NW-ACPA/WSDOT Meeting Minutes
Thursday October 13, 2022 9:00 AM – 12:00 PM
Virtual – MS Teams

Present	Name	Company	Present	Name	Company	Present	Name	Company
	Berg, Gary	Salinas		Keeth, Jon	WSDOT	x	Schofield, Kim	WSDOT
x	Carlie, Karen	WSDOT	x	McKernan, Dan	WSDOT	x	Seghetti, Robert	Acme
x	Clark, Steve	Acme	x	Pipinich, Bob	GMCC	x	Waligorski, Kevin	WSDOT
x	Fuller, Brian	Salinas	x	Powell, Jim	NWACPA	x	Watts, Troy	WSDOT
	Huang, Shin-Che	FHWA	x	Qualley, Jody	WSDOT	x	Webster, Garrett	WSDOT
x	Kane, Ed	WSDOT	x	Salinas, John II	Salinas		Williams, Kurt	WSDOT

Introductions, team changes, and general ACPA and WSDOT update: Dan McKernan, WSDOT ASCE, John Belarde

OLD BUSINESS:

18-08 – Lowering the required strength of epoxies used for dowel bars and tie bars

October 11, 2018 – Some discussion led by John Salinas. Uhlmeyer and Russel will look into and report back at next meeting.

May 30, 2019 – WSDOT seemed to think that a minimum of 6000 psi would be acceptable. Mark Russel to check with Kurt Williams to see if that value makes sense.

November 14, 2019 – Mark Russell status update. Nothing definitive in this meeting, continued discussion until next meeting. Nothing new at the 9/2/20 meeting.

March 25, 2021 – Mark Russell has put together some information on this issue. Looking at tying down the epoxy specification to require a Type IV Grade 3 Class A, B, or C. See Attach 18-08 While non-shrink grout may also be used it was noted that epoxy is much more efficient, particularly on large jobs. The issue revolves around the amount of testing and the ability to rely on ordering significant quantities of materials then submitting for testing. Type IV Epoxy requires 10,000 psi after 7 days. Typical failures seem to be falling just short of the 10,000 psi ASTM C881 standard. After some additional review, it appears the bulk products do fail a significant percentage of the time depending on the product. All type IV epoxies are tested similarly regardless of the use, the lab often does not know how the epoxy is to be used. Epoxies strengths are over designed to ensure they are not the failure mechanism, there are issues with "lane drift" where panels pull apart particularly on the outside lanes and on superelevated curves. Kurt Williams is taking a deeper look into this issue and reviewing additional data.

December 9, 2021 – Kurt or Garrett to present updated information on the number of failures of the different types and brands of epoxies. Looking into further breaking down the types of failures and reviewing other states specifications. - Garrett presented the updated information on failure rates for the different epoxy types and brands Attach **18-08b**. Discussion items included the following:

- Requested to add information on failure types and ultimate strengths achieved on the failed tests. Garrett to review test data.
- Can lots be approved based on a time limit (annual?) rather than project by project? Noted storage issues can affect performance of the epoxies.
- What strengths are ultimately needed? Can bars be added to a slab and use lower strength requirements? Kim will investigate strength requirements.

March 30, 2022 – Update – Continued discussions on what strengths are ultimately needed looking at both compressive and shear (bond) strengths. Garrett provided updated data after the meeting date on failure types, see attachment **18-08c**. A question was asked about getting the Hilti product on the QPL without the testing

requirements which could be used while testing a bulk product for approval noting Hilti has 0 failures recorded. – Per the Materials office the testing requirements go with the type of product, not the manufacturer. For example, all Type IV epoxies are tested.

October 13, 2022 – Robert Seghetti sent in a suggestion to use a deficient strength epoxy price adjustment table whereby epoxies that did not meet the spec requirements could be accepted at a reduced price depending on the strength achieved. This comes back to the question of what is the minimum strengths ultimately needed? Is there literature or research out there to determine needed strengths?

Sample Table based on invoice price of epoxy:

Strength (psi) Greater or Equal to:	% Pay
10,000.00	100.00%
9,500.00	95.00%
9,000.00	90.00%
8,500.00	85.00%
8,000.00	80.00%
7,500.00	75.00%
7,000.00	70.00%
6,500.00	65.00%
6,000.00	60.00%
5,500.00	55.00%
5,000.00	50.00%

October 13, 2022 – WSDOT is considering this and will talk internally. Jim Powell shared that research shows that bearing stress on dowel bars is 2K to 3K psi. (Mark Snyder – Minnesota ACPA, consultant did research. President International Society for Concrete Pavement). WSDOT will reach out to Mark SnyderWill check other agency specs.

20-02 – Concrete Pavement Smoothness Limits

September 2, 2020 – Jim Powell to discuss issue. This discussion involves 5-05.3(12) Surface Smoothness. The request is to increase the corrective action requirements as a result of MRI testing to 175 inches per mile instead of the current 125 in/mi. This request would not impact the price adjustment tables in 5-05. The request is based on similar specs in other states. WSDOT localized roughness requirement is based on a fixed 52.8 foot interval but many states use a 25 foot moving average which yields higher MRI values. Jim, Jeff, and Mark will discuss this issue.

March 25, 2021 – Review Mark Russell's analysis of the different specifications. No changes are being made at this time.

December 9, 2021 – No changes are planned for this specification. - A couple ideas were brought up for WSDOT consideration. One request was to close the gap on the payment schedule removing the 0 pay adjustment between 60-75 MRI and begin the bonuses at 75. Another idea was to use two different smoothness payment schedules depending on if the paving was in a Rural or Urban area.

March 30, 2022 – No changes are recommended from the WSDOT side. John Salinas to provided a recommendation to change the requirement to straightedge to 160 inches per mile from the current 125 in

section 5-05.3(12) for WSDOT consideration. This would match the smoothness requirements for CCP grinding in 5-01.3(10).

October 13, 2022 – WSDOT reviewed the idea sent in at the last meeting regarding adjusting the MRI from 125 in 5-05 to 160 which would match 5-01. Keeping the new construction requirements at 125 while leaving the rehabilitation requirements at 160 was determined to be appropriate. WSDOT does not support making this adjustment.

October 13, 2022 – John Salinas noted the difficulty in identifying localized roughness between 125 and 160 in the field with a straightedge. Jim Powel shared that some States have abandoned the localized roughness spec. Robert Seghetti mentioned that when WSDOT specifies a grinding depth on a rehab project, the MRI spec should not apply. WSDOT will discuss again internally.

21-02 – Potential New Product Feedback for Internal Curing and Flyash replacement Admixtures:

December 9, 2021 – WSDOT has been contacted with a request to add E5 Nano Silica Internal Curing and Flyash replacement Admixtures to our QPL. Before initiating any reviews of this potential new product we would like feedback from industry if this is something there is interest in potentially using? - There are a variety of new products that there is interest in reviewing including these. Recommended putting together a separate sub-committee for New Product Evaluations. Tentative members could include Jim P., Karen C., Kim S., Robert S., HQ Lab…

March 30, 2022 – Any Update on this idea. Jim, Karen, Kim to discuss new products offline.

October 13, 2022 – WSDOT Mats Lab already has a "New Products" team who review materials that don't currently have a WSDOT Spec. (Remove section from next agenda)

21-03 – Adding Air Entrainment on site:

December 9, 2021 - In the **6-02** specification, the contractor is not allowed to add admixtures on site, some of the city agencies aren't allowing the contractor to add air entraining on site to get the concrete into specification. Adding air entraining this is common practice most places and it effects the intersection work when using mixer trucks. Loads have been rejected that could have been in specification if air entraining was allowed to be added in the field. - Standard Specification 6-02.3(3) notes admixtures shall be added at time of batching or in accordance with the manufacturer's written procedure as accepted by the Engineer. No mention of Admixture requirements in section 5. Need clarification on this topic.

March 30, 2022 – Is this more of an issue for Local Programs? JITT Contractor should confirm ok to add air in field per manufacturers recommendation and get approval from Engineer up front. Once QC releases mud for WSDOT QA test that is the acceptance test, no further adjustments allowed.

October 13, 2022 – Remove from next agenda.

21-04 – Installing Dowel and Tie Bars

December 9, 2021 - The **5-05** spec doesn't allow the contractor to install tie bars and dowel bars using drilling and epoxy method- according to the specification the contractor has to install these in the plastic concrete. The contractor should be allowed to use either method. - Review language in 5-05.3(7)B Para 5, 5-05.3(10) Para 9, and 5-05.3(15) Para 1 last sentence.

March 30, 2021 - WSDOT to review and confirm intent and if a modification would be acceptable. Jim Powell to put some language together for WSDOT consideration.

October 13, 2022 – WSDOT still looking into this. Suggest modifying Tie bar spacing to "Max 30-inch". Std. plan currently specifies 30". Allows spacing to be adjusted for irregular areas.

21-05 - Dowel basket wire size

December 9, 2021 - Specifications differ from other states in the area. Standardizing this could make baskets more readily available and possibly reduce costs. - STD. Plan A 40.00 requires a minimum wire size of 0.362" diameter. Request from ACPA to reduce this requirement to 0.306" diameter wire noting the larger size more typically used on thicker pavements for airports while smaller more typically used for roadways. WSDOT will review request.

March 30, 2022 – WSDOT is open to this idea. Upon investigation it was noted there is no wire specification for the baskets other than the wire size. Does WSDOT need to add a wire specification? Per discussion, just modify Std. Plan.

October 13, 2022 – Revised standard plan A-40.00 issued July 6, 2022 with the new wire size.
Remove from next Agenda

21-06 - Review of MIT thickness use to date

December 9, 2021 - Should provisions be made for smaller projects? Industry raised the question of providing other options for measuring pavement thickness for smaller projects – example small in city contracts 2000 cy and less? Rather than using MIT, maybe allow cores, or string lining fixed form paving. - WSDOT to review.

March 30, 2022 – WSDOT may be open to this, would prefer a non-destructive method. Survey Grades?

October 13, 2022 – Contractor can submit a request to change order the measurement for very small jobs.

For smaller jobs possibly allow use of total station to shoot grade before & after placement. Elevation difference is thickness. Maybe shoot elevations at every joint.

21-07 – Bonded Conc. Overlay on HMA

December 9, 2021 - ACPA is interested in trying a larger scale bonded concrete overlay on asphalt. Should WSDOT be interested as well, ACPA has developed a specification for its use. - Jim to send sample spec's and review design criteria with Kim and Karen.

March 30, 2022 – WSDOT open to considering in the right application. Drop this until a spec is ready.

22-01 – Optimized Gradation – No issues, ok with this recommendation.

March 30, 2022 – Based on FHWA QA assessment they are making the following recommendation:

- Optimized Gradation (0.45 power curve): Combined Gradation is an option in Std Spec 5-05.3(1) but not required.
    - FHWA Recommends requiring use of Optimized Gradation for PCC.
    - Feedback from ACPA on if Combined Gradation is required in specifications?

October 13, 2022 – The new 2023 book revised 5-05.3(1) requiring the combined gradation. *Remove this topic for next agenda.*

22-02 – Dowel Bar Alignment – Not agreeable on this one. Adding a note to standard plan A 40.00 - "shall be anchored"

March 30, 2022 – Based on FHWA QA assessment they are making the following recommendation:

- Dowel Bar Alignment (MIT-Scan 2 or probing): WSDOT Does not verify by either method.
    - FHWA Recommends verifying Dowel Bar Location in PCCP by probing or MIT Scan.
    - ACPA feedback on requiring use of MIT-Scan or probing for dowel bar locations.

October 13, 2022 – New Standard plan A-40.00 as of July 6, 2022 with the new note 4 regarding anchoring baskets. *Remove this topic for next agenda.*

22-03 – Permeability – No known issues with this, recommending no on this one.

March 30, 2022 – Based on FHWA QA assessment they are making the following recommendation:

- Permeability: No permeability testing performed on PCC.
    - FHWA Recommends using permeability tests on PCC Concrete.
    - ACPA feedback on permeability testing and possibly requiring permeability testing information be submitted as part of PCCP mix design to gather information

October 13, 2022 Remove this topic for next agenda.

22-04 – Citric Acid

October 13, 2022 – Look at ability to use Citric Acid as a retarder in Rapid Set concrete mixes. *Food grade citric acid? Acceptance/approval by product label?? WSDOT will discuss internally. Section 5-01 and Division 9 revisions? WSDOT will continue looking into this*

22-05 Dowel Bar diameter should vary depending on pavement thickness. 1.5" appropriate for 12' pavement. Thinner pavement needs smaller diameter. Primarily issue on Local Agency jobs with thinner pavements. Consider Revising Std. plans. WSDOT looking into this.

22-06 Curb & gutter against PCCP. Potential issues when Gutter thickness doesn't match PCCP thickness, and Joints don't match between curb & gutter and pavement. Revise Std. Plan? WSDOT to discuss options with a smaller group. (John Salinas, Brian Fuller)

22-07 Rut Repair using Ultra High Performance Concrete (UHPC) for Rut Repair. Trial in Eastern Region.

Other:
Premature joint spalling? Bonding to ATB? Bond breaker first? WSDOT will continue looking into this.

Next Meeting: Discuss training workshop for contractor and WSDOT staff. Abrasion testing on concrete. Supply chain issues (epoxy)

Date: 3/30
Location: Virtual or In Person?? Check out Bullfrog for meeting location.