



**Improving HMA, Bullfrog - May 9, 2014
Meeting Minutes**

Present	Name	Company	Present	Name	Company	Present	Name	Company
X	Bell, Dave	Lakeside	X	Dyer, Bob	WSDOT	X	Pederson, Chris	CTL
X	Berg, Kirk	WSDOT	X	Ellis, Susan	FHWA	X	Sarhan, Anthony	FHWA
X	Carpenter, Jeff	WSDOT	X	Erickson, Dave	WSDOT	X	Schneider, Glenn	WSDOT
X	Clayton, E. J.	Granite	X	Gent, David	ICON	X	Shearer, Tim	Miles
X	Dempsey, Bill	Lakeside	X	Hill, Kentin	Granite	X	Uhlmeier, Jeff	WSDOT
X	DeVol, Joe	WSDOT				X	Williams, Kurt	WSDOT

Anthony Sarhan, FHWA, announced today is his last meeting and introduced his committee replacement, Susan Ellis.

OLD BUSINESS

- 1) Proposal to use electronic tickets – Kirk Berg provided a handout summarizing two possible ways to get the WSDOT ticket taker out of the danger zone: (1) Transponders on trucks, or (2) Contractor scaleman posting scale data to a WSDOT-accessible ftp site. (attachment #1).
- 2) Volumetric measurement and payment for HMA – Kirk Berg Provided a handout of a volumetric meas/pay spec which incorporates lessons learned from his pilot project. (attachment #2)
- 4) High RAP/RAS update - 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.
- 5) Intelligent Compaction Demonstration Project – Status Report -A WSDOT pilot project has been awarded to Granite wherein FHWA provides two “intelligent” rollers to be used by the contractor for HMA compaction. Each roller collects data for mat temp, drum rebound, and roller coverage. The roller coverage data is accurate to about ½ inch and provides real time feedback to the roller operator which has been shown to greatly improve consistency of compaction. Contract is SR539: Lynden-Aldergrove Port of Entry Improvements.
- 6) Proposal for New Sub-committee on Recycled Materials(base course, top course, etc) No activity has taken place on this sub-committee; they need to review specifications and look at performance based specifications.

NEW BUSINESS

- 14-01 Sunset dates for some HMA specs
- a) Hamburg & IDT by WSDOT - The agreement between WSDOT and WAPA is to use the GSP to allow submittal of the mix design without Hamburg or IDT data on projects advertised through September 30th 2014 – meaning that projects advertised on and after October 1, 2014 will require contractors to generate and submit Hamburg and IDT data with their mix design.
 - b) Pay for anti-strip – Currently a GSP provides that payment for anti-strip is by invoice, like we have done for decades. This method of payment for anti-strip will end on jobs advertised after June 30, 2014. At that time the GSP will be eliminated and the 2014 Standard Spec will obtain - anti-strip will be bid as incidental to the HMA.
- 14-02 Core Density Spec Proposal – Kurt Williams and Dave Erickson presented a draft proposal to give the WSDOT Project Engineer the added option of accepting HMA density by requiring the Contractor to take cores. (attachment #3)
- 14-03 Proposal to Change Test Lot Sizes: Kurt Williams is developing a proposal to do the following. No objections raised at this time.
- a) Change density testing from 80 tons to 100 tons
 - b) Change volumetric testing from 800 tons to 1000 tons
- 14-04 QPL Mix Designs
Kurt explained that WSDOT is working on putting approved mix designs on the QPL. This will mean that mix designs are good for two years instead of one. Industry members seemed to support this idea.
- 14-05 QA Testing Plan Development on Design-Build (Williams)

Improving HMA

May 9, 2014

Page 2 of 22

14-06 Reference Mix Designs – Joe DeVol will develop a draft spec change that will give WSDOT the ability to stop or reject the use of reference mix designs when production data (from another project) shows it is not meeting specification.

14-07 to 14-11 See Action Items

ACTION ITEMS

ITEM	ACTION ITEM	WHO	STATUS
13-01	Distribute last 3 yrs of Hamburg data for all, to all	Joe DeVol	Done
13-02	Reconsider the anti-strip requirements for temporary HMA	Dave E	Done
13-04	Develop a proposal to eliminate Scaleman's Daily Report	Dave Bell	In Progress
13-05	Review WMA certification paperwork and try to streamline	Bob Dyer	In Progress
13-06	Develop proposal for electronic tickets (instead of paper)	Gent/Berg	Done
13-06a	Discuss draft electronic tickets spec with FHWA	Bob Dyer	In Progress
13-06b	Use new electronic ticket spec in a contract	Kirk Berg	Waiting on Spec
13-07	Develop proposal for use on "far away" projects to use hopper weights for scale checks in lieu of current process.	Schofield, Dempsey, Erickson	In Progress
13-08	Revise spec for volumetric measurement of HMA based on lessons learned from pilot project. Include instructions for use describing type of projects the spec is appropriate for	Kirk Berg	Need Instructions on when appropriate
13-09	Review 5-04.3(3)A to possibly expand the PE authority to delete the MTD/V requirement in areas not listed.	Dave Erickson	Done
14-02	Continue development of draft spec to allow the use of cores for density acceptance	Erickson	
14-03	Draft spec to modify test lot size	Williams	
14-04	Put approved mix designs in the QPL	Williams	
14-06	Draft spec change for reference mix designs that will give WSDOT the ability to stop or reject the use of reference mix designs when production data (from another project) shows it is not meeting specification.	DeVol	
14-07	Draft Spec to eliminate the requirement for anti-strip in temporary pavement	Erickson	
14-08	Draft spec to allow temp HMA to be commercial		
14-09	Draft spec to allow commercial mix to reference an existing mix	Dyer/Bell	
14-10	As a supplement to action item 13-04, draft spec to eliminate the requirement for scaleman's daily report on jobs with small quantities.	Bell	
14-11	Look at recycled specs and summarize	Dyer	

Attach #1

HMA Task Force Meeting Electronic Scale Ticket Options May 9, 2014

The team met Tuesday and came up with a couple options for electronic receipt of HMA scale tickets

1. Transponders on HMA trucks with a reader in the field.
2. Contractor posting scale data to a FTP site for WSDOT access.

Transponder Option

Douglas Deckert was a contact for the transponder option.

Douglas L. Deckert

CVISN Systems Architect

Work - 360-705-7364

Cell - 360-561-6360

Doug noted that for our purposes, HMA trucks could have a radio frequency ID tag placed on their vehicle. A reader in the field could identify the tag frequency once the truck arrived. Doug estimated the readers are in the \$3 -5 K range and could read the tags from +/- 60 – 75'. He noted there are others readers that could read up to 900'. No price estimate for these readers.

Doug also noted that the contractor's scale information could be interfaced into a WSDOT intranet site. This information could be accessed by anybody within WSDOT. WSDOT field personnel would have access to the HMA information once the truck is weighed at the plant. Software would be required. Doug also noted there are already many trucks within their system with a tag ID. All electronic scale ticket information could be accessed, and once verified in the field, be used for payment.

Doug noted most of the systems and infrastructure to use this method is already in place. Todd Daley is a resource in the SCR for software implementation.

The FTP Option

WSDOT would provide the contractor with a FTP site to post scale ticket information. The contractor would place all required scale ticket information into a spreadsheet to this site every (XX) trucks or (X) hour. The inspector in the field could monitor the delivery of the trucks and add the appropriate field information necessary for payment. After final field verification of the HMA delivered to the project by WSDOT and the contractor, the office could then use this information for payment.

For both systems, the scale ticket information required by Standard Specification 1-09.2(1), Trucks & Tickets would remain.

Attach #2

HMA Task Force Meeting Bullfrog May 9, 2014
HMA Measurement by the Cubic Yard (volume) Discussion Topic
K. Berg

HMA CI. ____ will be measured by the cubic yard for the completed pavement. The volume will be determined from measurements taken as listed below.

1. The width measurement will be the width of pavement shown in the Plans, staked by the Engineer, or as specified in writing by the Engineer.
2. The length will be measured along the center of each roadway or ramp.
3. The depth will be determined from reference cores (taken by the Engineer or Contractor). The depth utilized to calculate the volume shall not exceed the plan depth plus 0.02 foot.

The volume of the pavement section represented by the reference cores shall equal the measured length X width X average referenced core depths.

For discussion:

A: How to address unconfined joints? Edge compression needs to be addressed.

B: How many cores should be taken per lineal foot of pavement measured? One every 1000 L.F.?

C: Core depths less than Plan. Depths 0.02 foot less than plan accept as is and use in average depth calculation. Depths more than 0.02 foot to 0.04 less than plan, establish a price adjustment factor. (0.03 foot would be a 20% price reduction, 0.04 would be a 30% reduction) More than 0.04 foot less than plan, remove and replace.

D: Surface Irregularities in the existing or planed roadway surface exceeding 0.03 foot will be addressed by the Engineer prior to paving.

*Red spec
base courses v. wearing course
cores over plan depth
Kirk needs to write the instructions*

A Hach #3

5-04.3(10) Compaction

5-04.3(10)A General

Immediately after the HMA has been spread and struck off, and after surface irregularities have been adjusted, the mix shall be thoroughly and uniformly compacted. The completed course shall be free from ridges, ruts, humps, depressions, objectionable marks, and irregularities and shall conform to the line, grade, and cross-section shown in the Plans. If necessary, the JMF may be altered in accordance with Section 9-03.8(7) to achieve desired results.

Compaction shall take place when the mixture is in the proper condition so that no undue displacement, cracking, or shoving occurs. Areas inaccessible to large compaction equipment shall be compacted by mechanical or hand tampers. Any HMA that becomes loose, broken, contaminated, shows an excess or deficiency of asphalt, or is in any way defective, shall be removed and replaced with new hot mix that shall be immediately compacted to conform to the surrounding area.

The type of rollers to be used and their relative position in the compaction sequence shall generally be the Contractor's option, provided the specified densities are attained. An exception shall be that pneumatic tired rollers shall be used for compaction of the wearing course beginning October 1st of any year through March 31st of the following year. Coverages with a ~~vibratory or~~ steel wheel roller may precede pneumatic tired rolling. Unless the Project Engineer has approved otherwise, ~~vibratory~~ rollers shall not only be operated in the ~~vibratory static~~ mode when the internal temperature of the mix is less than 175°F. Regardless of mix temperature, a ~~vibratory~~ roller shall not be operated in a ~~vibratory mode~~ when that results in checking or cracking of the mat ~~occurs~~. Rollers shall only be operated in static mode on bridge decks.

5-04.3(10)B Control

5-04.3(10)B1 General

HMA mixture accepted by statistical or nonstatistical evaluation that is used in traffic lanes, including lanes for ramps, truck climbing, weaving, and speed change, and having a specified compacted course thickness greater than 0.10-foot, shall be compacted to a specified level of relative density. The specified level of relative density shall be a Composite Pay Factor (CPF) of not less than 0.75 when evaluated in accordance with Section 1-06.2, using a minimum of 91 percent of the reference maximum density as determined by WSDOT FOP for AASHTO T 209. The specified level of density attained will be determined by the statistical evaluation of the density of the pavement tests

Tests for the determination of the pavement density will be taken in accordance the required procedures for measurement by a nuclear density gauge or roadway cores.

If the Agency elects to use a nuclear density gauge with the test procedures for FOP for WAQTC TM 8 and WSDOT SOP T 729 on the day the mix is placed (after completion of the finish rolling) will be used.

The Agency may elect to use roadway cores for determining density of HMA in lieu of using nuclear density gauges when quantities of HMA are less than 2400 tons. If the Agency elects to use cores, the random roadway core sampling of HMA will be determined by the Agency in accordance with WSDOT Test Method T 716. Roadway core samples used for acceptance of HMA compaction by the Contracting Agency shall be obtained by the Contractor when ordered by the Engineer on the same day the mix is placed (after completion of the finish rolling). The Contractor shall take the roadway cores in the presence of the Engineer and in accordance with WSDOT SOP 734. The roadway cores will be tested by the Contracting Agency in accordance with WSDOT FOP for AASHTO T 166. The Contractor's direct costs for coring will be paid for in accordance Section 1-09.6 Force Account; costs for all other Work associated with the coring (e.g., traffic control) shall be incidental and included within the unit Bid prices in the Contract and no additional payment will be made.

A lot is represented by randomly selected samples of the same mix design that will be tested for acceptance with a maximum of 15 sublots per lot; the final lot for a mix design may be increased to 25 sublots. Sublots will be uniform in size with a maximum of approximately 80 tons per subplot; the final subplot of the day may be increased to 120-tons. The subplot locations within each density lot will be determined by the stratified random sampling procedure conforming to WSDOT Test Method T 716. For a lot in progress with a CPF less than 0.75, a new lot will begin at the Contractor's request after the Project Engineer is satisfied that material conforming to the Specifications can be produced.

HMA mixture accepted by commercial evaluation and HMA constructed under conditions other than those listed above shall be compacted on the basis of a test point evaluation of the compaction train. The test point evaluation shall be performed in accordance with instructions from the Project Engineer. The number of passes with an approved compaction train, required to attain the maximum test point density, shall be used on all subsequent paving.

HMA for preleveling shall be thoroughly compacted. HMA that is used for preleveling wheel rutting shall be compacted with a pneumatic tire roller unless otherwise approved by the Engineer.

5-04.3(10)B4 Test Results

The ~~nuclear moisture density gauge~~ results of all compaction acceptance testing and the CPF of the lot after three sublots have been tested will be available to the Contractor through WSDOT's website. Determination of the relative density of the HMA with a nuclear moisture-density gauge requires a correlation factor and may require resolution after the correlation factor is known. Acceptance of HMA compaction will be based on the statistical evaluation and CPF so determined.



**Improving HMA, Bullfrog – October 9, 2014
Meeting Minutes**

Present	Name	Company	Present	Name	Company	Present	Name	Company
X	Bell, Dave	Lakeside	X	DeVol, Joe	WSDOT	X	Pederson, Chris	CTL
X	Carpenter, Jeff	WSDOT	X	Dyer, Bob	WSDOT		Sarhan, Anthony	FHWA
X	Brickey, Bill	Granite		Ellis, Susan	FHWA	X	Schneider, Glenn	WSDOT
X	Chapman, Josh	Granite	X	Erickson, Dave	WSDOT		Shearer, Tim	Miles
	Clayton, E. J.	Granite	X	Gent, David	WAPA		Uhlmeier, Jeff	WSDOT
X	Costello, Mike	Pyramid Materials	X	McDuffee, Steve	Watson	X	Williams, Kurt	WSDOT
	Dempsey, Bill	Lakeside	X	Morgan, T.J.	Inland Asphalt			

OLD BUSINESS

12-01 Streamline WMA certification paperwork

- October 26, 2012 - TJ Morgan requested WSDOT consider. Bob Dyer agreed to follow up.
- October 9, 2014 – Update from Bob Dyer – Nothing to report

13-01 Consider eliminating Scalemans’ Daily Report:

- May 9, 2013 - Industry suggested eliminating this report owing to improvements in technology. It was agreed that industry would propose an alternative (Dave Bell was volunteered to take the lead). Anthony Sarhan suggested that any alternate process should address the original intent, which was to guard against the possibility of fraud.
- October 9, 2014 – Dave Bell said they have a Direct Fed project that does not require scale certs. Jeff Carpenter commented that Direct Federal follows the FAR and have different rules than FHWA fed-aid projects. Bob Dyer stated that industry has the lead on this item and they need to submit a written proposed change to the Standard Specifications and Construction Manual for WSDOT to consider.

13-02 Proposal to eliminate anti-strip in temp HMA

- November 8, 2013 – Topic first discussed
- May 9, 2014 – Dave Erickson agreed to draft a spec.
- October 9, 2014 – Dave Erickson provided a draft spec. (See Attachment #0). All present seemed to support proceeding with the change. Next step – Dave Erickson to issue the official GSP. *Update as of November 18: Comments were due to Dave by the end of October and none were received. So the change has been approved for January 2015 amendments.*

13-03 Volumetric Measurement and Payment of HMA

- November 8, 2013 - Topic brought up by Kirk Berg. NC Region will use a spec on a pilot project.
- May 9, 2014 - Kirk Berg Provided a handout of a volumetric meas/pay spec which incorporates lessons learned from his pilot project. (attachment #2 from that meeting)
- October 9, 2014 – Discussed next step. This could be used in the future as a method of payment for a project similar to the pilot but no work underway to develop a specification at this time.

13-06 Proposal to use electronic weight tickets

- May 9, 2013 – Topic first discussed.
- May 9, 2014 - Kirk Berg provided a handout summarizing two possible ways to get the WSDOT ticket taker out of the danger zone: (1) Transponders on trucks, or (2) Contractor scalemans posting scale data to a WSDOT-accessible ftp site. Bob Dyer agreed to have follow-up discussion with FHWA.
- October 9, 2014 –Bob Dyer reported that FHWA is willing to consider either approach. Discussion - Agreed to table this item at this time. That’s because the current work-around is for the WSDOT inspector, from off the roadway, to “log” the time of arrival and truck number without actually taking tickets as the trucks arrive, then collect all tickets at the end of the day and cross-check their authenticity against the “log”. This approach effectively gets the ticket taker out of harm’s way, thus achieving the goal. Dyer to write up for Construction Manual and FHWA approval.

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 – This subcommittee met on September 25th, industry members proposed increasing the percentage of RAP to 25% with no changes, 25% - 30% with a one grade reduction in the grade of binder and use of current GSP for quantities greater than 30% RAP. WSDOT proposed consideration of using the nationally supported specifications; 0 – 15% RAP with no changes, 15% - 25% with a one grade reduction in the grade of binder and use of current GSP for greater than 30% RAP and any RAS. It was agreed that both industry and agency members would collect reclaimed binder test data to determine if there was enough consistency in these materials (statewide) to support a systematic approach to using an increased quantity of RAP with a reduced grade of binder. Additional comments focused on true or actual grade of binders; stockpile management; and the challenge of acquiring new asphalt binders that can meet the elastic recovery specifications with high RAP.

13-08 Intelligent Compaction Demonstration Project

- Status Report -A WSDOT pilot project has been awarded to Granite wherein FHWA provides two “intelligent” rollers to be used by the contractor for HMA compaction. Each roller collects data for mat temp, drum rebound, and roller coverage. The roller coverage data is accurate to about ½ inch and provides real time feedback to the roller operator which has been shown to greatly improve consistency of compaction. Contract is SR539: Lynden-Aldergrove Port of Entry Improvements.
- October 9, 2014 –Bob Dyer reported that the work is done, tons of data gathered. Waiting on final report from FHWA. Item closed.

13-09 Sub-committee on General Use of Recycled Materials

- May 9, 2013 – Tim Shearer proposed a new subcommittee to investigate recycling materials beyond HMA, to possibly include base course, top course, etc.
- May 9, 2014 - No activity has taken place on this sub-committee; they need to review specifications and look at performance based specifications.
- October 9, 2014 – Tabled at this time.

13-10 Use of hopper weights for scale checks in lieu of current process.

- May 9, 2013 – Topic raised by industry. Concept is to develop a proposal for use on “far away” projects
- October 9, 2014 – Update from Schofield, Dempsey – Nothing reported. it was noted that there may be interest by AGC.

13-11 Consider expanding PE authority to delete the MTD/V requirement in areas not listed

- May 9, 2013 – Issue brought up by industry. Need to review 5-04.3(3)A to possibly expand the PE authority to delete the MTD/V requirement in areas not listed.
- October 9, 2014 – Dave Erickson provided a draft of the proposed spec change. See Attachment #1. General consensus is that it looks good. Standard Specs will be modified accordingly. Item closed.

14-01 Sunset dates for some HMA specs

- 2013 - Hamburg & IDT test done by contractor instead of by WSDOT - The agreement between WSDOT and WAPA is to use the GSP to allow submittal of the mix design without Hamburg or IDT data on projects advertised through September 30th 2014 – meaning that projects advertised on and after October 1, 2014 will require contractors to generate and submit Hamburg and IDT data with their mix design.
- May 9, 2013 - Pay for anti-strip to become incidental – Currently a GSP provides that payment for anti-strip is by invoice, like we have done for decades. This method of payment for anti-strip will end on jobs advertised after June 30, 2014. At that time the GSP will be eliminated and the 2014 Standard Spec will obtain - anti-strip will be bid as incidental to the HMA.
- October 9, 2014 – Hamburg IDT – One contractor expressed concerns that they are seeing repeatability-of-test-result-problems with Hamburg and IDT when comparing WSDOT test results to other labs’ results when testing the same material.

Sunset date discussion -Dave Erickson said that he agreed to leave the responsibility and cost-responsibility for Hamburg and IDT testing as it is in current contracts for the time being, meaning that the contractor can either have a private lab do the tests for mix design, or have WSDOT do the tests and contractor to reimburse WSDOT \$2500 per Hamburg/IDT. Item closed.

- October 9, 2014 – Pay for Anti-Strip - Dave Erickson reported that all contracts that went on ad after July 1, 2014 have anti-strip paid as incidental and included in the price for HMA. There is always the possibility that a project or two slips through the cracks. Item closed.

14-02 Cores for Density Acceptance Proposal

- May 9, 2014 - Kurt Williams and Dave Erickson presented a draft proposal to give the WSDOT Project Engineer the added option of accepting HMA density by requiring the Contractor to take cores.
- October 9, 2014 –Dave Erickson reported that all jobs that went on ad after August 4, 2014 include Amendment to Std Spec 5-04.3(10)B1 (attachment #2) which provides the option for WSDOT to require cores in lieu of the nuclear density gauge.

14-03 Proposal to Change Test Lot Sizes

- May 9, 2014 - Kurt Williams is developing a proposal to do the following: 1. Change density testing from 80 tons to 100 tons. 2. Change volumetric testing from 800 tons to 1000 tons. No objections raised at this time.
- October 9, 2014 – Kurt Williams reported that the change is not implemented yet, but should make the January 2015 amendment package. Item closed.

14-04 QPL Mix Designs

- May 9, 2014 - Kurt explained that WSDOT is working on putting approved mix designs on the QPL. This will mean that mix designs are good for two years instead of one. Industry members seemed to support this idea.
- October 9, 2014 – Kurt Williams reported that he will have a draft spec out by the end of October. *Update as of November 18, 2014 – This change will be delayed per WAPA request to provide for additional discussion time.*

14-05 QA Testing Plan Development on Design-Build

- May 9, 2014 – Williams
- October 9, 2014 – Kurt Williams reported that in the near future QA testing of HMA will be assigned to the contractor on DB contracts. WSDOT is in the process of implementing WAQTC certification of all its employee testers by January 2018. WAQTC certification will be required at some point for contractor's testers, but no exact date is set, and no date is set for the industry WAQTC requirement at this point. The first priority is to Implement WAQTC within WSDOT. Item closed.

14-06 Reference Mix Designs

- May 9, 2014 - Joe DeVol will develop a draft spec change that will give WSDOT the ability to stop or reject the use of reference mix designs when production data (from another project) shows it is not meeting specification.
- October 9, 2014 –Joe DeVol reported the new spec will be included in amendment package for QPL mix design process planned for April 2015 amendment package.

14-08 Draft spec to allow temp HMA to be commercial

- October 9, 2014 – It was pointed out that the Standard Specs already allow temporary HMA to be commercial. See the fourth paragraph of 5-04.3(8)A1. Item closed.

14-09 Allow Commercial HMA to reference an existing mix

- October 9, 2014 – The spec currently allows this. When reading 5-04.3(7)A3 together with 5-04.3(7)A1, submit form 350-041 (Request for Reference HMA Mix Design) along with form 350-042 (HMA Mix Design Submittal). Item closed.

14-10 Eliminate scaleman's daily report on small quantity jobs.

- May 9, 2014 – Initiated by Dave Bell
- October 9, 2014 –Dave Bell reported that he is working on a draft spec.

NEW BUSINESS

14-11 HMA on Bridges – Grinding, surveying, profile, density – update

- October 9, 2014 - Dave Erickson reported that the spec is being re-written, and he will distribute to industry for comment when the draft is complete.

14-12 Pavement smoothness spec (IRI) changes for HMA

- October 9, 2014 – A draft of a proposed, revised spec was provided (attachment #3) for industry review and comment. Industry feedback is that the report, in the past, should better identify exactly where problem spots are – reference markings on the roadway are usually gone, and so they need help in interpreting the location data. Update as of November 18, 2015 - . A GSP has been approved for January 2015.

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 WSDOT test results. WSDOT responded that it is part of superpave.

14-14 RAP/RAS GSP update

- October 9, 2014 – WSDOT reported that the GSP will be converted to an Amendment to the Standard Specs for jobs that go on ad April 2015 and thereafter. Item closed.

14-15 Random core locations

- October 9, 2014 – Dave Gent requested that WSDOT notify the contractor when results are posted, noted that contractors are having difficulty getting access to the results, and something about 24 hour notice. Also, it was asked if as part of SAM can random core location numbers be posted for review. The Answer from WSDOT was no, because randomness is not well documented.

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.

14-17 Hamburg designs being rejected after the passing the 15k cycles specified

- October 9, 2014 – Industry voiced a concern that the WSDOT was declaring failing Hamburg’s in some instances where the testing met specs up to the required limit of 15,000 cycles. WSDOT responded that we are doing the test properly – in some cases it is necessary to go beyond 15k cycles in order to generate enough data to plot both lines required to find the required intersection, which if plots at less than 15K represents a failing test.

14-18 WSDOT Instructional Letter: “Bituminous Pavement Asset Management” (attachment #4)

- October 9, 2014 – Jeff Carpenter summarized this document for the group. Item closed.

NEXT MEETING – May 8, 2015

5-04.3(20) Anti-Stripping Additive

Anti-stripping additive shall be added to the liquid asphalt by the asphalt supplier prior to shipment to the asphalt mixing plant. ~~For HMA accepted by statistical and nonstatistical evaluation the anti-stripping additive shall be added in the amount designated in the WSDOT mix design/anti-strip evaluation report provided by the Contracting Agency. For HMA accepted by commercial evaluation the Project Engineer will determine the amount of anti-strip to be added;~~ Paving shall not begin before the anti-strip requirements have been provided to the Contractor. Anti-strip is not required for temporary work that will be removed prior to Completion.

5-04.3(3)A Material Transfer Device/Vehicle

Direct transfer of HMA from the hauling equipment to the paving machine will not be allowed in the top 0.30 feet of the pavement section of hot mix asphalt (HMA) used in traffic lanes with a depth of 0.08 feet or greater. A material transfer device or vehicle (MTD/V) shall be used to deliver the HMA from the hauling equipment to the paving machine. HMA for prelevel, pavement repair, or HMA placed in irregularly shaped and minor areas such as road approaches, tapers, and turn lanes are excluded from this requirement. At the Contractor's request the Engineer may approve paving without an MTD/V; the Engineer will determine if an equitable adjustment in cost or time is due.

The MTD/V shall mix the HMA after delivery by the hauling equipment and prior to laydown by the paving machine. Mixing of the HMA shall be sufficient to obtain a uniform temperature throughout the mixture. If a windrow elevator is used, the length of the windrow may be limited in urban areas or through intersections, at the discretion of the Project-Engineer.

1 **Section 5-04, Hot Mix Asphalt**
2 **August 4, 2014**

3 **5-04.3(7)A3 Commercial Evaluation**

4 The second sentence in the first paragraph is revised to read:

5
6 Mix designs for HMA accepted by commercial evaluation shall be submitted to the
7 Project Engineer on WSDOT Form 350-042.
8

9 **5-04.3(10)A General**

10 In the first paragraph, "checking" and "cracking" are deleted.

11
12 In the third paragraph, the following new sentence is inserted after the second sentence:

13
14 Coverage with a steel wheel roller may precede pneumatic tired rolling.
15

16 In the third paragraph, the following new sentence is inserted before the last sentence:

17
18 Regardless of mix temperature, a roller shall not be operated in a mode that results in
19 checking or cracking of the mat.
20

21 **5-04.3(10)B1 General**

22 In this section, "Project Engineer" is revised to read "Engineer".

23
24 The first paragraph is revised to read:

25
26 HMA mixture accepted by statistical or nonstatistical evaluation that is used in traffic
27 lanes, including lanes for ramps, truck climbing, weaving, and speed change, and
28 having a specified compacted course thickness greater than 0.10-foot, shall be
29 compacted to a specified level of relative density. The specified level of relative density
30 shall be a Composite Pay Factor (CPF) of not less than 0.75 when evaluated in
31 accordance with Section 1-06.2, using a minimum of 91 percent of the maximum
32 density. The percent of maximum density shall be determined by WSDOT FOP for
33 AASHTO T 729 when using the nuclear density gauge and WSDOT SOP 736 when
34 using cores to determine density. The specified level of density attained will be
35 determined by the statistical evaluation of the density of the pavement.
36

37 The following four new paragraphs are inserted after the first paragraph:
38
39 Tests for the determination of the pavement density will be taken in accordance the
40 required procedures for measurement by a nuclear density gauge or roadway cores
41 after completion of the finish rolling.
42
43 If the Contracting Agency uses a nuclear density gauge to determine density the test
44 procedures FOP for WAQTC TM 8 and WSDOT SOP T 729 will be used on the day the
45 mix is placed.
46
47 Roadway cores for density may be obtained by either the Contracting Agency or the
48 Contractor in accordance with WSDOT SOP 734. The core diameter shall be 4-inches
49 unless other approved by the Engineer. Roadway cores will be tested by the
50 Contracting Agency in accordance with WSDOT FOP for AASHTO T 166.
51

1 If the Contract includes the Bid item "Roadway Core" the cores shall be obtained by the
2 Contractor in the presence of the Engineer on the same day the mix is placed and at
3 locations designated by the Engineer. If the Contract does not include the Bid item
4 "Roadway Core" the Contracting Agency will obtain the cores.
5

6 **5-04.3(10)B4 Test Results**

7 The first paragraph is revised to read:
8

9 The results of all compaction acceptance testing and the CPF of the lot after three
10 sublots have been tested will be available to the Contractor through WSDOT's website.
11 Determination of the relative density of the HMA with a nuclear density gauge requires a
12 correlation factor and may require resolution after the correlation factor is known.
13 Acceptance of HMA compaction will be based on the statistical evaluation and CPF so
14 determined.
15

16 In the second paragraph, the first sentence is revised to read:
17

18 For a subplot that has been tested with a nuclear density gauge that did not meet the
19 minimum of 91 percent of the reference maximum density in a compaction lot with a
20 CPF below 1.00 and thus subject to a price reduction or rejection, the Contractor may
21 request that a core be used for determination of the relative density of the subplot.
22

23 In the second sentence of the second paragraph, "moisture-density" is revised to read
24 "density".
25

26 In the second paragraph, the fourth sentence is deleted.
27

28 **5-04.4 Measurement**

29 The following new paragraph is inserted after the first paragraph:
30

31 Roadway cores will be measured per each for the number of cores taken.
32

33 The second to last paragraph is deleted.
34

35 **5-04.5 Payment**

36 The bid item "Removing Temporary Pavement Marking", per linear foot and paragraph
37 following bid item are deleted.
38

39 The following new bid item is inserted before the second to last paragraph:
40

41 "Roadway Core", per each.
42

43 The Contractor's costs for all other Work associated with the coring (e.g., traffic control)
44 shall be incidental and included within the unit Bid price per each and no additional
45 payments will be made.

Section 5-04.3(13) is revised to read:

~~(April 24, 2006)~~

The completed surface of all wearing courses shall be of uniform texture, smooth, uniform as to crown and grade, and free from defects of all kinds. The completed surface of the wearing course shall not vary more than $\frac{1}{8}$ inch from the lower edge of a 10-foot straightedge placed on the surface parallel to the centerline. The transverse slope of the completed surface of the wearing course shall vary not more than $\frac{1}{4}$ inch in 10 feet from the rate of transverse slope shown in the Plans.

This project will utilize the value of the International Roughness Index (IRI) for measurement of pavement smoothness for the Bid item, "Smoothness Compliance Adjustment".

The Contracting Agency will perform the IRI testing of each through lane, climbing lane, and passing lane, greater than one mile in length. Bridge approaches and bridge decks that are paved with HMA will be included in the testing. Ramps, shoulders and tapers will not be tested and will not be subject to incentive/disincentive adjustments.

The IRI for a lane will be reported every 0.01 mile by averaging the IRI data for the left and right wheelpaths within the section. Bonuses apply and penalties are waived for bridge structures, approach slabs or both including 0.02 miles on either side of the bridge structure, approach slabs or both.

Upon the completion of the paving operation, and any corrective action, the Contractor shall notify the Engineer that the roadway is ready for testing. Notification shall not take place until the following conditions are met for all lanes to be tested on the project:

1. All lanes are open to traffic, unrestricted and in their final configuration.
2. All permanent pavement markings are in place.

If requested by the Engineer the Contractor shall sweep the roadway immediately prior to testing. If the sweeping is needed as a result of the Contractor's operation it shall be the responsibility and expense of the Contractor.

The intent of the Contracting Agency is that the IRI testing will be completed and the results provided to the Contractor within 30 calendar days of the Contractor's notification that the roadway is ready for testing. If weather or other conditions exist which are determined by the Engineer to be unsuitable for IRI testing of the pavement then the testing will be deferred until favorable conditions are available and the 30

calendar days extended. Should the Contracting Agency not be able to complete the testing as a result of the Contractor's Work the testing will be rescheduled and any additional costs to the Contracting Agency will be deducted from monies due or that may become due the Contractor.

Existing Conditions

During the last review of this roadway, which was conducted on *** \$\$1\$\$ **, by the Contracting Agency, the following IRI (inches/mile) values were obtained. The IRI values are informational only and are averaged IRI values for 1 mile sections. Additional information may be available for review at the Project Engineer's Office.

SR	Begin	End	IRI	IRI
	Milepost	Milepost	Running Avg NB/EB (Inch/mile)	Running Avg SB/WB (Inch/mile)
\$\$2\$\$	\$\$3\$\$	\$\$4\$\$	\$\$5\$\$	\$\$6\$\$

Corrective Action

The Contractor shall use a 10-foot straightedge, lightweight profilers, California profilographs or other devices approved by the Engineer to locate surface irregularities.

Corrective action shall be taken by the Contractor for areas that vary more than 1/8 inch in 10 feet parallel to centerline, or 0.10 mile increments with IRI values greater than 95 inches per mile for Pay Schedule 1 and 2, shall be marked and corrected by one of the following methods:

1. Diamond grinding until the high spot does not exceed 1/8 inch in 10 feet, or a maximum IRI value of 65 inches per mile for Pay Schedule 1 and 75 for Pay Schedule 2.
2. Removal and replacement of the wearing course of HMA.
3. By other method approved by the Engineer.

A standard pavement-milling machine will not be allowed for removing high spots.

The Contractor shall determine and mark the exact location of each bump on the pavement before corrective action commences. The area that is repaired or corrected shall be checked by the Contractor to ensure that the area meets specifications.

Corrective actions or repairs shall not reduce planned pavement thickness by more than $\frac{1}{4}$ inch.

All corrective work shall be completed at no additional expense to the Contracting Agency. If correction of the roadway as listed above will not produce satisfactory results as to smoothness and serviceability the Engineer may accept the completed pavement and shall deduct from monies due or that may become due to the Contractor the sum of \$500.00 for each and every section of single traffic lane 0.02 miles in length in which any deviations as described above are found. Under the circumstances described above, the decision whether to accept the completed pavement or to require corrections as described above shall be vested entirely in the Engineer.

DRAFT



Signature on file

August 29, 2014

Linea Laird, Chief Engineer
Assistant Secretary
Engineering and Regional Operations

Date
Expires: One year from the date
entered above

Bituminous Pavement Asset Management

I. Introduction

A. Purpose

The purpose of this Instructional Letter is to provide Washington State Department of Transportation (WSDOT) interim guidance necessary to plan, program, and effectively manage Hot Mix Asphalt (HMA) pavements in a declining revenue climate. This Instructional Letter looks beyond existing organizational boundaries such as funding sources and agency divisions to establish a comprehensive and cohesive strategy to increase the agency's reach and effectiveness in maintaining the public's assets.

This Instructional Letter directs changes to P1 programming that will be implemented by Capital Program Development and Management (CPDM) and the State Maintenance Engineer as well as changes to the Pavement Management System as a result of impacts from this newly adopted approach.

This Instructional Letter also establishes new oversight requirements by creating a Policy Committee, directing coordination of all HMA pavement preservation expenditures in M and P1 with the goal of addressing due and past due miles at the lowest life cycle cost possible. This Instructional Letter adopts the current *Integrated Approach to Pavement Preservation* as a working template until finalized and approved by the Chief Engineer. A Pavement Preservation Plan will be developed incorporating the principles identified in that draft document. The regional administrators will be accountable for the success of this program and the implementation of the Pavement Preservation Plan in their respective regions.

B. Definition

The Pavement Preservation Plan is a response to a fiscally constrained capital paving budget that can no longer adequately maintain the public's investment. This plan is the deliberate use of proven pavement maintenance methods that will extend the life cycle of the entire paving inventory for at least two years, and in doing so, extend the effectiveness and efficiency of every dollar spent within the program. The Pavement Preservation Plan works across agency boundaries to bring all Maintenance and Capital paving investments under the direction of one Policy Committee.

C. Expiration

This Instructional Letter expires within one year unless extended in writing for business reasons.

II. Instruction

A. Policy Committee

A six person Policy Committee will be formed, comprised of:

1. Deputy Chief Engineer, Chair
2. Regional Administrator (Rural)
3. Regional Administrator (Urban)
4. State Construction Engineer
5. Director of CPDM
6. State Maintenance Engineer

The State Pavement Engineer will serve as a technical resource to the Policy Committee, providing data and recommendations on strategies or approaches as determined by the Policy Committee.

The Policy Committee will set the overall paving policies for the department and will oversee the broad prioritization of all paving-related funds across programs and regions, consistent with the various components of the Pavement Preservation Plan. The Policy Committee will provide oversight to the P1 Task Force consistent with the direction outlined in this document. The Policy Committee will determine the desired performance outcomes and the method by which the programs and regions will be held accountable to meet those performance outcomes. The Policy Committee will also hear requests for programming changes that would substantively impact the prioritization of funds.

B. Programming

In accordance with the current *Integrated Approach to Pavement Preservation*, all Capital Preservation Projects will include at least one touch of Pavement Preservation Plan before the Capital Project may be programmed. Current Capital Projects that have completed at least one Strategic Preservation activity will hold their current delivery dates. All other projects will be considered to be moved out two years in the programming cycle and the roadway segments enrolled in the Strategic Preservation plan for priority as determined by the Policy Committee. The cash flow generated from these moves will be used to fund the additions to the Strategic Preservation plan as well as augment the monies uses by Maintenance for emerging pavement issues.

C. Washington State Pavement Management System (WSPMS)

The State Pavement Engineer will reflect the adoption of the Pavement Preservation strategy in the WSPMS by adjusting the due dates out two years. This adjustment is based on the direction given by this Instructional Letter that all projects will include a Strategic Plan touch before being programmed as a P1 project and that at a minimum these touches will increase the pavement life by two years.

D. Prioritization

All Pavement Preservation Plan expenditures will be subject to prioritization. This will be a coordinated effort between the regions, Headquarters (HQ) Pavement Office, CPDM, and HQ Maintenance Office. Final approval of the prioritization will be by the Policy Committee. This prioritization will also recognize the need for flexible funding to address emerging needs or modifications to priorities based on changing conditions. The Policy Committee will determine how much contingency funding will be available for each region.

E. Region Deployment

The regions will be responsible for deployment of the Pavement Preservation Plan. The region will coordinate between Maintenance and the Capital construction program to most efficiently deliver the work. The Policy Committee will hold each regional administrator accountable for the successful execution of the region's plan. The Policy Committee will hear any concerns or disputes the regions may have over the execution of the existing plan.

III. Contact for More Information

For questions or concerns about this Instructional Letter, please contact the HQ Pavement Office at 360-709-5485.

IV. Reference

- *Integrated Approach to Pavement Preservation*

V. Review and Update Requirements

When changes are necessary to update this document, inform the Assistant Secretary of Engineering and Regional Operations.

The Assistant Secretary of Engineering and Regional Operations periodically reviews this document and may approve updates or other changes.

Americans with Disabilities Act (ADA) Information

This material can be made available in an alternate format by emailing the WSDOT Diversity/ADA Compliance Team at wsdotada@wsdot.wa.gov or by calling toll free, 855-362-4ADA (4232). Persons who are deaf or hard of hearing may make a request by calling the Washington State Relay at 711.

Integrated Approach to Pavement Preservation

An integrated approach to Pavement Preservation considers the entire life-cycle of the pavement. The cycle begins immediately after construction, when the pavement should be in excellent condition. Throughout the life-cycle of the pavement, the effects of truck traffic, climate, and traction devices will deteriorate the pavement condition. To counter and mitigate the impacts of pavement deterioration, various preservation activities are described in this chapter to help extend the life of the pavement to the maximum extent possible.

The specific goal of formalizing an integrated approach to pavement preservation is to extend the effective reach of the solutions described below and lower the overall lifecycle costs of the program. An initial programmatic target is to extend the overall lifecycle of pavements a minimum of 2 years. Monies freed up as a result of utilizing an integrated approach will be redistributed back into the Pavement Preservation program.

Most of the efficiencies to be gained from this approach will be realized at or near the time the agency deploys the planned capital expenditure. The success of the approach outlined in this chapter hinges upon flexibility in the decision making related to the type and timing of the work being performed in the Regions. The process must be structured such that funds can be conveniently moved to the most appropriate priority as the time for performing the actual work approaches.

1. Pavement Preservation Overview

Pavement Preservation can be broken down into three primary categories:

- A. Capital Preservation Projects
- B. Preventive Preservation, made up of the following two components:
 - 1) Strategic Preservation
 - 2) Emerging Needs Preservation
- C. Reactive Preservation

Each of these activities are defined below. All three components should be considered as parts of an integrated process, with Capital Preservation Projects delivered at the proper time to minimize the overall life-cycle costs of the pavement, Preventive Preservation performed as needed throughout the life-cycle to extend pavement life, and Reactive Preservation performed to address emerging needs that typically occur late in the pavement life-cycle.

6/20/14

1.1 Capital Preservation Projects

Capital Preservation Projects are typically large scale pavement resurfacing projects funded by the Highway Construction Program (P1 subprogram). These projects are generally planned and developed by the regions with the pavement design performed by the Regional Materials Engineer (RME) in consultation with the HQ Pavement Office. Project development of the plans, specifications and estimates along with contract administration is overseen by a regional Project Engineer.

These types of projects are typically Hot Mix Asphalt (HMA) overlay/inlays or Bituminous Surface Treatment (chip seal) projects, but could include other large scale resurfacing treatments such as cold-in-place recycling or full-depth reconstruction. Capital Preservation Projects are designed to extend pavement life 12 to 15 plus years for HMA (depending on location) and 6-10 years for chip seals.

Without the approval from CPDM and concurrence from the HQ Pavement Office, no Capital Preservation Project will be programmed without first performing one or more Preventive Preservation treatment on the pavement structure. This initial treatment is sometimes referred to as the "first touch". Preventive Preservation has been shown to be a very cost-effective strategy to extend pavement life, and usually there is a time during the pavement life cycle that Preventive Preservation can be properly timed to extend long-term pavement performance.

1.2 Preventive Preservation

Preventive Preservation is anticipated, planned work designed to extend the service life of a roadway 1-6 years and to maximize the time between Capital Preservation Projects. Examples of this type of work include crack sealing, digouts using HMA, chip box patching, grader patching, milling, and small scale chip seal projects.

A key component of Preventive Preservation is that it is planned work, coordinated as appropriate with the Region Materials Engineer, the Region Maintenance Engineer, Capital Program Development and Management (CPDM), and HQ Pavement Office. There should be an expectation that some adjustments in priorities will take place to capture changing priorities coming out of winter every year. Regional proposed changes that are vetted and approved by the HQ Pavement Office and CPDM should be expected and this flexibility is crucial to maximizing the efficiencies of Preventative Preservation.

Preventive Preservation is comprised of two distinct categories as described below – Strategic Preservation and Emerging Needs.

1.2.1 Strategic Preservation

A sub-category of Preventive Preservation primarily completed with Highway Construction P1 funding. This work may be performed early in the pavement life cycle up until approximately 2 years prior to a planned Capital Preservation Project. The work may be performed by WSDOT maintenance crews (Maintenance) or it may be performed as a construction project (Contract) if the size or complexity of the work goes beyond the capacity of WSDOT Maintenance crews to perform this work.

An important distinction between work performed by Maintenance and work performed by Contract must be considered in the programming of specific projects. While Maintenance can respond to priorities managed through the Region Materials Engineer, Contract work will need to be deliberate and defined. Programming of work in this category for Maintenance should be by a bucket or allocation. Contract work should be programmed as a normal P1 project or projects. This distinction should not limit the flexibility required to capture emerging priorities but should be considered in how best to distribute the available work.

1.2.2 Emerging Needs Preservation

A sub-category of Preventive Preservation completed primarily with M2 funding. The primary goal of this work is to reduce the need to perform Reactive Preservation in the future, with a secondary goal of extending pavement life where possible. Emerging Needs Preservation is planned work that focuses on pavement areas that are predicted to fail in the next several months to a year if work is not performed.

1.3 Reactive Preservation

Reactive Preservation is un-planned pavement repair to address immediate pavement needs and to mitigate the impacts of visible pavement deterioration. Examples of this type of work include pothole repair using cold mix or digouts using HMA. This work is done with M2 funding and is performed primarily by WSDOT maintenance crews. This work is performed per the Maintenance Manual and regional policy developed with some oversight and coordination with the Region Materials Engineer. By its nature, Reactive Preservation is unplanned, emergent needs that must be corrected immediately. The work is typically not designed ahead of time. The intent is to correct the problem and restore the road surface to a serviceable condition.

2. Capital Preservation Project Planning and Execution

This work is conducted in accordance with HQ pavement and HQ CPDM directives.

6/20/14

3. Preventive Preservation Planning and Execution

Preventive Preservation includes both the Strategic Preservation and Emerging Needs portions of the Integrated Pavement Preservation Plan. The Planning and Execution is defined as follows:

3.1 Strategic Preservation Planning and Execution

Strategic Preservation should be planned in conjunction with Preservation and Maintenance Programs with the following goals in mind:

- Extend roadway surfacing service life
- Maintain serviceable roadway surface
- Minimize Reactive Preservation needs
- Integrate and support Capital Preservation Projects

Strategic Preservation is designed to extend pavement life beyond the expected rehabilitation due year, thus delaying a Capital Preservation Project. When Capital Preservation Project funding is available then the planned capital project can be completed at the appropriate time. If this funding is insufficient to address all current due and past due roadways, it may be necessary to increase Strategic Preservation funding. This type of work could be used to address some of the emerging pavement repair needs that will occur due to deferring the current and past due roadways.

In order to receive Strategic Preservation funding each region must document the needs per the "guidelines for use of funds for P1 preventive pavement work". Each region will develop a Strategic Preservation plan, (see Appendix A for an example). These plans must be reviewed and approved by the HQ Pavement Office. Development and execution of the plan should be conducted as follows:

- A. Approximately 4-6 months prior to the beginning of the next biennium, review the prioritized Capital Preservation Projects list with HQ CPDM and determine the number of expected projects for the new biennium.
- B. Region Materials, Region Program Management, and Region Maintenance will work together to identify the proposed Strategic Preservation sections and document them using the Strategic Preservation format. The size and scope of the plan will vary by region need, and maintenance capability. Select sections where no P1 capital project work is expected in the next 1-2 years. Identify work that will extend life of larger sections of pavement by addressing smaller concentrated due and past due areas that will delay preservation work. Use Emerging Need Preservation funding to address smaller, scattered pavement distress issues.

6/20/14

- C. Develop the Strategic Preservation projects in conjunction with Region Maintenance to ensure there is no redundancy between the Emerging Needs Plan in addition to agreement on the scope of work and cost.
- D. Discuss repair options with the Region Materials Engineer and Region Maintenance. For assistance as to what repairs are the most cost effective per type of distress consult the HQ Pavement Section. Repair procedures may include:
 - 1) Crack Seal
 - 2) Digouts
 - 3) Chip Seal
 - 4) Mini Chip seal
 - 5) Grader patch
 - 6) Pavement patches by Maintenance
 - 7) Milling
- E. Once the type of work and repair procedures needed is determined, Region Materials, Region Maintenance and Region Program Management will evaluate the work against existing commitments, availability and capacities. From this determination, a decision will be made on what work will be delivered by Maintenance, and what work will be delivered by contract.
- F. Submit the plan to the HQ Pavement Office for review. The Region will be held accountable for extension of pavement life as indicated on the plan. Attention should be focused on future work so that Strategic Preservation does not overlap with a near-term capital preservation project.
- G. The Region Materials Engineer shall coordinate with Region Program Management to get P-1 funds set up in work orders. Work orders should be managed by the Region Materials Engineer.
- H. When work is complete the Region Materials Engineer will verify that work was done per the plan and report back to the HQ Pavement Office. Careful attention to the actual work completed is essential. Estimates are sometimes overly optimistic. The documentation in the Strategic Preservation plan is designed to help measure repair and cost effectiveness so that WSDOT can optimize and adjust preservation practices.

3.2 Emerging Need Preservation Planning and Execution

Emerging Need Preservation is designed to mitigate pavement deterioration by repairing pavement which is anticipated to fail in the next several months to a year. Emerging Needs Preservation using M funding should be planned and coordinated with the Region Materials Engineer and Region Maintenance with the following goals in mind:

- Maintain serviceable roadway surface

6/20/14

- Minimize Reactive Preservation needs
- Focus on areas where no capital preservation projects or Strategic Preservation is planned.

Emerging Need Preservation and Strategic Preservation must be coordinated and integrated. The flexible emerging needs funding should be used to address the most urgent pavement repairs, while coordinating with less flexible capital preservation funding that is planned for the near future. With good coordination and planning, Capital Preservation Projects can be identified with a reasonable level of certainty, allowing both Strategic Preservation and Emerging Need Preservation funding to be used in the most efficient ways.

Emerging Needs Preservation planning should be documented and planned using a tiered approach with the funding priority going to pavement distress needing repair in less than one year. Pavement repair for areas expected to fail one or more years out may be conducted if funding allows. If M funding is insufficient to address all of the emerging needs, Strategic Preservation funding should be sought as described in the Strategic Preservation section described previously. If the repair needs exceed the capacity of Maintenance, a construction contract may be necessary to fund pavement repair. Strategic Preservation funding should be sought as described in the Strategic Preservation section described previously.

4. Reactive Preservation Planning and Execution

Reactive Preservation is funded and conducted primarily by Maintenance. The nature of the work requires fast response and flexible funding which the M program provides. In addressing this type of work, proposed materials and methods should be discussed with the Region Materials Engineer on an annual basis to ensure they complement future Capital Project Preservation work. Furthermore, critical assessment of the amount of Reactive Preservation work and resources utilized should also be evaluated on this same annual basis in order to ensure that Capital Project Preservation, Strategic Preservation and Emerging Need Preservation are in fact meeting LLCC. These best practices should be documented in the Region's yearly asphalt Repair Plan (see Appendix B for an example).

5. Reporting (HATS)

All maintenance activities, regardless of whether performed for preventive, strategic, or emergent need should be reported through the Highway Activity Tracking System (HATS). In addition, HATS should also be cross-referenced by WSPMS to ensure that work performed by Maintenance gets considered in the identification of current due and past due roadways. HATS can also be valuable in helping to calculate the effectiveness of different pavement work operations in the overall calculation of the life cycle cost of the pavement.