AASHTO Preservation Management
Emulsion Task Force (ETF) Meeting Notes

The Heritage Group Innovation Center and Research Lab
6320 Intech Way (near 71st Street and I-465), Indianapolis, IN 46278
June 5-6th, 2025

Day 1

Attendees:

Full name	Company/Agency
John Malusky	AASHTO
Greg Harder	Asphalt Institute
Mike Anderson	Asphalt Institute
Wes Cooper	Asphalt Institute
Todd Thomas	Asphalt Materials, Inc.
Arlis Kadrmas	BASF
Matt Jeffers	Ergon A&E
Stephanie Smith	Flint Hills Resources
Chris Hollenback	Heritage Research Group
Jeff Dunn	Heritage Research Group
Brian Pfeifer	Illinois Department of Transportation
Kelly Senger	Illinois DOT
Matthew Teto	Indus
Stephane Charmot	Ingevity
Stormy Brewster	Marathon Petroleum
Marla Weigel	Mathy

Full name	Company/Agency
Russell Milan	Michigan Paving & Materials Co. /CRH
Joel Ulring	Minnesota DOT
Jody Bachini	Montana Department of Transportation
Nik Jones	MPM/CRH
Adriana Vargas	NCAT
Todd Shields	NCPP
Eric Biehl	Ohio DOT
Mike Hemsley	Paragon Tech Services
Codrin Daranga	Paragon Technical Services
Charity Cook	Paragon Technical Services
John Murphy	TRCC
Andrew Braham	University of Arkansas Fayetteville
Darren Hazlet (online)	Texas A&M
Larry Ilg (online)	Oregon DOT
Mike Voth (online)	Federal Lands

Thursday, June 5th

8:00 a.m. – 8:15 a.m. **Welcome, Co-Chair, Introductions/ Roll Call and Housekeeping** **Senger**

8:15 a.m. – 9:00 a.m. **ETF Review/Old Business** **Senger**

a. Review of Meeting Minutes (November 2024)
Emulsion Task Force Minutes 11/26/24

See PPT 1

Motion -Eric Biehl, Second - Marla Weigel, Minutes approved

Outstanding Action Items:

1. Sample language to Larry Ilg for blotter material for tack coat

Larry thinks this is resolved and is making its way through the process.

2. Short and Long Pin Shear test – Guides?

TP142 short term in July, long term TP146.
Brian Diefenderfer with VA will have details on making/obtaining the equipment.

3. NCHRP 14-48 Research Project Deliverables to Follow Up

Will be addressed in subcommittee.

9:00 a.m. – 9:30 a.m. **AASHTO Committee on Materials & Pavements Update**

a. TS 2a – Emulsified Asphalts **Pfeifer**

Midyear meeting January 14, 2025.
2 things – T50 and T59 moved through ballot.
Ongoing – working with TFASH (harmonize AASHTO and ASTM).
Looking at T78.
Looking at T72.
COMP meeting August 5-7 in Hartford CT.
Looking at R78 improvements based on NCHRP 09-63 study.

b. TS 5b – Bridge & Pavement Preservation **Ilg**
- M345 Swell Test (Ulring)

Waiting on another drawing for short/long pin test. Still a little more work to do to get these finalized.

MN scrub seal spec calls out M345 swell test requirements, but supplier does not perform this test. Are there any issues if this is removed? Codrin suggests that they not remove it, as it is a good test for the rejuvenator emulsion.

c. TS 2b/5c – Quality Assurance and Environmental **Biehl**

No updates on 5C, Eric could not attend.
2B – T350 updates coming in July. Minor changes to DSR. Some update webinars coming this summer/fall.

John Malusky Re:Source:
Remove vacuum distillation, no one doing it.
Low participation on low temp recovery. Not much traction with R78.
Which properties in MSCR is this group interested in? Will keep all data for now.
Solubility – TCE ban will affect. Will see what happens.
T72 being looked at.

9:30 a.m. – 9:35 a.m. **NCHRP Research Project Updates**
Senger

a. NCHRP 10-145 Asphalt Emulsion-Based High Friction Surface Treatments

https://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=5669

b. NCHRP 17-138 Pavement Marking Selection for Bridge and Pavement Preservation Treatments
https://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=5686
The panels selected contractors and are in the process of executing contracts. This stage typically takes a few months and NCHRP expects to have executed contracts and start the projects in July of 2025.

9:35 a.m. – 10:00 a.m. **Stakeholder Updates** **Hemsley**

a. FP^2 Todd Shields

b. AEMA
AEMA is continuing its LEAP program. This12-month immersive program aimed at developing members of the asphalt emulsion industry. 43 participants to date.
LCAs have been produced and the PCR is in process.
AEMA Owner's Manual for your Pavement Network Trainings. This training is designed to equip participants with skills and knowledge to become more effective pavement managers, regardless of experience. Key topics are, starting the road to pavement management, PP Strategies, Treatment toolbox and cost analysis, Local and National Case Studies, Advocating for Funding, Optimizing Pavement Plans and Securing Stakeholder support. It's a 1-day training course and uses parts of RoadResource.org

c. ARRA
LCA is being completed (possibly by the end of June). This will include CIR, CCPR and FDR with emulsion.
The PCR Committee will hopefully be set up (again possibly by end of June) Rick Church and Ben Bowers will be following up with UL on this to determine next steps.
ARRA has developed 1-page promotion flyers (distributed at NACE) on each ARRA discipline.
ARRA is currently working on some information videos on each ARRA discipline. This video will be approximately 2 minutes in length and give only a very brief introduction to the concept and then refer those interested to a location where they can obtain more relevant information.

d. ISSA
The Lab Technical Team continues to review and update all the current TBs along with the Guidelines. Updated methods will hopefully be coming out soon. The WTAT method will be presented later in this meeting.
EPDs, LCAs and PCRs are in progress.
Looking at incorporating RAP into chip seals and micro surfacing.

e. FHWA (PPTFG) Anthony Nieves is retiring from the FHWA – effective 4/18/25,
Updates are being made to the "Live FHWA Pavement Preservation Research Roadmap"
A New NHI 121145 Asphalt Pavement Preservation: Project Design, Application and Inspection course has been added.
Pavement Preservation Program Benchmarking Study: Need for agencies to monitor benefits of PP, Tools that were used to

determine cost-effectiveness of each treatment. Getting the agencies to promote the goals for their PP Program.
ARDOT Pavement Preservation WBT Development (combination treatments, how to construct high quality chip seal best treatments, slurry surfacing systems: design and construction, etc.…)
Expand the role of the PPTFG

f. NCPP Todd Shields - ***See PPT 2***

Industry Concerns – Hemsley

- Emulsion based high friction surface treatment – what is this? MASS DOT looking for alternatives to HFST. The NCHRP study is very open so we will see, only restriction is emulsion based and has similar performance.
- Concern that new PCR and EPD's being developed may end up requiring the sharing of intellectual property and proprietary information.
- Concerns about costs do develop EPD's, and how exactly will they be used? Will not make roads better.
- From an industry standpoint, what are lessons learned from projects that did not go so well?
    - IL – robust preservation program, doing more treatments. Have a lot of data, but not a lot of staff to analyze. Could share data with industry potentially.
    - OH – have a lot of success but could do better promoting that.
    - AASHTO sends out daily newsletter updates. This would be a good venue to promote success stories. Could also put something on ETF website.
      Can we link to this?
    - MN – Do a lot of preservation, but struggle getting all the data collected into their database. Developing performance measures.
    - Road Resource is another method to share information.
    - Can do part of partnership meeting agency updates – what are lessons learned from the previous year?
- Agency turnover and FHWA vacancies are making continuity a challenge.

Messaging and Implementation committee can look at how to tie all this together.

10:00 a.m. – 10:20 a.m. **BREAK**

10:20 a.m. – 10:50 a.m. **ISSA Technical Bulletin Review and Updates** **Hollenback**

See PPTs 3 and 3.5

10:50 a.m. – 11:20 p.m. **NCHRP 10-124, Chip Seal Embedment** **Vargas**

See PPT 4

11:20 p.m. – 12:00 p.m. **SUBCOMMITTEE BREAKOUT SESSION 1**
 # 4 Research **Hazlett/Braham**
a. Research Needs Statements 2026
b. Research Ideas for 2027

- Materials working group: Arlis Kadrmas, Gaylon Baumgardner, Mike Hemsley, Stephanie Smith, Todd Thomas
- Equipment working group: Dave Welborn, Eric Reimschiissel, Greg Harder, Rex Eberly
- Past research summary

- **Completed**
  - NCHRP 9-62 Rapid Tests and Specifications for Construction of Asphalt-Treated Cold Recycled Pavements
  - NCHRP 14-43 Construction Guide Specifications for Cold Central Plant Recycling and Cold In-Place Recycling
  - NCHRP 14-44 Construction Guide Specifications for Slurry Seals, Scrub Seals, and Tack Coats
  - NCHRP 14-48 Construction Guide Specifications for Pavement Treatments - Sand Seals and Ultra-thin Bonded Surface Treatments
  - NCHRP 20-44(26) Implementing Guide Specifications for the Construction of Chip Seals and Micro Surfacing
- **In progress**
  - NCHRP 9-63 A Calibrated and Validated National Performance-Related Specification for Emulsified Asphalt Binder
  - NCHRP 10-114 Developing Performance and Safety Specifications for Rejuvenating Seals
  - NCHRP 10-124 Development of Field Test to Determine Actual Percent Embedment of Chip Seal Aggregate
  - NCHRP 10-134 Guidelines for the Selection of Performance-Related Tests for the Acceptance of Preservation Treatments
  - NCHRP Project 20-05, Synthesis Topic 55-04, Current Practices and Guidelines for Full Depth Reclamation (FDR)
- **Submitted for FY25**
  - NCHRP 17-138: Pavement Marking Selection for Bridge and Pavement Preservation Treatments (funded)
  - Sampling from Micro Surfacing and Slurry Seal Pavers for Quality Assurance Testing (not funded)
  - NCHRP 10-145: Developing Asphalt Emulsion Based High Friction Surface Treatments (HFST) (funded)
  - Future research ideas
- **Already written "Sampling from Micro Surfacing and Slurry Seal Pavers for Quality Assurance Testing"**
  - Ding has given his blessing for us to move forward on
  - No way to determine asphalt content in the slurry seal mix applied to the surface
  - Illinois submitted for FY25, feedback was that this was an equipment specific ask. NCHRP research dollars should not be spent on this, since it is a modification of equipment. Should work with equipment manufacturers. ETF has tried to make this known but the equipment manufacturers are not as responsive. Difficult to know where to go but submitting same project may not work.
  - Thinking of asphalt mixtures (hopper, screed, mat behind paver, etc.), asking manufacturer to modify equipment without providing guidance for repeatability/consistency, would probably receive many different solutions. We should work with them, but we need to settle on something before approaching manufacturers.
  - Reframe to focus on what we need (gradation, water content, emulsion content, additive content), where we need it (pugmill, chute, box, behind strike off) – need to consider safety
  - Leverage the equipment subgroup, what is the ask, what is the research need?
- **Use of AI/digital imaging to automate emulsion/aggregate application rate for chip seals**

        - We have chip seal design processes, know that they often need to be adjusted as you are moving down the road
        - Have incredible image analysis, can we predict and automatically adjust material application based on actual road variability?
        - Pie in the sky version of chip seal embedment. Want to measure embedment behind, but want to look ahead to see what we will need to apply to get that embedment
        - This could also be a tough sell to NCHRP, they may see it as an equipment. NRRA is working in these general spaces.
        - The subcommittee will identify non-NCHRP funding sources for some of these projects on the fence
    - **Particle packing – chip seal aggregate orientation and embedment**
        - There is no closed form solution for three aggregate particles being placed in a chip seal
        - Use DEM to estimate distributions of chip placements based on gradation and flakiness index
    - **Developing a particle size specification for asphalt emulsions**
        - Everyone agrees on the importance of particle size for asphalt emulsion behavior and performance
        - No spec. Some literature exists exploring potential specifications, but need to explore a wider range of emulsions
        - Goal? Preventing disasters (higher probability) or discriminating on good/poor emulsions (asking for trouble) x 2
        - In past, TxDOT had particle size requirements, but no one wanted to run it. For prime, need a stable and small particle size to penetrate base. Note, it is not the size itself (emulsion much smaller than "holes" in base) but has to do with stability – there are always exceptions. Emulsion needs to be stable because the second it breaks; penetration goes to zero.
    - **Exploring combination treatments**
        - What combination treatments are being used, what is their performance
        - How can we leverage existing resources to build resources around combination treatments?
        - ISSA is developing a web-based training for combination treatments
    - **Paddle vs. Saybolt vs. Rotational viscosity → perhaps transition topic to exploring optimal tests for measuring viscosity of asphalt emulsion?**
        - Doubling viscosity from Saybolt to paddle not correct
        - More labs have Rotational
        - Not comprehensive, robust, round-robin study available currently
        - This is low hanging fruit. The data on this is not strong, there is room for improvement. Viscosity is meaningful and we need to make sure to capture it correctly. May even need a new test method outside of these three. Paddle could potentially break emulsion, depending on distance from paddle to cup. Temperature is important. If there is a viscosity method that gives stronger data, should pursue it. Originally data for paddle viscometer was on unmodified. Saybolt struggles with modified emulsion, paddle not much better, especially with higher viscosity.
        - Big drawback of Saybolt – not a fundamental property. The weight of the emulsion driving through orifice changes during the test but doesn't change consistently through test. Gets worse with modified emulsions
        - Have nine years of data between unmodified emulsion with Saybolt vs. paddle, three years of modified. We can analyze the data.
        - If you are developing a new test, don't need to correlate it to the old test.

- Are we talking about a field test (sampled, transported, tested 1-2 weeks after chip is done) or a test for suppliers?
- Establish a task force through AASHTO COMP to look at the data, revisit procedures, revisit precision and bias. Work with Brian and 2a, perhaps ETF can be the lead?

- **Eliminate high temperature residue by distillation**
  - Determine alternative method, EM/PG/other option
- **Demulsibility test**
  - Highly dependent on mechanical kneading
  - Leads to high variability between operators
  - Alternative test? Develop equipment?
- **How are people taking care of our roads?**
  - Find a summary of whether state networks are going in the right direction?
  - What capturing? Lane miles, budget, project breakdown (rehab, replace, preservation, maintain) – tools available to quantify

12:00 p.m. – 12:45 p.m. LUNCH BREAK – Sponsored by Paragon Technical Services, Inc.

12:45 p.m. – 1:00 p.m. Preservation Study Phases II & III Ulring

See PPT 5

1:00 p.m. – 2:00 p.m. NCHRP 9-63 EAPG Update Cooper

See PPT 6.

2:00 p.m. – 2:10 p.m. NCHRP 9-63 ILS Plan Introduction Cooper

See PPT 6.

2:10 p.m. – 2:30 p.m. BREAK

SUBCOMMITTEE BREAKOUT SESSION 2

2:30 p.m. – 3:00 p.m. #5 Asphalt Emulsion Binders Voth/Weigel

a. Technical support needs for AASHTO TS 2a or other AASHTO groups

Technical support needs for AASHTO TS 2a or other groups-

1. Support for Brian and his Tech Section 2a has been occurring throughout the last year with TFASH (AASHTO T 295) and a couple other standards: AASHTO T 78 and T 72. These updates will be balloted in June after the ETF meeting but prior to this summer's AASHTO COMP meeting.
2. Regarding AASHTO R 78 (residue recovery), it was decided that it is too soon to have updates ready for ballot at this summer's COMP. However, over the next year, the Asphalt Institute (Mike Anderson, Wes Cooper) will evaluate and propose whether it best to edit R 78 for a "Method C" recovery process or whether to develop a standalone standard. The findings of their 9-63 study may also warrant other updates to R 78.
3. Marla inquired about the need or interest to resurrect the AASHTO standards for slow cure cutback asphalt (for maintenance and cold patch applications). Brian will inquire if there is interest from TS 2a during the August COMP meeting.

4. Kelly inquired about viscosity production concerns for HFRS-2P. Feedback from ETF was that changes in viscosity right after production can occur (particularly based on the salt content of the original binder), but with time in the tank the emulsion will stabilize.
5. Non-Tracking Tack – There has been some feedback from agencies that use of excessively hard material (approaching zero PEN) has resulted in bonding issues, leading to slip plane. The following points and suggestions were discussed to better assure successful application of tack coat materials:
    - In many cases, the issue may not be a material issue but rather a climate or construction practice issue. Bonding issues can occur when using a trackless tack coat material with a very low pen on a relatively cool pavement surface. So, construction during the shoulder seasons of Fall and early spring can lead to more of these issues.
    - There was general agreement that a non-binding note within AASHTO M 349 (Materials for Asphalt Tack Coat) to educate personnel about the concern (but avoiding a lower limit recommendation on the penetration value) would be beneficial. Mike will work to develop a non-binding note and forward to Brian for discussion at the upcoming TS 2a meeting in August.
    - For a longer-term goal, there was also general agreement that the preferred approach to address the concern with non-tracking emulsions or any type of emulsion for tack coat would be to use a performance-based test, such as a bond test. The emulsion binder subcommittee should review literature available on the topic (NCHRP 9-40, NCHRP 9-64, NCHRP Synthesis 20-05/Topic 48-02, Louisiana standards, Florida standards, etc.) and recommend whether additional research and validation is needed for a performance test or whether a standard can be proposed for AASHTO adoption using data and outcome from past studies.

- NCHRP 10-114, Performance Specs for Rejuvenators. Discussion on follow-up needs from the ETF was postponed until Day 2 of the ETF to align with Raquel's presentation and update.

- There was a good and robust discussion on the status of EPD development as well as concerns on use and implementation of EPDs in the Day 1 morning session. No additional discussion was warranted during the breakout.

b. Follow-ups to the NCHRP 10-114 status update, including standard definitions for rejuvenators or other support needs

See presentation Friday.

c. Update on EPD development for emulsified asphalts

d. Emulsified asphalt requirements for trackless tack

Non tracking tack, issues with slippage. Need to have a minimum pen. Discussion about this may be more of a construction practice issue than a spec issue. Maybe guidance (non-binding) language would be best. Should ETF look at promoting/developing a standardized performance test for bond strength? Maybe future synthesis. AI had done a synthesis in 2018 (20-05/Topic 48-02).

3:00 p.m. – 4:00 p.m. **#2 QA, Education & Certification Subcommittee** **Teto/Biehl**

14-48 QA Guide for Sand Seals.docx

14-48 QA Guidance for UTBWC.docx

ISSA, Arkansas DOT, FHWA working on updating web-based training. Currently reviewing modules. Looking for more volunteers to help guide this.

QA Guides – UBWC and Sand Seals had been sent for review, no comments. Need to be put into AASHTO format. Deadline to submit to 5C has already passed until next year. Could look at putting drafts on ETF website for now

QA Chip Seal guide has never been published. **Check with Ding Cheng may have already done this as part of another study.**

Draft guides (scrub, slurry/micro, tack, sand, UBWC) will be sent to ETF membership for review/comment.

QA Guides for CR will be finalized this July.

AASHTO may be looking to streamline publications, reducing/consolidating the number of them.

4:00 p.m. – 4:20 p.m. **Proposed AASHTO Particle Size Test** **Braham**

AASHTO_Test_ParticleSize_draft.docx

See PPT 7.

Group sees value in this. Think may be more appropriate for ASTM instead of AASHTO.

Arlis, BASF (Malvern), Stephanie, Flint Hills (Horiba), Jeff, HRG (Malvern), Charity, Paragon (Malvern), Stephane, Ingevity (MicroTrac), Stormy, Marathon (Malvern) volunteered to help with this.

4:20 p.m. – 4:30 p.m. **Open Discussion – Close Out Day 1** **Hemsley**

We can look at updating the ETF roster and identify areas of expertise.

4:30 p.m. **Adjourn**

Day 2

Friday, June 6th

SUBCOMMITTEE BREAKOUT SESSION 3

8:00 a.m. – 9:00 a.m. **#3 Messaging & Implementation Subcommittee** **Betsold/Brewster**

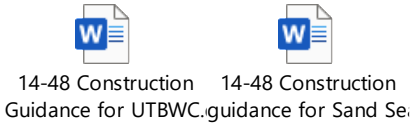
a. NCHRP Project Profiles
b. CCPR and CIR Best Practices

See PPT 8

Need volunteers for committee – many vacancies.
Want to proceed with another implementation project. Stormy will work with Nathan Awwad (INDOT) to develop a research needs statement.

9:00 a.m. – 10:00 a.m. **#1 Emulsion Treatments** **Senger/Weigel**

a. CCPR and CIR Best Practices
b. Construction Guide Specs – sand seals, UTBWC



c. Support NCHRP Projects – High Friction and PMM
d. AASHTO COMP Support – Ballot Results?

Jason Wielinski with AI has given some additional comments on the CR best practices guide. **Will review and update document.**

Sand Seal and UTBWC guide specs are being put into AASHTO format. Asking for volunteers to help review. Doesn't sound like there is a lot of usage of sand seals. Matt Jeffers and Stormy Brewster will help with UTBWC.

Discussion about distillation test for scrub seals. With rejuvenating emulsions, this may not be an appropriate test.

Kelly would like to have a central place to track where projects are at and who is working on. We can potentially utilize the ETF SharePoint site for this.

NCHRP 10-134 Chip Seal and Micro performance tests has just kicked off.

10:00 a.m. – 10:30 a.m. **BREAK**

10:30 a.m. – 10:45 a.m. **TCE Regulations** **Senger**

See PPT 9

10:45 a.m. – 11:15 a.m. **NCHRP 10-114, Rejuvenating Seals** **Moraes**

See PPT 10

11:15 a.m. – 11:45 a.m. **Industry Concerns/Topics for Discussion** **Hemsley**

Covered Thursday AM

11:45 a.m. – 12:00 p.m. **Future Direction – What's Next for ETF** **Hemsley**

- Surface Characteristics
- Performance Tests for Field Performance

NCHRP 10-134 just kicked off and is looking at performance tests for chip and micro.

Mike challenged group to come up with pinch points – state, industry – for next meeting so the ETF can start addressing.

Discussion about developing a database of all states, which treatments they do and contact information.

12:00 p.m. **Adjourn Meeting – Safe Travels**