

RAP Mix Design Specification

19mm RAP Mix

PennDOT Allegheny County is requesting quotes for a Plant Mixed asphalt product containing various percentages of RAP material allotted in PUB 408 specifications with maximum amount of RAP less than or equal to 50%. The material mix design must be approved prior to any delivery of materials. This material is for placement by Department forces and equipment. The awarded vendor is to supply warm mix asphalt as approved by the District Materials Manager. Testing and development of mix designs will be the responsibility of the vendor and subject to review/approval of the District Materials Manager.

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

Section 411/413 with revisions as follows:

Revise reference to 409.2(a)2/413.2(a)2 to read as follows:

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 411/413 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%	64S-22 or 58S-28*	32%	0.6 – 1.2	77
31 to 50%	50	2.5 – 3.2%	58S-28**	32%	0.6 – 1.3	83

* Producer may elect to use either PG 64S-22 or PG 58S-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 64S-22 grade at the proportions in the JMF.

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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.1/413.(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/413.2(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.

Vendor will bid on providing estimated tonnage of 19mm Binder mix to the Findlay section of Allegheny County. The vendor will bid price per ton. Quantities for pick-up and delivery appear as follows:

Item 1: 7,200 tons	Department Force Pick-up
Item 2: 100 tons	Vendor Delivery of Asphalt
Item 3: 2,000 tons	Vendor Delivery of Asphalt and Millings Hauling

Item 3 will require the vendor's trucking to delivery asphalt and then line up to have the truck filled with millings. Those millings will be returned to the plant and be credited toward the amount of awarded millings the vendor is to receive.

All quantities are estimated.

Measurement and payment will be in accordance with Pub 408 Section 409.4/413.4 (Ton).

The department reserves the right to add and/or eliminate SR's within the sections. Delivery of 19mm Binder mix will take place between March 25, 2024 & November 30, 2024.

All deliveries will be coordinated with the awarded vendor prior to required delivery date; expected delivery time will be within 3 calendar days after being notified by the Department. The material required delivery rate should be between 150 – 175 Tons/Hour depending on project.

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For information purposes, only, the material will be delivered to the following state routes:

Findlay Section – State Route 3070 segment 120/0 to 182/009, Route 3074 segment 10/0 to 110/2007, State Route 3083 segments 10/0 to 40/3265, State Route 3089 segment 130/0 to 190/2571, State Route 3090 segment 10/0 to 20/3114, State Route 3091 segment 10/0 to 30/2291, State Route 3093 segment 10/0 to 30/2561, State Route 3094 10/0 to 40/0676. The department reserves the right to add and/or eliminate SR's within the section.

Millings Award

The awarded vendor will receive up to an estimated **3,000 tons** of RAP millings that will be delivered. The millings will be delivered to the vendor's plant closest to the current job site/project on that day. The returning millings are **not** a 1 ton to 1 ton exchange.

For all materials, a daily material certification for pickup, delivery, and delivery with millings hauling will be required to be sent via email. In addition to the material certification, a weight ticket and/or certification for the amount of millings returned to the plant by either the vendor's trucking or the Department's trucking must be supplied daily.

All Certifications and tickets must be emailed daily to:

Nate Vamossy (nvamossy@pa.gov)

Ben DeVore (bdevore@pa.gov)

Scott Kovach (sckovach@pa.gov)

Sandra O'Neill (saoneill@pa.gov)

Points of Contact

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Worker Protection and Investment

Pursuant to Executive Order 2021-06, Worker Protection and Investment (October 21, 2021), the Commonwealth is responsible for ensuring that every Pennsylvania worker has a safe and healthy work environment and the protections afforded them through labor laws. To that end, contractors and grantees of the Commonwealth must certify that they are in compliance with all applicable Pennsylvania state labor and workforce safety laws. Such certification shall be made through the Worker Protection and Investment Certification Form (BOP-2201) and submitted with the bid, proposal or quote.