

1151.04 DESIGN AND SUBMISSION REQUIREMENTS

1151.04.01 Design Requirements

1151.04.01.01 General

Clause 1151.04.01.01 of OPSS 1151 is amended by the addition of the following:

For HMA in this Contract, the mix properties, the compaction effort, and the aggregate properties specified in the Contract Documents shall conform to the requirements for the traffic category specified in Table A. -The use of a mix designed with a traffic category different than specified in Table A shall not be permitted.

The asphalt cement (AC) added to the hot mix types shall be performance graded asphalt cement (PGAC) as specified in Table A. -For bidding purposes only, the percentage by mass of asphalt cement, AC_{BID} contained in the various HMA mix types shall be as specified in Table A.

~~OPSS 1151 is amended with the addition of the following Table:~~

**TABLE A
HMA Mix Design Criteria**

HMA <u>Mix</u> Type	Location in Contract	Traffic Category	PGAC Grade	AC_{BID} % (Note 1)
*	*	*	*	*

Notes:
1. For SMA Mix Types, a minimum AC Content is specified in Table 5 based on combined aggregate bulk relative density.

[* Designer Fill-Ins for Table A, See Notes to Designer]

[** Designer Option, See Notes to Designer]

[*** Designer Option, See Notes to Designer]

[**** Designer Option, See Notes to Designer]

NOTES TO DESIGNER:

*** Designer Fill-Ins for Table A**

- Insert the HMA mix type (e.g., Superpave 37.5, 25.0, 19.0, 12.5, 12.5FC 1, 12.5FC 2, 9.5, 4.75; SMA 19.0, 12.5, 9.5) as determined by the Regional Geotechnical Section.
- Insert the location of this HMA mix type in the Contract.- This could be a highway number or a particular feature of the contract, such as paved shoulder.

- Select and insert the traffic category (A through E) for this contract based on the following information as supplied by the Regional Geotechnical Section:

Category A:	Design ESALs	< 0.3 million
Category B:	Design ESALs	0.3 to < 3 million
Category C:	Design ESALs	3 to < 10 million
Category D:	Design ESALs	10 to < 30 million
Category E:	Design ESALs	≥ 30 million

Design ESALs are the anticipated traffic level expected on the design lane over a 20-year period. Regardless of the actual design life of the roadway, determine the design ESALs for 20 years.

Traffic category shall not be specified for SMA mixes, number of gyrations is fixed. Enter N/A under Traffic Category for SMA mixes.

- Indicate PGAC grade for new mixes as provided by the Regional Geotechnical Section.
- For Superpave mixes, indicate the percentage by mass of asphalt cement specified for bidding purposes (AC_{BID}) as provided by the Regional Geotechnical Section. Ranges of percentage for bidding purposes for Head of Regional Geotechnical Section to select a value from Table B based on regional experience.

Table B
Range of Asphalt Cement Content

HMA Type	AC _{BID}
Superpave 25.0	4.2
Superpave 19.0	4.7 - 5.0
Superpave 12.5	4.9 - 5.2
Superpave 9.5	5.5 - 6.0

No minimum is to be inserted for SMA 19.0, SMA 12.5 or SMA 9.5. A minimum is specified in Table 5 of OPSS 1151 based on combined aggregate bulk relative density of mix.

**** Designer Option**

Insert and fill-in the following sentence if an HMA mix type (Superpave 12.5, 12.5FC 1, 12.5FC 2) is recommended to be coarse graded as determined by the Regional Geotechnical Section. Recommended for lift thicknesses over 50 mm.

For this Contract, [Fill-in applicable HMA mix type(s).] mix shall be coarse graded according to Table 1.

***** Designer Option**

Always insert the following for contracts in Northeastern and Northwestern regions. For all other regions, insert only when recommended by the Regional Head of Quality Assurance and Head of Geotechnical.

1151.04.01.03.04 Asphalt Cement Anti-Stripping Treatment

Clause 1151.04.01.03.04 of OPSS 1151 is deleted in its entirety and replaced with the following:

When AST-AGG is not required in the mix, and AST-AC shall be used in the mix, irrespective of any moisture sensitivity testing.

The amount of AST-AC to be used in the mix shall be the greater of:

- a) The amount required to meet the moisture sensitivity requirements, or

b) The listed minimum dosage shown in the DSM listing for Anti-Stripping Treatments.

**** **Designer Option**

Insert the following for pavement contracts with a design life of less than 4 years.

Table 6 of OPSS 1151 is deleted in its entirety and replaced with the following:

TABLE 6
Maximum % Binder Replacement

Traffic Category (Note 1)	Binder Course 150 mm or More Below Pavement Surface	Binder Course Within 150 mm of Pavement Surface	Surface Course
A, B	40%	40%	20%
C, D	40%	20%	20%
E	40%	20%	20%

Notes:

1. Traffic category as specified in the Contract Documents.

WARRANT: Always with OPSS 1151, Material Specification for Superpave and Stone Mastic Asphalt Mixtures. [For Designer's Options, the Regional Head of Quality Assurance and Head of Geotechnical shall be consulted.](#)