HMA Spec-Density Subcommittee (2026-3)

Date: 09-30-2026
Time: 1:00PM – 3:00PM
Location: Teams Meeting / Galena Rm. @ Truax, Madison

Attendance

- **WisDOT staff**
  - Casey Wierzchowski – HMA Materials Supervisor, WisDOT Bureau of Technical Services (BTS)
  - Dan Kopacz – HMA Materials Engineer, WisDOT BTS
  - Albert Kilger – Consultant HMA Engineer, WisDOT BTS / Behnke Materials Engineering
  - Bryce Cibulka – Materials Specialist, WisDOT Northeast Region
  - Brian Jandrin – WisDOT Nuclear RSO
  - Taylor Christianson – Soils, Pavements & Materials Engineer, WisDOT North Central Region
  - Cayley Young – Materials Specialist, WisDOT Southwest Region (La Crosse)
  - Scott Syron – Materials Specialist, WisDOT Southwest Region
  - Devin Harings – Materials Specialist, WisDOT Northwest Region

- **FHWA member(s)**
  - Michelle Gehrke – Pavement & Materials Engineer, FHWA Wisconsin Division

- **Industry members**
  - Deb Schwerman – Wisconsin Asphalt Pavement Association (WAPA)
  - Jeremy Barron – The Walbec Group
  - Neal Atanasoff – The Walbec Group
  - Andrew Hanz – Mathy Construction Company
  - Zach Lemke – Stark Pavement
  - Allexander Stichman – MCC, Inc.
  - Jake Amundson – Rock Road Companies
  - David Hose – Mathy Construction Company
  - Jon Wixom – Rock Road Companies
  - Michael Hammitt – Murphy Inc.

Agenda Items

1. **Introduction**

2. **Review of Previous Action Items**
   - [Additional notes are shown below in the Previous Action Items section]
   - Asphalt Analyzer Solvents
     - Casey W. reported that the proprietary Aerotron extraction solvent remains commercially backordered and unavailable for regional lab trials.
     - Dan K. stated that BTS will continue using Trichloroethylene (TCE) in Central Office laboratories as permitted by safety regulations until replacement solvents are validated.
     - Scott S. announced that for the 2027 season, WisDOT Southwest Region will mandate ignition oven correction factors on all PWL projects to avoid chemical solvent reliance.
     - Dan K. noted that WisDOT submitted a Wisconsin Highway Research Program (WHRP) research problem statement to conduct a comprehensive synthesis evaluating modern non-solvent, non-combustion asphalt content testing technologies.

3. **Are people using AASHTO T164 Method A or B still or can we remove from spec?**
    - Deb S. and Andrew H. recommended keeping AASHTO T164 in the specifications. Although automatic solvent extractors and ignition ovens serve as primary tools, maintaining centrifuge extraction ensures a fallback mechanism if chemical supply chains or equipment fail.
    - Andrew H. noted that the test procedure lists four allowable chemicals: terpene citrus-based solvents, n-propyl bromide (nPB, which faces upcoming federal environmental regulations), methylene chloride, and TCE.
    - Albert K. pointed out that open-air centrifuges create higher chemical fume exposure for technicians than the automatic extractors.
    - **Consensus**: WisDOT will keep the centrifuge method in the written standard specifications as an allowable backup but will not spend time programming it into the automated AWP software. If a small contractor uses a centrifuge, it will be handled as an exception.

4. **Review Changes to 2028 AWP Specs**
    - Referee Testing Retains for low QC AC (same as QV Procedure).
        - Already present in 2026 spec.
        - Jon W. asked if the BTS lab tests the whole sample or only the asphalt content. Albert K. clarified that while only the asphalt binder percentage is used for pay adjustments, BTS tests the entire sample for Gmm, Gmb, Asphalt Content, and VMA during a single reheating cycle so the sample is not degraded if further dispute testing is needed.
    - Remove BTS Referee testing for Unacceptable Material that is defined as PWL < 50 (Means and Variances compare).
    - Require Gauge Comparison for Uncorrelated Nuclear Department Acceptance.
        - Neal A. and Jon W. expressed concern that contractors are being asked to lay out random test spots and log QC numbers when the state is only using its own QV numbers to pay for the work.
            - Albert K. and Dan K. explained that FHWA rules require either verified contractor data or use the Department's results. Instead of creating a complicated verification program, WisDOT opted to keep it simple, but contractor readings are necessary for process control and provide the technical basis for disputing QV results.
    - For Temporary Pavements: Change density testing is waived to density testing is by ordinary compaction.
    - Reducing HT Ndes gyrations to 75 from 100.
        - The committee debated whether the initial compaction check (Nini) should also be reduced from 8 to 7 gyrations. Andrew Hanz pointed out that in the current specification table, "Note 3" designates Nini density numbers as an advisory guideline rather than an enforceable pass/fail requirement for LT and MT mixes, but that note was historically omitted from High Traffic mixes.
            - Department will consult Jeff A. before making final changes to the table.
    - SMA Updates
        - LJD for information
        - Density LSL: 92.0%
        - Air Voids USL/LSL: JMF ± 1.5%
        - Alpha / Test Strip Tolerance Discussion (Looking for Industry Feedback)
            - Albert K. and Dan K. clarified that these limits are temporary and will be reviewed each season as more project data is collected.

- Jeremy B. stated that while test strips are important, industry is even more concerned about full production paving. In full production, paving lots consist of 3,750 tons. Because SMA is inherently variable, slight differences between testing labs could cause statistical non-comparisons, resulting in large quantities of samples being shipped to regional and BTS labs for dispute testing, increasing financial uncertainty for contractors. He suggested evaluating a wider tolerance.
    - Jon W. agreed, adding that test strips should not be shut down over minor statistical differences (e.g., a difference of 0.016 to 0.018) as long as the air voids look good and both parties are working together.
    - Dan K. and Albert K. explained that we already exercise judgment on test strips; if test results are close and moving in the right direction under an agreed corrective action plan, the state allows contractors to proceed into production.

5. Review Changes to FDM Specs

- Lowering the ESAL threshold for LT mixes.
    - FDM 14-10 § 10.7.2 & Attachment 10.3
    - Proposed: ≤ 500,000 ESALs (currently: ≤ 1,000,000 ESALs)
        - Taylor C. pointed out that pavement design engineers select asphalt mix types up to six years before a project is constructed. Any change to traffic thresholds must be communicated to regional design teams immediately.
        - Andrew H. noted that while thin LT surface layers had durability issues when paved over Cold In-Place Recycled (CIR) bases in past years, those failures were often related to the recycled base shifting rather than the asphalt mix itself. He asked how many mix designs across Wisconsin would be forced to switch from LT to MT under this rule.
        - Dan K. noted that lower traffic counts do not always account for heavy seasonal logging or quarry trucks, making a conservative 500,000 threshold appropriate. Dan K. and Casey W. will present this proposal at the upcoming Joint Pavement Engineers and BTS meeting.

6. Test Strip validity per mix design per season per plant, etc.

- Dan K. proposed a specification change allowing a successful volumetric mix test strip to remain valid for an entire paving season for a specific mix design and asphalt plant. If a contractor finishes one state highway and moves to another project using the exact same approved mix, they would not need to run a new volumetric test strip.
    - Scott S. and Taylor C. supported the concept but noted that waiving a test strip should remain at the discretion of the regional materials representative based on how well the mix compared on the prior project.
    - Test strip bid items must remain in project contracts because the state does not know which contractor or asphalt plant will win the bid during the design phase.
    - Jon W. asked how this applies to density correlation test strips.
        - Albert K. clarified that under the new specification, correlation strips can be handled as two standard density sublots rather than being restricted by tonnage under a volumetric test strip.

7. JMF Changes (Looking for Industry Feedback)

- WisDOT opened discussion on allowing contractors to make mid-project adjustments to their approved aggregate and asphalt recipes (Job Mix Formula, or JMF) under PWL and PWL Lite specifications.
    - Deb S. appreciated the state's willingness to consider JMF adjustments under PWL, noting that current rules rely on moving averages that do not fit the independent statistical lots used in PWL contracts. Detailed technical discussion was tabled for the next meeting.

8. CoreDry Alternatives / Process Improvements

- Dan K. raised an issue encountered on four separate construction projects during the 2026 season: roadway core samples experienced structural damage and weight loss inside CoreDry vacuum machines during test strips. This distorted density calculations and forced crews to re-drill cores on the highway.
- Dan K. proposed a new testing step: as soon as a core arrives at the field lab, technicians obtain an initial submerged weight in water and a surface-dry (SSD) weight to establish a baseline "wet density" before placing it in the vacuum chamber. If the final CoreDry density drops by 2% to 3% compared to that initial wet baseline, technicians immediately know the core was damaged in the machine.
- **Outcome & Working Group**: The committee established a CoreDry Process Improvement Work Group to review machine cycles, temperature settings, and baseline weighing methods.
    - **Work Group Members**: Albert Kilger, Dan Kopacz, Casey Wierzchowski, Scott Syron, Devin Harings, Bryce Cibulka, Jeremy Barron, Jon Wixom, and Zach Lemke.

9. Additional Business

- Pavement Core Dispute Notification Timeline
    - Neal A. asked the department to consider extending the contractual deadline for requesting core dispute testing from 24 hours to 48 hours. Neal A. explained that with night paving and reporting delays, contractors often receive completed statistical comparison spreadsheets late in the day, leaving insufficient time to analyze the numbers and schedule coring crews within a 24-hour window.
        - WisDOT will review the request internally and report back.

Action Items

1. Department Action Items

- **Reformat CoreDry Calculation Worksheet**: Reorder the data entry fields in the CoreDry spreadsheet to match lab operations (entering water-submerged weight first, followed by surface-dry SSD weight).
- **Develop Standardized Statewide IA Checklist**: Hold an internal winter workshop with regional IA staff to draft a consistent HMA testing and equipment calibration checklist.
- **Coordinate FDM Traffic Thresholds with Pavement Designers**: Present the proposed reduction of the Low Traffic (LT) threshold ($\le 500,000$ ESALs) at the upcoming Joint Pavement Engineers / BTS meeting.
- **Evaluate Mix Design Nini Requirements**: Consult with Jeff A. regarding whether initial gyration Nini requirements on High Traffic (HT) mixes should be lowered to 7 or formally designated as non-enforceable design guidelines via Note 3.
- **Review Coring Dispute Notification Window**: Evaluate extending the contractor dispute notification timeframe from 24 hours to 48 hours to accommodate night paving schedules and data reporting.

2. **Industry Action Items**
    - **Complete Sampling & Splitting Survey**: Complete and return the WisDOT sampling and quartermaster splitting survey.
    - **Develop JMF Adjustment Proposals**: Come up with industry recommendations regarding JMF changes ahead of the next subcommittee meeting.

3. **Joint Department / Industry Action Items**
    - **HMA/SMA Sampling and Splitting Workgroup**: Convene the working group (Albert Kilger, Scott Syron, Andrew Hanz, Jeremy Barron, Neal Atanasoff, Jake Amundson) in late October 2026 to review survey results and draft updated MOTP language clarifying splitter recombining.
    - **CoreDry Process Improvement Workgroup**: Convene the working group (Albert Kilger, Dan Kopacz, Casey Wierzchowski, Scott Syron, Devin Harings, Bryce Cibulka, Jeremy Barron, Jon Wixom, Zach Lemke) to investigate pre-weighing protocols, equipment cycle adjustments, and alternative core drying methods.

Previous Action Items

1. **Department Action Items**
    - 05-20-2025
        - Department will shadow SMA projects to determine if number of Gmb replicates can be reduced.
            - In progress. Analysis will be available later.
        - Department will look to equip regions with core dryers.
            - Casey W. noted that several WisDOT regions have placed purchase orders for CoreDry units. Casey is scheduled to meet with regional Soils, Pavements, and Materials (SPAM) supervisors in mid-October to check procurement and delivery statuses.
    - 05-30-2025
        - Department will collect information on SMA joints for future PWL LJD implementation.
            - Dan K.: We could temporarily proceed with PWL for mainline without joint requirements while the limits are still being analyzed.
            - SMA longitudinal joint densities will be collected for information only in the new 2028 AWP spec.
    - 12-16-2025
        - Department will clarify in the 2027 MOTP that SMA split samples should not be recombined due to the larger sample sizes (essentially requires 2 individual samples to be pulled from the truck).
            - Further work will be done in subcommittee on this.
                - Albert K. noted that previous subcommittee guidance to require pulling two separate truck samples without recombining created confusion regarding intermediate mechanical splitting versus initial truck sampling. The current Manual of Testing Procedures (MOTP) text requires splitting through the quartermaster/riffle splitter and recombining opposite quarters but does not combine initial increments 1 and 2 from the truck prior to entering the splitter.
                    - Scott S. questioned whether WisDOT has evaluated applying this same sampling procedure to standard HMA mixtures rather than recombining, asserting that if it functions acceptably for variable SMA mixes, it should be suitable for HMA.

        - Albert K. and Dan K. noted that opinions on sampling variability differ significantly across practitioners and suggested surveying stakeholders and forming a focused subgroup to refine MOTP text.
    - Scott S. noted that on a Southwest Region PWL SMA test strip during the 2026 season, the contractor conducted a four-way split and recombined all increments per their preference rather than using the two-quartermaster method.
    - **Resolution**: A small subgroup was established to review and rewrite the MOTP sampling and splitting provisions. Subgroup members include Deb S., Dan K., Scott S., Andrew H., Jeremy B., Neal A., and Jake A. A preliminary survey will be circulated by October 6, 2026, followed by a dedicated subgroup meeting 2 to 3 weeks later.
- Department may create an IA checklist for CoreLok (related to bag sizes).
    - Scott S. stressed that IA personnel must inspect critical equipment operating parameters on test strip day, including AutoRice absolute vacuum pressures, rice bath temperature regulation, CoreDry absolute digital gauges, and pycnometer vacuum lines. Scott S. highlighted an issue encountered during a recent test strip involving a Troxler digital vacuum gauge exhibiting an unexpected offset reading.
    - **Resolution**: WisDOT Central Office will organize a winter workshop with regional IA teams to create a consistent HMA IA testing and inspection protocol, with findings reported back to industry.
- Department will update the AWP spec and STSP for SMA Test Strips to have the department test both volumetric samples (instead of randomly choosing one).
    - STSP update is completed and will be used on 2027 SMA contracts.
        - Scott S. asked how discrepancies between the two split samples are resolved. Albert Kilger and Dan Kopacz clarified that if a sample fails, the data is sent directly to BTS for review, eliminating the historical project delays associated with waiting to test the secondary retain sample.

- 03-11-2026
    - Create a dispute resolution program for department acceptance density.
    - Create a coring dispute resolution program.
    - Further discussion on determining extents of unacceptable material for coring.
- 05-19-2026
    - Department will provide a document detailing the sampling and batching requirements (number of boxes, weights, components vs. mixed) needed from industry for BMD testing this year.
        - Created Balanced Mix Design Sample Preparation and Testing Manual 07-2026.
    - Review van survey data to evaluate field performance of sections from completed 22-04 BMD pilot project.
        - WisDOT's pavement videolog/van survey unit completed data collection for the completed 2024 BMD pilot sections, with post-processing currently underway.
- 06-10-2026
    - Department will update CoreDry worksheet to include full Gmb calculations and accommodate both HMA and SMA. Distribute the updated sheet with clear guidance that QC is responsible for filling it out.
        - Done.

        - **Feedback**: Scott S. requested adjusting the entry sequence in the spreadsheet to reflect the natural laboratory order of operations (entering water-submerged mass first, followed by saturated surface-dry [SSD] mass). Albert K. agreed to modify the cell structure accordingly and will issue the template to all regions and contractors for QC/QV data tracking.
    - Distribute the finalized STSP for SMA Test Strips to the regions for immediate use on active projects.
        - Decided to wait until 2027 construction for uniform changeover to updated spec.
    - Verify internal data regarding whether the Aerotron solvent impacts the PG grading of recovered binders (specifically modified binders).
    - Provide the round robin data update and analysis in the finalized meeting notes.
    - Coordinate with Pete and Brian regarding TSDD data availability and gather rutting/cracking data for the Highway 69 BMD pilot.
    - Coordinate with NCAT to potentially use NCAT plant mixes for upcoming BMD evaluations.
- 09-09-2026
    - Potentially develop a standardized process/form to collect and review historical test section data (e.g., van data for Highway 69 and 51) for future knowledge sharing.
    - Present options to the density/spec subcommittee regarding CoreDry heat damage, including alternative weighing methods and reducing machine cycles.
        - On Agenda today.
    - Review FDM specifications regarding the reduction of HT mixture gyrations (to 75) and lowering the ESAL threshold for LT mixes.
        - On Agenda today.
    - Distribute the PWL Analysis presentation alongside the meeting minutes.
        - Done.

2. Industry and Joint Action Items

- 09-09-2026
    - Provide any available internal data or findings regarding CoreDry usage and potential core damage to the department for review.

Next Meeting(s)

- TBD