

OAPC-MTO GROUP MEETING TO REVIEW SSP103S08 TACK COAT SPECIFICATION

(Excerpt from the working group meetings minutes; references to personal information removed)

Date: Tuesday, September 15, 2020
Time: 1:00 PM to 2:35 pm
Location: via Teams

ATTENDEES (VIA MS TEAMS):

OAPC
MTO

AGENDA

To discuss OAPC's comments and concerns (total 27) outlined in the attached OAPC summary dated March 31, 2020 and additional email comment dated April 27, 2020.

To discuss action items from the meeting held on May 19,2020.

INTRODUCTION / ANNOUNCEMENTS

- Third OAPC-MTO Meeting to review SSP10S08 tack coat specification.
- MTO mentioned that minutes of the second meeting dated August 19, 2020 were sent to OPAC prior to this meeting. MTO shared the minutes of the meeting with the group. This meeting covered all the outstanding items left from second meeting. MTO mentioned that after today's meeting, this group on Tack Coat will be dissolved.

COMMENTS /OVERVIEW OF CHANGES	ACTION BY
<p>1</p> <ul style="list-style-type: none"> • 308.05.01 states “Tack coat and joint painting material shall consist of SS-1 or SS-1H or SS-1HH emulsified asphalt...”, <p>OAPC: This was SS-1 only in the previous spec.</p> <p>Discussion (May 19, 2020): MTO: The use of SS-1 and SS-1HH were covered under SSP 308F02 Feb 2017. SS-1HH was added at industry’s request to encourage the use of “non-tracking” or “trackless” tack coats. More so SS-1H was added at the industry’s request based on reports that sometimes distributors contain a composite mixture of SS-1 and SS-1HH, with properties of SS-1H (i.e. “last contained” is SS-1HH and new load is SS-1). Further investigation revealed that SS-1H was specified in OPSS 313 March 1993 and removed in SSP 313F44 March 2001. While MTO has SS-1 performance history, the performance of other products needs to be investigated. OAPC: 308.04.01 requires proposal for the use of SS-1HH or SS-1H? MTO: Revised language maybe considered for the second paragraph of 308.04.01 related to change proposals.</p> <p>Discussion (August 19, 2020): MTO discussed the item with the group. OAPC agreed to leave these three tack coat products (SS-1, SS-1H and SS-1HH) in the specification. OAPC noted not to specify the tack coat type in the contract and leave the selection of tack coat type (SS-1 or SS-1H or SS-1HH) on the contractor. MTO will only require change proposal for using alternative tack coat and no change proposal needed for using other dilution rates. Action Item: MTO to revise the language for the second paragraph of 308.04.01 related to change proposals requiring only when using alternative tack coat products.</p>	<p style="text-align: right;">MTO (ITEM CLOSED)</p>

	COMMENTS /OVERVIEW OF CHANGES	ACTION BY
2	<ul style="list-style-type: none"> • 308.07.01.01 – Application rates for various applications are now listed in Table 1 (page 9). <p>OAPC: There is no change here other than a note “SS-1HH and SS-1H tack coat not permitted on full depth reclamation with expanded asphalt stabilization surfaces.”</p> <p>Discussion (May 19, 2020): MTO: There were failures on EAS and CIR mixes with “trackless” tack coat being picked up vehicle tires. SS-1 tack coat could perform better on these mixes OAPC: Agreed.</p> <p>Discussion (August 19, 2020): MTO discussed the item with the group. Item closed, no action required.</p>	ITEM CLOSED
3	<ul style="list-style-type: none"> • 308.07.03.03 <p>OAPC: Calls for Cores to be taken to test the Tack bond for “...information purposes only.”</p> <p>Discussion (May 19, 2020): MTO: These results may be used as a basis for future tack coat performance criteria. Sufficient information needs to be collected and correlated to the product used, surface type, set time, visual uniformity of application, application rate (diluted and residual) etc. Some other jurisdictions require bond strength. At this point, testing is done for information purposes, to collect data and to correlate to the application rate and other parameters. OAPC: For ORBA it is learning experience, as few are familiar with this test.</p> <p>Discussion (August 19, 2020): MTO went through this item with the group. MTO explained that full depth core is beneficial for not effecting the interface bond during core extraction OAPC expressed concern for taking full depth cores for composite pavement for bond testing, as coring has to go very deep into the concrete to extract full depth core. MTO to look at the revised wording for full depth coring for composite pavement for bond testing.</p>	

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<p>Discussion (September 15, 2020): MTO discussed this item again with the group. MTO explained that the intent of getting full depth pavement core for bond testing is that the interface in question (e.g., between surface and binder course) does not get pre-stressed during core extraction (if not full do depth) due to preying action. However, if full depth core is not achievable, then partial depth core is fine too as long as the interface that is to be tested is not disturbed due to preying action and there should be at least two lifts available to test the bond between the interface.</p> <p>MTO noted that if the interface that is to be tested is debonded during the coring process, then the bond is not effective and is counted as bond failure. However, if the core debonds from any of the deeper layers, and target interface that is to be tested is intact, then that core can be used for testing.</p> <p>Action Item: MTO to revise the language for full depth coring to include general statement for interface that is to be tested and minimum core depth for bond testing.</p>	<p>MTO</p>
<p>4</p> <ul style="list-style-type: none"> • 308.08.01 <p>OAPC: A few items have been added to the acceptance criteria. Most notably "Field Application Rate" (more on this below).</p> <p>Discussion (May 19, 2020): MTO: Need to emphasize the importance of application rate. It was historically specified for acceptance based on QC testing until 2007 and a payment reduction was calculated based on residue ("product") and application rate. Currently acceptance is based on QA testing. Concerns regarding the actual application rates were raised by various MTO regional staff. Pavement failures related to tack coat are also noted in the TTI report (August 2018) suggesting that an increase of application rates may be needed. Tack coat is #1 on OAPC's top 10 list of priorities. OAPC's bulleting #6 also mentions application rate. More so the photograph on the first page of the bulletin suggests that OAPC would recommend verification of application rate using ASTM D 2995 (Option A) combined with coring for bond testing.</p> <p>Discussion (August 19, 2020): No action required.</p>	

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<p>5</p> <ul style="list-style-type: none"> 308.08.03.02.01 <p>OAPC: The limits for penalty on Percent Residue have changed. Over 27.5% is still acceptable, but now a payment factor applies between 26.5% and 27.5% and residue below 26.5% is now rejectable (was 20%).</p> <p>Discussion (May 19, 2020): MTO: This requirement was inspired by the TTI report (August 2018). OPSS1103 states a minimum residue for SS type emulsions of 55%. The suppliers usually supply emulsion with higher residue that 55%, typically around 60%. So, when diluted 50/50, the residue will be around 30. OAPC: Is MTO extending TODRF? Extended TODRF MTO: The industry should focus not to go to failure. OAPC: The data should be reviewed at the end of the year (the change from 20% to 26.5% is abrupt) and if needed the TODRF should be extended. MTO: Agreed to extend the 0.75 in both years (2020 and 2021). And it becomes 1.0 from 2022 onward. OAPC: Hard to determine the ramification. Some may apply too much residue and that could harm. MTO: Residual application rate to be considered.</p> <p>Discussion (August 19, 2020): MTO presented the graphs for various MTO’s existing and new proposed application rates versus percent residue for various pavement surfaces/protection board and its comparison to the recommended application rates based on NCHRP Synthesis 516, to the group. OAPC commented that they need more time to review this information.</p> <p>Discussion (September 15, 2020): OAPC noted that they reviewed the graphs presented by MTO last time about application rates and the tables in the specification and have comment about the Table 1 and not the graphs. Why the difference in the range for Cold In Place (CIR) surfaces is 0.05 kg/m² (0.35 – 0.40 kg/m²), while for other surfaces, this difference in range is 0.10 kg/m². MTO noted that we will look into this and can go to a range between 0.35 – 0.45 kg/m² (difference of 0.10) as for the other surfaces.</p> <p>OAPC noted that they have received a question if these application rates apply to all emulsions listed under OPSS 1103. MTO noted that these tack coat application rates only to those emulsions that are listed under tack coat specification, like SS-1, SS-1H and SS-1HH and not to other emulsions listed under 1103.</p> <p>Action item: MTO to look into the range of application rate for CIR under Table 1 of tack coat specification.</p>	<p>MTO</p>

6	<ul style="list-style-type: none"> • 308.08.03.02.02 <p>OAPC: States that “The penetration test results shall be reported for information purposes only.”</p> <p>Discussion (May 19, 2020): MTO: This is not new. OPSS 308 April 2012 states that SS-1 (complying with OPSS 1103) should be diluted with an equal volume of water. It implies minimum residue of 27.5% (half of the minimum of 55% of undiluted SS-1) and penetration the same as for SS-1 (100-200 dmm). Even in 2012, penetration was for information only and not included in the pay factor. Application rate, residue, penetration, and bond strength are important.</p> <p>Discussion (August 19, 2020): MTO discussed this item with OAPC that in current tack coat specification version, penetration is for information purposes only, however, in the new draft version, penetration is included as part of payment adjustment, along with percent residue. OAPC asked for more time to review this information.</p> <p>Discussion (September 15, 2020): OAPC noted that they have concern that if test results are 10dmm outside of the penetration requirements for the tack coat products stated in Table 3, then the subplot is rejectable and why there is a tolerance of 10dmm for these products who have a penetration range of 20 to 200 dmm. There was a discussion regarding penetration and its impact on performance. MTO noted that ministry wants a tack coat product that is within penetration range for that product, otherwise the contractor can supply anything on a contract with no accountability and also as part of evaluating performance, MTO is doing the bond testing. OAPC noted that there is no proven record of penetration and its effect on adhesion and should do it for information purposes only. MTO noted that the ministry will look at this and leave the penetration limits in Table 3 and testing will be carried out for information purposes with no payment adjustment at this time, until ministry get more information about bond testing and its effect on residue, application rate and penetration. OAPC commented about the selection of tack coat products and MTO noted that it is up to the contractor to decide about the tack product to be used on a specific job. OAPC drew attention to the values of maximum percent oil distillation in Table 3 and if this is for information purposes then why there are limits for this. MTO noted that Environment Canada limits the volatile organic compound (VOC) and there are requirements for this for emulsions. MTO noted that we can leave this for information purposes for QA and referee testing.</p> <p>Action item: MTO to look at this and revise/update relevant sections related to acceptance based on penetration and oil portion of distillate.</p>	MTO
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COMMENTS /OVERVIEW OF CHANGES	ACTION BY
<p>7</p> <ul style="list-style-type: none"> 308.08.03.03.01 Verification of Field Application Rate. <p>OAPC: Application rate shall be verified using ASTM D2995 (Option A), which is where you lay down pads, spray over them, then compare the after weight to the before weight. Where field application rate does not meet the contract requirements, the payment adjustment shall be considered at the discretion of the Owner.</p> <p>Discussion (May 19, 2020): MTO: Inspired by TTI report. Application rate was basis of acceptance in the past. OAPC: As per the spec, the distributors will have to be calibrated and supply a certificate showing correlation between spray and speed of tanker. So, why do you need to measure application rate on site? OAPC likes to see a tolerance on Table 1. Contractor can supply weigh tickets showing how much tack coat was applied. MTO: Can OAPC present some examples documenting quantities applied or actual application rates? Some applicators have been asked by the main contractor to lower their application rates.</p> <p>Discussion (August 19, 2020): MTO noted that it has provided new application rates and range of application rates in Table1 of draft tack coat specification along with minimum residual application rates for various pavement surfaces. There were discussions around verification of field application rate methods. OAPC commented that it is possible to use ASTM D2995 (option A) method for field verification of application rate but will need more clarification around number of tests required for single test and options to carry out the field variations tests.</p> <p>Discussion (September 15, 2020): OAPC shared one document for verification of tack coat application rate. OAPC noted that this is a QC document that is used to verify the application rate and is recommended as a potential form that can be used for field application rate based on mass of tack coat used on the job site as an alternative method to ASTM D 2995 (Option A). MTO noted that they are interested in this document as long as the ministry can have verifiable tack coat quantities used in the field and Contract Administrator can look at the screen and take a photo or get the printout from the computer for the tack coat quantities used on the job. OAPC noted that most contactors use this kind of form for their QC purposes. OAPC to send this form to MTO.</p> <p>Action item: MTO will look at this form and create a PHCC form for verification of field application rate.</p>	<p>MTO</p>

COMMENTS /OVERVIEW OF CHANGES		ACTION BY
8	<ul style="list-style-type: none"> • 308.10.01 <p>OAPC: Joint painting is to be paid under hot mix item and tack for waterproofing is paid under the waterproofing item.</p> <p>Discussion (May 19, 2020): MTO: Not new, same as it was in OPSS 308 April 2012.</p> <p>Discussion (August 19, 2020): Not a concern, Item closed</p>	Item Closed
9	<p>308.10.01.01</p> <p>OAPC: Update to the formula for payment adjustments using a “Tender Opening Date Reduction Factor” on Table 4. The new formula increases penalties once for jobs tendered in 2020 and another increase for jobs tendered in 2021 or later.</p> <p>Discussion (May 19, 2020): MTO: TODRF is a normal mechanism used by MTO when introducing new performance criteria to provide industry time to adjust to new spec requirements. Addressed above in Comment #5.</p> <p>Discussion (August 19, 2020): MTO informed that TODRF has been updated to reflect OAPC concerns in the new draft specification.</p> <p>Discussion (September 15, 2020): OAPC commented to push back the Tender Opening Date Reduction Factor (TODRF) on Table 4 a year to 2021, 2022 and 2023.</p> <p>Action Item: MTO informed that we will look at this.</p>	MTO

COMMENTS /OVERVIEW OF CHANGES	ACTION BY
<p>10</p> <ul style="list-style-type: none"> • 308.06.01 <p>OAPC: Can we get some clarification on calibration from the manufacturer. Especially when there is no dealer available in Ontario. What is MTO’s take on this?</p> <p>Discussion (May 19, 2020): MTO: This section is not new and is the same as in OPSS 308 May 2012. This section also states “Alternatively, the metering system shall be accompanied by documentation confirming that it was calibrated within the past 12 months by the manufacturer, or its authorized representative.” AMACO Construction Equipment Inc. based in Mississauga ON, is an authorized representative of Etnyre, and does calibrations for various contractors.</p> <p>Discussion (August 19, 2020): OAPC informed that calibration can done and there is no further concern.</p> <p>Discussion (September 15, 2020): OAPC noted that there was a comment on the wording regarding the certification and this wording has been in the spec since 2007 and does not characterize in terms of accuracy and asked to look at this paragraph.</p> <p>Action Item: MTO noted that they will look at this wording.</p>	<p>MTO</p>

COMMENTS /OVERVIEW OF CHANGES		ACTION BY
CONCERNS		ACTION BY
11	<p>OAPC: In the previous 2012 update the following was added in the Equipment section 308.06 to try and ensure proper application rates: <i>“The accuracy of the metering system shall be certified by the manufacturer and this certificate shall be made available to the Contract Administrator upon request. Alternatively, the metering system shall be accompanied by documentation confirming that it was calibrated within the past 12 months by the manufacturer, or its authorized representative, and such documentation shall be made available to the Contract Administrator upon request.”</i> I would like to ask the Ministry why they found it necessary to add an onerous field sampling protocol as an added requirement to the specification.</p> <p>Discussion (May 19, 2020): MTO: Owner field verification of application rate would ensure that the right quantities are applied. Removal of field verification application rate may be considered by modifying 308.08.03.03.04 Equipment settings to read “The equipment settings and applied quantities to quantify tack coat application shall be verified by the QA or Contract Administrator....” or is there any other way for QA or CA to verify the distribution rates from equipment? OAPC: We can get forms or information from trucks. MTO: Can OAPC provide documentation or alternatives? MTO is open to suggestions. ASTM D2995 field verification may be removed if the alternative is acceptable. All aspects to be considered; there could be issues with traffic control, etc. OAPC: OAPC to take this back to members and provide options. MTO: Maybe clarification is needed in the next publication of the specification. OAPC: To my knowledge every contractor calibrates, and documentation should be available for every job.</p> <p>Discussion (August 19, 2020): MTO discussed this item with the group. OAPC asked for more time to review this further. OAPC to provide QA/CA verifiable documentation or alternative methods, to ensure that the tack coat quantities required are actually applied. MTO will look into an alternative method to ASTMD2995 for field verification rate.</p> <p>Discussion (September 15, 2020): This item was discussed under Item #10 and this item to be closed.</p>	<p>ITEM CLOSED</p>

COMMENTS /OVERVIEW OF CHANGES	ACTION BY
<p>12 OAPC: The application rates in Table 1 do not indicate a range. Are we to assume these are minimum rates? If so, an over application of tack coat could be just as detrimental to the pavement performance as a low application. Should there not be a range to the application rates given that the tendency may be to over apply to avoid the penalties? We might end up at odds with the CA over this one because there is no range or minimum. It just states 0.35 or 0.20 etc.</p> <p>Discussion (May 19, 2020): MTO: The specification should also say a maximum dilution rate of 1:1 and range for application rate. Our application rates compared to other states are relatively low (based on NCHRP Synthesis 516). A range of application rates may be included in Table 1, however residual rates should be considered.</p> <p>Table 1 may state residual application rates (based on NCHRP Synthesis 516) and application rates at max dilution of 1:1; for example:</p> <ul style="list-style-type: none"> - Existing pavement.... Min. application rate 0.35 kg/m² (range 0.35-0.50 kg/m²) - CIR...new surfaces... Min. application rate 0.20 kg/m² (range 0.20-0.30 kg/m²) - Protection board... Min. application rate 0.50 kg/m² (range 0.50-0.60 kg/m²) <p>OAPC: ORBA is new to this and maybe won't know until the end of the year. OAPC: For alternate products, can we consider recommendations by manufacturer for application rate? MTO: Based on residue, set time, penetration, or bond test? OAPC to get back on this.</p> <p>Discussion (August 19, 2020): MTO informed the group that Table 1 in new draft specification has been updated to reflect OAPC concerns and now has a range for the application rate for various pavement surfaces. No further action required.</p> <p>Discussion (September 15, 2020): MTO noted that this has been addressed in the new draft spec in Table 1.</p>	

13	<p>OAPC: In section 308.08.03.03.02, it states, <i>“Tack coat deemed by visual appearance to be non-uniform or patches of bare material <u>due to tracking by vehicles</u> or dirty or does not fully cover the areas specified in the Contract Documents, shall be deemed rejectable and shall be subject to a payment adjustment assessed by the Owner.”</i></p> <p>Generally speaking, on most projects tack coat is tracked by the HMA haul trucks and the especially MTV that are all lined up directly in front of the paver. Would this be considered “tracking by vehicles” and ultimately could this be deemed rejectable? If so, what can the paving contractor do to avoid this? Should the Ministry consider taking tack coat cores both on and off the wheel tracks to see if there is a difference to the adhesion?</p> <p>Discussion (May 19, 2020): MTO: Not deemed rejectable for now and revision could be considered to clarify. Trained QA staff can determine if need to be rejected. Tack coat tracked or not set will not perform. Cores both on and off the wheel tracks could be taken for information. OAPC: How to keep construction equipment off the tack coat until it is broken and set? Should be constructible. MTO: Not a new requirement. Could use RS-1 and SS type emulsions with less dilution. OAPC: RS-1 is not easy to distribute. They plug up the nozzles. If we want the tack coat to be perfect, we need to give longer paving window than 5 hours or allow highway closure.</p> <p>Discussion (August 19, 2020): MTO and OAPC to discuss this item more on next meeting.</p> <p>Discussion (September 15, 2020): There was a discussion about tack coat tracking. MTO noted that tracking should be avoided, and construction traffic should be minimized on the tack coated areas. The tack coated areas should have uniform coverage. Tack coat should be allowed to properly cure, and this will also reduce tracking. OAPC noted that as the application rate has been doubled, there are now more concerns about track coat tracking and extra time needed for curing. MTO noted that they have discussed this with Contract Management Office and MTO may pay for the delays due to extra time needed for proper curing, because paving on uncured track coat would be detrimental for the hot mix placed on uncured tack coat. There was a discussion on the benefit of using SS-1H/SS-1HH tack coat to reduce tracking and faster curing. MTO noted that ministry does not specify which product to use, and it is up to the contractor to select. OAPC noted that the selection of tack coat should be left to the contractor and asked what to do in areas where it is tracking. MTO noted that it should be re-applied, and this is covered under coverage.</p> <p>Action item: MTO will provide some guidance in the CDED manual/Field Guide. MTO</p>
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	COMMENTS /OVERVIEW OF CHANGES	ACTION BY
14	<p>OAPC: Specific question on how to accommodate no vehicles lined up on tack coat and requirements to keep vehicles off tack coat. How is even the shuttle buggy to be handled? Comments are that a second lane is required. For highways that are 2 lanes this would mean shutting the highway down. For highways that are 2 lanes in one direction, this would mean pushing multi-directional traffic to the other side of the highway where traffic would have one lane for each direction. Is this how the MTO interprets the requirements?</p> <p>Discussion (May 19, 2020): MTO: Discussed above in Concern #3.</p> <p>Discussion (August 19, 2020): No action required. Item addressed.</p> <p>Discussion (September 15, 2020): Discussed under Item #13</p>	
15	<p>OAPC: Heavy equipment such as shuttle buggy will track even non-tracking tack coat to some degree? Not as much as regular tack coat – but some tracking occurs. How will this be viewed by the inspectors? This relates to the interpretation of the specification.</p> <p>Discussion (May 19, 2020): MTO: Discussed above in Concern #3.</p> <p>Discussion (August 19, 2020): No action required. Item addressed.</p> <p>Discussion (September 15, 2020): Discussed under Item # 13.</p>	

COMMENTS /OVERVIEW OF CHANGES	ACTION BY
<p>16 OAPC: In section 308.08.03.04, it states, <i>“HMA placed on tack coat for which laboratory and field test results are rejectable shall be subject to repair or payment adjustment.”</i> Can we please confirm that BOTH the lab and field test results have to be rejectable before the HMA placed on top is subject to repairs or payment adjustments.</p> <p>Discussion (May 19, 2020): MTO: Yes, both should be included. MTO: Besides the field verification of application rates, another option to be considered is field verification of residue using LS-229. This is to ensure that the residual application rates are met, following the recommendations of the TTI Report (August 2018). If the tack coat residue is unacceptably low when sampled from the distributor on the job site, it should not be allowed in the work to lower the risk for both Owner and Contractor.</p> <p>Discussion (August 19, 2020): New draft specification reworded to include ‘Both’ for further clarification. OAPC asked to leave the Residue determination by distillation method only.</p> <p>Action Item: No further action required. Item closed</p>	<p>Item Closed</p>

<p>17</p>	<p>OAPC: In the previous versions the payment deductions were based on unit price for the Tack Coat item only. In this version the HMA placed on top of a rejectable tack coat may be subject to remove and replace or a negotiated price adjustment. This is new. The total penalty for a tack coat issue could cause a twofold payment adjustment – one for the tack coat and another for the HMA. The overall value of the penalty could be many times greater than the cost of the Tack Coat item. This seems to be extreme in terms of risk assessment for the prime contractor.</p> <p>In many cases the tack coat operation could be a sub-contracted service. Those subcontractors may be in a limited position to take on the full risk exposure for one failed subplot of tack coat.</p> <p>Discussion (May 19, 2020): MTO: Absence or insufficient tack coat and paving on uncured tack coat tack will affect the performance of HMA layers. Pavement ME could be used to review loss of performance. Other OAPC comments are welcome, however the findings and recommendations of the TTI and KPMG Reports (August 2018) should be considered. These reports suggest that pavements can lose up to 90% of their design life due to lack of tack coat performance. More so, the Asphalt Institute (AI) reports pavement life loss of up to 60% based on tack coat bond loss. AI also reports tack coat cost of 1-1.5% of the pavement total cost and tack coat bond failure of 30-100% of the pavement total cost. Furthermore, at the 2017 PIQ, OAPC presented costs for tack coat (0.1-0.2% of Project total, 1-1.5% of Pavement total), mill and overlay (1-2% of Project total, 1-2.5% of pavement total), and bond failure was presented as 30-100% of pavement total cost. Based on these numbers, if contractor’s risks is considered “extreme”, how would OAPC categorize MTO’s risk?</p> <p>Action Item: OPAC to present their position on this matter. MTO: The contractor is responsible for the work performed by the affiliated company in the case of integrated contractors or independent subcontractors in the other cases. Independent subcontractors are sometimes supplying 40% residue tack to avoid failures and periodically calibrate the equipment. They are concerned that they are being under bid by companies not following the same guidelines. There have been instances where the contractor instructed the independent subcontractor to lower the application rate to speed up setting prior to paving. These actions could lead to significant costs for MTO in the long term. Field verification of application rate may discourage these types of issues.</p> <p>Discussion (September 15, 2020): OAPC noted that they have discussed this internally and they agree with the ministry position on this. MTO noted that as this group agreed, this will remain in the spec and a 5 percent payment adjustment to the HMA price will be applied where tack coat fails.</p>	<p>Item Closed</p>
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COMMENTS /OVERVIEW OF CHANGES	ACTION BY
<p>18 OAPC: Echo an earlier comment related to the difficulty in following ASTM D2995 for short closures, ie 401 night paving. I realize the MTO is trying to get better quality but they need to allow us sufficient time to perform that quality as well.</p> <p>Discussion (May 19, 2020): MTO: Discussed above in Concern #3.</p> <p>Not discussed in August 19,2020 meeting.</p>	
<p>19 OAPC: I would like more clarity on the two hour limit. I believe contractors may be looking to switch to SS1-HH in some instances because it is less tacky when set and there is less pick up. The tack comes in play (in my opinion) when the hot mix heats the tack coat and it becomes more adhesive.</p> <p>Discussion (May 19, 2020): MTO: Even SS-1 HH is not perfect. Further examination of the 2 hour “limit” is required. However, this is not a new requirement. It was published in April 2007 in section 308.07.01 of OPSS.PROV 308 with no concerns. OAPC may have to look into tack coat best practices and make suggestions.</p> <p>Not discussed in August 19,2020 meeting</p> <p>Discussion (September 15, 2020): There was a discussion on the 2 hour limit. OAPC noted that this is a constructability issue and that this have now become more critical as tack coat application rate has increased and more time will be needed for curing and should have more tack coated area to work with paving. MTO noted that that this 2-hour limit was to have enough tack coated area to pave for 2 hours. MTO noted that the ministry can leave this out and will leave this with the Contract Administrator and the Contractor to decide on how much area should be tack coated prior to paving.</p> <p>Action item: MTO to revise this sentence for 2 hour limit.</p>	<p>Item Closed</p>
<p>20 OAPC: The 2 hour limit and the need to have the tack coat set or cured before paving seem to work against each other.</p> <p>Discussion (May 19, 2020): MTO: It is related to the 2-hour limit concern #19. See above. Not discussed in August 19,2020 meeting</p>	

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<p>21 OAPC: This SP does not mention RS-1. Why is this not listed as an approved product?</p> <p>Discussion (May 19, 2020): MTO: Performance of RS-1 needs to be further evaluated. Contractors can always propose it as an alternative tack coat product, however automatic approval is not guaranteed for its use.</p> <p>Not discussed in August 19,2020 meeting</p> <p>Discussion (September 15, 2020): MTO noted that RS-1 will be left as change proposal at this time.</p>	
<p>22 OAPC: Not sure under what conditions but we have heard of tack coat applicators spraying a section at the end of a working shift so it is cured by the time the next paving shift starts. If there is a two hour limit does that mean that no paving starts until tack coat is applied and sets at start of shift? Will this have a big impact on limited working hours on projects or as you said in projects done in cool conditions (night or north) where it takes longer to set?</p> <p>Discussion (May 19, 2020): MTO: It is related to the 2-hour limit concern #19. See above. Not discussed in August 19,2020 meeting</p> <p>Discussion (September 15, 2020): Discussed under Item # 19.</p>	
<p>23 OAPC: Is ASTM D2995 Option A well-known to Ontario industry and accepted? We assume it's like the Surface Treatment SP in that you tare a plate (pizza box or carpet sample), spray it and weigh the sample. This will take some time and the need for a calibrated certified scale (with generator to power) on site and then the spraying of the sample location after sampling.</p> <p>Discussion (May 19, 2020): MTO: May consider replacing it with another method if found acceptable. If done for information, QA or CA will do it. Can use a generator to power scales, however battery operated scales exist.</p> <p>Action item: MTO and OAPC to discuss further Not discussed in August 19,2020 meeting</p> <p>Discussion (September 15, 2020): Discussed under Item # 7. MTO will add an alternative method in addition to ASTM D2995.</p>	<p>Item Closed</p>

	COMMENTS /OVERVIEW OF CHANGES	ACTION BY
24	<p>OAPC: We have concerns with subjective interpretation with full coverage or uniform coverage – like visual segregation assessments and pavement condition rating; there is a need for education with a clear set of guidelines for visual assessment to reduce the subjectivity.</p> <p>Discussion (May 19, 2020): MTO: Some visual defects are obvious for trained staff – training is key for CA, QA staff OAPC: Can we add clarification in the field guide? MTO: The field guide is currently being published; however trained staff can identify visual defects.</p> <p>Not discussed in August 19,2020 meeting</p> <p>Discussion (September 15, 2020): MTO noted that wording will be clarified, and more guidance will be provided in the Field Guide regarding assessment of full coverage.</p>	Item Closed
25	<p>OAPC: SS-1HH and SS-1H are not permitted on FDR with expanded asphalt. What is the reason for this?</p> <p>Discussion (May 19, 2020): MTO: Discussed above. There have been failures. Not discussed in August 19,2020 meeting</p> <p>Discussion (September 15, 2020): MTO noted that the group is in agreement that there were failures before.</p>	

COMMENTS /OVERVIEW OF CHANGES	ACTION BY
<p>26 OAPC: 308.10.01.01 'Payment Adjustment for Tack Coat' – Why remove the word 'reduction' and replace it with 'adjustment' when discussing payment? When the adjustment can only reduce the price, we believe 'reduction' is the most accurate word.</p> <p>Discussion (May 19, 2020): MTO: It was used to be consistent with other specifications. It could be changed to “reduction”, if allowed by CMO’s standard and specifications writing guidelines. OAPC: We can help the CA to get things done correctly. Each HMA lot is 5,000 tonnes which is a lot of removal. MTO: In the past an AG report recommended immediate specification changes due to issues related to asphalt cement quality. If issues related to tack coat quality are not addressed, a similar situation could happen. Hoping not to see too many failures. OAPC: Contractors may want to do other routes like taking cores instead of remove/replace. MTO: TTI and KPMG reports may not be accurate in terms of pavement loss of life, however lack of bond due to tack coat failures is of concern.</p> <p>Not discussed in August 19,2020 meeting</p> <p>Discussion (September 15, 2020): MTO noted that we are in agreement to change to reduction, but will have to go through CMOB Office to confirm.</p>	<p>MTO</p>

COMMENTS /OVERVIEW OF CHANGES	ACTION BY
<p>27 OAPC: Is full depth core absolutely necessary?</p> <p>Discussion (May 19, 2020): MTO: The bond testing needs to be done at the interface of a core that has at minimum two layers of HMA with tack coat between them. MTO will examine the requirement for a minimum core depth, based on the equipment limitations.</p> <p>Not discussed in August 19,2020 meeting</p> <p>Discussion (September 15, 2020): OAPC noted that there should be some minimum requirement about the core depth like minimum two lifts required for cores for bond testing. MTO noted that minimum core depth requirement has been discussed under item # 3. OAPC also noted that if cores are taken from the wheel path for bond testing, then this will affect IRI results and these areas should be exempt from IRI testing requirements. OAPC also noted about invoking the referee testing and asked that it should be extended to 5 business days instead of 2 business days. MTO noted that this 2 day requirement is not new and is needed as we are dealing with emulsions that are diluted and testing should be completed in a timely manner as delaying will affect the stability of the diluted emulsion. MTO noted that they will consult these internally.</p>	<p>Item Closed</p>

NEXT STEPS
<p>After three meeting, this group has now reached its end of mandate and will be dissolved after this meeting. This group has discussed all the items that were of concerns for the industry and ministry.</p> <p>MTO will provide the minutes to OAPC and will provide an update to the OAPC/MTO Hot Mix Subcommittee.</p> <p>MTO will revise the spec to cover the items discussed by this group.</p> <p>MTO and OAPC appreciated the hard work of this group and collaboration between the group members.</p> <p>Next Meeting: Group dissolved, no further meetings.</p>