WAQTC QAC MEETING MINUTES

LEADER: GARTH NEWMAN, ITD
FACILITATOR: DESNA BERGOLD

DATE: JULY 17TH THROUGH THE 21ST
TIME: 1:00 TO 5:00 PM MON, 8:00 AM TO 5:00 PM TUES. THRU THUR., 8:00 AM TO 12:00 NOON FRI
LOCATION: VANCOUVER, WA

ATTENDING:
GARTH NEWMAN, ITD
GILBERT ARREDONDO, UDOT
RANDY MAWDSLEY, WSDOT
MEGAN CHATFIELD, FHWA
KEVIN BURNS, WSDOT
MISTY MINER, MDOT
CHRISTOPHER RUSSELL, CDOT
DAN GETTMAN, AKDOT & PF

ABSENT:
SEAN PARKER, ODOT

MEETING ITEMS:

REVIEWS OF AASHTO REVISIONS AND QAC PROPOSED REVISIONS FOR EACH PROCEDURE

1. Revision to Embankment/Base and In-Place Density Field Operating Procedures
    a. T 255/T 265, Moisture Content of Aggregate and Soil
    b. T 99/T 180, Moisture/Density Relations
        i. Step 12 not consistent with AASHTO – Garth
        ii. Brackets and parentheses in formula
        iii. AASHTO Revisions
            1. New date
            2. Oversize percentage addressed in 1.4 instead of just Annex
            3. Apparatus – Rammer requirements in 3.2.3
            4. Added one determination over optimum for non-cohesive soils
    c. R 75; Developing a Family of Curves
        i. Performance exam – the exam requires optimum moisture range drawn, this is not a required function in the FOP – Garth
        ii. Reword Step 4 (FOP and PR)? Should it be required? – Garth
        iii. Attach copy of Performance exam checklist to protected performance exam – Garth
        iv. Performance exams – removing the scale – Dan
        v. Performance exams – plot ALL curves - Garth
    d. T 272, One-Point Method
    e. T 85, G_{sb}
    f. Humphres
    g. T 310, In-place Density and Moisture Content of Soil-Aggregate
    h. T 355, In-place Density of Asphalt Mixtures
        i. Add an arrow to show perpendicular - Sean
    i. Exams
    j. PowerPoint
2. Revision to Concrete Field Operating Procedures
    a. TM 2, Sampling Concrete
    b. T 309, Temperature
    c. T 119, Slump

i. Remove wet sieving from Scope - Misty

d. T 121, Density
   i. Change pumpability, placeability, and finishability – Dan
   ii. Performance exam step 8 'Measure slightly over-filled' – Dan
   iii. PowerPoint slide 18 — overfilled language – Dan
   iv. AASHTO revisions
      1. New date
      2. Revised filling the measure for SCC, lost dampening the measure

e. T 152, Air Content
   i. Sample prep section instead of repeating remove oversize – Misty
   ii. Performance exam, step 8 – add slightly overfilled' – Dan
   iii. PowerPoint step discrepancy – cover all steps? – Desna
   iv. Move standardization to end of FOP – Garth
      1. PowerPoint – separate, standardization at the end, or leave where it is?
   v. AASHTO revisions
      1. New date
      2. Addressed SCC in 9.1.1

f. T 23, Test Specimens
   i. Add 'immediately begin initial curing' in steps – Misty
   ii. Reword initial cure step – Dan
   iii. Mold filled, attempting to exactly fill the mold on the last layer? – Dan
   iv. Filling for SCC in one lift – Dan
   v. PowerPoint slide 10 remove 'try to' - Dan
   vi. AASHTO revisions
      1. New date
      2. Added SCC
      3. Added table for cross section of beams
      4. Revised extensively

g. Exams

h. PowerPoint

3. Revision to Aggregate Field Operating Procedures
   a. T 2, Sampling Aggregate
   b. R 76, Reduction
   c. T 255, Moisture Content of Aggregate
   d. T 11/T 27, Sieve Analysis
      i. New FOP – assignment from 2016 – Desna
      ii. Performance exam checklist – remove 'If specification requires washing . . .' – Sean
      iii. Add pulverizing equipment to Method C if coated, Method C Step 1 – Misty
      iv. Remove 'to furnish information' in sieve selection step - Sean
      v. Remove 'Amount of minus washed out' – Sean
      vi. Do we need to define 'substantial coatings' further in Method C? – Sean
      vii. Remove slide 6? – Sean
      viii. Order of reporting language – Gilbert
      ix. Calculation table change - Gilbert
   e. T 335, Fractured Particles
   f. T 176, Sand Equivalent
   g. Exams
   h. PowerPoint
4. Revision to Asphalt I Field Operating Procedures
   a. T 168, Sampling HMA
   b. R 47, Reducing

c. T 329, Moisture Content
    i. Drying temperature range - Dan
d. T 308, Asphalt Content
e. T 209, G_{mm}
f. T 166, G_{mb}
    i. AASHTO revisions
        1. No new date
        2. Changed HMA to Asphalt Mixtures
        3. Reinstated gas-free water in definition
g. R 66, Sampling Asphalt Material
h. T 30, Sieve Analysis
i. Exams
    i. Ex. 1 Question 21 – question should be revised – Misty
    ii. Ex 1 Question 7 – Garth
j. PowerPoint

5. Revision to Asphalt II Field Operating Procedures
    a. T 312, Gyratory
    b. R 35, Superpave Volumetric Design
    c. TM 13, Volumetric Properties
    d. Exams
    e. PowerPoint
6. Revision review assignments
7. Copyright in the front of each manual.
8. Other AASHTO revisions
    a. R 18 – minor revisions and recreating Table in Annex A, revised references
        i. Table A.6 – added check for lime saturation in cylinder storage water – 6 mo.
        ii. Table A.9 – increased interval for critical clearance check of mixing bowls to 30 mo.
    b. R 64, Grout Cubes
        i. Added section on field curing
    c. T 22
        i. Moved lubricating the socket in a note.
        ii. Finally changed moving the block as it comes into contact with the specimen.
        iii. Removed the definition of the types of fracture
9. FOP Library
10. Administration Manual proposed revisions – Mike San Angelo and Dan Gettman
    a. Verification of experience for Method II qualification – Mike San Angelo
11. Technician Registration and Training Record Form – possible standardization – Mike San Angelo and Dan Gettman
12. Report from Executive Committee meetings – Garth Newman
    a. Prioritized 2017 ‘Planned Work’ from the Strategic Plan – Executive Board
13. Alaska testing manual – Dan
14. Admin manual and LMS rewrite - UDOT
15. Archiving WAQTC historical documents
16. Location of upcoming meetings

Topic	Discussion / *Decision*	Action Required By:
Welcome	Garth Newman, ITD and Qualification Advisory Committee (QAC) Chair, welcomed the attendees to Vancouver. The committee was aware that Sean Parker, Vice Chair, ODOT, was unable to attend due to travel restrictions.	
REVIEW OF THE TRAINING MATERIALS AND REVISIONS FOR EACH PROCEDURE		
EMBANKMENT/BASE AND IN-PLACE DENSITY (E&B/IPD)		
T 255/T 265	*Field Operating Procedure (FOP) for AASHTO T 255/T 265, Moisture Content of Aggregate and Soil* No revisions to the FOP were proposed before the meeting. There are no revisions to the AASHTO method in 2017. <u>Discussion item:</u> In 2015, AASHTO T 265 was revised to redefine constant mass; the allowable mass loss is now 0.1 percent after an additional 1 hour of drying. The FOP was revised to reflect this change. Garth asked if anyone had been tracking the failure rate on related questions in the written exams. Although there is no specific data, some committee members noticed that there were some noticed failures even though the change was stressed in training. *The training materials will not be revised.*	
T 99/T 180	*FOP for AASHTO T 99; Moisture-Density Relations of Soils Using a 2.5-kg (5.5-lb) Rammer and a 305-mm (12-in.) Drop* and *T 180; Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop* <u>Proposed revisions to the FOP:</u> Garth pointed out that Step 12 of the FOP did not agree with AASHTO. Step 12: Add sufficient water to increase the moisture content of the remaining soil by approximately 1 to 2 percentage points and repeat steps 3 through 11.	

Topic	Discussion / *Decision*	Action Required By:
T 99/T 180	AASHTO does not say 'approximately.' This word will be removed from the step. Garth would also like to add parentheses and brackets to the Density Correction Equation in the Annex. $$D_d = \frac{100\%}{\left[\left(\frac{P_f}{D_f}\right) + \left(\frac{P_c}{k}\right)\right]}$$ These revisions were approved. <u>The 2017 AASHTO methods revisions:</u> New revision date. Include the minimum percentage of oversize particles above which the density is required to be corrected using Annex A in 1.4. This was previously only addressed in the Annex. The FOP addresses this in the Scope. No change required in the FOP to address this. Address the in-service area of the sector face rammer. The FOP refers to the AASHTO. No change required in the FOP to address this. Only one determination over optimum is required for non-cohesive soils. The FOP was revised to include this language in Step 13. Requirement for individual compaction samples for materials prone to degradation moved from Note 8 to a step. The FOP will be revised similarly. <u>Other revisions:</u> Using AASHTO T 19 to determine the volume of the moisture/density mold is difficult, there is nothing about sealing the bottom of the mold to the base plate. Randy Mawdsley, WSDOT, pointed out that it would be good to have it in the FOP as an Annex. The committee developed an annex for the FOP using the Standardization of Measure section from the FOP for T 121.	

Topic	Discussion / *Decision*	Action Required By:
T 99/T 180	Action Item: Desna Bergold, Coordinator, D B Consulting, will develop a PowerPoint for the Annex B, Standardization of Mold. Randy Mawdsley and Kevin Burns, WSDOT, volunteered to provide pictures. *Randy Mawdsley and Kevin Burns, WSDOT, will send Desna pictures for Annex B by August 14th.* Revisions to the training materials include **FOP:** - New AASHTO date, new revision date - Taking 'approximately' out of Step 12 - Moving the last sentence out of Note 2 into the body of the Sample section. - Adding language in Step 13 concerning non-cohesive soil - Removing Note 5 - Revising format of equation in Annex A - Adding Annex B, Standardization of Mold - Add reference to the FOP for AASHTO T 27/T 11 for sieves in apparatus **Performance Exam Checklist:** - None **PowerPoint:** - New slides for Annex B - Revising format of equation in Annex A - Other revisions to match FOP revisions *These revisions will be included in the 2017 training materials.*	RANDY MAWDSLEY KEVIN BURNS DESNA BERGOLD
R 75	*FOP for AASHTO R 75; Developing a Family of Curves* Proposed revisions to the FOP: Garth pointed out that the Performance Exam requires the optimum moisture range to be drawn, this is not required in the FOP. Apparently, there has been some comments by the students that since it is not required they did not fail if they didn't to do it. Also, on the Performance Exam Checklist it says, 'Optimum moisture range desired?' Shouldn't this be a requirement? The committee determined that the Performance Exam should continue to direct it to be drawn. The term 'desired' will be removed from the Performance Exam Checklist.	

Topic	Discussion / *Decision*	Action Required By:
R 75	Garth also indicated that since a Family is required to have three curves many students have not been drawing all the valid curves for the Performance Exam. Language requiring all valid curves to be drawn should be included on the exam. Dan Gettman, AKDOT, thought that the Performance Exam was not going to provide the scale on the exam. The committee had determined in 2016 to provide the scale to make the exam more repeatable and easier to evaluate. The committee upheld this decision. Garth withdrew his recommendation to attach the Performance Exam Checklist to the protected Performance Exams. <u>Other revisions:</u> During the Performance Exam discussion, it was pointed out that there is a problem with one of the curves on PR 2. The 'dogleg' on curve 2 has been difficult for some people to work with. Desna was asked to fix this curve to closer resemble the surrounding curves and create data points. The training materials will also include the Practice Handout and PowerPoint developed from the 2016 Performance Exam 3 in February. There are no revisions to the AASHTO method in 2017. <u>Revisions to the training materials include</u> **FOP:** - Editorial in Step 1 – no new date **Performance Exam Checklist:** - New date - Remove "desired" – new date **Performance Exam:** - New date - Clarification in instructions - Performance Exam 2 data and curve - New exam 3 based on information provided by Randy Mawdsley **PowerPoint:** - None *These revisions will be included in the 2017 training materials.*	DESNA BERGOLD

Topic	Discussion / *Decision*	Action Required By:
T 272	*FOP for AASHTO T 272; One-point Method for Determining Maximum Dry Density and Optimum Moisture* No revisions to the FOP were proposed before the meeting. There are no revisions to the AASHTO method in 2017. *The training materials will not be revised.*	
T 85	*FOP for AASHTO T 85; Specific Gravity and Absorption of Coarse Aggregate* No revisions to the FOP were proposed before the meeting. There are no revisions to the AASHTO method in 2017. <u>Other revisions:</u> Randy pointed out that in the FOP, Step 6 indicates that the sample is to be re-screened and passing material is to be rejected. This step is not in the Performance Exam Checklist. This step will be added. <u>Revisions to the training materials include</u> **FOP:** - Add reference to the FOP for AASHTO T 27 / T 11 for sieves - editorial **Performance Exam Checklist:** - New date - Add step on re-screening **PowerPoint:** - None *These revisions will be included in the 2017 training materials.*	DESNA BERGOLD
Humphres	*Use of AKDOT & PF ATM 212, ITD 74, WSDOT TM 606, or WFLD Humphres Curve* No revisions to the FOP were proposed before the meeting. <u>Discussion item:</u> Garth feels that the WAQTC should begin to standardize the use of the Humphres method. AKDOT, ITD, WSDOT, and WFLD all use a variation of this method to determine in-place density of granular materials.	

Topic	Discussion / *Decision*	Action Required By:
Humphres	There are some differences in how the maximum density curve/chart is developed in each agency but the representatives of those agencies agree that there should be an effort to standardize the method. As with T 272 and R 75, there should be two methods, *Development of the Maximum Density Curves* and *Field Use of the Maximum Density Curve*. Randy volunteered to begin working on the field use procedure. He will compare the WSDOT, AKDOT, and WFLD methods. Megan Chatfield, WFLD, is already working on a procedure based on the *Humphres Method* paper. <u>Action Item:</u> Dan, Megan, and Randy will all share the procedures for both development and field use of the curves. ITD will share with Megan their steps for use of the T74 curve. Randy will work with WSDOT on adopting the AASHTO methods for determining specific gravity of the aggregate used in developing the curves. *The subcommittee using a Humphres Method will start work on* 'Developing Humphres Maximum Density Curves' *and* 'Field Use of Humphres Maximum Density Curves.' <u>Other revisions:</u> Garth proposed an editorial revision to the FOP, change 'Proctor test' to 'moisture/density determination.' <u>Revisions to the training materials include</u> **FOP:** - Change 'proctor' to 'maximum dry density/optimum moisture' – editorial **PowerPoint:** - Revisions to slide(s) related to FOP revision(s), if necessary *This revision will be included in the 2017 training materials.*	RANDY MAWDSLEY MEGAN CHATFIELD DAN GETTMAN GARTH NEWMAN DESNA BERGOLD

Topic	Discussion / *Decision*	Action Required By:
T 310	*FOP for AASHTO T 310; In-place Density and Moisture Content of Soil and Soil-aggregate by Nuclear Methods* No revisions to the FOP were proposed before the meeting. There are no revisions to the AASHTO method in 2017. <u>Discussion item:</u> Garth asked about testing cement treated base for in-place density and what the agencies used as a density standard to determine percent compaction. All acknowledged that this is problematic, similar to what to use for a density standard for material that has too many coarse particles to apply the T 99/T 180 results. UDOT developed a 'proof rolling' type procedure to determine maximum density in the field, 989 Establishing Maximum Field Density to address coarse materials that could be used for cement treated base. <u>Other revisions:</u> Randy brought a list of questions and issues from his trainers. One question was about the frequency and limitations of the moisture content verification in Step 12. Language will be added, editorially, 'Moisture content verification is gauge and material specific.' <u>Revisions to the training materials include</u> **FOP:** - Editorial clarification in Step 12 **Performance Exam Checklist:** - None **PowerPoint:** - Revisions to slide(s) related to FOP revision(s), if necessary *This revision will be included in the 2017 training materials.*	DESNA BERGOLD

Topic	Discussion / *Decision*	Action Required By:
T 355	*FOP for AASHTO T 355, In-place Density of Asphalt Mixtures by Nuclear Method* <u>Proposed revisions to the FOP:</u> Sean Parker, ODOT, asked that an arrow be added to the PowerPoint Slide 17 and in the FOP with the diagram to indicate the direction of the roller pass. All agreed. There are no revisions to the AASHTO method in 2017. <u>Revisions to the training materials include</u> **FOP:** - Add arrow – editorial - Add reference to the FOP for AASHTO T 27 / T 11 for sieves in apparatus – editorial **Performance Exam Checklist:** - None **PowerPoint:** - Add arrow – editorial *These revisions will be included in the 2017 training materials.*	DESNA BERGOLD
Exams	No revisions to the written exams were proposed before the meeting. <u>Other revisions:</u> There have been some problems with graphing a curve in the written exams. The committee decided that intermediate grid lines on the graph would allow for better repeatability. *These revisions will be included in the 2017 training materials.*	DESNA BERGOLD

Topic	Discussion / *Decision*	Action Required By:
CONCRETE (CTT)		
TM 2	*FOP for WAQTC TM 2; Sampling of Freshly Mixed Concrete* No revisions to the FOP were proposed. <u>Revisions to the training materials include</u> **FOP**: - Add reference to the FOP for AASHTO T 27 / T 11 for sieves in apparatus – editorial **Performance Exam Checklist:** - None **PowerPoint:** - None *These revisions will be included in the 2017 training materials.*	DESNA BERGOLD
T 309	*FOP for AASHTO T 309; Temperature of Freshly Mixed Portland Cement Concrete* No revisions to the FOP were proposed. There are no revisions to the AASHTO method in 2017. *The training materials will not be revised.*	
T 119	*FOP for AASHTO T 119; Slump of Hydraulic Concrete* <u>Proposed revisions to the FOP:</u> Misty Miner, MDT, suggested removing the section on wet sieving from the Scope. This is covered in the first step of the procedure and is redundant. All agreed. There are no revisions to the AASHTO method in 2017. <u>Other revisions:</u> During discussions of the change in the requirements for the tamping rod length in AASHTO T 23, the committee decided to revise the tamping rod length in the FOP for T 119 to match the AASHTO T 119. Revisions are considered editorial, no new revision date.	

Topic	Discussion / *Decision*	Action Required By:
T 119	Revisions to the training materials include **FOP:** - Removing the last sentence in the Scope - Changing the length of the tamping rod to a range - Minor language change in Step 1 **Performance Exam Checklist:** - None **PowerPoint:** - None *These revisions will be included in the 2017 training materials.*	DESNA BERGOLD
T 121	*FOP for AASHTO T 121; Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete* Proposed revisions to the FOP: Dan asked for 'pumpability, placeability, and finishability' be removed from the Significance in the student FOP. This will be changed to 'workability.' Dan also pointed out that Step 8 in the Performance Exam Checklist does not match the FOP. The FOP says to 'fill the measure a bit overfull.' The FOP, Performance Exam Checklist, and the PowerPoint will all be changed to 'slightly overfill.' It was pointed out that the PowerPoint did not cover all the steps of filling the measure, it combines some of the lifts. The committee decided that it works sufficiently as a training tool. The AASHTO methods revisions: New revision date. The section on Self Consolidating Concrete (SCC) was simplified. This did not impact the FOP. Other revisions: Garth had asked Desna to revise the FOP for AASHTO T 152 to move the standardization of the gauge to an Annex at the end. The committee approved that move and determined that the Standardization of the Measure in T 121 should also be moved to an Annex.	

Topic	Discussion / *Decision*	Action Required By:
T 121	During discussions of the change in the requirements for tamping rod length in AASHTO T 23, the committee decided to revise the tamping rod length in the FOP for T 121 to match the AASHTO T 121. <u>Revisions to the training materials include</u> **FOP:** - New AASHTO date, new revision date - Changing the length of the tamping rod to a range - 'Slightly overfill the measure' in SCC - Standardization moved to Annex **Performance Exam Checklist:** - 'Slightly overfill the measure' in SCC - Standardization moved to Annex **PowerPoint:** - Revisions to slide(s) related to FOP revision(s), if necessary *These revisions will be included in the 2017 training materials.*	DESNA BERGOLD
T 152	*FOP for AASHTO T 152; Air Content of Freshly Mixed Concrete by the Pressure Method* <u>Proposed revisions to the FOP:</u> Misty Miner, MDT, proposed removing the discussion on wet sieving from the Scope. This is covered in the first step of the procedure and is redundant. All agreed. During discussions of the change in the requirements for tamping rod length in AASHTO T 23, the committee decided to revise the tamping rod length in the FOP for T 152 to match the AASHTO T 152. Garth had asked Desna to revise the FOP to move the standardization of the gauge to an Annex at the end for proposal. Committee agreed <u>The AASHTO methods revisions:</u> New revision date. The section on SCC was simplified. This did not impact the FOP.	

Topic	Discussion / *Decision*	Action Required By:
T 152	Revisions to the training materials include **FOP:** - New AASHTO date, new revision date - Remove the last sentence in the Scope - Change the length of the tamping rod to a range - 'Slightly overfill the measure' - Standardization moved to Annex - Minor language change in Step 1 **Performance Exam Checklist:** - 'Slightly overfill the measure' in SCC - Standardization moved to Annex **PowerPoint:** - Revisions to slide(s) related to FOP revision(s), if necessary *These revisions will be included in the 2017 training materials.*	DESNA BERGOLD
T 23	*FOP for AASHTO T 23; Making and Curing Concrete Test Specimens in the Field* Proposed revisions to the FOP: Misty wants to add 'immediately' to 'begin initial cure' as it is stated in AASHTO. Dan asked to reword the first bullet under Transporting Specimens. 'After initial cure' is redundant. Dan also suggests rewording the language on the Performance Exam Checklists. 'Attempting to fill the mold. . .' is not very good verbiage for an exam and does not match the FOP. Also remove 'try to' from Slide 10 in the PowerPoint. These proposals were approved. The AASHTO methods revisions: New revision date. The section on SCC was added. The FOP will be revised to include instruction on making an SCC cylinder. Added table and tolerances for beam molds. This did not affect the FOP.	

Topic	Discussion / *Decision*	Action Required By:
T 23	Added a language on the length of the tamping rod. The FOP will be revised to comply. Changed the vibrations per minute (vpm) of the vibrator from 7000 to 9000. The FOP will be changed. <u>Revisions to the training materials include</u>: **FOP:** - New AASHTO date, new revision date - Length of the tamping rods - vpm of the vibrator - Add instruction for SCC - Add 'Immediately' to 'begin initial curing' - Change in first bullet under Transporting Specimens - and 'try to' in PowerPoint **Performance Exam Checklist:** - None **PowerPoint:** - Revisions to slide(s) related to FOP revision(s), if necessary - Remove 'attempting to' - Removing metric equivalencies as agreed earlier *These revisions will be included in the 2017 training materials.*	DESNA BERGOLD
Vibrator vpm in other concrete test methods	<u>Additional discussion:</u> The committee reviewed AASHTO T 121, T 152, and R 39, *Making and Curing Concrete Test Specimens in the Laboratory*, these methods do not agree with the new vpm in T 23. This will be included on the agenda for the 2018 Winter meeting during which revisions to AASHTO are discussed. While looking at AASHTO R 39, the committee determined that the standard practice should be reviewed. <u>Action Item:</u> Gilbert Arredondo, UDOT, volunteered to ask their concrete specialist, Scott Strader, to review and comment on AASHTO R 39. Misty will also ask Paul Bushnell, MDT, and Dan will ask Richard Giessel, AKDOT. Desna will put all the comments together and begin a revision proposal for discussion at the 2018 Winter meeting.	GILBERT ARREDONDO

Topic	Discussion / *Decision*	Action Required By:
	Gilbert Arredondo, Misty Miner, Dan Gettman will send reviews of R 39, Making and Curing Concrete Test Specimens in the Laboratory *to Desna by December 1, 2017.* *Desna will complete and distribute revision proposal by Jan. 1, 2018.*	MISTY MINER DAN GETTMAN DESNA BERGOLD
SCC filling	Discussion item: During discussion of filling measures and molds with SCC for testing, Dan explained his understanding of how the mold is filled. He has been told by industry and AKDOT members that the mold must be filled in one continuous pour from a container large enough to fill the mold. Since AASHTO 23 states: Cast specimens as described in Section 9.2 without layers or consolidation. Other members of the committee felt that multiple scoops of material were acceptable and does not equate to a 'layer.' Action Item: Garth volunteered to ask an FHWA technical expert if it is important to fill the measures and molds in one continuous pour. *Garth Newman will research further and report.*	GARTH NEWMAN
Exams	*There are no revisions to the written exams.*	
AGGREGATE (AGTT)		
T 2	*FOP for AASHTO T 2; Sampling of Aggregates* No revisions to the FOP were proposed before the meeting. There are no revisions to the AASHTO method in 2017. Other revisions: Desna recommended that Table 1 be inverted so that it has the largest sieves on top and decreases. This is consistent with the recent WAQTC proposal to AASHTO, *Sampling of Aggregates.*	

Topic	Discussion / *Decision*	Action Required By:
T 2	Revisions to the training materials include **FOP:** - Invert Table 1 - editorial **Performance Exam Checklist:** - None **PowerPoint:** - Invert Table 1 *These revisions will be included in the 2017 training materials.*	DESNA BERGOLD
R 76	*FOP for AASHTO R 76; Reducing Samples of Aggregate to Testing Size* No revisions to the FOP were proposed before the meeting. There are no revisions to the AASHTO method in 2017. *The training materials will not be revised.*	
T 255	*FOP for AASHTO T 255; Total Evaporable Moisture Content of Aggregate by Drying* Other revisions: On the list of questions Randy brought from his trainers it was noted that PowerPoint Slide 14 seemed out of order. The committee determined that it should be moved to improve the flow of the presentation. The student FOP will be revised editorially to address the slide numbers. Revisions to the training materials include **FOP:** - Revise slide numbers – editorial **Performance Exam Checklist:** - None **PowerPoint:** - Reorder slides *These revisions will be included in the 2017 training materials.*	DESNA BERGOLD

Topic	Discussion / *Decision*	Action Required By:
T 27/T 11	*FOP for AASHTO T 27 /T 11; Sieve Analysis of Fine and Coarse Aggregates and Materials Finer Than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing* <u>Proposed revisions to the FOP:</u> During the 2016 Summer meeting, Desna was instructed to develop Methods A, B, and C as independent processes for the 2017 training materials update. The committee has reviewed and approved the draft with a few outstanding questions that were discussed at this meeting. Sean had asked to remove the statement 'If specification requires washing' from the Performance Exam Checklist. The performance exam will always require washing. This was approved. Sean had also requested that the phrase 'to furnish information' be removed in all the steps that discuss selecting the sieves. All agreed, while looking at the step it was decided to add instruction on adding sieves to avoid overloading. Sean asked that the 'Amount of minus No. 200 washed out' be removed from the examples as the value is not used in any subsequent calculations. The committee decided to leave it in because many use it as an instructional aid. Misty asked that pulverizing equipment and its use be added to Method C because Step 2 says to perform Method A or B if substantial coatings remain on the coarse particles. The committee decided that since AASHTO does not address how the particles are separated, the statement should be removed from Step 2. Another suggestion from Sean was defining what 'substantial coatings' are since it used in Step 2 of Method C. This statement will be removed so definition isn't necessary. Sean also requested that Slide 6, the video of washing a sample be moved or removed as it doesn't work where it is. Video will be removed. Gilbert requested that the order be reversed in the direction for reporting percent passing. 'Report 75 µm (No. 200) sieve to 0.1 percent. Report all others to 1 percent.' This is not the order that it will be used. This will be changed to 'Report total percent passing to 1 percent except report the 75 µm (No. 200) sieve to	

Topic	Discussion / *Decision*	Action Required By:
T 27/T 11	0.1 percent' in all instances. Gilbert also recommended a revision to the example gradation tables to include the calculation performed. The committee determined that this would be a major change and would like to review more examples and take time to consider this recommendation. <u>Action Item:</u> Desna will distribute example gradation tables and poll the members for opinions. This will be decided at the 2018 Winter meeting. *Desna will send examples of Gilbert's proposed calculation table change and poll the members before the 2018 Winter meeting.* There are no revisions to the AASHTO methods in 2017. <u>Revisions to the training materials include</u> - **Revisions are extensive, please see errata.** *These revisions will be included in the 2017 training materials.*	DESNA BERGOLD DESNA BERGOLD
Fineness Modulus in the FOP for T 27/T 11	<u>Discussion item:</u> Garth asked the committee members if anyone used\s the Fineness Modulus (FM) calculation and value. All members present did not use it in specifications and do not regularly determine this value on material. The members present thought it should be removed it from the training materials. An email was sent asking Sean's opinion. He responded that ODOT uses the value in the field. FM was not removed from the training materials. Garth asked that the question be revisited at the 2018 Winter meeting when Sean should be present. It was decided to remove the FM calculations from the review questions. *Possible removal of Fineness Modulus will be a 2018 Winter agenda item.*	DESNA BERGOLD

Topic	Discussion / *Decision*	Action Required By:
T 355	*FOP for AASHTO T 335; Determining the Percentage of Fracture in Coarse Aggregate* No revisions to the FOP were proposed before the meeting. There are no revisions to the AASHTO method in 2017. <u>Other revisions:</u> On the list of questions Randy brought from his trainers it was noted that on PowerPoint Slide 17, the FOP's Step 1 is divided into two steps. The PowerPoint is better, the FOP will be revised to two steps. While reviewing the FOP, the committee found that calculating questionable particles and calculating the percent fractured particles were not steps. These steps will be added. The committee also reworked some of the steps. The PowerPoint will be revised to match. In Apparatus, the FOP references AASHTO M 92. Tthis AASHTO specification has been discontinued, ASTM E11 is to be used in its place. Garth suggested that in the training materials, the reference to ASTM E11 should be in the FOP for AASHTO T 27/T 11 and all other training materials should reference that FOP. All agreed. Desna will carry this revision throughout the training materials. <u>Revisions to the training materials include</u> **FOP:** - New revision date - Add steps for calculations - Change reference for sieves - Formatting and wording revisions **Performance Exam Checklist:** - None **PowerPoint:** - Revisions to slide(s) related to FOP revision(s), if necessary *These revisions will be included in the 2017 training materials.*	DESNA BERGOLD

Topic	Discussion / *Decision*	Action Required By:
T 176	*FOP for AASHTO T 176; Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test* No revisions to the FOP were proposed before the meeting. There are no revisions to the AASHTO method in 2017. <u>Other revisions:</u> On the list of questions Randy brought from his trainers it was noted that the PowerPoint step numbering was not the same as the FOP's. The committee decided that Step 1 of the Procedure in the FOP should be two steps. This will be changed. Garth indicated that there have been some problems with the date labels on the working solution. The shelf life of the working solution is 30 days, laboratory inspectors have noted that some labs label the working solution with the date it was mixed and some with the date it expires, at times without indicating which. Garth asked that the FOP state to 'label the working solution with date mixed' to standardize the labeling. This was approved. <u>Revisions to the training materials include:</u> **FOP:** - New revision date - Renumbering steps in FOP and PowerPoint to match - Add labeling the working solution with date mixed **Performance Exam Checklist:** - None **PowerPoint:** - Revisions to slide(s) related to FOP revision(s), if necessary *These revisions will be included in the 2017 training materials.*	DESNA BERGOLD
Exams	Revisions were proposed and approved at the meeting. *Committee members: refer to the exam errata for specific revisions.*	

Topic	Discussion / *Decision*	Action Required By:
ASPHALT I AND II		
T 168	*FOP for AASHTO T 168; Sampling Bituminous Paving Mixtures* No revisions to the written exams were proposed before the meeting. There are no revisions to the AASHTO method in 2017. *The training materials will not be revised.*	
R 47	*FOP for AASHTO R 47; Reducing Samples of Hot Mix Asphalt (HMA) to Testing Size* No revisions to the FOP were proposed before the meeting. There are no revisions to the AASHTO method in 2017. <u>Other revisions:</u> Garth noted that in the Quartering Method, the FOP states that equipment can be heated but not to exceed mix temperature which can be interpreted as the temperature of the mix at that time, this is erroneous. He said it should be 'mixing temperature' but that he would prefer that it be changed to the compaction temperature. Dan disagreed and feels like the testing equipment can be heated higher as long as the equipment isn't damaged and the asphalt mixture isn't altered. The AASHTO method is silent. Amending AASHTO will be on the 2018 Winter agenda. The committee decided to change Step 1 to read 'not to exceed the maximum mixing temperature.' <u>Revisions to the training materials include:</u> **FOP:** - Step 1 – editorial **Performance Exam Checklist:** - None **PowerPoint:** - None *These revisions will be included in the 2017 training materials.* *Revising AASHTO R 47 to address temperature of equipment will be a 2018 Winter agenda item.*	DESNA BERGOLD

Topic	Discussion / *Decision*	Action Required By:
T 329	*FOP for AASHTO T 329; Moisture Content of Asphalt Mixtures by Oven Method* No revisions to the FOP were proposed before the meeting. There are no revisions to the AASHTO method in 2017. *The training materials will not be revised.* <u>Discussion item:</u> Dan thought allowing the drying temperature to be as high as 350º F (325 ±25ºF) when a JMF mixing temperature is unknown may be too high for some modified asphalt binders. The FOP matches the AASHTO test method. The committee felt that more information would be needed to change the FOP. <u>Action Item:</u> Garth volunteered to discuss the temperature to heat the equipment with Matt Corrigan, AASHTO, who should be able to provide guidance. *Garth Newman will discuss the drying temperature with Matt Corrigan, FHWA.*	GARTH NEWMAN
T 308	*FOP for AASHTO T 308; Determining the Asphalt Binder Content of Hot Mix Asphalt (HMA) by the Ignition Method* No revisions to the FOP were proposed before the meeting. There are no revisions to the AASHTO method in 2017. <u>Other revisions:</u> Garth asked if the FOP should give instructions on performing a 'lift test' on the Method A ignition furnace. He also felt that there should be a frequency for the test. All agreed that this would be a good addition. 'Perform lift test according to manufacturer's instructions weekly during use' will be added under Apparatus.	

Topic	Discussion / *Decision*	Action Required By:
T 308	Revisions to the training materials include **FOP:** - New revision date - Add lift test and frequency **Performance Exam Checklist:** - None **PowerPoint:** - Revisions to slide(s) related to FOP revision(s), if necessary *These revisions will be included in the 2017 training materials.* Discussion item: Garth asked the members how their agencies require the aggregate be prepared for mixing the correction factor samples. ITD requires the aggregates be separated into individual sieve size fractions and recombined at the required gradation. Other members agreed that this is also the way their agencies require the preparation. There is no AASHTO method that describes laboratory mixing of asphalt mixtures. Perhaps WAQTC should develop a test method (TM) to standardize the process. Action Item: *Garth Newman will ask the Executive Board for permission to develop a Laboratory Mixing of Asphalt Mixtures test method.*	DESNA BERGOLD GARTH NEWMAN
T 209	*FOP for AASHTO T 209; Theoretical Maximum Specific Gravity (G_{mm}) and Density of Hot Mix Asphalt (HMA)* No revisions to the FOP were proposed before the meeting. There are no revisions to the AASHTO method in 2017. *The training materials will not be revised.* Discussion item: Misty asked about the AASHTO Task Force and the WAQTC revisions, which were extensive, that were proposed many years ago. Garth said the Task Force has completed their work and the revisions were sent to the Technical Section (TS) Chair. He said he will find out when it will be balloted and report to the committee.	

Topic	Discussion / *Decision*	Action Required By:
T 209	Action Item: *Garth Newman will inquire about when the revisions to AASHTO T 209 will be balloted.*	GARTH NEWMAN
T 166	*FOP for AASHTO T 166; Bulk Specific Gravity (G_{mb}) of Compacted Hot Mix Asphalt (HMA)Using Saturated Surface-Dry Specimens* No revisions to the FOP were proposed before the meeting. The AASHTO method revisions: No new revision date, revisions were considered editorial. The term 'hot mix asphalt' and the acronym 'HMA' were changed to 'asphalt mixtures' throughout. This change will be made editorially in the FOP. AASHTO also changed the definition for bulk specific gravity to include a formula and reinstated the part of the definition that said the water is 'gas free, distilled.' WAQTC proposed the removal of this language in 2015, with Scott Andrus, UDOT, as champion. It was balloted concurrently in December 2015 and approved with no 'No' votes. Action Item: Garth will ask Scott to ask the TS Section Chair how this happened and what the next step is. *Garth Newman will contact Scott Andrus about the definition revision.* Revisions to the training materials include **FOP:** - Change 'hot mix asphalt' and 'HMA' to 'asphalt mixtures' – editorial **Performance Exam Checklist:** - None **PowerPoint:** - Revisions to slide(s) related to FOP revision(s), if necessary *These revisions will be included in the 2017 training materials.*	GARTH NEWMAN DESNA BERGOLD

Topic	Discussion / *Decision*	Action Required By:
R 66	*FOP for AASHTO R 66; Sampling Asphalt Materials* No revisions to the FOP were proposed before the meeting. There are no revisions to the AASHTO method in 2017. <u>Other revisions:</u> Editorially remove 'HMA plant' from Step 3. HMA is no longer the term used and the phrase is superfluous. <u>Revisions to the training materials include</u> **FOP:** - Removing 'HMA plant' in Step 3 – editorial **PowerPoint:** - Revisions to slide(s) related to FOP revision(s), if necessary *This revision will be included in the 2017 training materials.*	DESNA BERGOLD
T 30	*FOP for AASHTO T 30; Mechanical Analysis of Extracted Aggregate* No revisions to the FOP were proposed before the meeting. There are no revisions to the AASHTO method in 2017. <u>Other revisions:</u> During the overhaul of the FOP for AASHTO T 27/T 11, the sieving efficiency and overloading section were moved into annexes. The committee instructed Desna to do the same in this FOP. Garth mentioned that a revision to the AASHTO should be an item for the 2018 Winter meeting. <u>Revisions to the training materials include</u> **FOP:** - New revision date - Moving Time Evaluation and Overload Determination sections into annexes - Add reference to the FOP for AASHTO T 27/T 11 for sieves and shaker in apparatus - Addition of intermediate sieves from the FOP for AASHTO T 27/T 11	

Topic	Discussion / *Decision*	Action Required By:
T 30	**Performance Exam Checklist:** - None **PowerPoint:** - Revisions to slide(s) related to FOP revision(s), if necessary *These revisions will be included in the 2017 training materials.* *Revising AASHTO T 30 to address shaking time and sieve overloading in annexes will be a 2018 Winter agenda item.*	DESNA BERGOLD
T 312	*FOP for AASHTO T 312; Preparing and Determining the Density of Asphalt Mixture Specimens by Means of the Superpave Gyratory Compactor* No revisions to the FOP were proposed before the meeting. There are no revisions to the AASHTO method in 2017. *The training materials will not be revised.*	
TM 13	*WAQTC TM 13; Volumetric Properties of Hot Mix Asphalt (HMA)* No revisions to the FOP were proposed before the meeting. *The training materials will not be revised.*	
Exams	*Committee members: refer to the exam errata for specific revisions.*	
OTHER TRAINING MATERIALS		
Specification reference for sieves	<u>Other revisions:</u> Garth suggested that the FOP for AASHTO T 27/T 11 reference ASTM E11 as the specification for sieves and all other training materials reference that FOP AASHTO T 27/T 11. All agreed. Desna will carry this revision throughout the training materials. *This revision will be included in the 2017 training materials.*	DESNA BERGOLD

Topic	Discussion / *Decision*	Action Required By:
Formatting the Training Materials	Other revisions: During the 2017 Winter meeting Desna was asked to reformat the training materials, files common to all the modules will be in a General folder with general headers and footers. The committee reviewed the updated materials. *Training materials reformatting is approved.*	
Written Exam Discussion	Discussion item: As part of the Asphalt written exam discussion, the committee began discussing new questions for all of the written exams. The committee decided to take a step back and look at the points to reinforce with the written exam and eventually tailor questions around these important 'takeaways.' As part of the discussion, the attendees reviewed the FOP for AASHTO T 2 and highlighted the features that a trainee should remember. Using this as a guideline a few new questions were developed for this FOP. The discussion led to a later review of each FOP's Review Questions and Performance Exam Checklists to ensure they also cover the 'takeaways.' Action Item: Each member agreed to highlight the important points of the FOPs they are assigned in the Revision Reviews by Oct. 1 and review the Performance Exams Checklists by the 2018 Winter meeting. The objective is to identify the subject of new written exam questions and ensure the Performance Exam Checklist s are complete. *Committee members will highlight the important points of the FOPs of the modules they are assigned by October 1, 2017.* *Committee members will compare the Performance Exam Checklists and the important points of the FOPs to ensure all important points are covered of the modules they are assigned by the 2018 Winter meeting.*	COMMITTEE MEMBERS

Topic	Discussion / *Decision*	Action Required By:
Revisions Review Assignments	Action Item: The revision review assignments are as follows: EB/DTT: Chris Russell and Dan Gettman Concrete/General: Garth Newman and Megan Chatfield Aggregate: Kevin Burns and Misty Miner Asphalt: Gilbert Arredondo and Sean Parker Administration Manual and RPIH: Garth Newman The committee members will review all the training materials: student and short form FOPs, Review Questions, Performance Exams, Written Exams, and PowerPoint presentations for the module they are assigned. Any corrections will be sent to Desna. Desna will send the revisions out by the first week of Sept. Review deadline is Sept. 23rd. *Committee members will review the draft revisions of the modules assigned. Corrections will be sent to Desna.*	COMMITTEE MEMBERS DESNA BERGOLD
Copyright in the front of each manual.	During the 2016 Summer meeting, Garth agreed to work with the Executive Board to revise the Copyright Statement in the front of each manual. He is still working on this. *Garth Newman will work with the Executive Board to revise the copyright document for the manuals.*	GARTH NEWMAN
PERTINENT AASHTO REVISIONS		
R 18	*AASHTO R 18; Establishing and Implementing a Quality Management System for Construction Materials Testing Laboratories* The AASHTO practice revisions: The committee reviewed the 2017 revisions in this practice. Revisions highlighted were in the Tables of Annex A. *No action required.*	

Topic	Discussion / *Decision*	Action Required By:
R 64	*AASHTO R 64, Sampling and Fabrication of 50-mm (2-in.) Cube Specimens Using Grout (Non-Shrink) or Mortar* <u>The AASHTO practice revisions:</u> The committee reviewed the 2017 revisions in this practice. Major revision is adding a section for field curing the cube specimens. *No action required.*	
T 22	*AASHTO T 22; Compressive Strength of Cylindrical Concrete Specimens* <u>The AASHTO method revisions:</u> The committee reviewed the 2017 revisions in this method. Revisions include: - Moved lubricating the socket in a note. - Finally changed moving the block as it comes into contact with the specimen. - Removed the definition of the types of fracture - Added a plus or minus (±) to the permissible tolerance for the test age for ages 3 days and older Garth pointed out that the addition of the minus on the 28-day test age was problematic for ITD. As 28 days is the test age for acceptance, the actual age of the specimen may be 27 days and 4 hours. He isn't certain this is a defensible change if the compressive strength does not meet specification. He would like to discuss this at the 2018 Winter meeting. *Tolerance for test age in AASHTO T 22 will a 2018 Winter agenda item.*	
OTHER QAC		
FOP Library	No revisions to the FOPs in the Library were proposed before the meeting. There are no revisions to the AASHTO methods in 2017. *The FOPs will not be revised.*	

Topic	Discussion / *Decision*	Action Required By:
Administration Manual – Mike San Angelo	Mike San Angelo, AKDOT, proposed revisions to the WAQTC Administration Manual and asked the QAC to review and comment. *Desna will return comments to Mike San Angelo.*	DESNA BERGOLD
Administration Manual – UDOT	UDOT proposed revisions to the WAQTC Administration Manual to address electronic written exams and asked the QAC to review and comment. *Desna will return comments to UDOT.*	DESNA BERGOLD
AKDOT Technician Registration and Training Record Form	The committee reviewed Mike San Angelo's email, he appeared to want to standardize the technician registration and *Technician Rights and Responsibilities* form. Each agency has their own registration form in part because they each may charge different training and exam fees, and they may have additional qualifications. Each agency develops their own *Rights and Responsibilities* form based on the laws in their state. When a technician requests reciprocity, they are required to sign the agency specific *Rights and Responsibilities* form to be eligible. Dan will follow up with Mike San Angelo to determine if the email was interpreted correctly. *Dan Gettman will discuss the question with Mike San Angelo.*	DAN GETTMAN
REPORT FROM EXECUTIVE MEETING PRIORITIZED 2017 "PLANNED WORK" FROM STRATEGIC PLAN		
Strategic Plan	<u>Discussion item:</u> The committee reviewed the 2017 revisions to the Strategic Plan approved by the Executive Board and the 2017 Spring meeting. One of the 2016 Planned Work items was moved to a long-term goal, and one was moved to the Appendix: Completed Items. The rest is 'on-going work' or items that are being worked on. *No additional action required.*	

Topic	Discussion / *Decision*	Action Required By:
Executive Board Spring Meeting Minutes	Discussion item: The committee briefly reviewed the Executive Board Spring Meeting Minutes. *No action required.*	
R 25	*AASHTO R 25; Technician Training and Qualification Programs* AASHTO Technical Section 5c distributed a TS Ballot to revise R 25. The committee reviewed the proposed revisions and, as the vote were due by July 19th, Garth send an email to the Executive Board with QAC comments. Two of the proposed revisions that the QAC did not agree with are: Section 6.1.4.4 indicates that there is only one way to get trained to be a trainer / examiner. This addition should be a note. Section 8.7 would allow the use of IA testing for re-certification. WAQTC does not allow that. *No additional action required.*	
ARCHIVING HISTORICAL DOCUMENTS	Garth will eventually send the materials needing to be scanned for the archives to Brad Nietzke, WFL. He will also send the old training CDs to Desna for upload. *Garth will work will Brad and Desna on the hard copies and disks. The QAC will review and make recommendations.*	GARTH NEWMAN
Upcoming meeting location	The QAC will propose Reno, NV, for the location of the 2018 Winter meeting to be held January 29th through February 2nd and Portland/Vancouver for the 2018 Summer meeting to be held July 23rd through the 27th to the Board for approval. *The locations of the next two meetings and dates of the Summer meeting will be put on the Executive Board agenda.*	