion Treatments

1) Materials QA:

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

2) Workmanship QA:

- Equipment Calibration
- Construction Process Checks

3) Education and Training:

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

Note: National Center for Pavement Preservation is taking the lead on education and training.



Promoting the use of Emulsions

Now that the AASHTO Standards exist for some Emulsion Treatments we need to:

1. Develop a marketing plan / marketing tools / training courses
2. Promote the technology to
 - A. Agencies – State and Local
 - B. Industry
 - C. Academia – create course curricula
3. By whom and how will this be done
 - A. Regional PP groups?
 - B. AASHTO SOMat, SOMaint, SOHwyDesign, Asset Management

Questions

