



Emulsion Task Force (ETF)

AASHTO TSP²

TSP² Meeting

Detroit, MI – June 27, 2017

By: Colin A. Franco, P.E.
Assc. Chief Eng.
RIDOT

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 (cont.)

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

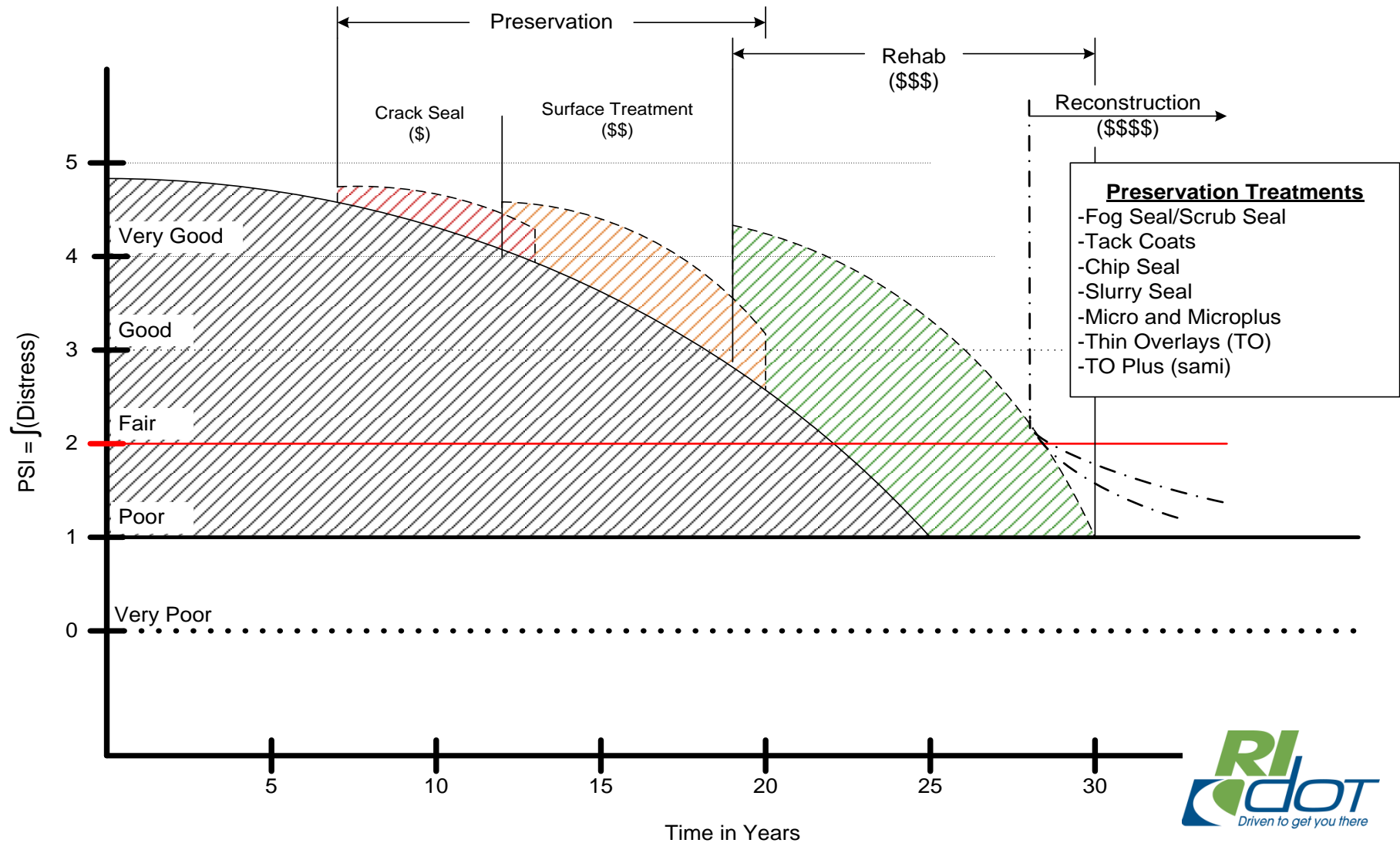
Note: MAP21 – Recognized Pavement Preservation

PPETG Emulsion Task Force (ETF)

Birthday: April 2008

RIP: ???

PERFORMANCE ENHANCEMENT THROUGH PAVEMENT PRESERVATION



Original Mandate

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

- *Protocols for design – Materials Specs, Design Practices*
- *Protocols for performance – Best Practices*
- *Protocols for inspection & acceptance - QA*

2) Encourage Adoption of Uniform National Standards

- *AASHTO – TSP², Regional Partnerships*
- *FHWA - EGT*

Current Membership (2013 – Present)

Co-Chair- Colin Franco RI DoT – [TSP2, PPETG, SOMtrls, RRAC, SHRP2, LTPP]

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 (NCPP)**

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) – Coord the emulsion binder specifications among all the subcommittee/among treatments – 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) 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) Materials Specs
 - b) Test Methods
 - c) Design Practices
 - d) Construction Guide Specs

ETF Reenergized Mission - 2013

Emulsion Treatments Requiring AASHTO STDs

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

Accomplishments 2015

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 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

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

1) Tack Coat

2) Scrub Seals

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

Work in Progress

- 1) Sand Seal
- 2) FD Reclamation
- 3) Nova Chip

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

Next Steps

Short Term Plan

- 1) 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

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.

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.

ETF – Where Are We Going

1. Complete the AASHTO STDs for all Emulsion treatments
2. Develop a SPG Emulsion Specification using Superpave Principles
3. Develop QA protocols for each Emulsion Treatment
4. Education and Training of Agency and Contractor personnel
 - Certification of Agency and Contractor personnel

ETF – Where Are We Going

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
2. Promote the technology to
 - A. Agencies
 - B. Industry
 - C. Academia – create course curricula
3. By whom and how will this be done – **For discussion**
 - A. Regional PP groups?
 - B. AASHTO SOMat, SOMaint, SOHwyDesign, Asset Management?

AASHTO STANDARDS

Emulsion Treatments	M / MP	T / TP	R	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	

Legend

M=Material Specs

T=Test Methods

R=Design Practices

P=Provisional

xx=Year, Latest Edition

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			



Questions

