

AASHTO Subcommittee on Materials
Technical Section 2d
Proportioning of Asphalt-Aggregate Mixtures
WEBINAR
Wednesday, February 12, 2014

MINUTES

- I. Meeting was called to order at 2 pm EST by Chair Georgene Geary and Vice- Chair Chris Abadie**
- II. Attendees were requested to email Tracy Barnhart (AMRL) to signify attendance, See Appendix B**
- III. The Technical Section Minutes from August 7, 2013, meeting in Stateline, Nevada were approved after a motion by Louisiana and a second by Oregon**
- IV. Old Business**
 - A. 2013 SOM Ballot Items - Items 35-46**

Item 35 – Concurrent ballot to revise T 245 " Resistance to Plastic Flow of Asphalt Mixtures Using Marshall Apparatus"

Negatives: Tennessee

Comments: See Appendix C

Tennessee's negative related to comments that they submitted that did not make the ballot. One was related to cutbacks, but other States noted that some local governments still use cutbacks so we should keep in for now. Tennessee was identified as one of the main users of this standard. Tennessee withdrew their negative and volunteered to rewrite the standards (including their comments) and separate into a procedure and a test method for discussion at the Annual meeting. Other editorial changes were made as shown in appendix C. The changes from the 2013 ballot will appear in the 2014 version.

Item 36 – Concurrent ballot item to REVISE T 283- "Resistance of Compacted Asphalt Mixtures to Moisture-Induced Damage"

Negatives: None

Comments: See Appendix C

The Chair related that Note 4 was changed from: "The time required for some specimens to achieve the correct degree of saturation may be less than 5 minutes. In addition, some specimens may require the use of an absolute pressure of greater than 67 kPa (less than 10 in. Hg partial pressure). The time and degree of vacuum applied shall not exceed those specified in the preceding section."

To: "The time required for some specimens to achieve the correct degree of saturation (between 70 and 80 percent) may be less than 5 minutes. In addition,

some specimens may require the use of an absolute pressure of greater than 67 kPa (26 inches Hg partial pressure) or less than 13 kPa (10 inches Hg partial pressure)." PennDOT comments on mixture conditioning and R 35 were deferred until the R35 discussion. Changes will appear in the 2014 version.

Item 37 – Concurrent ballot item to REVISE T 312- “Preparing and Determining the Density of Asphalt Mixture Specimens by Means of the Superpave Gyratory Compactor”

Negatives: None
Comments: See Appendix C

Comments were reviewed, see Appendix C. Changes will appear in the 2014 version.

Item 38 – SOM ballot item to REVISE T 312-“Preparing and Determining the Density of Asphalt Mixture Specimens by Means of the Superpave Gyratory Compactor”

Negatives: None
Comments: No comments

Changes will appear in the 2014 version.

Item 39 - SOM ballot item to REVISE T 321- “ Determining the Fatigue Life of Compacted Asphalt Mixtures Subjected to Repeated Flexural Bending

Negatives: None
Comments: See Appendix C

Comments requesting changes in Section 8.6 were not made as noted in Appendix C, the Chair felt they read better as shown below. Other changes will appear in the 2014 version.

8.6 Select the desired initial **peak-to-peak** strain (**generally in the 250 to 750 microstrain for conventional asphalt mixtures**) and loading frequency, and the load cycle intervals at which test results are recorded and computed and enter them into the recording and control component’s test program. **In some instances, with highly modified materials for specialized applications, testing has been conducted with initial peak-to-peak strains as high as 2000 microstrain.** Set the loading frequency within a range of 5 to 10 Hz.

Note 3—**Selection of load cycle intervals at which test results are computed and recorded may be limited by the amount of memory available for storing data. The data collection sequence should ensure that at least 200 data points are captured within each log decade of loading and that these should enable a smooth curve of flexural stiffness versus load cycles to be obtained. The collection sequence shall include data capture at cycle 50.**

Item 40 – Concurrent ballot item for a New Provisional Standard MP XYZ – (old MP 15) “Reclaimed Asphalt Shingles For Use in Asphalt Mixtures”

Negatives: None
Comments: See Appendix C

Comments were reviewed, see Appendix C. Changes will appear in the 2014 version.

Item 41 – Concurrent ballot item for a New Provisional Standard PP XYZ- (old PP 53) – “Design Considerations When Using Reclaimed Asphalt Shingles in Asphalt Mixtures”

Negatives: None

Comments: See Appendix C

Comments were reviewed and some changes incorporated, including changing Note 6 to '0.7 to 0.85' instead of '0.7 to 1.0', see Appendix C. Changes will appear in the 2014 version.

Item 42 – SOM ballot item to REVISE PP 60- “Preparation of Cylindrical Performance Test Specimens Using the SGC”

Negatives: None

Comments: See Appendix C- all editorial

Changes will appear in the 2014 version.

Item 43 – SOM ballot item for a New Provisional Standard TP xx, “Determining the Damage Characteristic Curve of Asphalt Mixtures from Direct Tension Cyclic Fatigue Tests”

Negatives: None

Comments: See Appendix C

This will be a new Provisional TP standard in the 2014 edition.

Item 44 – Concurrent ballot item for a New Provisional Standard PP xx, “Standard Practice for Permeable Friction Course Mix Design”

Negatives: None

Comments: See Appendix C

Title actually is “Materials Selection and Mixture Design of PFC”

Comments resulted in some changes. Air void content of PFCs was a discussion item. Air voids are on the range of 18-22% and are hard to control. It was agreed that for clarity Section 7.3.7 (b) would be editorially changed to "b) air void content in accordance with Table 5". This will be a new Provisional PP standard in the 2014 edition.

Item 45 – Concurrent ballot item for a New Provisional Standard TP xx, “The Abrasion Loss of Asphalt Mixture Specimens”

Negatives: Pennsylvania

Comments: See Appendix C

Reference was added to the NCHRP Report 640 that is the basis of the new standard. Discussion was held on the air voids and the fact that field samples are especially difficult to test due to the fact that they are on the order of <1 to 1-1/4 inches thick. Pennsylvania withdrew their negative based on the discussion and the change made in Item 44, above. This will be a new Provisional TP standard in the 2014 edition.

Item 46– Concurrent ballot item to REVISE R 35, “Superpave Volumetric Design for Asphalt Mixtures”

Negatives: None

Comments: See Appendix C

The difference between oven condition and moisture condition was discussed. Matt Corrigan explained the changes and identified that R35 Section 11 is still in conflict with T-283 as related to time to condition (T-283 says 16 hours and R35 refers to R30, which is 2 or 4 hours). A Task Force was established to review the history on R35, Section 11 and see if it was added incorrectly or changed (the consensus was that Section 11 needs to be amended). Section 12 in R35 was also questioned. The TF consists of Maria Knake, Matt Corrigan, Tim Ramirez, Joe DeVol and Chris Abadie. The TF may need to do a survey of the States to see what their current practice is, Georgia and one other State noted they use the 16 hours for T-283.

NOTE: After the meeting the Chair found essentially the same wording in Section 11 going back to the original 1995 Provisional PP28 version of R 35. The issue is: T283 (which was a test before R 35 or R 30 were even provisionals) requires placing the loose mixture in an oven for 16 +/- 1 hrs. for conditioning before compacting for the test. R35 refers to R30 for conditioning for moisture testing and compacting, it then references T283 only for testing the compacted mixture. There is no 16 hr. conditioning in R 30. So if you follow R 35 Section 11 you do not use the 16 hours required in T 283 and you change the test.

B. Technical Section Ballot Items from Fall 2013 TS ballot

Item No. 1 - New Provisional Standard “Determining Asphalt Mixture Critical Conditions for Rutting Evaluation by Means of Dynamic Repeated Load Triaxial (RLT) Test”

Item No. 2 - New Provisional Standard “Determining Thermal Cracking Properties of Asphalt Mixtures through Measurement of Thermally Induced Stress and Strain”

Item No. 3 - New Provisional “Estimating Effect of RAP and RAS on Blended Binder Performance Grade without Binder Extraction”

Item No. 4 - New Provisional Standard “Characterizing Aggregate Structure in Asphalt Mixes by Means of Planar Imaging or X-Ray Computed Tomography”

Item No. 5 - New Provisional Standard “Determination of the Voids of Dry Compacted Filler”

Item No. 6 - New Provisional Standard “Permanent Deformation Resistance of Asphalt Mixtures using Incremental Repeated Load Permanent Deformation (IRLPD) Test”

Will discuss at the SOM Annual meeting in Minneapolis- still have to be balloted by full SOM if TS 2d approves to move forward. All items passed the TS ballot, but all items did have negatives, and the Chair has some concerns that some of them are not practical or are duplicative.

C. Task Force Reports

1. T 247 – “Preparation of Test Specimens of Bituminous Mixtures by Means of the California Kneading Compactor”
Lead: Chuck Luedders, Central Federal Lands, Nevada, Maria Knake, AMRL – Arizona–
Address comments from 2009 SOM ballot – TF hoped to have an update for the SOM Annual meeting.

V. New Business

A. AMRL Comments- Will report on in August

B. NCHRP - The Chair reminded the TS that proposed NCHRP Problem Statements are due July 1, 2014 for SOM endorsement

C. New Business Concerning Standards

1. Mixture ETG Task Force Update
Flow Number Study-Jeff Withee reported that NCAT is doing some testing with the iRLPD, but they are having some issues with the software that is slowing them down. They are also doing the AMPT friction reducer study. Hopefully they will have an update for the July/August SOM meeting.
Warm Mix TF-NCHRP 9-43 results are still being analyzed for any changes needed. In 2012 NAPA reported 24% of asphalt was WMA.
RAP/RAS TF- NCHRP 7-52 results will be used to make recommendations for changes to M323 and R35. M 323 changes will be discussed at the April Mix ETG meeting, but they do not expect the standards to be ready for ballot until after the Fall 2014 ETG meeting.

D. Standards Requiring Reconfirmation

AASHTO will put out the reconfirmation ballot this year -Status of Standards is included in Appendix B.

E. Potential SOM TS Ballot Items for Spring 2014?

To be identified after the April 1-2, 2014 Mix ETG meeting in San Antonio, Texas

VI. The meeting was adjourned at 3:50 pm

Appendices

A- TS 2d Webinar attendees (page 6-7)

B- Status of Standards (page 8-10)

C- TS 2d SOM 2013 Ballot Results and Comments (page 11-22)

Appendix A

Attendees
TS 2d Web Meeting
February 12, 2014

Last Name	First Name	Affiliation	Email Address (if known)
Abadie	Chris	Louisiana DOT	Chris.abadie@LA.GOV
Bailey	Bill	Virginia DOT	Bill.Bailey@VDOT.Virginia.gov
Barnhart	Tracy	AASHTO	tbarnhart@amrl.net
Benson	Michael	Arkansas Highway and Transportation Department	Michael.Benson@ahtd.ar.gov
Blackburn	Lyndi	Alabama DOT	blackburnl@dot.state.al.us
Bukowski	John	FHWA	John.Bukowski@dot.gov
Corrigan	Matthew	FHWA	Matthew.corrigan@dot.gov
Dabbs	Russell	AASHTO	rdabbs@ashto.org
Davis	Steve	Washington DOT	DavisSJ@wsdot.wa.gov
DeVol	Joe	Washington DOT	DeVolJ@wsdot.wa.gov
Gallivan	Victor (Lee)	FHWA	Victor.gallivan@dot.gov
Geary	Georgene	Georgia DOT	ggeary@dot.ga.gov
Hazlett	Darren	Texas DOT	Darren.Hazlett@txdot.gov
Johnson	Brian	AASHTO	bjohnson@amrl.net
Knake	Maria	AASHTO	mknake@amrl.net
Korschgen	Brian	AASHTO	bkorschgen@ashto.org
Lutz	Robert	AASHTO	rlutz@amrl.net
Malusky	Katheryn	AASHTO	kmalusky@ashto.org
Metcalfe	Oak	Montana DOT	rmetcalfe@mt.gov
Mullis	Cole	Oregon DOT	Cole.f.mullis@odot.state.or.us
Rafalowski	Mike	FHWA	Michael.rafalowski@dot.gov
Ramirez	Timothy	Pennsylvania DOT	TRAMIREZ@pa.gov
Rothblatt	Evan	AASHTO	erothblatt@ashto.org
Schiebel	Bill	Colorado DOT	Bill.schiebel@state.co.us

Sholar	Greg	Florida DOT	Gregory.sholar@dot.state.fl.us
Sims	J		
Turgeon	Curt	Minnesota DOT	Curt.turgeon@state.mn.us
Vasquez	Albert	CalTrans	Albert.vasquez@dot.ca.gov
Withee	Jeffrey	FHWA	Jeff.withee@dot.gov
[no name given]	[no name given]	MassDOT Research and Materials	[no contact information given]

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APPENDIX B

AASHTO 33 rd edition(34 th edition)	ASTM	Title	Reconfirmation Required	Comments
R30-02(2010) R30-14		Moisture Conditioning of Hot Mix Asphalt (HMA)	2018	
R35-12 R35-14		Superpave Volumetric Design for Hot Mix Asphalt (HMA)	2018	
R46-08(2012)		Designing Stone Matrix Asphalt (SMA)	2016	
R-62-13		Developing Dynamic Modulus Master Curves for Asphalt Mixtures	2017	New Full Standard (was PP-62)
M323-13		Superpave Volumetric Mix Design	2017	
M325-12		Stone Matrix Asphalt (SMA)	2016	
T167-10	D1074-98	Compressive Strength of Hot Mix Asphalt	2014	
T245-13 T245-14		Resistance to Plastic Flow of Asphalt Mixtures Using Marshall Apparatus	2018	
T246-10	D1560-05	Resistance to Deformation and Cohesion of Hot Mix Asphalt (HMA) by Means of Hveem Apparatus	2014	
T247-10	D1561-92	Preparation of Test Specimens of Hot Mix Asphalt (HMA) by Means of California Kneading Compactor	2014	Does not need P&B- probably should be a practice
T283-07 (2011) T283-14		Resistance of Compacted Hot Mix Asphalt (HMA) to Moisture-Induced Damage	2018	P&B work underway
T312-12 T312-14		Preparing and Determining the Density of Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyrotory Compactor	2018	Needs P&B
T320-07(2011)		Determining the Permanent Shear Strain and Stiffness of Asphalt Mixtures Using the Superpave Shear Tester (SST)	2015	Needs P&B
T321-07(2011) T321-14		Determining the Fatigue Life of Compacted Hot Mix Asphalt (HMA) Subjected to Repeated Flexural Bending	2018	Needs P&B
T322-07(2011)		Determining the Creep Compliance and Strength of Hot	2015	Needs P&B

		Mix Asphalt (HMA) Using the Indirect Tensile Test Device		
T340-10		Determining Rutting Susceptibility of Hot Mix Asphalt (HMA) Using the Asphalt Pavement Analyzer (APA)	2014	Needs P&B
T342-11		Determining Dynamic Modulus of Hot Mix Asphalt (HMA)	2015	Needs P&B
T344-12		Evaluation of Superpave Gyratory Compactor (SGC) Internal Angle of Gyration Using Simulated Loading	2016	

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AASHTO 17th edition	Title	First published	Last Ballot Action	Next Required Action	Comments
MP15-09(2012) MP-23-14	Specification for Use of Reclaimed Asphalt Shingles in Hot Mix Asphalt	2006 2014	2013	2015	Expired – New Provisional
PP53-09(2012) PP-78-14	Design Considerations When Using Reclaimed Asphalt Shingles in New Hot Mix Asphalt	2006 2014	2013	2015	Expired- New Provisional
PP60-13 PP60-14	Preparation of Cylindrical Performance Test Specimens Using the Superpave Gyrotory Compactor	2009	2013	2015	
PP61-13	Developing Dynamic Modulus Master Curves for Asphalt Mixtures using the Asphalt Mixture Performance Tester (AMPT)	2009	2012	2014	
PP62-10	Developing Dynamic Modulus Master Curves for Asphalt Mixtures				Moved to full standard- now R-62
TP79-13	Determining the Dynamic Modulus and Flow Number for Asphalt Mixtures Using the Asphalt Mixture Performance Tester (AMPT)	2009	2012	2014	
PP-76-13	Troubleshooting Asphalt Volumetric Differences between Superpave Gyrotory Compactors (SGCs) Used in the Design and Field Management of Superpave Mixtures	2013		2015	
TP-105-13	Determining the Fracture Energy of Asphalt Mixtures Using the Semi Circular Bend Geometry (SCB)	2013		2015	
TP -107-14	Determining the Damage Characteristics Curve of Asphalt Mixtures from Direct Tension Cyclic Fatigue Tests	2014	2013	2015	New Provisionals
PP-77-14	Permeable Friction Course Mix Design Materials Selection and Mixture Design of Permeable Friction Courses (PFC)	2014	2013	2015	New Provisionals
TP-108-14	The Abrasion Loss of Asphalt Mixture Specimens	2014	2013	2015	New Provisionals

TS 2d SOM 2013 Ballot Results and Comments

Item Number:	35
Description:	Concurrent ballot item to REVISE T 245 "Resistance to Plastic Flow of Asphalt Mixtures Using Marshall Apparatus". See pages 6 and 49-53 of the minutes.
Decisions:	Affirmative: 45 of 53 Negative: 1 of 53 No Vote: 7 of 53

Kentucky Transportation Cabinet (Allen H Myers) (allen.myers@ky.gov)

Is it appropriate to include the calibration instructions for the automatic hammer in Section 3.3.2, a portion of the Apparatus section? Should a new "Calibration" section be created for this information?

Affirmative

Consider for next ballot

In the fourth sentence of Section 3.3.2, delete the extra space between "using the automatic" and "hammer.". In the seventh sentence of Section 3.3.2, add "two sets of " between "densities of the" and "specimens". Also in the seventh sentence of Section 3.3.2, change "2.0%" to "2.0 percent,". In the eighth and final sentence of Section 3.3.2, change "2.0%" to "2.0 percent,". Also in the eighth and final sentence of Section 3.3.2, change "mechanical hammer" to "automatic hammer".

Agree-editorial

Disagree, did not change

In the first sentence of Section 4.5.1, add a comma after "hammer". In the seventh sentence of Section 4.5.1, add a comma after "high". Also in the seventh sentence of Section 4.5.1, change "wihtin" to "within". Next in the seventh sentence of Section 4.5.1, change "range of compacting" to "range of compaction". Separate the current seventh sentence of Section 4.5.1 into three sentences that read as follows: "...within the range of compaction temperatures. However, if the mixture is below the compaction temperature, remove the mixture from the mold, and replace it in the oven until the desired temperature is reached. Next, repeat Section 4.5.1.". In the current eighth sentence of Section 4.5.1, change "than a single instance." to "than once.". In the current ninth and final sentence of Section 4.5.1, change "to the minimum" to "for the minimum". Also in the current ninth and final sentence of Section 4.5.1, change "minimum required time" to "minimum time required". Finally in the current ninth and final sentence of Section 4.5.1, add "the" between "to achieve" and "compaction".

Agree-editorial

Did as two sentences

Agree-editorial

Illinois Department of Transportation (David L. Lippert) (david.lippert@illinois.gov)

4.5.1 - Sentence 7 (1st sentence of change) - misspelling, change "wihtin" to "within"

Affirmative

Agree-editorial

Tennessee Department of Transportation (Gary D. Head) (Gary.Head@tn.gov)

- Page 6 of the minutes imply that the email TN sent to Georgene (attached) with the revisions we recommended were not presented. Granted, they were sent less than a week before the meeting. There are a handful of concerns addressed in the version we developed here (attached) that were not addressed in what was sent to Ballot.

Negative

Discuss cutbacks - TN withdrew negative based on balloting next year

Federal Highway Administration (John R Bukowski) (john.Bukowski@dot.gov)

Suggest approve.

Rhode Island Department of Transportation (Mark E. Felag) (mfelag@dot.ri.gov)

Section 4.5.1 - 1st sentence of revision - 'wihtin' should be 'within'.

Affirmative

Agree-editorial

Note 1 was on a page that was removed to make the file smaller.

I did not see a Note 1.
 For Note 2 I did not see a reference to it in the standard. I did not see any for the other notes as well.
 Note 2 - In the standard I did not see any reference to heating times nor in the note does it mention what an 'excessive' heating time is. (I realize this is hard to determine.)
 (For the Note 2 comments above the reference to it could be in the last sentence of the revision in 4.5.1. The note would make more sense to state, 'Note 2 - Avoid heating past the point of the minimum required time since doing so may cause oxidation and loss of volatiles.'

Consider for next ballot

Arkansas State Highway and Transportation Department (Michael Benson)
 (michael.benson@arkansashighways.com)

Affirmative

Arizona Department of Transportation (Bill Hurguy) (bhurguy@azdot.gov)

Typo on T245 Section 4.5.1 "within" is spelled incorrectly

Agree-editorial

(1) In the first sentence of the proposed revisions to Section 4.5.1: "within" is spelled incorrectly.

Affirmative

Agree-editorial

Pennsylvania Department of Transportation (Robert D Horwhat) (rhorwhat@pa.gov)

"Note 2" was added and the original "Note 2" was changed to "Note 3", but there isn't a "Note1". Otherwise, we agree with the changes.

Affirmative

Note 1-see above cmt

Missouri Department of Transportation (Brett Steven Trautman) (brett.trautman@modot.mo.gov)

Recommend affirmative vote with editorial comments: Section 3.3.2, line 9 add comma behind T 275. Section 4.5.1, line 9 change "wihtin" to "within".

Agree-editorial

Item Number:	36
Description:	Concurrent ballot item to REVISE T 283- "Resistance of Compacted Asphalt Mixtures to Moisture-Induced Damage". See pages 5 and 54-59 of the minutes.
Decisions:	Affirmative: 46 of 53 Negative: 0 of 53 No Vote: 7 of 53

Kentucky Transportation Cabinet (Allen H Myers) (allen.myers@ky.gov)

In Section 9.1, delete the extra space between "drying" and "mixture".
 In the first sentence of Note 4 below Section 10.3.1, change "5 minutes." to "5 min.". The third and final sentence of Note 4 below Section 10.3.1 contradicts the second sentence of this section. The third sentence restricts the vacuum to a maximum of 67 kPa, but the second sentence states that pressures greater than 67 kPa may be required.

Affirmative

Agree-editorial

Agree- see Arizona note

Rhode Island Department of Transportation (Mark E. Felag) (mfelag@dot.ri.gov)

Section 1.1 - The acronym HMA is still used in one sentence.
 Section 2 - Referenced Documents - Some of the names may need to be changed (i.e., HMA to Asphalt Mixture).
 Note 3 and Note 4 - I did not see a reference to them in the standard.

Affirmative

Agree-editorial, Publication staff to handle references

Arizona Department of Transportation (Bill Hurguy) (bhurguy@azdot.gov)

(1) It appears to us that the first two sentences of the proposed Note 4 should be revised to read,

Affirmative

"The time required for some specimens to achieve the correct degree of saturation (between 70 and 80 percent) may be less than 5 minutes. In addition, some specimens may require the use of an absolute pressure of greater than 67 kPa (26 inches Hg partial pressure) or less than 13 kPa (10 inches Hg partial pressure)." It also appears to us that the last sentence of the proposed Note 4 should be deleted since it seems to conflict with the requirements specified in the first two sentences of the proposed Note 4. In addition, incorrect indentation is used in the proposed Note 4.

Agree-changes made

(2) In both Section 6.5 and Section 7.4, a reference to AASHTO T 167 is being added. No provision is given in those Sections for making adjustments to T 167 to provide the specified percent air voids.

Disagree - T 167 already assumes 7.0 air voids (T167, note 6)

Pennsylvania Department of Transportation (Robert D Horwhat) (rhorwhat@pa.gov)

Affirmative for proposed revisions.

Affirmative

Suggest reviewing/revising T 283 Sections 6.4 and 6.5 (mixture conditioning) to agree with or properly address R 35, Section 11.1 (mixture conditioning) or clarify either in T 283 or R 35 how to go from R 35 to T 283 due to the differences in mixture conditioning.

DISCUSS

Missouri Department of Transportation (Brett Steven Trautman) (brett.trautman@modot.mo.gov)

Recommend affirmative vote with comments: Section 6.5, line 4 following "This level of voids can be obtained by" suggest adding "adjusting the standard molding load in T 167;" similar to the other specifications that are referenced in this section.

Disagree - T 167 already assumes 7.0 air voids (T167, note 6)

Item Number:	37
Description:	Concurrent ballot item to REVISE T 312- "Preparing and Determining the Density of Asphalt Mixture Specimens by Means of the Superpave Gyrotory Compactor" See pages 6 and 60-67 of the minutes.
Decisions:	Affirmative: 46 of 53 Negative: 0 of 53 No Vote: 7 of 53

Kentucky Transportation Cabinet (Allen H Myers) (allen.myers@ky.gov)

Do any state agencies actually use a Coordinate Measuring Machine (CMM)? Are the proposed changes beneficial to state transportation agencies?
In Section 2.2, move the reference to ANSI/ASME

Affirmative

No, but it can be a benefit to a state that only calibrates on a yearly cycle.

B89.4.19 to a location above the reference to ASME B46.1 rather than below it.
 In the first sentence of the third paragraph in Section A1.1, change "themolds" to "the molds".
 In Note A1 below Section A1.1, change "...it is considered best practice for a lab to also use the three-point..." to "...it is recommended that a lab also use the three-point...".
 Label the paragraph below Section A2.3 (the description of the CMM) as Section "A2.4". In the first sentence of the paragraph below Section A2.3, place the wording "Coordinate Measuring Machine (CMM)" in italics. Also in the first sentence of the paragraph below Section A2.3, change "making" to "performing". Add a period at the end of the first sentence of the paragraph below Section A2.3.
 In the third and final sentence of the paragraph below Section A2.3, change "in accordance with" to "according to". Also in the third and final sentence of the paragraph below Section A2.3, add "Annex" between "with" and "A6."
 Add a period at the end of the definition for "D" below Equation A1.1 below Section A4.4.2.
 In Note A6 below Equation A1.1 below Section A4.4.2, add "ring" between "smaller than the master" and the comma following. Also in Note A6 below Equation A1.1 below Section A4.4.2, add "diameter" between "mold" and "is larger".
 Does the equation below Section A4.4.3 ("mm = in. x 25.40") need an identifying number (e.g., Equation A1.2)?
 Section A5.1 does not provide much detail regarding the procedure for obtaining measurements. More guidance is needed. In the second sentence of Section A5.1, change "taken" to "obtained". Add a period at the end of the second sentence in Section A5.1.
 In Section A5.1.1, add "information" between "Report" and "in accordance". Also in Section A5.1.1, change "...in A7 of this Annex." to "...in Annex A7."
 In Section A7.1.6, add a hyphen between "inside" and "diameter".

Agree-editorial

Disagree - leave as best practice as discussed at last yrs SOM

Agree-editorial

Agree-editorial

Agree-editorial

Agree-discuss?

Agree-editorial

Disagree, left as is

Mississippi Department of Transportation
 (James A. Williams)
 (jwilliams@mdot.state.ms.us)

Section A1.1 - This section states "This Annex covers the evaluation of the molds for compliance with the requirements outlined in Sections 4.2 and 4.3." R 18, Table A1.4 does not address checks of the mold deminsions, however it is felt that the language in T 312 should be consistent with R18. It is believed that the intent is for the mold deminsions to be "checked" for compliance with the requirements of T 312 every 12 months or 80 hours of operation. The following wording is recommended.

Affirmative

Agree-editorial
 change made

"This Annex covers the evaluation of the molds as a check for compliance ..."

Agree-editorial

Rhode Island Department of Transportation
 (Mark E. Felag) (mfelag@dot.ri.gov)

A1.1 - Place a space in the word 'themolds' so that it reads, 'the molds'
 There is no reference in the standard for Note A1 through A6.

Affirmative

Nevada Department of Transportation (Reid Kaiser) (rkaiser@dot.state.nv.us)

Sections 7.1 and 7.2 still reference ASTM D3202, which as been withdrawn since 2007 and will be deleted from section 2.2 on this revision.

Affirmative

I think this comment belongs with T 321 - agree- changes made to T 321

Arizona Department of Transportation (Bill Hurguy) (bhurguy@azdot.gov)

(1) In the first sentence of the proposed revisions to Section A1.1: "themolds" should be "the molds".

Affirmative

Agree-editorial

(2) In several locations, incorrect indentations are shown.

Agree-editorial

Washington State Department of Transportation (Kurt R Williams) (willikr@wsdot.wa.gov)

Comment:
Section A1.1- add a space between the words "the and molds."
Section A7.1.11- missing english UOM, add (0.004 in)

Affirmative

Agree-editorial

Pennsylvania Department of Transportation (Robert D Horwhat) (rhorwhat@pa.gov)

In Section A1.1, 3rd paragraph, 1st sentence, revise from "themolds" to "the molds".

Affirmative

Agree-editorial

Missouri Department of Transportation (Brett Steven Trautman) (brett.trautman@modot.mo.gov)

Recommend affirmative vote with editorial comments: Section A1.1, sentence 5, add space between "themolds" so that it shows "the molds".

Agree-editorial

Item Number:	38
Description:	SOM ballot item to REVISE T 312-"Preparing and Determining the Density of Asphalt Mixture Specimens by Means of the Superpave Gyrotory Compactor" See pages 4 and 68 of the minutes.
Decisions:	Affirmative: 46 of 53 Negative: 0 of 53 No Vote: 7 of 53
Item 38- NO COMMENTS	
Item Number:	39
Description:	SOM ballot item to REVISE T 321- " Determining the Fatigue Life of Compacted Asphalt Mixtures Subjected to Repeated Flexural Bending See pages 1-2 and 69-83 of the minutes.
Decisions:	Affirmative: 46 of 53 Negative: 0 of 53 No Vote: 7 of 53

Illinois Department of Transportation (David L. Lippert) (david.lippert@illinois.gov)

8.6 Note 3 -
Sentence 1 - misspelling "shuold" - change to "should"
Sentence 2 - misspelling "colectio" change to "collection"

Affirmative

Agree-editorial

8.7

Sentence 1 - misspelling "conditino" - change to "condition"

Kansas Department of Transportation (Richard E. Kreider) (richard.kreider@ksdot.org) 7.1 and 7.2 Update ASTM D 3202 to T 247.

Agree-editorial

Missouri Department of Transportation (Brett Steven Trautman) (brett.trautman@modot.mo.gov)

Recommend affirmative vote with the following editorial comments: Section 4.1, line 2, suggest replacing "HMA" with "asphalt mixture" in the first sentence and "asphalt mixtures" in the second sentence. Section 6.1, suggest replacing "HMA" with "asphalt mixture". Section 7.1, line 2, suggest replacing "hot mix asphalt" with "asphalt mixture". Section 7.2, line 1, suggest replacing "HMA" with "asphalt mixture". Section 7.2, line 2, suggest replacing "hot mix asphalt" with "asphalt mixture". Section 7.3, line 1, suggest replacing, "HMA" with "asphalt mixture". Section 8.6, line 1, suggest removing "in the" following "(generally)" so that it reads "(generally 250 to 750 microstrain for conventional asphalt mixtures)". Section 8.6, line 3, suggest ending the first sentence after the word "computed.", then creating a second sentence that says "Enter selected parameters into the recording and control components test program." for clarity. Section 8.6, Note 3, line 1, replace "shuold" with "should". Section 8.6, Note 3, line 2, suggest removing "that these" following "...each decade of loading and". Section 8.6, Note 3, line 3, replace "colectio" with "collection". Section 8.7, line 3 replace "conditino" with "condition". Section 12, suggest removing "hot mix" from key word references.

Agree-editorial

Disagreed, left as is

Disagreed, left as is

Disagreed, left as is

Agree-editorial

Item Number:	40
Description:	Concurrent ballot item for a New Provisional Standard MP XYZ " (old MP 15) "Reclaimed Asphalt Shingles For Use in Asphalt Mixtures" See pages 2-4 and 84-87 of the minutes.
Decisions:	Affirmative: 46 of 53 Negative: 0 of 53 No Vote: 7 of 53

Illinois Department of Transportation (David L. Lippert) (david.lippert@illinois.gov)

6.1 - last sentence - Is it necessary to include the words "and above"?

Yes

Rhode Island Department of Transportation (Mark E. Felag) (mfelag@dot.ri.gov)

There is no reference in the standard for Note 1.

Added Title to Note

South Carolina Department of Transportation (Merrill E Zwanka) (zwankame@scdot.org)

100% passing 3/8 sieve for RAS seems coarse. This seems like it should be finer - maybe 100% passing 1/4" or No. 4.

For discussion- was 95% passing in past-so getting finer

Pennsylvania Department of Transportation (Robert D Horwhat) (rhorwhat@pa.gov)

In Section 3.4, add space after "shingles"
In Section 5.1, add space after "9.5".

Agree-editorial

In Section 5.1, Note 3, if a supplier is blending RAS with another product (RAP, fine aggregate, etc.) they should be

Note says now that they must be considered in the final gradation

required to report the blend proportions.

Item Number:	41
Description:	Concurrent ballot item for a New Provisional Standard PP XYZ- (old PP 53) "Design Considerations When Using Reclaimed Asphalt Shingles in Asphalt Mixtures" See pages 2-4 and 88-92 of the minutes.
Decisions:	Affirmative: 46 of 53 Negative: 0 of 53 No Vote: 7 of 53

Illinois Department of Transportation (David L. Lippert) (david.lippert@illinois.gov)
Federal Highway Administration (John R Bukowski) (john.Bukowski@dot.gov)

Mississippi Department of Transportation (James A. Williams) (jwilliams@mdot.state.ms.us)

Rhode Island Department of Transportation (Mark E. Felag) (mfelag@dot.ri.gov)
Idaho Transportation Department (Mike Santi) (mike.santi@itd.idaho.gov)

South Carolina Department of Transportation (Merrill E Zwanka) (zwankame@scdot.org)
Missouri Department of Transportation (Brett Steven Trautman) (brett.trautman@modot.mo.gov)

5.1 need a period at the end of the second sentence.
5.1 - Note 3. delete period after Note 3 -
Suggest approve. Changes are based on criteria suggested by the Asphalt ETG.
However, suggest change note 6 for binder availability to a more realistic range of "0.70 - 0.85".
Section 4.1 - "... introduction of shingle aggregate from RAS will have a minor effect on gradation ..." It is recommended that the word "minor" be removed from this statement. Depending on the percentage of RAS incorporated into the mixture, some would not consider the effect on the gradation and/or mixture properties to be "minor."
Note 2 - It is assumed that the statement "... typically limit use of RAS to a maximum of 5 percent" is intended to be a maximum of 5 percent by weight of the aggregate. Although many states specify the allowable percentage of recycled material by the weight of the aggregate, some states utilize a percentage binder replacement. It is recommended that clarification of the note to indicate the intent of the typical maximum for RAS be included in Note 2.
Note 3 - Last Sentence - Delete "to be" and clarify that the results should be averaged instead of "combined" if that is the intent.
Note 6 - Using a binder availability factor of 1.0 may yeild "dry" mixes that are prone to durability issues. Would it be prudent to add a statement of caution if a value approaching 1.0 is used?

There is no reference in the standard for most of the Notes.
Comment:
-Section 5.1, Note 3, last sentence: "the sample may be to be run in two parts and the results combined."
Should this be " may need to be run...?"

Suggest changing "parts" to "increments".
Consider changing table to show percent aged binder instead of a combined percentage of RAP and RAS.
Recommend affirmative vote with the following editorial comments: Section 3.1, line 2, replace "relative" with "relatively". Section 5.1, line 1, remove comma after "T

Agree-editorial

Agree-change made to .70-.85

Agree-changed to 'can'

Agree-'by weight of the aggregate' added

Could be weighted average- so left as combined but added 'may need'

Agree-changes made to factor

Agree-editorial

Disagree- left as parts

Disagree-no def. of aged binder in stnd

Agree-editorial

164". Section 5.1, Note 3, remove period at the beginning of the sentence.

Item Number:	42
Description:	SOM ballot item to REVISE PP 60- "Preparation of Cylindrical Performance Test Specimens Using the SGC" See pages 2 and 93-95 of the minutes.
Decisions:	Affirmative: 46 of 53 Negative: 0 of 53 No Vote: 7 of 53

Rhode Island Department of Transportation (Mark E. Felag) (mfelag@dot.ri.gov)

Pennsylvania Department of Transportation (Robert D Horwhat) (rhorwhat@pa.gov)

The footnotes 1,2 after the AASHTO Designation are not mentioned within the standard. I did not see any Notes 1-4, only 5 and 6.

We're not sure if it was intentional, but page 2 of PP 60 (Sections 3.x to 6.4) is missing. Otherwise we agree with the portion of PP 60 that are included in the minutes.

Some pages were removed to make the file smaller

Item Number:	43
Description:	SOM ballot item for a New Provisional Standard TP xx, "Determining the Damage Characteristic Curve of Asphalt Mixtures from Direct Tension Cyclic Fatigue Tests" See pages 2 and 96-145 of the minutes.
Decisions:	Affirmative: 46 of 53 Negative: 0 of 53 No Vote: 7 of 53

Mississippi Department of Transportation (James A. Williams) (jwilliams@mdot.state.ms.us)

Section 4.1, Figure 1 - Figure 1, the general schematic of the Direct Tension Setup should be moved to the Apparatus Section (possibly Section 6.1).

Agree-editorial

Section 6.6 - It is recommended that "Generally" be removed from 3rd sentence.

Disagree-appropriate in the context given

Section 9.1 - What is the acceptable tolerance for planeness of perpendicularity of the saw-cut specimen?

PP 60 addresses

Rhode Island Department of Transportation (Mark E. Felag) (mfelag@dot.ri.gov)

There is no reference in the standard for the Notes.

Missouri Department of Transportation (Brett Steven Trautman) (brett.trautman@modot.mo.gov)

Recommend affirmative vote with the following comments: AASHTO Designation "TP XX-14" turns to "PP-XX" designation on page 2. Section 11.18, line 3, add space after "342". Starting with Section 11.17, the numbering for equations appears to be off by one. For

Agree-editorial, changes made

example Section 11.17 says ".....dynamic modulus of the mixture is known, then the value may be calculated using Equation (2).", but then the equation referenced has a (1) next to it. The numbering appears to carry over to every equation after that until the Annex equations. The references to the equations in the main body of the specification also appear to be off by one number throughout the specification and annex. Section 11.26 line 7 states "for force and displacement and post-process these data", recommend changing to "for force and displacement then post-process this data".

Agree-editorial, changes made

Disagree-feel that 'and' reads better

Item Number:	44
Description:	Concurrent ballot item for a New Provisional Standard PP xx, "Standard Practice for Permeable Friction Course Mix Design" See pages 5-6 and 146-154 of the minutes.
Decisions:	Affirmative: 46 of 53 Negative: 0 of 53 No Vote: 7 of 53

New York State Department of Transportation (Robert A Burnett) (bburnett@dot.state.ny.us)

Comments:
In Table 5 - change "Cantabro Loss" to "Abrasion Loss"
In Section 7.3.1 - change "Cantabro testing" to "abrasion loss testing"

Agree-editorial

Georgia Department of Transportation (Georgene M Geary) (ggeary@dot.ga.gov)

Our experience shows the following two criteria are too strict (usually we had 16 to 20% range of abrasion or Cantabro loss).

Agree-added Note 4

Mississippi Department of Transportation (James A. Williams) (jwilliams@mdot.state.ms.us)

Table 1 - Coarse Aggregate Quality Requirements - Loss from LA Abrasion - Based on experience, a maximum loss of 30% may be too stringent and eliminate many aggregates that states are currently using successfully in typical asphalt mixtures. It is recommended that a value between 40 and 45% be used as the maximum.

Disagree- Note in Table already addresses this

Section 6.1.3 - In warm weather climates the selecting an asphalt binder grade two grades higher than the grade required for the climate seems to be excessive. Because Mississippi specifies a mid-grade PG 67 as the base binder, we would not specify a polymer modified binder a full two grades higher for Permeable Friction courses. We would specify a PG 76.

Agree-added note 1

Florida Department of Transportation (Timothy J. Ruelke) (timothy.ruelke@dot.myflorida.com)

No issues with the method. Did notice one error in the calculation of area. Formula for area is shown as $\frac{1}{2}d^2$.

Agree-change made

South Carolina Department of Transportation (Merrill E Zwanka) (zwankame@scdot.org)

Section 3.1.1 - consider removing references to "skidding" and change that to "loss of friction resistance." Section 7.2.7 - 50 gyration may be too many gyrations since there is minimal compactive effort used in the field during placement. Section 7.2.7 - Samples need to cool in gyratory molds for normally 30 minutes prior to extracting due to the mix having

Agree-editorial

Disagree- TRR 1832 -Watson etal. identified 50 as optimal

T312 addresses that some mixes need to cool. Added 'and are stable enough to prevent damage.'

high voids and slumping if removed quickly after compaction. LA note in the table shows 30 maximum, and success up to 50. South Carolina allows up to 52 with a micro deval max of 15.0.

Agree-changed to 52

Pennsylvania Department of Transportation (Robert D Horwhat) (rhorwhat@pa.gov)

In Section 3.1.2, revise from "addition of non-particulate organic modifiers" to "addition of modifiers".

Agree-made change

In Section 6.1.3, 1st sentence, revise from "AASHTO M320" to "M 320 or MP 19" and revise the 2nd sentence to indicate two designations higher for MP 19 binders.

Disagree-maybe add MP 19 in the future

Believe TS 2c is working on standard

In Section 6.1.4, what are the requirements for these stabilizing additives, if any?

In Section 7.3.7, it needs to state which sections of AASHTO T 283 need modified. It states "no specific air void content is required". Does that mean that the control an condition groups do not need to have similar air voids? I would think that the air voids should at least be grouped so that the averages for each group are similar. Affirmative, with comments for consideration.

DISCUSS

Item Number:	45
Description:	Concurrent ballot item for a New Provisional Standard TP xx, "The Abrasion Loss of Asphalt Mixture Specimens" See pages 5-6 and 155-159 of the minutes.
Decisions:	Affirmative: 45 of 53 Negative: 1 of 53 No Vote: 7 of 53

South Carolina Department of Transportation (Merrill E Zwanka) (zwankame@scdot.org)

Section 8.1 - drying specimens after determining their porosity or air voids at 52 degrees C may cause the specimens to slump and fall apart.

Suggestion on wording?

Arizona Department of Transportation (Bill Hurguy) (bhurguy@azdot.gov)

(1) The last entry in Section 2.1 of the proposed Provisional Standard TP XXX is a reference to "PP XXX, Materials Selection and Mixture Design of Permeable Friction Courses (PFC)". The issuance of TP XXX should be contingent upon the issuance of PP XXX, with the actual assigned designation being given for TP XXX and PP XXX.

Agree

(2) In Section 6.5, "from the specified test temperature" should be added at the end of the first sentence.

Agree

(3) Since it has been our experience that specimens which contain softer grade asphalt binders tend to "round" at the edges rather than have particle loss when tested at 25 °C, we recommend that consideration be given to include a Note following Section 8.2 which allows for the testing of such specimens at a lower temperature.

Agree - this was discussed in NCHRP 640 also - added Note and ref to 640

Pennsylvania Department of Transportation (Robert D Horwhat) (rhorwhat@pa.gov)

Has this laboratory test been correlated with actual field performance to support use of this laboratory method?

Added reference to NCHRP 640, that does discuss this

We're unclear as to how tumbling a gyratory specimen or

Temperature is listed as 77 in Section 8.2

roadway core in an LA abrasion machine simulates traffic abrasion conditions that will be encountered in the field. It doesn't state what temperature to perform the test. In Section 7.2, it doesn't state the required air voids for the sample. In Section 7.3, it doesn't state the required thickness for roadway cores or the percent air voids. Therefore, we are providing a negative vote for the proposed specification until there are more details.

Air voids are hard to control in PFCs. Core thicknesses are on order of 1 to 1-1/4 inches

Item Number:	46
Description:	Concurrent ballot item to REVISE R 35, "Superpave Volumetric Design for Asphalt Mixtures" See pages 6 and 160-189
Decisions:	Affirmative: 46 of 53 Negative: 0 of 53 No Vote: 7 of 53

Kentucky Transportation Cabinet
(Allen H Myers)
(allen.myers@ky.gov)

Modify the second sentence of Section 4.4 to read as follows: "Condition the mixture in an oven according to the procedure for Mixture Conditioning for Volumetric Mixture Design in R 30.". In the third sentence of Section 4.4, add "the" between "Compact" and "specimens". In the fourth sentence of Section 4.4, add a hyphen between "moisture" and "condition". Also in the fourth sentence of Section 4.4, what is the difference between "test" and "evaluate?"
Divide the current second sentence of Section 11.1 into two sentences that read as follows: "Condition the mixture in an oven according to the procedure for Mixture Conditioning for Volumetric Mixture Design in R 30. Compact the specimens to 7.0 ± 0.5 percent air voids according to T 312."
In the first sentence of Section 11.2, add a hyphen between "moisture" and "condition". Also in the first sentence of Section 11.2, what is the difference between "test" and "evaluate?"
In the first sentence of Section X2.7.3.2.7, change "Oven condition the mixture by placing..." to "Condition the mixture in an oven by placing...". Divide the current first sentence of Section X2.7.3.2.7 into two sentences that read as follows: "...even thickness of 25 to 50 mm. Place the pan in...".
In the first sentence of Section X2.7.4.9, change "Oven condition the mixture by placing..." to "Condition the mixture in an oven by placing...". Divide the current first sentence of Section X2.7.4.9 into two sentences that read as follows: "...even thickness of 25 to 50 mm. Place the pan in...".
In the first sentence of Section X2.7.5.2.12, change "Oven condition the mixture by placing..." to "Condition the mixture in an oven by placing...".
In the first sentence of Section X2.7.6.10, change "Oven condition the mixture by placing..." to "Condition the mixture in an oven by placing...". Divide the current first sentence of Section X2.7.6.10 into two sentences that read as follows: "...even thickness of 25 to 50 mm. Place the pan in...".

Disagreed, left as is: main issue is 'oven condition' vs 'condition in an oven' Oven condition was specifically used to differentiate from moisture conditioning For consistency also did not add hyphen between moisture and condition

Change the second sentence of Section X2.8.2.1 to read as follows: "Do not condition the mixture in an oven."
In Section X2.8.3.1, change "oven conditioning" to "conditioning the mixture in an oven".
In Section X2.8.4.1, change "oven conditioning" to "conditioning the mixture in an oven".
In Section X2.8.4.3, add a hyphen between "moisture" and "condition". Also in Section X2.8.4.3, what is the difference between "test" and "evaluate?"
In Section X2.8.5.2, change "oven conditioning" to "conditioning the mixture in an oven".
In the third sentence of Section X2.8.5.3, change "oven condition the mixture" to "condition the mixture in an oven". Also in the third sentence of Section X2.8.5.3, delete "Section 9.2.3". In the fourth and final sentence of Section X2.8.5.3, change "Oven condition WMA mixtures..." to "Condition WMA mixtures in an oven...".
There is no reference in the standard for some of the Notes.

See comments on previous page

Rhode Island Department of Transportation (Mark E. Felag)
(mfelag@dot.ri.gov)

Pennsylvania Department of Transportation (Robert D Horwhat)
(rhorwhat@pa.gov)

In Section 4.4 and in Section 11.2, for further clarity, revise from "according to T 283." to "according to T 283, Section 9."
In Section 5.1: Change "satisfies" to "satisfy".

Disagree, Section 9 does not address testing

Agree, editorial