



WSDOT Standard Practice for HMA Mix Designs QC 8

Standard Practice for Development of Hot Mix Asphalt Mix Designs

1. Scope

- 1.1 This standard specifies requirements and procedures for approval Hot Mix Asphalt mix designs for the Qualified Products List.
- 1.2 This standard may involve hazardous materials, operations and equipment. It does not address all of the safety problems associated with their use. It is the responsibility of whoever uses this standard to consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2. Referenced Documents

- 2.1 WSDOT Standards
 - 2.1.1 *Standard Specifications for Road, Bridge, and Municipal Construction M 41-10*

3. Terminology

- 3.1 AASHTO – American Association of State Highway and Transportation Officials
- 3.2 Contractor/Producer – The Contractor, Producer or production facility that has the capacity for producing HMA meeting *WSDOT Standard Specifications*.
- 3.3 ASA – Aggregate Source Approval
- 3.4 ASTM – American Society of Testing and Materials
- 3.5 HMA – Hot Mix Asphalt
- 3.6 PG – Performance Graded asphalt binder
- 3.7 QPL – Qualified Products List
- 3.8 State Materials Laboratory – 1655 S. 2nd Avenue SW, Tumwater, WA 98512-6951
- 3.9 WSDOT – Washington State Department of Transportation.

4. Significance and Use

- 4.1 This standard specifies procedures for designing, submitting, evaluating and approving HMA mix designs for inclusion to the QPL.

5. Mix Design Development

- 5.1 The Contractor/Producer or designee shall develop a HMA mix design in accordance with Section 5-04.2(1) of the *Standard Specifications*. The HMA mix design aggregate structure, asphalt binder content, anti-stripping additive, rutting susceptibility and indirect tensile strength shall be determined in accordance with WSDOT SOP 732, FOP for AASHTO T 324 and WSDOT FOP for ASTM D 6931 and meet the requirements of Sections 9-03.8(2) and 9-03.8(6) of the *Standard Specifications*.

6. Submission to the WSDOT Qualified Products List

- 6.1 Once the HMA mix design has been developed, the Contractor/Producer shall contact the QPL Engineer (www.wsdot.wa.gov/Business/MaterialsLab/QPL.htm) or 360-709-5442 to initiate the HMA mix design submittal process.
- 6.2 To initiate the mix design submittal process the Contractor/Producer shall provide the following:
- Company contact and billing information
 - A completed copy of WSDOT Form 350-042.
 - A completed QPL Application
 - ASA Report for the aggregate source(s)
 - QPL Contractor/Producer Product Information page(s) for the PG asphalt binder and the anti-stripping additive
- 6.3 The QPL Engineer will provide the following to the Contractor/Producer:
- QPL evaluation tracking number
 - Initial letter detailing mix design evaluation
 - Cost sheet for mix design evaluation detailing submittal requirements and associated charges
- 6.4 After payment is received for the mix design evaluation the QPL Engineer shall provide:
- Assigned delivery date of materials and documentation to State Materials Laboratory
 - Estimated date of completion
 - Final letter indicating QPL status
- 6.5 A priority queue will be established by the State Materials Laboratory for HMA mix design evaluations.
- 6.6 Preference will be given to mix designs submitted for WSDOT contracts.
- 6.6.1 HMA mix design evaluation for WSDOT contracts shall be completed within 25 calendar days of acceptance by the State Materials Laboratory. Acceptance will be determined when all required documentation, materials and payment have been received at the State Materials Laboratory.
- 6.6.2 HMA mix design evaluations submitted that are not for WSDOT contracts will be completed within approximately 40 calendar days of acceptance by the State Materials Laboratory.
- 6.6.3 The State Materials Laboratory reserves the right to limit the number of HMA mix design evaluations accepted that are not for WSDOT contracts at any given time. Workload and staffing will dictate the number of HMA mix designs accepted at one time.

7. Mix Design Evaluation

- 7.1 The HMA mix design submitted by the Contractor/Producer will be evaluated by the State Materials Laboratory in accordance with Section 9-03.8(2) and 9-03.8(6) of the *Standard Specifications*. All communication from the State Materials Laboratory will be to the Contractor's/Producer's contact as specified on WSDOT Form 350-042.
- 7.2 HMA mix designs will be placed on the QPL provided they meet the requirements of Section 9-03.8(2) and 9-03.8(6) of the *Standard Specifications*.
- 7.2.1 Voids in Mineral Aggregate (VMA) must be within 1.0% of the minimum specification in accordance with Section 9-03.8(2) of the *Standard Specifications* for the class of HMA evaluated.
- 7.2.2 % Gmm at N design must be within 1.5% of the specification in Section 9-03.8(2) of the *Standard Specifications* for the class of HMA evaluated.
- 7.2.3 Voids Filled with Asphalt (VFA) in Section 9-03.8(2) will not be part of the mix design evaluation.
- 7.3 A mix design that fails to meet the requirements listed in Section 7.2, 7.2.1 and 7.2.2 will not be accepted or placed on the QPL.
- 7.4 Adjustments to mix designs will not be allowed once they have been evaluated.
- 7.5 The Contractor/Producer will be issued a QPL mix design record providing the mix design is in compliance with Section 9 of this Standard Practice.
- 7.6 The QPL listing for HMA mix designs will show the following information:
- Company name
 - HMA Class
 - Aggregate Source(s)
 - PG Grade
 - PG Supplier
- Anti-stripping additive brand and quantity (if applicable)

8. Referencing Mix Designs From The QPL

- 8.1 Requests for reference HMA mix designs for non WSDOT projects will be completed on WSDOT Form 350-041 and emailed to BituminousMaterials@wsdot.wa.gov.
- 8.2 Reference HMA mix design reports will be issued for new mix designs on active and awarded WSDOT contracts once accepted and placed on the QPL.
- 8.3 Reference HMA mix design reports will be issued for current mix designs on active and awarded WSDOT contracts provided the HMA production history is in compliance with *Standard Specifications* Section 5-04.3(11)D.

9. Removal From The QPL

- 9.1 HMA mix designs will be automatically removed from the QPL in accordance with *Standard Specifications* Section 5-04.2(1).
- 9.2 HMA mix designs may be removed from the QPL if found in nonconformance with the *Standard Specifications* or this Standard Practice. Causes for removal from the QPL may include, but are not limited to the following:
- Failure to comply with requirements of Standard Practice QC 8.
 - HMA mix designs that are out of compliance in accordance with *Standard Specifications* Section 5-04.3(11)F.
 - Failure to notify WSDOT of changes in HMA production.
 - Removal at the request of the Contractor/Producer

10. Ignition Furnace Calibration Factor (IFCF) Samples

- 10.1 Each HMA mix design submitted for evaluation will have 12 IFCF samples produced for WSDOT as part of the QPL evaluation process.
- 10.2 The Contractor/Producer may elect to have 4 IFCF samples produced as part of the QPL evaluation process.