February 19, 2025
Meeting – HMA Tech Team

Location: Teams Meeting / In-Person (Truax - Antigo Room)

Date: 02-19-2025

Time: 1:00PM – 3:30PM

Attendance

- Casey Wierzchowski
- Albert Kilger
- Jeff Anderson
- Adam Albers
- Brian Jandrin
- Matt Andreini
- Scott Syron
- Meg Olson
- Erik Lyngdal
- M.K. (Myungook Kang)
- Derek Frederickson
- Debbie Schwerman
- Andrew Hanz
- James Pforr
- Angel Benitez Jr.
- Travis Kurey
- David Hose
- Bryce Cibulka
- Devin Harings
- Cheng Thao
- Wendy Maves
- Carl Johnson
- Jeremy Barron
- Justin Hoffman
- Neal Atanasoff
- Dan Kopacz
- Joe Kyle
- Jon Wixom
- Zach Lemke
- Jim Boggs
- Lucas Ward
- Mark Zander
- Linette Rizos
- Nicole Roberts

Agenda Items

1. WHRP / NRRA Update
    - NRRA
        - Validation of Loose Mix Aging Procedures for Cracking Resistance Evaluation in Balanced Mix Design (Phase IIA) (2024)
            - Leaning towards using a version of our in-house aging procedure.
        - Standardization of SIP Calculation for Hamburg Wheel Tracking Test (2023)
        - Field Validation of Using Warm Mix Asphalt at Reduced Production Temperatures for Balanced Mix Design (2023)
        - Materials-Based Methods to Improve Rumble Strip Durability (2023)
        - Perpetual Pavements in Wet-Freeze Climates (2021)
    - WHRP
        - Benchmarking Delta TC for Wisconsin Materials
            - Draft final report received, should be completed in 05/2025.
        - Design Requirements for High Traffic Asphalt Mixes to Ensure Pavement Performance
            - To be completed in 10/2025.
            - Reviewing HT mixes (gyrations, etc.).
        - Investigation of Reflective Cracking in Wisconsin
            - To be completed 11/2026.
        - Evaluation of Hamburg Wheel Tracking Test (HWTT) for Rutting Resistance Assessment
            - Receiving proposals.
            - To start around 10/2025.
    - CAPRI
        - Lag/Dwell Study
            - IDEAL-CT and IDEAL-RT
            - Will present data in the spring.
2. AWP Specification Reorganization
    i. Update from Erik on status of implementation.
    ii. Questions / Concerns
    - Erik L: Wanted to do some pilots in 2025 but waiting on BPD review.
        - BPD wants to make specs more clear/concise and will review the entire spec.
        - Targeting pilots in 2026 now.
        - Have the remainder of the year to discuss the changes, etc.
        - AASHTOWare Knowledge Base for training.

- Will develop the training materials through shadow projects. Will start from scratch from closed out projects entering data into AASHTOWare to develop training.
- Core implementation team will be available during the piloting phase for troubleshooting and assistance.

3. PWL Core and Nuclear Density
   i. Both cores and nuclear density can be used on the same project.
   ii. Will be more common with AWP Specs.

- Dan K.: PWL cores on roundabouts
  - Projects forthcoming.
  - Will be listed in the mixture use table in the plans. Will have an estimated area for the roundabout to easily calculate the PWL.
- Dan K.: With the AWP specs, PWL with both cores and nuclear gauges will be more common. For certain roundabouts, intersections, etc. where it doesn't make sense to use correlated gauges, we can use cores for these areas.
  - Scott S.: In SWR there are rural projects with reconstruction with small towns in the middle where we will do PWL cores and put them separately in the spreadsheet. Has worked well for SWR.
- Casey W. / Dan K.: Will not be doing cores and gauges in the same random locations.
- Debbie S.: What is the process if the project is let with one methods of acceptance but then it changes (i.e.: switching from nuclear gauge to cores)? Who makes the decision?
  - Dan K.: Have done this as a no-cost change order at the request of the contractor. Typically, when this happens, there's an issue with the gauges, and the parties want to switch to cores. The department can't request the change with a no-cost change order, it typically would require a contract modification with some changes in costs.
  - Casey W.: It won't be normal for that to occur and will be handled on a case-by-case basis.
- Derek F.: Is there going to be a dispute resolution process for cores? What happens if there is a damaged core?
  - Albert K.: These are considered "QV" cores and the extraction and testing is witnessed. So right now, there is no dispute resolution process for that reason since it is a department result. If the core is visibly damaged during extraction, the MOTP allows for another core to be taken nearby at the discretion of the witness. Currently, damaged cores are determined only during the test strip where the

density results are compared against the average adjusted gauge readings for the location and if the difference is greater than 1.0pcf, the core is considered suspect.
    - Dan K.: The only way to have a dispute process is to take more cores, 2 or 3 instead of 1. Has been discussed before, thinks there was a desire at the time to not do more coring. If there is a need to come up with one, it can be taken to Density Subcommitee.
- Debbie S.: Wants to discuss the updates to the CoreDry procedures in the MOTP regarding the constant mass requirements.
    - Albert K.: The original AASHTO standard required running the CoreDry twice to ensure the samples are constant mass. We had done things differently in practice, so we originally had removed those sections via the MOTP since it wasn't required to be run twice. After discussion and review of the procedure, it was strongly suggested we have some method for determining constant mass.
    - Casey W.: We will be following the AASHTO procedure. Maybe in the future if we collect enough data that shows it doesn't need to be run twice, we can revisit again.
    - Debbie S.: Previously, we had been concerned about how much pressure this was putting on the cores and warping them. To run it twice seems extreme in regard to this and the additional time required. Are we having issues with the verification? Are there other methods we could do that might be less destructive (especially without a dispute process in place), like stopping it early, checking it, and then put it back in and run and check again?
    - Dan K.: The machine does a measurement to tell when the core is dry. Some of the warping and distortion was caused by heating from not allowing the machine to cool down between testing cores. If the core is actually dry, it will probably only run 1 or 2 more cycles unless it wasn't dry to start with. We shouldn't have issues with warping with 1 or 2 more cycles. If it keeps going, the machine might need to be checked/maintained.
    - James P.: If you are running it and it goes for more than 10 cycles, it could damage the cores. If it goes longer, there are things that should be looked into (cold cores). Like other procedures, we need to know we have constant mass.
    - Neal A.: If we lowered our dry cycles, and found constant mass and didn't wait for the machine to determine constant mass, would that also be an acceptable procedure?
    - James P.: The machine isn't measuring moisture, its measuring the

vacuum drop (pressure) which has been correlated to a lack of moisture.
    - Scott S.: Has done a small experiment where cores were soaked for 10 minutes to saturate them and then ran through the CoreDry, and it was completed in 5 cycles. So, the procedure doesn't take long. If you dunk all 10 cores, run the first one, then put the other 9 in front of a fan, by the time you get to cores 5 through 10, it will be done in 3 cycles. BTS did not provide a lot of guidance on how to run the machines, so people struggled with them.
    - Dan K.: Calibration is important. Also, low density cores tend to take longer to dry because moisture penetrates them more.
    - James: There is maintenance like using the vacuum gauge and the tank filter pads.
    - Derek F.: WMA takes more time to setup.
        - Albert K. We allow 24 hours before cores need to be cut.
    - Jim B.: Could dry aggregates with higher absorption following the procedure, wait a while, and then dry some more and the weight would drop more. On hot and humid days, samples can pickup moisture from the relative humidity. If we follow the CoreDry procedure, then we minimize our chances of having problems.
    - Erik L.: Would some of these nuances be helpful to incorporate into the MOTP?
    - Albert K.: The nuances would probably be best left to the CMM since it's not contractual.
    - Dan K.: Refer to the CoreDry manuals as well for what's required for calibration, etc.
- Scott S.: Is there a way to get on a list for MOTP change notifications?
    - Adam A.: There is a non-exhaustive list of changes in the front of the MOTP. Will release future versions sooner to apply to November lets.
    - **Action Item:** Create a LISTSERV notification for the MOTP.
    - Neal A.: Is there an archive for previous versions?
        - Adam A.: Yes, on the QMP website.

4. PWL for SMA
    - Albert K.: Pilots for PWL on SMA will be delayed with the AWP spec. BTS is finishing up analysis looking at the last few year's of projects with in the context of PWL including F&t. There are scenarios where QV wasn't comparing well with QC that the PWL dispute resolution procedures would likely have resolved.
    - Dan K.: Will present data in a PWL or Spec subcommittee within the next

couple of months.

- Jon W.: Is the pilot phase for SMA going to determine whether or not we go forward or is PWL coming no matter what for SMA?
    - Dan K.: Once we finish putting the data together, we hope it will show there is no concern to move forward with PWL on SMA as well as some benefits, such as finding comparison issues sooner.
    - Jim B.: Likes PWL, in some regions there are smaller projects that won't have the capacity for a test strip or the tonnage, how are we addressing these?
        - Dan K.: 500-ton test strips are already limited, and we've done these on ramps before as well. There may be some issues on a case-by-case basis.
        - Albert K.: With AWP, there will be PWL Lite for mixture acceptance which does not require a volumetric test strip and allows PWL on lower tonnages down to about 3,750 tons. Below that tonnage, Department Acceptance will be an option. For density, there will either be PWL or Department acceptance. Both PWL and Department acceptance require either correlated gauges or cores for density. One example for smaller jobs would be to do PWL Lite for mixture with PWL cores for density acceptance. This would eliminate both volumetric and density test strip requirements.

5. Industry Request: Removing coring from small quantities (AWP)
    i. Resolve through Density Subcommittee?

- Debbie S.: Right now the department does department acceptance density testing with uncorrelated gauges, and if that is no longer an option because of correlated gauge requirements in the new spec, how will that affect side roads, turn lanes, intersections, shoulders, etc.?
    - Albert K.: Depending on the risk to the department, we might still want cores depending on what is being constructed. It also doesn't make a lot of sense to have a coring rig on all these jobs for these small areas. One preliminary idea to address this could be to still use uncorrelated nuclear gauges but with a growth curve – similar to ordinary compaction, but we would have numbers to show the pavement isn't compacting much further per roller pass.
    - Casey W.: We can address different scenarios in the subcommittee.
    - Jim B.: With the nuclear gauge, we have rules regarding where we can take tests (i.e.: relative to the joint/structure/etc.) where these rules don't apply to cores. In some small areas, you often can't do

nuclear density testing where you could take a core.
    - Dan K.: Would be difficult to randomize areas when doing growth curves, revealing the location of the test to the contractor.
    - Dan K.: This will likely require more cores. If there are alternatives to this other than not testing, we don't know what they are – we've tried coming up with them. This is where the department will need to assess its risk.
    - Albert K.: One reason that motivates moving towards cores or correlated gauges is we occasionally see gauge offsets in the 1.5-2.5% range, which is concerning in terms of accuracy.
    - Industry should bring any specific projects they have concerns with the new specifications not working with to the next Density subcommittee meeting.
        - **Action Item:** BTS will include the latest drafts of the AWP specs with these notes. NOTE: Specs are not final drafts. Drafts are likely to change with BPD review.
    - Casey W.: Will move this to subcommittee.

6. WTM T355 (Nuclear Density Testing)
    i. Notice of new method for determining daily gauge Gmm and correlation/pay adjustment Gmm.
    ii. Can we no-cost change order this in for all 2025 construction?
    iii. Future training / LISTSERV notifications

- Albert K.: This new language is in the 2025 MOTP in section 10 of the standard. The gauge will use the latest two Gmm values and the acceptance / pay adjustment / correlation Gmm will be the average of the Gmms from that day's paving subject to dispute resolution outcomes.
- Dan K.: We want to make this effective for all construction this year if everyone is in agreement with that, then we can change order in the new MOTP into projects that were let before January 2025. There will be additional guidance on this with the spreadsheets, etc.
- Derek F.: There are some uncertainties still, especially with waiting on additional guidance to come out.
    - Dan K.: We can put the guidance together for Standards Training at the end of March.
        - **Action Item:** Will create guidance in the next few weeks and send it out to the group for review.
            - If the guidance is acceptable, then maybe we can look to use this for all 2025 construction.
- Derek F.: There is also some frustration with this getting introduced mid bid season.

    - Adam A.: The release date of the MOTP will be changing going forward to address this so the new manual is ready by November lets.
- Neal A.: Two things to think about with the guidance:
    - 1. What happens when we are near the unacceptable material limit (more than 3.0% below requirement).
    - 2. Heavy producing plants sending mix to multiple QMP projects in the same day (in terms of which Gmms get used for which project, because QMP testing is by the mix design tonnage, not project tonnage).
    - Scott S.: Maybe start testing extents when it's close to the 3.0% below requirement limit.
    - **Action Item:** Guidance to address which Gmms will be used for QMP projects for pay adjustment and acceptance.

7. Past Pavement Distresses and Impact on Future Mix Design and Specifications
    - Dan K.: Moisture seems to be the biggest issues whether from the CIR layer or a milled surface. Distresses have presented in a few different ways. With No. 5 mixes, which are relatively impermeable mixes, blisters have occurred where moisture has been trapped below the surface layer. This distress covers a very small area of the projects though. We haven't seen any potholing or other distresses stemming from the blisters, and they have become very difficult to locate after a while after they have settled for a year or two. Some other mixes where moisture gets through/into the mix, we've seen it become tender and dimpling sometimes occurs. We are working to put together some guidance.
    - Casey W.: We've received reports from industry regarding the blistering and some projects with tender mixes. There have been multiple scenarios but no common causes such as a common mix design, underlying surface, etc.
    - Erik L.: One scenario, for example, is CIR, maybe overlay the CIR layer with an MT mix instead of an LT. We also want to look at asphalt content. The region and contractor aren't always reading the same asphalt content. We also want to review the gradations and our usage of polymer modification.
    - Dan K.: We have to make sure that when we're testing the asphalt contents using the ignition ovens, that those asphalts are either being dried to constant mass before putting them in the ignition oven or we're applying the correct moisture correction factor after the fact.
    - Andrew H.: Blisters occurred on areas with transverse cracks. It's not just moisture during construction, it's also coming up several years after

construction. We shouldn't put impermeable mixes over older pavements that are just getting minimal service life extensions before reconstructing. Typically occurs with 5MT 58-34V mixes with sand and gravel.

8. Asphalt Analyzer and Solvents
    - Albert K.: EPA has imposed exposure limits for Trichloroethylene (TCE), and we are learning that our exposures are too high. All parties have been reviewing mitigation measures or have reverted to using ignition ovens.
    - Casey W.: BTS and the regions may require different mitigations since conditions are different in each location. We are also reviewing how exposure is being measured.
    - Debbie S.: There has been a lot of recent changes involved, now that the EPA requirement did get put on hold, and you've got different machines and different chemicals. So different companies are using different chemicals, so it's not a universal one thing. We might only have certain machines down depending on what we can mitigate and what is safe. In general, we would like to continue using the machines as long as it's safe.
    - Andrew H.: We might have to run these machines in separate rooms to meet the requirements.
    - Albert K.: Combined State Binder Group is also investigating this. Also, the machines were originally design with the intent that they would be placed in isolated, well-ventilated rooms.
    - Andrew H.: EPA rules have PPE based on exposure thresholds from an N95 mask, to supplied air and everything in between. We will probably end up needing the mask with the cartridges when loading and unloading the machine.
    - Wendy M.: We just installed an analyzer in our Eau Claire lab, and we are meeting the EPA requirements. It is in an enclosed room, and it has a box fan in the room pushing the air outside. The solution only cost $20.
    - Erik L.: We have 8 extractors across the state, 1 using TCE in the BTS lab, and 7 using methylene chloride. We won't operate the equipment though if we are not below the thresholds. So, there are requests to get ignition oven samples for correction factors in case they are needed. Another alternative solvent might be Hi Sol, but we need to check to make sure it won't harm the machines. At some point, the goal is to move away from TCE at BTS to use another solvent.
    - Andrew H.: There are other alternatives for measuring asphalt content such as vacuum extraction in T164.
    - Jim B.: There are a variety of AASHTO methods that can be used. Michigan for example uses a double filter with diatomaceous earth for their vacuum extractors.

- Albert K.: If needed we can ASP-6 in alternative methods.
- Erik L: We don't want to be doing a bunch of different methods long-term for asphalt content.

9. BMD Schedule
    - Casey W.: Continuing research projects. Currently looking at Hamburg with fine graded mixtures. We are looking to use IDEAL-CT, IDEAL-RT, and Hamburg. We will continue working on the SPVs.
10. Training
    - Dan K.: Standards training on March 18 and March 31. Spring inspection training will focus on PWL on April 7, 8, 9 in person and recorded. In person meetings will be held in Madison, Rapids, and Eau Claire offices.
    - Wendy M.: WAPA northwest region meeting will be held the same day after the Spring inspection training.
11. Lab Qualification…
    - Debbie S.: The Lab Qualification program application was last updated February 5 and there were some changes that were made and now some qualifications need to be redone because of this. Would like notification of these changes in the future.
    - MK: We added some testing applications, but we will keep everyone updated.
12. Next Meetings…
    - Debbie S.: How do we want to handle subcommittees and who will be on them?
        - **Action Item:** Casey W.: We will go through the roster and decide. We want good representation from industry and from the department. There might be some crossover between the committees on some of these topics.
    - Debbie S.: Can we get standing meetings for the main tech team?
        - **Action Item:** Casey W.: We will schedule multiple meetings for this year soon.