

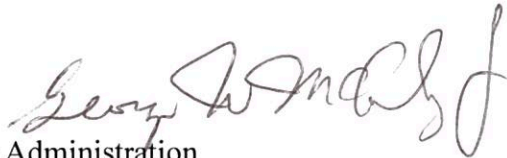


## MEMO

**DATE:** May 7, 2018

**SUBJECT:** Use Guidelines for 19.0 mm Warm Mix Asphalt High RAP Mixtures for Low Volume Roadways

**TO:** District Executives

**FROM:** George W. McAuley, Jr., P.E.   
Deputy Secretary for Highway Administration

The Department has worked with the Pennsylvania Asphalt Pavement Association to develop a standard special provision (SSP) facilitating the use of higher amounts of reclaimed asphalt pavement (RAP) into 19.0 mm asphalt mixtures for use on low volume roadways. This SSP was developed in support of the Department's RoadMaP initiative to expand the cost-effective use of RAP on our roadways. The attached SSP allows up to a maximum of 50% RAP by weight in the mix, however, existing approved mixes with lesser quantities of RAP may also meet the requirements of the SSP.

This memo outlines the use guidelines for contracting the paving work via ECMS using the SSP. The Department is also working on separate mechanisms to use this specification for Department force paving operations, which will be addressed separately from this memo.

Index or Category: Provisional Specification Related

Sequence ID: 4111

Version: A

Provision Name: c0411 ITEM 4411-0010 SUPERPAVE ASPHALT MIXTURE DESIGN, WMA BINDER COURSE (LEVELING), - HIGH RAP

Status: Active

District: CO

The SSP is available for use immediately on projects, with the following instructions for usage:

- 100% state funded projects only, no federal funds
- No use on the National Highway System
- Traffic: maximum 5000 ADT, maximum 750 daily trucks
- Binder/leveling course 2.5-inch minimum average depth
- No use as final surface since mix has no SRL designation (requires subsequent seal coat, micro surface, etc. within one year of placement)
- No use in conjunction with PWT-LTS or PWT-HOLA Standard Special Provisions (SSPs)
- This SSP is not mandatory for Districts to include in ECMS contracts for projects meeting the use guidelines. This SSP is optional for use.

May 7, 2018

Mix design approval and production:

Note the SSP includes changes to the bituminous Superpave volumetric mix design process for mixtures with RAP >15%. Bituminous Job Mix Formulas (JMFs) for new mixtures with >15% RAP specific to this SSP should be submitted and approved through eCAMMS using the following designations:

- Material Class: WR19BM
- Design ESAL Range:
  - Ndes=50 RAP>15-30%, or
  - Ndes=50 RAP>30-50%.

Material producers will be required to document production quality control testing and shipment information of these mixtures in the eCAMMS ESB the same as other Superpave mixtures.

Acceptance sampling and testing:

One item of note within the SSP is that project mixture acceptance is by certification only. Do not perform mixture acceptance by lots/sublots and collection of Sample Class = AS-acceptance samples. Limited loose mix samples may be collected as needed for information and tested with Sample Class = IF. Mat density acceptance will be by optimum-rolling pattern, or non-movement if approved by the Representative. Do not lift density cores for density acceptance of this material. Limited density core samples may be collected as needed for information and tested with Sample Class = IF.

If there are any questions, please contact Garth D. Bridenbaugh, P.E., Construction Quality Assurance Section at 814-696-7194.

Attachment

4816/GDB/jdm

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May 7, 2018

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## STANDARD SPECIAL PROVISION

### Detail

**Index or Category:** Provisional Specification Related

**Status:** Pending

**Sequence ID:** 4111

**District:** CO

**Version:** A

**Provision Name:** c0411 ITEM 4411-0010 SUPERPAVE ASPHALT MIXTURE DESIGN, WMA BINDER COURSE (LEVELING), – HIGH RAP

### Usage Information

**Measurement:** English-IP

**Edit Body:** No

**Include on all projects:** No

**Edit Header:** No

**Include on all federally funded projects:** No

**Edit Project Specific Details:** No

**Include on all 100% State funded projects:** No

**Instructions for Usage:** For use on projects with 100% State Funds Only.  
Not for use on NHS

Use in accordance with the letter titled " Use Guidelines for 19.0 mm Warm Mix Asphalt High RAP Mixtures for Low Volume Roadways" dated May 7, 2018 found in ECMS file cabinet

**408 Section:** 411

**Effective From:** 05/07/2018

**To:** 01/01/2199

### Associated Items

Item Number	Description
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*No records found.*

### Header

ITEM 4411-0010 SUPERPAVE ASPHALT MIXTURE DESIGN, WMA BINDER COURSE (LEVELING), PG 64-22, < 0.3 MILLION ESALS, 19.0 MM MIX - HIGH RAP

### Provision Body

#### **SUPERPAVE ASPHALT MIXTURE DESIGN, WMA BINDER COURSE (LEVELING), PG 64-22, <0.3 MILLION ESALS, 19.0 MM MIX – HIGH RAP**

Section 411 with revisions as follows:

Revise reference to 409.2(a)2 to read as follows:

**2. Mix Containing More than 15% RAP.** RAS may not be used in mixtures containing more than 15% RAP.

Utilize the class (grade) of asphalt cement in the mixture as listed in Table HR.

Furnish material conforming to the requirements of Standard Specifications for Performance-Graded Asphalt Binder, AASHTO M 320, except as revised in Bulletin 25. Obtain material from a source listed in Bulletin 15 for the specified grade. Provide QC testing and certification as specified in Sections 106.03(b) and 702.1(b)1.

Provide the Representative a copy of a signed Bill of Lading for bituminous material on the first day of paving and when the batch

number changes.

Design mixes in accordance with Section 411 with the following modifications:

**TABLE HR**

RAP % by weight	Gyrations at Ndes	Air Voids at Ndes	Virgin PG Binder Grade	Min. % Passing the #8 sieve	F/A Ratio	Max. VFA
>15 to 30%	50	3.5 – 4.0%	64-22 or 58-28*	32%	0.6 – 1.2	77
31 to 50%	50	2.5 – 3.2%	58-28**	32%	0.6 – 1.3	83

\* Producer may elect to use either PG 64-22 or PG 58-28 virgin binder grade in the mix. No blending evaluation is needed for RAP up to 30% by weight.

\*\* A different grade of virgin asphalt may be approved if the contractor chooses to have the asphalt cement in the RAP evaluated, and that evaluation shows that blending will achieve a 64-22 grade at the proportions in the JMF.

Bulletin 27, Chapter 2A, 2. Department Revisions to AASHTO R35 with the following modifications:

Section 6.8 The Department will eliminate the need for three trial blends based on a Producer's previous Superpave mix design work with specific aggregate blends.

Section 10.1 Prepare replicate mixtures (Note 8) containing the selected design aggregate structure at each of the following three binder contents: (1) the estimated design binder content,  $P_b$  (design); (2) 0.5 percent below  $P_b$  (design); and (3) 0.5 percent above  $P_b$  (design).

Revise reference to 409.2(e)1.d.1 to read as follows:

**Apparent Moisture Content.** Sample the mixture according to PTM No. 1 daily. Determine the apparent moisture content in the mixture according to PTM No. 749. Produce a mixture with the apparent moisture content not to exceed 0.5%. If moisture exceeds 0.5%, slow the rate of production operations and perform a subsequent PTM No. 749 test.

Revise reference to Section 409.2(e)1.e Corrective Action, add a fifth bullet point to read as follows:

QC test results on multiple specimens are < 1.5% total air voids———

Mixture acceptance will be by certification

## Project Specific Details

## Audit Information

Created By	Created On	Modified By	Modified On
Richard A Schmeck/PennDOT	04/30/2018 06:53:33 AM	Richard A Schmeck/PennDOT	05/04/2018 12:11:06 PM

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Release: 58.0  
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