

SECTION 02743
HOT MIX ASPHALT - BIKE AND PEDESTRIAN PATHS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Products and procedures for constructing a surface course of one or more layers of HMA comprised of aggregate, asphalt binder, lime and other additives for bike and pedestrian paths.
- B. Mix materials at a central mixing plant.

1.2 RELATED SECTIONS

- A. Section 02741: Hot Mix Asphalt (HMA)
- B. Section 02745: Asphalt Material
- C. Section 02746: Hydrated Lime
- D. Section 02748: Prime Coat/Tack Coat

1.3 REFERENCES

- A. AASHTO T 19: Bulk Density (“Unit Weight”) and Voids in Aggregate.
- B. AASHTO T 30: Mechanical Analysis of Extracted Aggregate.
- C. AASHTO T 89: Determining the Liquid Limit of Soils.
- D. AASHTO T 90: Determining the Plastic Limit and Plasticity Index of Soils.
- E. AASHTO T 96: Resistance to Abrasion of Small Size Coarse Aggregate by Use of the Los Angeles Machine.
- F. AASHTO T 104: Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate.
- G. AASHTO T 112: Clay Lumps and Friable Particles in Aggregate.

- H. AASHTO T 176: Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test.
- I. AASHTO T 209: Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures.
- J. AASHTO T 304: Uncompacted Void Content of Fine Aggregate.
- K. AASHTO T 308: Determining the Asphalt Binder Content of Hot Mix Asphalt (HMA) by the Ignition Oven.
- L. AASHTO TP 4: Method for Preparing and Determining the Density of Hot-Mix Asphalt (HMA) Specimens by Means of the Superpave Gyratory Compactor.
- M. ASTM D 4791: Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate.
- N. ASTM D 5821: Determining the Percentage of Fractured Particles in Coarse Aggregate.

1.4 ACCEPTANCE

- A. Certify that the mix meets the gradation and asphalt binder requirements of Aggregate Gradation Table (Table 2) and Job Mix Design Requirements. Submit design data sheet to support. AASHTO T 30, T 308.

PART 2 PRODUCTS

2.1 ASPHALT MATERIALS

- A. Use the following asphalt materials:
 - 1. Asphalt Binder: Performance Graded (PG) Binder.
 - 2. Flush Coat: CSS-1 or SS-1.

2.2 AGGREGATE

- A. Refer to Section 02741, Part 2, Aggregate, except for Aggregate Properties Table.
- B. Use Table 1 following for Aggregate Properties.

Table 1 Aggregate Properties		
Properties	Test Method	Test Requirements
One Fractured Face	ASTM D 5821	N/A
Two Fractured Face	ASTM D 5821	90% Min.
Fine Agg. Angularity	AASHTO T 304	45 Min.
Flat & Elongated 1:3 Ratio	ASTM D 4791 (Based on 3/8 inch and above)	20 % Max.
L.A. Wear	AASHTO T 96	35 % Max.
Sand Equivalent	AASHTO T 176	45 Min.
Plasticity Index	AASHTO T 89 and T 90	0
Unit Weight	AASHTO T 19	75 lb/ft ³ Min.
Soundness Loss	AASHTO T 104 - Sodium Sulfate	16 % Max. loss with five cycles
Deleterious Materials	AASHTO T 112	2 % Max.
Natural Fines	---	10% Max.

C. Meet gradation in Table 2.

Table 2 Aggregate Gradations (Percent Passing by Dry Weight of Aggregate) AASHTO T11 & T27		
Sieve Size	Percent	
Control Sieves	1/2 inch	100.0
	3/8 inch	90.0 - 100.0
	# 4	< 90.0
	# 8	32.0 - 67.0
	# 200	2.0 - 10.0

2.3 HYDRATED LIME

- A. Use a minimum of one percent hydrated lime.
- B. Meet requirements of Section 02746.

2.4 VOLUMETRIC DESIGN REQUIREMENTS

- A. Hot Mix supplier is responsible for satisfying all requirements for Superpave Volumetric Mix Design:
 - 1. Use a laboratory qualified by UDOT Central Quality Assurance Section in the use of the Superpave Gyrotory Compactor. AASHTO TP 4.
 - 2. Certify that the mix design meets requirements for Volumetric Mix Design outlined in this section.
 - 3. Project Engineer may accept the Volumetric Mix Design from data submitted with the proposed mix design or from a previous mix design. The Region Materials Engineer reserves the right to verify any mix design submitted.
- B. Comply with requirements in Table 3.
 - 1. Obtain Mixing Temperature from the Engineer.

Table 3 Superpave Volumetric Mix Design		
Compaction Stage	Number of Gyration (N)	% of G_{mm} (AASHTO T209)
Initial	6	≤ 91.5
Design	50	≥ 98.5
Maximum	75	≤100.0

PART 3 EXECUTION

3.1 SURFACE PREPARATION

- A. Refer to Section 02741, Part 3.

3.2 COMPACTION

- B. Establish a rolling pattern to obtain maximum density without over-stressing the pavement.

3.3 Asphalt Emulsion

- A. Apply the flush coat at a uniform rate of 0.10 gal/yd² undiluted emulsion or 0.15 gal/yd² 2:1 diluted emulsion. Note: 2:1 diluted emulsion represents 2 parts undiluted emulsion and 1 part water.

END OF SECTION