Improving HMA Committee, Bullfrog, WA – May 9, 2019
Meeting Minutes

Present	Name	Company	Present	Name	Company	Present	Name	Company
	Anderson, Taj	Poe		DeVol, Joe	WSDOT	X	Rivera, Angel	FHWA
X	Bell, Dave	Lakeside	X	Dyer, Bob	WSDOT	X	Russell, Mark	WSDOT
X	Cantrell, Logan	Granite		Fishel, Greg	Miles		Schofield, Dave	CWA
	Chapman, Josh	Granite	X	Gent, Dave	WAPA		Shearer, Tim	ICON
	Clayton, E. J.	Granite		Griffith, Brad	Miles		Shippy, Ron	Inland Asphalt
	Costello, Mike	Pyramid	X	Hill, Kentin	Granite	X	Uhlmeyer, Jeff	WSDOT
X	Damitio, Chris	WSDOT		Johnson, Torrey	Tucci & Sons	X	Waligorski, Kevin	WSDOT
X	Davis, Steve	WSDOT	X	Mathis, Gerome	Inland Asphalt	X	Williams, Kurt	WSDOT
X	Deffenbacher, Jon	WSDOT		McDuffee, Steve	Watson		Winger, Leon	WSDOT
X	Dempsey, Bill	Lakeside	X	Pederson, Chris	CTL		Zemke, Eric	Shamrock

OLD BUSINESS

17-02 How can we cost-effectively increase the service life of HMA Pavements?

- March 24, 2017 - General Discussion – Bob Dyer – brainstormed ideas were as follows:
  1. Increase binder content
  2. Don't pave as late in the year so as to improve percent compaction
  3. Expand allowable hours of lane closures
  4. Use polymer modified binder
  5. Do a better job with tack
  6. Mill and let traffic run on it for a while, rather than mill and require repaving within a few days as is our frequent practice.
  7. Eliminate the use of studded tires.

  It was agreed that a task force would be formed to address this item.
- October 27, 2017 Dave Erickson discussed WSDOT's proposal for changes to HMA specs regarding compaction and related incentives/disincentives (attachment #1) Kurt or Joe will discuss changes to HMA mix design and mixture acceptance (Attachment #1, 2, and 3) The incentive/disincentive payments for compaction and mixture during calendar year 2016 were as follows:

2016 HMA Incentives/Disincentives		
	Compaction	Mixture
+payments	$ 784,000	$ 788,000
-deductions	$ (195,000)	$ (244,000)
net pay	$ 589,000	$ 544,000

The following tables summarize the agreed upon changes for VMA and compaction and incentives/disincentives:

Mix Design Approval (highlighted values TBD, but indicate WSDOT thinking)					
SPEC	REGARDING	CURRENT	2018	2019	2020
9-03.8(2)	⅜ VMA Lower Spec Limit	15.0%	15.0%	15.0%	15.5%
	½ VMA Lower Spec Limit	14.0%	14.0%	14.0%	14.5%
	¾ VMA Lower Spec Limit	13.0%	13.0%	13.0%	13.5%
	1 VMA Lower Spec Limit	12.0%	12.0%	12.0%	12.5%
QC8 7.2.1	VMA Tolerance (⅜, ½, ¾, 1)	-1.5%	-1.0%	-1.0%	TBD

Field Acceptance (highlighted values TBD, but indicate WSDOT thinking)					
SPEC	REGARDING	CURRENT	2018	2019	2020
9-03.8(7)	⅜ VMA Lower Spec Limit	N/A	15.0%	15.0%	15.5%
	½ VMA Lower Spec Limit	N/A	14.0%	14.0%	14.5%
	¾ VMA Lower Spec Limit	N/A	13.0%	13.0%	13.5%
	1 VMA Lower Spec Limit	N/A	12.0%	12.0%	12.5%
9-03.8(7)	JMF VMA Tolerance	N/A	-1.5%	-1.0%	TBD
5-04.3(8)	Field Gsb test frequency for determining VMA	N/A	Use mix design Gsb, but contractor may request 2 tests per project		
	Factor "f" for statistical evaluation (of VMA)	N/A	2	2	TBD, but greater than 2
9-03.8(7)	JMF Binder Tolerance	-0.5% to +0.5%	-0.4% to +0.5%	-0.4% to +0.5%	TBD
5-04.3(10)C3	HMA compaction Lower Spec Limit - disincentive	91.0	91.0	91.5	92.0
5-04.3(10)C3	HMA compaction Lower Spec Limit - incentive	91.0	91.5	92.0	92.0
5-04.3(10)C3	Factor in Compaction Price Adjustment equation - disincentive	0.40	0.40	0.60	TBD
5-04.3(10)C3	Factor in Compaction Price Adjustment Equation - incentive	0.40	0.80	1.00	TBD

- April 26, 2018 – Dave Gent – WAPA notes from the last meeting indicate that the VMA changes shown in the charts above (highlighted in yellow) for the year 2020 were not agreed to by WAPA. WAPA's understanding was that VMA in 2020 would be TBD after the Reset HMA study was complete. If average binder content has crept up by 2020 as WSDOT is aiming for, WAPA doesn't see a need to increase the VMA spec.

  WSDOT agreed that the VMA figures for 2020 highlighted yellow in the tables above were not set in stone at this time, and are subject to evaluation in the late spring of 2019.

  Also, it was agreed that a smaller group should be re-convened to discuss the value shown for VMA tolerance for mix design approval for 2019 (-1.0%). The concern is that this might need to be -0.5%. Dave Gent and Joe DeVol to take the lead.
- Kurt and group discussed the changes in the table above for density and VMA.
- November 1, 2018 – Changes are coming out for 2019. Group discussed the need to talk about 2020 before hand. Kurt and Jon agreed to meet with the "HMA Improving Service Life" group next August or September to review data and determine what spec changes will be needed for 2020.
- May 9, 2019 – Dyer and Gent – Discussion on plan for addressing the third cycle of changes for specs on compaction, incentives, VMA tolerance, and binder tolerance. Consensus was not to make any changes for the 2010 paving season. Instead, take time to evaluate all the data from 2019 paving season, make decisions during spring/summer of 2020, and publish changes in fall 2020 so they are effective on jobs paved throughout calendar year 2021. See handout calendar Attach #17-02.

13-07 High RAP/RAS

- May 9, 2013 – Industry expressed concerns of not enough room for stockpiles.
- May 9, 2014 - RAP subcommittee reported that we are currently waiting for the industry members of the subcommittee to develop a draft spec for review and discussion. Primary points of discussion have been (a) timing and extent of additional testing currently required when the amount of RAP exceeds 20% or any amount of RAS, and (b) determining the type and timing of testing of RAP and RAS in stockpile needed to make prudent decisions on how variations affect the service life of the end product.
- October 9, 2014 – Update – This subcommittee is looking at increasing the threshold for not requiring the RAP oil to be blended into the mix design for approval, from its present 20%, to 30%. In order to make sure this is a decision that will not jeopardize length of service life, the committee is looking for Washington State test data to support the increase.
- May 8, 2015 – Dave Gent provided a copy (See Attachment #1) of the letter sent to WSDOT summarizing his understanding of the agreement in principle, between WSDOT and WAPA folks on the RAP Subcommittee, which creates a new RAP category for binder bumping in lieu of blending, for RAP between 20% and 25%. It was agreed that the goal is to finalize this into a spec to be published in the January 2016 Amendments.
- October 9, 2015 – Update from Kurt Williams – We need to reconvene the subcommittee to work out a few details. Need more discussion on the proposed changes to RAP between 20% and 25%. Dave Gent and Kurt will get the RAP subcommittee going on this.
- May 6, 2016 –Dave Gent handed out a draft a spec (attach #13-07a) which provides for a new "Medium RAP/No RAS" mix designation, and provided a handout of a report by Shane Buchanan titled "Washington State RAP Blending 'What If' Scenarios" (attach #13-07b). Further discussion of that spec will be done by the RAP/RAS subcommittee.
- November 4, 2016 – Dave Gent and Joe DeVol discussed the meeting minutes from the WSDOT/WAPA's subcommittee on RAP meeting of October 4, 2016 (attachment #1, 13-07).
- March 24, 2017 - Update on proposed 25% RAP with binder bump spec. (Joe DeVol). WSDOT was unable to identify 4 contracts prior to advertisement to include the pilot spec. WSDOT would like to invite contractors on 4 contracts (2 east, 2 west) to propose a no cost change order on a portion of an executed contract for this study. Contractors that are interested in participating are requested to notify the Regional Construction Engineer and the ASCE.
- October 27, 2017 We had two projects volunteered to be a pilot to test 25% RAP with binder bump by WAPA members, but one was rejected by the WSDOT Region and one became logistically untenable for the Contractor. Discussion on this item will be tabled until U of W completes the RAP Reset study, and the HMA Reset study. (revised 04-26-2018)
- April 26, 2018 – WSDOT is willing to consider allowing the "25% RAP with binder bump" spec to be added to a project by contractor-proposed change order. Joe DeVol will send the "25% RAP with binder bump" spec (after being updated for MSCR) to Bob Dyer to be put in a 2019 project or two.
- November 1, 2018 – Joe DeVol - No change since last meeting. If there are any interested contractors, WSDOT would consider approving change orders to accommodate use of up to 25% RAP with a binder bump to both the low and high temperature grade specified. Joe DeVol pointed out that there is currently recent research efforts on a national scale (NCHRP 09-58) that will be proposing changes to AASHTO standards to better define how to use increasing quantities of RAP while insuring restoration of binder properties and service life of HMA pavements. WSDOT also has the RAP Reset research project underway with University of Washington and University of Nevada Reno which is aimed at assessing current practices of using RAP to determine if changes are needed in ensure performance of HMA pavement with RAP.
- May 9, 2019 – We have been unable to get any projects to volunteer to try "25% with binder bump" as a pilot. Therefore, it was agreed to close this item and open a new item (19-06) to discuss the results of the RAP Reset study being done by Dr. Steve Muench at the U of W, which is hoped to identify "the right" RAP percentages. Item closed.

14-13 Fine Aggregate Angularity (FAA) aka Uncompacted Void Content

- October 9, 2014 – Bob Dyer reported he is evaluating the enforcement of this spec on projects back to the 2010 spec book, but not done yet. Several contractors expressed that this test is weighted too high in the statistical evaluation and suggested that WSDOT reduce its relative importance in the future, that the test is not very reproducible, and that there is no mechanism to challenge the WSDSOT test results. WSDOT responded that it is part of superpave.
- May 8, 2015 – Continued discussion, led by Dave Gent. Agreed that WAPA would develop a proposal for revisions to the spec.
- October 9, 2015 – Update from Dave Gent, who handed out a draft proposal (attached) to change the spec. The key changes Dave is seeking are a) reduce the size of the financial disincentive, which industry believes is disproportionally high, b) an ability for the contractor to challenge the WSDOT test results, and c) a sliding scale for the severity of the out-of-specness. Other test methods were discussed. Finally agreed that Granite will do some computer experimentation on the effect on the CPF of changing the statistical parameters so that the mixture CPF includes the PF for SE, coarse fracture, and FAA, and report results by next meeting.
- May 6, 2016 – Dave Gent provided a draft spec (attach #14-13a) and excerpts from NCHRP Report 539 "Aggregate Properties and the Performance of Superpave-Designed Hot Mix Asphalt" (attach #14-13b). The gist of the draft spec is to: a) move the FAA, Fracture, and SE related incentive/disincentive out of Spec 1-06 and into Spec 5-04, combine it with the statistical evaluation of the hot mixture properties, and "soften" the effect of the incentive/disincentive, and b) provide for challenges to the FAA test results possibly looking to real-time Hamburg testing as a referee in challenges. The ball is now in WSDOT court to consider the draft spec, with a target of having any resulting revisions to the Standard Specs in the January 2017 Amendments.
- November 4, 2016 –Dave Gent discussed WAPA's proposed spec change (attachment #2, 14-13). It moves the price adjustment factors for SE, FAA, and Fracture out of Section 3-04 and into the price adjustment factors in Section 5-04. It also provides for challenge samples for failing FAA via Hamburg. The challenge samples would be taken from splits of WSDOT's acceptance samples. Dave's goal is to do two things – (1) make the price adjustment more equitable and (2) provide some basis for the contractor to challenge WSDOT test results. Dyer agreed to look into and respond at the next meeting.
- March 24, 2017 – Update from Dave Gent. WAPA requests that WSDOT adjust the aggregate valuation to $15/ ton in Table 1 of Section 3-04. WAPA would still like to have a challenge mechanism for FAA. WAPA would like WSDOT to update its FAA procedure to include the use of a strike off guide plate to increase testing accuracy. (attach #1, 14-13). Bob Dyer agreed to consider these requests.
- October 27, 2017 Nothing to report. WSDOT has not responded to WAPA request to consider using a strikeoff plate for FAA test.
- April 26, 2018 – Dave Gent– Attachment #1 is the strike off plate document and a 2007 paper (Attachment #2) on the better accuracy using the devise. Its webpage is at: https://www.hmalabsupply.com/products/void-content-apparatus-with-strike-off-guide-plate. After some discussion, WSDOT declared they will continue to follow the AASHTO procedure. Chris Pederson volunteered to tabulate some comparisons of WSDOT/contractor FAA results and share with the Improving HMA Committee. Joe DeVol volunteered to bring up concerns regarding the FAA test at the next AASHTO Committee meeting.
- November 1, 2018 – Joe has talked to industry, and none are interested in changing the spec to require a strikeoff mechanism. Joe will talk o Region IAI folks and WAQTC. Joe spoke to the AASHTO committee on materials and pavements (COMP) chairman, who reviewed ASTM C1252 and noted that the strike off plate is optional, AASHTO T 304 does not recognize this option. Since the precision and bias is the same for both methods (ASTM and AASHTO) there are no plans to add the strike off plate to T 304. WSDOT will not pursue use of the strike off plate, recommend closing out this agenda item. Kurt noted that WSDOT would not be using the strike off plate as there was no improvement in repeatability of the test. WSDOT will continue to use AASHTO T 304. Dave Gent noted that there needed to be a challenge test. Kurt replied that is a separate issue, and could be taken up as a new issue.
- May 9, 2019 – It was agreed to close this item regarding use of a strikeoff mechanism, and open new item 19-01 regarding challenge testing Uncompacted Void Content. Item closed.

14-16 Concerns with SAM

- October 9, 2014 - Dave Gent noted that SAM set-up is often cumbersome. He also suggested adding a "time stamp" for when documentation is entered (not shown currently) & add an "auto-notification" for producers / pavers (whether GC or sub.) to allow for timely review in case of challenges. Kurt Williams agreed to follow up.
- May 8, 2015 – Update from Kurt Williams. The lab has added a portal to SAM for all to use. A new field will be added to the database to record when each test data is input into SAM. "Auto-notification" to the contractor when data in SAM has been updated is in the process of being created, but has not happened yet. (MATS already has the ability to "auto-send".)
- October 9, 2015 – Update from Kurt Williams – MATS program has the ability to auto-email results to the contractor if the Paving contractor so requests the PE, but SAM does not. Bob Dyer agreed to modify Construction Manual to require PE to email MATS results when so requested by the contractor.
- May 6, 2016 – Dave Gent noted that there are still (this spring) delays by some WSDOT offices in getting the WSDOT acceptance test data into SAM. Bob Dyer provided a copy of excerpts from the new 5-04 Standard Spec (attach #14-16) showing the aspirational timeliness goals for WSDOT to provide WSDOT's test results to the contractor. Bill Dempsey volunteered to draft a revision to the WSDOT Construction Manual for WSDOT inspectors to directly and immediately provide test results to the Contractor.
- November 4, 2016 – Nothing to report.
- March 24, 2017 – Bill Dempsey agreed to provide a draft update to the Construction Manual at the next meeting.
- October 27, 2017 Nothing to report.
- April 26, 2018 – Dave Gent is still getting calls on this with respect to slow entry. Some contractors confirmed the same. Why can't field personnel share field data with a foreman or superintendent instead of having the contractor wait until it's entered in SAM? WSDOT agreed that sharing test results as soon as they were available was allowable and they would look into: (1) Training that points out that test results could be shared with the Contractor as soon as available, including copies of the test results to the Contractor; (2) Training and a Construction Manual update that encourage pre-paving meetings and document a list of Contractor contact information that test results could be forwarded to (emails, texts).
- November 1, 2018 – WAPA asked about having an email sent out from SAM when tests results are entered into SAM. Kurt Williams discussed that there is a long list of requests for updates to SAM on this is one that is lower priority. Jon Deffenbacher discussed looking into communicating information to the Regions and PEO's to emphasize timely data entry and communication with contractors. Group discussed and asked if SAM could be used to show how long PEOs are taking to enter test data into SAM. Kurt Williams noted he would have to check to see what information is available to do that. Contractors expressed that retests are taking too long and there is significant variability in the results. Jon encouraged contractors to communicate concerns with the PE directly, and recommended escalating unresolved issues to the Region Construction Engineers before contacting the Materials Lab or the State Construction Office.
  May 9, 2019 – It was mutually agreed that WSDOT PEO's need to reduce the time it takes them to provide the contractor with test results and challenge test results. Bob Dyer agreed to find out the capability of MATS and SAM in auto-emailing the contractor to help speed up the process, and he will include his finding in these minutes. Here's what Bob found: *SAM does not email. If the contractor wants to be emailed test reports from MATS they would need to work with the PEO to have their email address added to the distribution. The PEO would add the contractor's email to the distribution while making a transmittal for the material. Another avenue is for the PEO to contact the Materials Lab IT department to have the email added to the distribution.*

16-13 Discussion on a process to modify the "sequestered" RAP and RAS stockpiles rules/ wording

- May 6, 2016 – No discussion on this item. Similar to item 16-11.
- November 4, 2016 –Dave Gent provided a draft spec change (attach #7, item 16-13). Joe DeVol noted that Dave's proposed spec would provide for testing the addition to the stockpile for binder content and gradation which is good, but he also would need to know about the VMA (which means also need to test for Aggregate sp.gr.). That puts the ball back in WAPA court to provide a draft spec that addresses testing for VMA and aggregate specific gravity.

- March 24, 2017 – Update from Dave Gent. (attach #4, 16-13) Dave presented proposed spec changes. It was pointed out that the proposed spec change does not address the possibility that binder properties could change as the contractor adds to the stockpile, and therefore the questions were asked – What about testing binder properties(?), and How will changes in binder properties manifest themselves in the mix being placed on the road, and how will this be addressed?
- October 27, 2017 – Dave Gent provided a handout (attach #4, item #16-13), but no discussion.
- April 26, 2018 – (Attachment #4) Further discussion Dave Gent – Joe DeVol agreed to review the attachment proposal, agreeing that it was "fine in concept" but wanting time to review/ consider. Bob Dyer and Joe will collaborate to rewrite the proposal into a form acceptable to WSDOT.
- November 1, 2018 - DeVol - Need to add a requirement for submitting documentation of test results.
  No change since last meeting. Bob and Joe agreed to draft a revision to the specifications to accommodate this proposal. It was generally agreed that if you supplement the sequestered RAP or RAS stockpile with the same testing frequency that was used during its creation, WSDOT would accept supplementing the stockpile(s).
- May 9, 2019 – We discussed a draft spec (Attach #16-13), and agreed to implement the proposed draft with the following additions: Contractor to submit test result data to WSDOT periodically. "Periodically" needs to be clarified. Dyer will try to get this into the July 2019 amendments.

16-14 WAQTC – Implementation Plan

- May 6, 2016 – Joe DeVol provided a handout (attach 16-14) regarding approximate dates for implementing the requirement for testers to be WAQTC certified. This will initially apply to all WSDOT folks and eventually to Contractor QA personnel. WSDOT has set a target that by 2020 industry will be trained and doing QA, with WSDOT doing QV.
- November 4, 2016 – Kurt Williams noted that the target date for getting all WSDOT testers certified is January of 2018. Also, he is working with ACEC to develop the mechanism to qualify folks that are not WSDOT employees.
- March 24, 2017 – Nothing to report.
- October 27, 2017 Kurt reports we are on schedule for implementation.
- April 26, 2018 – Status update Joe DeVol. Joe DeVol reported that nearly 500 people have been certified by WAQTC, 350 WSDOT and 150 Industry Techs. The goal is by 2020/2021 to have all WSDOT certifications complete through WAQTC. The vision for how the WAQTC certification process would impact WSDOT vs. Contractor vs. 3rd party testing is still unclear other than the goal to move some pilot Design/Build projects into 3rd party QA testing in the near future to test the concept. A more complete status update will be presented at the next meeting.
- November 1, 2018 – Kurt Williams updated group on number of WAQTC testers and noted that the following design build contracts would have WAQTC/ACI requirements for tester certification for all testing. 2018 WAQTC Aggregate Density and ACI for concrete
  - Olympic Region C9157 I-5 Portland Avenue to Port of Tacoma Road
  - NW Region: C9242 Renton to Bellevue

  2019 WAQTC Aggregate Density and ACI for concrete
  - SC Region: C9247 South Union Gap I/C.

  Kurt continued noting that the overall timeline is that the goal is by early 2020's that all design build projects would have these requirements, but that really depends on how well the above projects go. He expects that other projects will be identified to have these requirements put into them, but the above is the current list of projects.
- May 9, 2019 – Kurt Williams – On all Design-Build contracts with the RFP issued after about July 1, 2019, the Design Builder's QA organization will do the QA (i.e., acceptance) testing for HMA mixture and compaction, and also be required to use WAQTC certified testers and inspectors. DB pilot contracts that already have these requirements are C9368 and C9333. Item closed.

16-23 Revise retesting specification to reflect 2008 procedure:

- November 4, 2016 - Kentin Hill of Granite **-** There appears to have been a lot of issues this year (as well as in the past) with the state's initial testing of mix samples. When we think that the states testing isn't correct and

challenge that test, there is no time frame for the retest to be completed. Some retests have taken over a week to get results back. The majority of the retests have come back in our favor (in Granite's experience) indicating that the test wasn't run correctly initially. Since we have to make plant changes based on the state's test results, this lag time isn't acceptable. We propose reinstating a turnaround time frame on retests? Also, if the samples come back in our favor we propose that WSDOT pay for the cost of the retest. Proposal: In the 2008 spec book there was language that evaluated a retest sample and if it was outside of the tolerances then the state would pay for the extra testing. We propose that we return to this standard. Bob Dyer responded that he will look at the aspirational language currently in the specs regarding turn-around time for test results and make sure it addresses retests.

- March 24, 2017 –No discussion.
- October 27, 2017 No discussion.
- April 26, 2018 – Bob Dyer
- November 1, 2018 – No discussion.
- May 9, 2019 – It was agreed that turn-around time of WSDOT retest results is still too long; no decision made on exactly what that will be. Also, WSDOT agreed it will implement the spec on who pays for retests, depending on the outcome of the retest results (within tolerance or not). It was noted that the spec needs to be updated to reflect WSDOT's current costs. Dyer has the ball on both items.

17-03 Trackless tack –

- March 24, 2017 – Dave Gent asked what steps would be required to get Nanotac on the QPL as an acceptable trackless tack additive? The answer is that we need a specification. Kurt Williams will look into. Dave Gent agreed to provide a proposal.
- October 27, 2017 Dave Gent agreed to provide a draft spec.
- April 26, 2018 – Dave Gent provided a Trackless Tack Coat Asphalt Submittal template that, in essence, allows Contractors to use trackless tack products, as needed, as long as WSDOT approval is given. WSDOT to review. (Attachment #5.5)
- November 1, 2018 – No discussion.
- May 9, 2019 – WSDOT agreed that if a Contractor wants to propose using NanoTac on an existing contract on a trial basis as a change order, WSDOT would be willing to give it a try. CSS-1h is allowed by the current spec.

17-04 Dual Gyration Design Validation Process Proposal –-

- March 24, 2017 – Information/ proposal provided by Logan Cantrell (Granite). Logan will bring a written proposal to the next meeting.
- October 27, 2017 – Logan Cantrell lead discussion on the handout he provided (attachment #5, Item 17-04). WSDOT will evaluate and report back at the next meeting.
- April 26, 2018 – Further discussion (Attachment #6) Logan Cantrell – There was discussion over Attachment #6 and Joe DeVol agreed to review the proposal and, other than the need to process added aggregates and produce additional Hamburg samples (and the added costs to perform), he was "not opposed" to the concept.
- November 1, 2018 – Joe DeVol - The AASHTO committee on materials and pavements (COMP) chairman stated that none of its members had any experience with this concept and there are no procedures or practices available to support it. With the allowable tolerances for mix design volumetric properties such as 1.0% VMA and ± 1.5% Va any attempt to use test data from a mix design with borderline volumetric properties to predict the optimum binder content of a second mix design at a different gyration level introduces additional risk of failing material. The state materials lab will not be pursuing this process at this time. As an option to industry, the state materials lab has identified a way to reduce the costs by reducing the amount of material and testing if contractors submitted both 75 and 100 gyration mix designs at the same time. Wouldn't have to process at much aggregate, eliminates additional aggregate testing, etc.
- May 9, 2019 – Steve Davis said that the cost of doing 75 and 100 gyration mix designs on the same material simultaneously would reduce the cost of each mix design by $850, for a total savings of $1700. WSDOT stated

that Logan's proposal is not acceptable to WSDOT because it is not done by other state DOT's as far as we know, and is not provided for in AASHTO.

18-02 Using Lime as anti-strip

- April 26, 2018 – Dave Gent – Ran out of time today. Will bring up at next meeting (Attach #8)
- November 1, 2018 –Joe agreed to develop a spec or GSP for allowing use of Lime as an anti-strip additive.
- May 9, 2019 – Steve Davis provided a handout, attach 18-02, which provides for marinating stockpiles. This is WSDOT's preferred process. WAPA will review and get back to WSDOT before the next meeting.

18-03 Can there be an option to use PG70-22 in lieu of PG64-28?

- April 26, 2018 – Dave Bell - Ran out of time today. Will bring up at next meeting.
- November 1, 2018 – Dave Bell - This was proposed for use on bridge decks in Western WA, where a PG64-28 had been specified. Under current specifications the grade of binder for bridge decks would be a PG64H-28. Additional discussion may be needed to consider which grade(s) of binder will provide best performance based on the location within the state.
- May 9, 2019 – Dave Bell – Item closed.

18-04 Methyl Methracrylate stripes over temp stripes

- November 1, 2018 – There are potential maintenance concerns related to applying Methyl over temporary paint. Contractors noted inconsistencies in how PEO's interpret the specification. HQ Construction will review the issue and current spec to determine appropriate procedure and the potential need for spec modifications. WAPA proposed the following spec: 8-23.3(4)E – 2nd Paragraph, first sentence, suggested revision: "All temporary pavement markings that are required on the wearing course prior to construction of permanent pavement markings and are not a part of the permanent markings shall be completely removed concurrently with or immediately subsequent to the construction of the permanent pavement markings. The sole exception is that Temporary Pavement Marking Paint, applied as per 8-23.3(4)A1, that is properly located in the permanent marking configuration, can be overlain by permanent markings, if allowed by the manufacturer, in compliance with 8-22.3(5)."
- May 9, 2019 – Jon Deffenbacher – this is being discussed at AGC Roadway Team. Methyl striping manufacturers will not guarantee their product unless underlying striping is removed. Agreed to let the WSDOT/AGC Roadway Team take the ball on this item. Item closed.

18-05 Oscillatory Rollers on Bridge Decks

- November 1, 2018 – No discussion.
- May 9, 2019 – Dyer and Gent – This has been approved by the WSDOT HQ bridge office, and is in the current amendments. Therefore, it is allowed unless a plan sheet or special provision trumps. Item closed.

18-06 Stone Matrix Asphalt (SMA) Project

- November 1, 2018 – Devol - The Eastern Region has expressed interest in placing a SMA in 2019. The only project description we have right now is "I-90 Ritzville SMA Project."
- May 9, 2019 – SMA production paving has begun, and is reported to be going well. Item closed.

18-07 Contractor-Proposed Mix Design Changes

- November 1, 2018 – Class, Binder, Gyrations
- May 9, 2019 – Bob Dyer – This is the same item as 18-08. Close this item.

18-08 HMA Change Order Process

- November 1, 2018 – Defining limitations to ensure performance - Kurt and Joe discussed the use of either 75 or 100 gyration mix designs for minor quantity applications. Mark Russell explained that Olympic Region has been entering a value of 2 or 4 million ESALs so that either gyration mix came be used in these applications. Kurt and

Joe explained that there has been an increasing number of HMA change orders recently and that they are working with Construction and Pavement Offices to establish a systematic change order process that would define what can and can't be approved and make this process more efficient.

- May 9, 2019 –Attached is the handout from the last meeting (Attach 18-08). It will be added to the Construction Manual. Item closed.

NEW BUSINESS

19-01 Challenge Testing Uncompacted Void Test Results

May 9, 2019 – Questions raised, no decision made. Will WSDOT allow this at all? If so, will it be retroactive? Timeliness requirements? Should splits be routinely taken by the sampler so, if needed, WSDOT has challenge (i.e., retest) samples? What is the highest FAA result WSDOT has tested? How many other states use FAA for acceptance? On a side note, WSDOT agreed that its testers should be willing to share test results with the Contractor, as soon as the testing and calcs are complete, and before the test results are "approved" by a supervisor, with the understanding that the results are not official at that time, and are subject to change if an error is caught by WSDOT.

19-02 Changes to Standard Specs on Liquidated Damages for Contract Time

May 9, 2019 – Jon Deffenbacher – discussed where AGC/WSDOT Admin Team is headed with LD's. A worksheet will be done for each contract to determine the daily LD's. The contract will have a fill-in that merely stipulates what the daily rate is. Item Closed.

19-03 Research on Rolling Density Meter

May 9, 2019 – Jeff Uhlmeyer – update on research using ground penetrating radar for testing compaction. Jeff provided a handout showing the correlation between GPR and core densities, and photos of the prototype equipment (Attach 19-03). The technology has a way to go before we will see it on a WSDOT project. Item closed.

19-04 Alternate Mix Design Verification Proposal

May 9, 2019 – Ran out of time. Discuss at next meeting. (Attach 19-04)

19-05 DBE Changes

May 9, 2019 – Bob Dyer – Significant changes to the DBE spec will be seen in projects that go on ad after approximately June 1, 2019. These will affect trucking, retainage, bid item breakdown, training, etc. Item closed.

19-06 RAP Reset Study

May 9, 2019 – Dr. Steve Muench at the U of W is working on what is referred to as the "RAP Reset Study". It is hoped this research will identify "the right" RAP percentages. His testing should be complete in the fall of 2019.

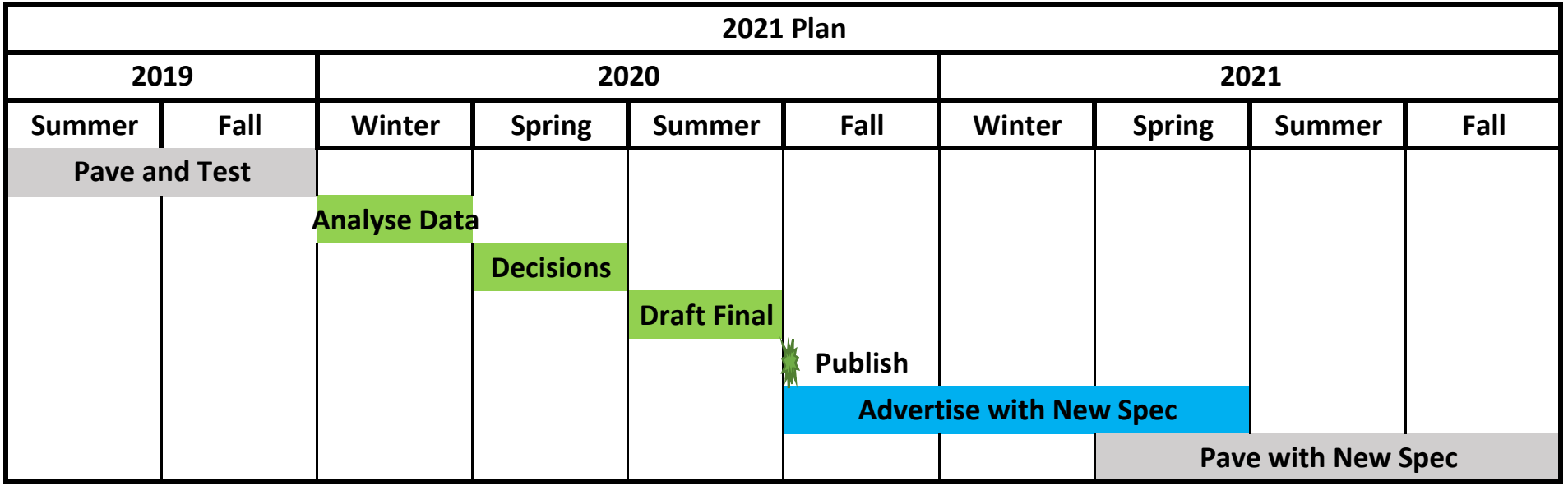
NEXT MEETING – No date set
November ?, 2019
9:00 AM – noon
North Bend

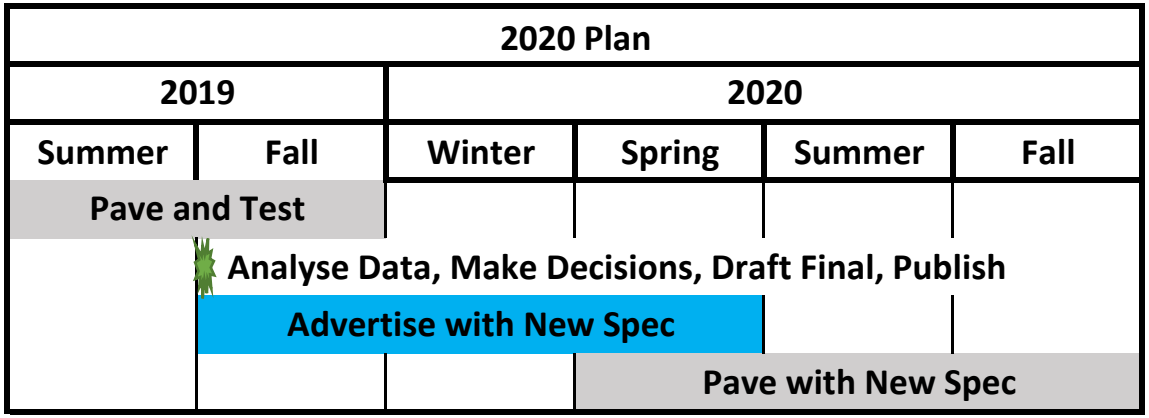
Attachment 16-13

5-04.2(1)A2 High RAP/Any RAS – Mix Design Submittals for Placement on QPL

For High RAP/Any RAS mix designs, comply with the following additional requirements:

1. For mix designs with any RAS, test the RAS stockpile (and RAP stockpile if any RAP is in the mix design) in accordance with Table 3.
2. For High RAP mix designs with no RAS, test the RAP stockpile in accordance with Table 3.
3. For mix designs with High RAP/Any RAS, construct a single stockpile for RAP and a single stockpile for RAS and isolate (sequester) these stockpiles from further stockpiling before beginning development of the mix design. Test the RAP and RAS during stockpile construction as required by item 1 and 2 above. Use the test data in developing the mix design, and report the test data to The Contracting Agency on WSDOT Form 350-042 as part of the mix design submittal for approval on the QPL. Account for the reduction in asphalt binder contributed from RAS in accordance with AASHTO PP 78. Isolated (Sequestered) ~~Do not add to these~~ stockpiles ~~after starting the mix design process~~ can only be added to after development of the mix design if tested in accordance with Table 3 and in compliance with 5-04.2(1)A2, steps 6 through 8.





Attachment 17-02

Attachment 18-02

DRAFT SPEC CHANGES TO ALLOW LIME AS ANTI-STRIP

5-04.3(3)A Mixing Plant

Equip mixing plants as follows:

1. **Use tanks for storage and preparation of asphalt binder which:**
   - Heat the contents by means that do not allow flame to contact the contents or the tank, such as by steam or electricity.
   - Heat and hold contents at the required temperatures.
   - Continuously circulate contents to provide uniform temperature and consistency during the operating period.
   - Provide an asphalt binder sampling valve, in either the storage tank or the supply line to the mixer.
2. **Provide thermometric equipment:**
   - In the asphalt binder feed line near the charging valve at the mixer unit, capable of detecting temperature ranges expected in the HMA and in a location convenient and safe for access by Inspectors.
   - At the discharge chute of the drier to automatically register or indicate the temperature of the heated aggregates, and situated in full view of the plant operator.
3. **When heating asphalt binder:**
   - Do not exceed the maximum temperature of the asphalt binder recommended by the asphalt binder supplier.
   - Avoid local variations in heating.
   - Provide a continuous supply of asphalt binder to the mixer at a uniform average temperature with no individual variations exceeding 25°F.
4. **Provide a mechanical sampler for sampling mineral materials that:**
   - Meets the crushing or screening requirements of Section 1-05.6.
5. **Provide HMA sampling equipment that complies with FOP for AASHTO T 168.**
   - Use a mechanical sampling device accepted by the Engineer, or
   - Platforms or devices to enable sampling from the truck transport without entering the truck transport for sampling HMA.
6. **Provide for setup and operation of the Contracting Agency's field testing:**
   - As required in Section 3-01.2(2).
7. **Provide screens or a lump breaker:**
   - When using any RAP or any RAS, to eliminate oversize RAP or RAS particles from entering the pug mill or drum mixer.
8. **Hydrated Lime Marination Treatment**
   - Wet cure the coarse aggregates with lime at a minimum rate of 1.00% of the mass of the dry aggregate. Wet cure the fine aggregate with lime at a minimum rate of 2.00% of the mass of the dry aggregate. Marinate (wet cure) the aggregate in stockpiles for a minimum of 48 hours. Fine aggregate stockpiles shall be defined as to have a minimum of 50% passing the No. 4 sieve. All other stockpiles shall be defined as coarse aggregate. Marinate stockpiles individually. Do not use the marination treatment process to combine stockpiles. Use the wet cured aggregate in stockpiles within 60 days. Protect stockpiles from weather events such as, but not limited to; rain, wind, and other weather events that will compromise the activated lime coating.
   - Before the introduction of the lime, add sufficient moisture by way of spray bars at the aggregate bins to bring the aggregate moisture content where enough free surface moisture is available to

thoroughly wet the aggregate and activate the lime.

- After the addition of water and lime, mix aggregate using horizontal twin-shaft pugmill with a minimum effective length of five feet.
- Use mixing paddles which are adjustable for angular position on the shaft to permit altering of the mixing pattern or retarding the flow to insure that the aggregate is thoroughly coated with lime.
- Do not extend the volume of material in the pugmill above the vertical position of the blade tips. Retard the flow of material through the pugmill by reversing a minimum of the last two rows of paddles or providing a material dam.
- Draw lime from a storage facility in which the lime is agitated by air or other means to keep it in a uniform free flowing condition. Deliver the lime to the mixer from a positive weighing device which is interlocked, (actuate electric driven feeders from the same circuit) to the flow of each aggregate feed. Equip the lime feeder to provide a continuous uniform flow to within 5% of the required amount.
- Calibrate the lime feeder at two different speeds (the lowest and highest speed of the anticipated operation) in relation to the speed of the aggregate feed. Use a target 1% lime for low speed tons per hour and 2% lime for high speed tons per hour. Provide an approved calibrated scale or weigh metering device to determine the actual mass of lime for each test. Furnish a test box having a sufficient capacity to perform the calibration testing. Calibrate the lime feed so the masses show on the metering device are within ± 5% of the weighed mass.

5-04.3(5) Producing/Stockpiling Aggregates, RAP, & RAS

Produce aggregate in compliance with Section 3-01. Comply with Section 3-02 for preparing stockpile sites, stockpiling, and removing from stockpile each of the following: aggregates, RAP, and RAS. Provide sufficient storage space for each size of aggregate, RAP and RAS. Fine aggregate or RAP may be uniformly blended with the RAS as a method of preventing the agglomeration of RAS particles. Remove the aggregates, RAP and RAS from stockpile(s) in a manner that ensures minimal segregation when being moved to the HMA plant for processing into the final mixture. Keep different aggregate sizes separated until they have been delivered to the HMA plant. When hydrated lime is required by use of the marination treatment, the aggregates shall be stockpiled in accordance with Section 5-04.3(3)A.

9-02.4 Anti-Stripping Additive

Liquid ~~A~~anti-stripping additive shall be a product listed in the current WSDOT Qualified Products List (QPL).

Hydrated lime, when used in HMA as an anti-strip additive shall conform to the requirements of either AASHTO M 303 Type I or ASTM C1097.

Attachment 18-08

Change Order Approval Process for HMA Substitutions:

Challenge:

Need to consistently and systematically approach this issue so that:

1. Consistent on approvals throughout the state (HQ, Region and PEO),
2. Use correct materials to ensure performance,
3. Consistent with the cost associated with change orders,
4. Avoid unintentional precedents and potential unfair bidding advantage,
5. Involve the right people in the approval process.

Guidelines for Approving HMA Change Order Requests:

- Change orders allow substitution, but do not guaranty mix design approval!

What should be asked and answered before processing a change order:

1. What Class, ESAL Level (gyration) and grade of binder does the contract require?
2. What Class, ESAL Level (gyration) and grade of binder is being proposed?
3. Are there any special provisions that need to be considered?
4. What is the plan tonnage of HMA required?
5. Where is the HMA to be placed? Is it structure, leveling, repair, etc.?
6. What is the risk of using a mix design that does not meet the contract requirements? (Pavements & Materials)
7. How much time has the contractor had between award and proposal of change order?
8. What is the anticipated date of paving?

Un-acceptable Change Order Criteria:

1. A contract that specifies a 100 gyration (> 3 mil. ESAL) asphalt mix design and a proposed change to use of a 75 gyration (< 3 mil. ESAL) mix design.
2. On a contract that specifies a PG “V” grade binder and a proposed change to use of a PG “H” grade asphalt binder.

3. Modifications to an approved QPL mix design such as increase or decrease to the binder content, require a test section, etc.
4. HMA contract plan quantities exceeding 1000 tons, meet contract requirements.

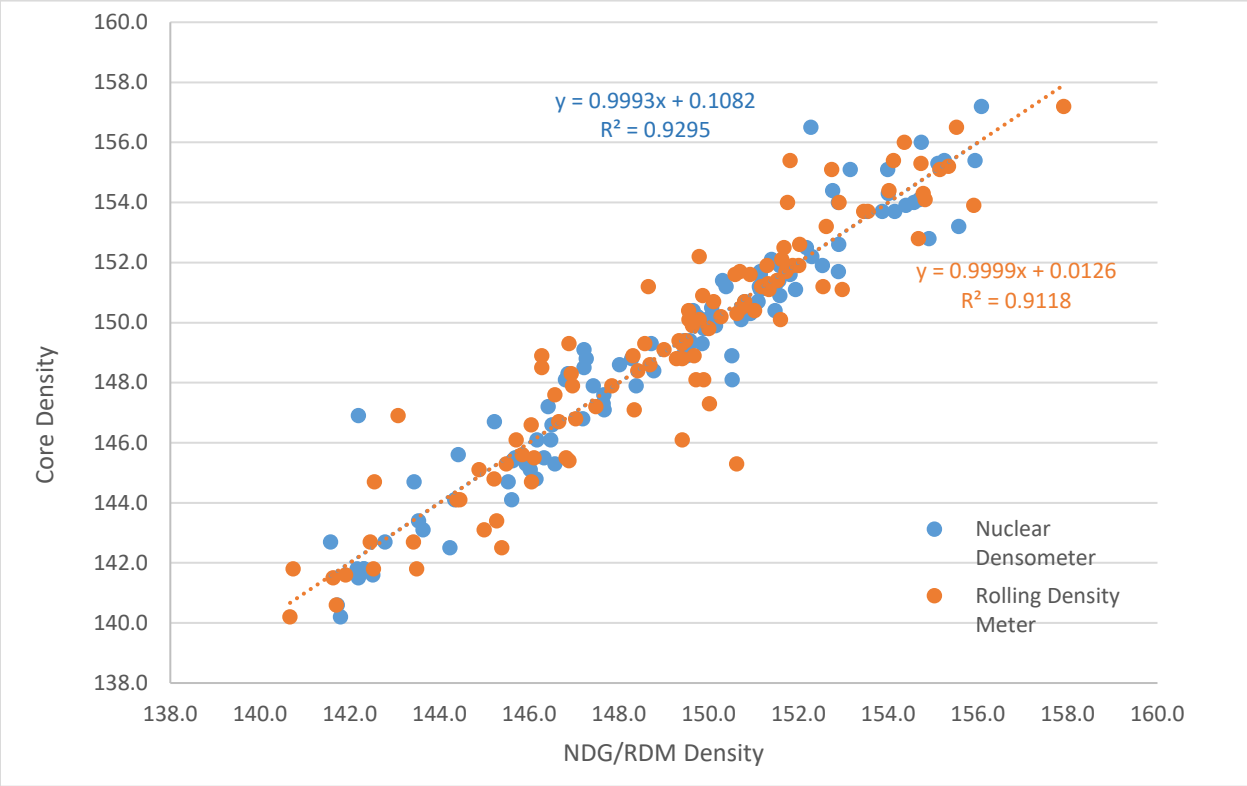
Potentially Acceptable Change Order Criteria:

1. A contract that specifies a 75 gyration (< 3 mil. ESAL) asphalt mix design and a proposed change to use of a 100 gyration (> 3 mil. ESAL) mix design
2. A contract that specifies a PG "H" grade binder and a proposed change to use of a PG "V" grade asphalt binder.
3. HMA contract plan quantity of 1000 tons or less.

Who Should be Involved in Deciding if a Change Order is Acceptable?

1. Project Engineer, Region Materials Engineer and HQ Construction Office; need to discuss what the contract requires and the proposed change to the contract?
2. Consult Pavement Design for structural assessment; go or no go?
3. Consult Construction Materials for mixture specific details on HMA mix design questions and to assist with determining if the proposed material change will meet performance and service life criteria.
4. If the answers to any questions 1 – 3 are No, or concerns are identified:
    - The contractor needs to use approved mix design that meets the original contract requirements.
5. If the answer to all the three questions above are yes:
    - Then a change order could be processed to allow the alternative mix design from the QPL.

Attachment 19-03




GSSI

Attach 19-04

Alternate Design Verification Proposal – 5/8/2019 Improving HMA Committee New Business

STATEMENT OF NEED: Due to the cost and potential project scheduling problems a failed HMA mix design can cause, a second way of verification for mix designs is needed. This is meant to help mix designs pass that are "on the line" and not designs that are failing far out of specification or any design the fails in any perimeter other than air voids.

PROPOSAL: If a design fails verification due to air voids being out of the 2.5 – 5.5% acceptance range, a change to the JMF will be triggered using the following table:

Va Range	Pb Change
2.0 – 2.25	-0.2%
2.25 – 2.5	-0.1%
5.5 – 5.75	+0.1%
5.75 – 6.0	+0.2%

The optimum point, Hamburg test and the IDT test will then be run with the altered binder percentage in order to verify conformance to all other specifications. If the adjusted mix passes, the mix is verified using the altered percent binder.

This is a logical step to help solve one of the most common reasons for mix designs failures. The altered mix design would be validated and proven to be a well performing mix by passing the performance tests. The validated mix would be manufactured in conformance to the new JMF..