

HMA Industry Meeting

TRB 2024 January 10, 2024

1300-1700

Attendees will be signing in with a QR code presented at the beginning of the session

Topics

Introduction

Mark Buncher

- Emphasized the added inclusion of the FAA to this meeting and in the discussions for advancements of HMA pavements
- Call for additional Topics – No response

Matthew Hoyle

- Again mentioned this is now a joint meeting between DoD and FAA to grow the specs closer
- Start with Agency Discussion

Agency Discussions

Dr. Rutland

- The DoD is looking to significantly increase the longevity of the HMA without increasing the costs
- Some of the items led to problems with the specs and lack of training
 - We would like to encourage folks to attend the AACCP classes even if they aren't acting in the roles
- In addition there has been a push for sustainability
 - The quickest method would be the increase in production of asphalt containing RAP
 - Shipping of raw materials especially to austere environments is expensive and an environmental harm
- Plan to introduce the inertial profilograph. As discussed in the PCC meeting the profilograph testing showed that the Inertial profilograph was more likely to pick up any deviations or deficiencies. It is likely that part of this is the precision of the equipment but it is easier to err on the side of the conservative approach and values
- Effort has started to reduce the weight of the vehicle and to produce a larger range of speeds at which it can perform. In this case the goal would be to get to equipment that can start reading from 0 vs some that need to get up to speed
- Some concern is that if an inertial profilograph and a California profilograph differ which results do we trust? This will need to be explored in the future
- Based on existing sites (Vicksburg and Fort Hood) the inertial profilograph was picking up more deviations than the California profilograph. It may have also been falsely influenced by the locations of the wheels

- A locator line laser was used which was a 6-inch zero speed
- Leaning toward stop and goes to prevent issues in areas where we don't have lead in and lead out pavement
 - Looking at a few other licenses
 - May have problems with the certifications
- Question was asked: will measurements be taken after grooving?
 - ERDC did some runs over a grooved pavement but typically we would be doing this testing on new pavement prior to grooving
- The goal is to start the rollout and figure out any bugs that may exist through requests and contractor feedback
- The next publication cycle should include the inertial profilograph
- Question: Are we allowing any other softwares? No. For now we will be using ProFAA and we may look into a DoD version if needed. ERDC did produce a similar software but based on analysis of any deviations the results indicated that ProFAA will work
- When we start to get into the must-grind areas there is some question about what software to use since there were concerns with the accuracy
- May look at a few others but that hasn't been decided yet.

Jeff Crislip FAA Presentation on potential changes for the asphalt specifications in -10J

- The FAA is under a major overhaul of the existing FAA HMA specifications
- The effort is being led by Harold Honey but is a collaboration among the three to develop the spec
- The changes discussed today were based on feedback solicited from NAPA earlier last year. All of this is in a draft stage which may change
- They are hoping to complete at least 65% from the FAA draft with comments only from the FAA. Specific language will be divulged more in the next year when they have gone through more review cycles
- AGC will expect for the 3rd draft after comments addressed from legal are completed will be "complete"
- Most likely publication looks to be 4th quarter of FY26. The coordination through regions, industry, and legal are the reasons for the long timeframe
- Disclaimer given that all of this information is subject to change
- In general the updates to -10J will allow for downloadable, editable specifications. Should be able to grab individual specs to allow for the user to only use small parts of the -10J and to allow for quicker updating of the specifications.
- Overall document updates will occur on 5 or 6 year cycles but individual specs will be updated more frequently
- Reasonably Close Conformance:
 - Language in -10H that allows for some assistance to a user to go to sponsor engineers for areas where the pavement doesn't meet the strict requirements but meets or exceeds the users requirements
 - Language related to expedited delivery will also likely be added
 - Price adjustment provisions have also been considered for addition

- APTP projects may need to be incorporated into the update which will be discussed before publishing
- Question: How will smaller specs help with the speed? – Most likely a much smaller specification will be much more efficient to review and update
- Sustainability
 - No direct plans at this point but at some point the FAA will likely need to collect the EPDs and other routes toward sustainability will be approached
- Planning to introduce a construction phasing and safety plan
- Adjusted language regarding the difference between the QC and QA
- In September received feedback from NAPA for items that could be considered for updating revising or changing
 - Currently about a year from the industry review so the specific language is not being shared
 - General: Look at the difference between superpave and marshall.
 - In practice only one state still uses marshall
 - Most likely moving toward only superpave even prior to completion of -10J
 - The goal is to allow for the spec to get out and then make changes
 - Question was posed: Other countries still use Marshall but sometime use P-401
 - The goal would still be to use superpave and have them convert to the same requirements or use their own specifications
 - May be good to get industry feedback but it seems the path forward will still remain superpave only.
 - Can we remove the asphalt content requirement?
 - The plan is to remove it
 - Plan to clarify the average of a minimum of three samples must fall within the tolerances for the control strip
 - Made the change as requested
 - FAA has encountered a lot of problems that fall outside of the specifications
 - The FAA intends to handle those on a case by case basis
 - Recommended removal of natural sand due to the inclusion of performance testing within the spec
 - FAA tech center published a report that suggested they add a limit to the amount of natural sands that may be used even greater than they were
 - To prevent the rutting there are also additional parameters for uncompacted voids
 - Uncompacted voids were hidden by varying the sands.
 - Unknown if removing one could be considered in the future
 - The proposed table shown shows a change from 0-15% to 0-10% for large aircraft locations with the inclusion of the uncompacted void ratio
 - Recommended extending the allowance of time to use a specific job mix formula from on construction season to multiple
 - May be some area to adjust or find a compromise to reduce the required testing
 - Question: In OK it appears that using a mix that was not used for a year vs those that have been continually been used

- Jeff agreed that it may take some draft language covering that scenario but overall agreed that if the mix is continually used then it may be much easier to validate than one that hasn't been used in a year
 - Introduction of RAP and when the designer may include it
 - There's an AAPT project to evaluate the use of RAP in airport project. Most likely not making a change in this spec but it will likely be coming soon
 - Sustainability is also significantly affected by the use or disuse of RAP
 - Recommended revising mat density requirements from P-403
 - Removed P-403. Intend to blend what it was into P-401
 - Recommended allowing additional tack coat options
 - Response is to expand upon the allowable tack coat options
 - Haven't worked on the tack coat spec as much but this will be updated
 - Could be helpful to expand upon when each type of tack coat can and should be used. The change in ambient conditions can impact things like slippage
 - Could be added to the designer notes
 - DoD has already considered this and will share their language
 - State mixes
 - A current advisory circular allows for the use of state mixes in specific locations
 - Can be used if it's to stand up the DOT
 - Also for some low weight airfields
 - Have talked about allowing a blanket allowance of some state mixes but no guidance yet
 - There was an evaluation of some state mixes compared to FAA mixes but Jeff mentioned some of the variable measured weren't
 - Jack Scott said the inclusion of potential delirious materials could be passing through the state DOT quality testing
 - Also the state DOT mixes may be older than the updated version of the FAA spec
 - Jack Scott also brought up that tack coat reaccomplishment should be tracked to prevent paying for the tack coat multiple times
 - The cost of the tack coat at multiple passes is very cheap
 - Questions about AACP inclusion in the P-401
 - The AIP program operates at a very different cost share which would come at a cost to the individual airports
 - It would be difficult to add it since it would ultimately increase the costs of the projects
 - They are very early in the potential discussion.
- Send feedback to Richard

UFGS 32 12 15.13 Spec Updates Matthew Hoyle

- Question posed to group: Anybody use spray pavers? No.
- Anticipating spec revision publishing in May
 - Emphasis on QC vs Acceptance
 - New submittals have been added to the submittal register and one was renamed

- Renaming based on the change to the 01 45 00 Quality Control specification
- Airfield Asphalt Certification Program
 - Trying to clarify that the mix designers or record need to attend these courses
 - The lab technician preparing the Job Mix Formula needs to be certified
 - May add it to JMF paragraph to make it clearly part of the requirements
 - Question: Would it apply to the person certifying the mix design or for the individual technicians actually performing the work?
 - Need to discuss later who this would apply to. May need to be all laboratory personnel.
 - Also would a variance be allowed for the course in areas where the person doesn't meet the prerequisites?
 - Yes. Send a letter with a justification
- Independent commercial laboratory performs acceptance testing
 - In this case the contractor's lab would no longer qualify as the acceptance laboratory.
 - This will take some time to get on board but the expectation is that the laboratories used for these projects would be fully independent
 - May need to make this requirement more robust in terms of the expectations of these labs
 - Would it be possible for the agency to secure the lab?
 - Most offices would prefer it but it is often bureaucracy
 - Wouldn't the independent lab be certified by the Corps for all testing needed
 - Yes the MTC would validate each lab performing the tests
 - Just to be clear the new language has not been published so the use of the independent lab has not yet been required on projects.
- Placing the Bulk Specific Gravity and Absorption into the independent commercial laboratory's purview
- On individual aggregates we will be attempting to clarify how to consider those blended aggregates
- Look for freeze-thaw as it can potentially be included as a tailoring option
- Marshall method is still included and allowed as a tailoring option
 - Provided new clarity on how to perform the correlation ratio
 - This would be a reportable item in the QC plan
 - The MS-2 language needed clarification and the new language in the spec will hopefully cover the gap in ASTM as well
- New paragraph for asphalt mix design verification
 - Allows for the designers to have that discussion up front that the mix design verification may be necessary
 - Will likely be recommended in larger projects
 - The mix verification may open the door to problems if the mix fails the requirements. May have conflicts between labs or from the suppliers
 - Likely would be a retest and ultimately a discussion about what happened with the project team
- "Will warm mix be used to reduce production temperatures"

- Yes as a tailoring option within the specification
 - It is not common but doesn't mean it isn't used
 - May be worth editing here to improve and clarify the intent
- Will warm-mix be in the spec going out in May?
 - If the project team wants hot mix they will have multiple options. The spec for warm mix would need to be added except to be used as an additive for aiding compaction
- Revised AAQCP Section
 - Based on reviews of contractor's QC plans the ignition furnace information and calibration needs to be submitted and isn't often included
- Production requirements on aggregates
 - One of the bigger changes to be discussed with NAPA and their membership to implement correctly
 - On every 4 lots we will be confirming the aggregate quality is acceptable
 - We will be taking from the cold feed to take the properties of the actual aggregates
 - Checking for Gsb and Gse
 - This is a reportable item but not an acceptance item
 - Recommended against a single measurement on a single lot
 - This would be an average of 4 lots
 - Single sample with an action limit of 0.28
 - Concern that the action limit on the Gse may not be helpful
 - This would only be done on every 4th lot.
 - How often are we using gravel type mixes vs quarry type mixes?
 - Unknown at this time
 - Need to check the fractured face
 - Look at AASHTO requirements for fractured faces vs the ASTM
 - We will be using control chart data and reporting the Gsb vs the mix design
 - During production the Gsb would only be reported and would not adjust the acceptance for the time being
 - What will be done if we have a very different Gsb from the mix design to production?
 - We would prefer to handle it on a case by case at this point but the reported information would be monitored
 - In the control charts there would be some action or suspension limit that would need to be sorted out.
 - We are simply asking for it to be reported for now which shouldn't affect processes at this point.
 - The Gse changing is a way to see if the Gsb is changing
 - The changing Gsb and Gse may also affect the reported values for the VMA.
 - When there is a change in Gse but the Gsb is based on the mix design it may have an inverted reaction on the VMA calculation
 - The intent of the change is again to report for the time being but may be used to make a change in future spec revisions.

- The research team discussed the marshall and superpave. There are inconsistencies in which test would be considered the referee method. The ASTM, UFGS specification , MS-2, and FAA P-401 all conflict on what is considered the referee method. ASTM states it is the slanted gyratory compaction method

DoD Airfield Pavement Construction Database and Standardized Submittal Templates – Ben Cox

- Attempting to merge standards and the mix design process
 - Data that goes into the database should have standardized formatting for the submissions of the test data. State DOTs have some versions but the DoD doesn't and state DOTs are different
 - Implement an online platform for submission of all submittals where all information would be submitted. Since all information would be included it would also provide some logic and would make the review process simpler through flagging
 - Database for long-term monitoring and changes to research and implementation of industry changes. Trends analysis could be easily distilled from the software
 - Will attempt to do this for all paving (HMA and PCC)
 - Currently only on mix designs but could expand to lot reports
- Precursor to this mission was a failure of a runway in the Southeast
 - Reported values for mat and joint densities were both high but the first five locations were much lower
 - The base allowed the contractor to take cores not along the actual joint after those first 5 cores
 - ERDC testing showed a low value and they were concerned after they received very low values from their forensic testing
 - The data was very sparse and wasn't available with the government. ERDC had to get the test results from the contractor
 - ERDC found that the contractor's terminology changed and throughout the project they had pulled the wrong comparison
 - The whole project was roughly 4% lower then the contractor testing had revealed due to the failure in chosen values
- Focus is on the user experience in this presentation
 - For any individual project you can upload files and generate reports only for the assigned projects
 - The full database can be accessed by those overseeing multiple projects
 - First step: new project
 - Input parameters such as titles, personnel, location, etc.
 - Second: Assign responsibilities
 - Let the contractor determine who will be presenting what information
 - Third: Submission of submittals
 - Allows for the QA folks to see the individual information very easily and again in the distilled form the logic applied will flag any false or incompliant values
 - Fourth: Review
- The software will hopefully push back if there any concerns with the submission
 - It should also be able to quickly determine the pay factors and assign them to each lot

- QC Manager will need to review the submittals and submit it to the project engineer
 - Any rejections would restart the project
- How do we supply data?
 - There is a portion of this that will require an excel file with the actual values input by the contractor team
 - Should be able to take information from normal submittal and convert it to the standard form
 - Contractor should also be able to submit photos as well in some cases for things like batch tickets
 - May also eventually be able to take a pdf and convert it from the pdf file to the actual numbers
- For the user they may generate a pdf report from within the program or may be able to download any individual data in the excel format to allow for manipulation if needed
 - The required information will be tied to the users specifications
- From that information the lot reports could be compared based on the mix design values specifically for asphalt
- The summary JMF page is a typical inclusion but it would be good to reduce the space and make it user friendly to find and input specific numbers as they come in.
- Will look like a typical government website but will allow contractors to create an account
- Should be able to see all assigned projects and click within those projects for specific information and reports
 - Attempting to reduce the amount of moving back and forth between pages
 - If changes need to be made it will create a new submission
 - Would simplify the process of giving information and in how the pay factors are computed
 - What would happen if there's an issue?
 - The software will alert you
- The asset management will give some standardized method to review information
- What's the timeline on rollout?
 - Working on getting it to the software developer but beta version in a year maybe 2 years to wider use
- How will this be implemented with existing management portals like RMS?
 - No good answer yet aside from it would likely start at two separate submissions. May be some way to implement this into RMS in the future but for the start most likely it will be two submissions required for review
 - The process should still be a benefit in terms of time and in data reduction like payment factors
- Where will this be housed?
 - Unknown at this time. Should be answered before rollout
- Will the software track the users?
 - Yes. Should tell the user which person last altered or uploaded information
- Has state DOT formatting been considered?

- There was some research into how it was done but overall there are so many different forms that the value of having a large data set and being able to monitor it over time was a large benefit
- May be worth looking at AASHTO
 - Good point will discuss later
- Will there be any linking between this and PCASE/PAVER
 - At some point they need to talk or be unified. The information presented in those systems needs something like this to fill the gap in how the construction was performed
- Are you implementing it dual unit and can the user choose which they want to use?
 - Hasn't been discussed yet but could be helpful
- Does this have any challenges when a lab does their testing incorrectly?
 - The reviewer would still need to review the information to ensure the testing was done correctly because there will be some files submitted that may not be pulled in the original submission into the software. The software is still flexible. May need to QA test the software.
 - We do still need the contractor to perform the testing correctly.
- Maybe the quality assurance can be performed during those pilot projects?
 - Yes. The intent is for the beta version and pilot version to give feedback to the software engineers to make changes as needed to improve the software

AAPTP Airport Asphalt Pavement Technology Program

- Looking to provide an update and get feedback from those in industry.
- Funded by congress to perform the required objectives
 - Re-establish the AAPTP
 - Identify areas that could use research or updates
- The group overseeing AAPTP is the Program Coordination Group
 - Many different members from diverse associations
 - They choose what research needs to be funded
- Project Technical Panel
 - They develop the requests for proposal
 - Very early on in the program Dr. Brown helped to start up
 - Some regional engineers, some with headquarters, academia, contractor, state DOT, among others
 - Quarterly progress reports submitted to the FAA and planning to publish these in the quarterly meetings
- Asphalt Mixture Paving Handbook
 - PI is Mark Buncher
 - Used to help paving be done properly
 - Hoping to have final draft for July
 - The end product will not just be a PDF but also into an interactive website to allow people to see visually how the project can be impacted
 - Developing website RFP
 - The website should also work on mobile for inspectors to quickly pull up in the field
- Guidance for binder selection

- Contractors have had issues with improperly spec'd asphalt binders
 - The goal is to make it very clear to the AE to determine the binder grade based on inputs like passes, location, and intended use
 - Should be completed in March of this year
 - Beta testing should be coming soon
 - Question? With states actively moving toward MSCR has this been considered?
 - Since FAA didn't then this didn't as well
 - Also less polymer in the equivalent binder grade
 - Not worth the risk for the FAA
- Balanced Mix Design
 - First: Evaluate current cracking test for use in mixture design to resist cracking
 - Second: Also harmonize rutting requirements in the current FAA specifications
 - Should be published June 2024
 - Trying to remove tests that don't give us what we want
- Improving performance of longitudinal joint in airfield asphalt pavements
 - This one is "completed"
 - Goals were to synthesize best practices and evaluate any new technologies which could be used to improve joint performance
 - The second part was cancelled since the case studies appeared not to show significant improvement
- Mitigation of Plastic Flow and delamination at high-speed exits
 - Pilots are being told to get off runways as quickly as possible
 - In this case there have been failures along the locations where this is occurring
 - Hoping this will be completed by August of 2024
- Feasibility of cold central plant recycling of asphalt mixtures for airports
 - Assessing the potential heavier loading of the CCPR since there isn't much information about this use
 - Helpful for sustainability purposes to reduce the waste
- Validation of Gyration for mix design of airport asphalt mixtures
 - Find what should be used as the gyratory levels
- P-401 Mixtures aggregate gradation bands
 - If the bands are relaxed a bit, what is the result?
 - Assessing the impact of those changes in terms of how the pavement performs
 - Should be coming March 2025
- Airfield Asphalt Pavement(covered)....
 - Determining the resilience of airfield pavements for things like water, fire, rockslides, etc.
 - Trying to determine what can be done to ensure resilience of airfields
 - Done October 2025
- Use of RAP in P-401 mixes
 - What will it take and what are appropriate proportions
 - Overall we don't want to do anything that would reduce the quality of the mix
- Asphalt Airfield
 - Develop a series of videos to pair with having a paving handbook for technology transfer

- Qualifications due October 2023
 - Intent is to do ~ 30 videos to help visualize in the field
 - Should have videos by the time the website is completed
- Current state of the ...(covered)..
 - Trying to input information into database to make the data clear and house it in one centralized location
 - Hoping in the future that this can be worked on with the transition to the cloud
 - Total budget for CCPR and RAP sections is high because of the nature of the project
- Panels being assembled
 - Carbon reduction
 - Look at current spec and look at levers where carbon production can be reduced
 - Harnessing reduction roadmap
 - AI or machine learning type tools to answer asphalt related questions or inspect projects
 - Look at how other industries are using these tools and how can the FAA use them as well
 - PFAS in airfield pavement
 - Critical in the industry especially in milling
 - PFAS from firefighting or training
 - What does that mean for an asphalt contractor
 - What should be done for an asphalt contractor and how do they prevent harmful pollution
 - Waiting on Harold and Jeff for if this should be just asphalt or both asphalt and concrete.
 - Some contractors have started to reject RAP if they can't or haven't tested for PFAS
 - Goal would be to get these out by April or May at the latest
- What needs are there?
 - As we've been doing spec updates: equipment contractors are asking for a performance test for the surface quality we'd like to see. It would be nice to get some sort of photo or video for the expected surface texture performance for milling.
 - Grooving timelines: With higher PG grades and stiffer mixes it may be possible to expedite the grooving process but we need justification to change it
 - Patching products and surface treatments: What's out there and what products can and should be used or specified
 - There are projects out there that would like to explore some alternative longitudinal joints
 - The technology like ChatGPT, what is used and who made it
 - Company is XBE that used it for their customers to look at documentation
 - Frequently used to update their newsletters
 - Built for free
 - Put just over 100 publications into it
 - This software was trained to only look at the data put into the system instead of looking through the entire internet

- It should only be capable to answer asphalt related questions
- Partnerships with other organizations to add their technical documents into the tool to increase the knowledge base
- The goal is to produce information only from reports and will link to the actual reports used to answer the questions
- NAPA made all their publication free to allow themselves to put it into the system and allow others to pull from it
- Can be used for teaching young engineers in ways to write reports or produce test items
- Should be more reliable than Google or Youtube
- With too much information it becomes difficult to find the “right” answer
- How much cost and time did it take?
 - Signed contract in May, Rolled out July 9
 - Next phase would be to generate content based on the most asked questions
 - Should allow the association to track what needs are coming or where support may be needed
 - Can be used for troubleshooting as well
- Potentially a way to measure FOD potential of mixtures in the lab setting?
- Training the system is fairly easy. Should only take uploading the document and explaining to the system what the file is.
 - The more “good” files fed into the system will make the system better
- Sand Patch test from NCAT would be a good read for the surface expectation