

**State of Ohio  
Department of Transportation  
Supplemental Specification 858  
Superpave Asphalt Concrete**

July 28, 1998

- 858.01 Description**
- 858.02 Mix Design for Asphalt Concrete Mix Type A**
- 858.03 Mix Design for Asphalt Concrete Mix Type B**
- 858.04 Binder**
- 858.05 Quality Control**
- 858.06 Acceptance**
- 858.07 Basis of Payment**

**858.01 Description.** Following are the gyratory mix design, material and quality control requirements for constructing an asphalt concrete pavement surface or intermediate course. 441 shall apply except as noted. The asphalt concrete pavement course shall consist of aggregate and performance graded binder or modified binder mixed in a central plant and spread and compacted on a prepared surface in accordance with the specifications and in reasonably close conformity with the lines, grades and typical sections shown on the plan or established by the Engineer.

**858.02 Mix Design for Asphalt Concrete Mix Type A.** The mixture composition for Asphalt Concrete Type A shall be per 441.02 and the most recent Asphalt Institute Superpave Mix Design manual SP-2 for design procedures and material properties except as modified below. JMF submittals shall include the standard Department cover and summary page, all printouts from the compactor (all gyratory points not necessary) and analysis covering the required mix properties. One compacted gyratory sample and loose mix for compaction of another sample in addition to a 2000 gram (4.4 pounds) loose sample shall be submitted for each JMF.

Design gyrations shall be per the lane current Average Daily Truck Traffic (ADTT) as follows unless otherwise specified in the plans. Lane ADTT can be calculated from the plan as follows:

$$\text{Lane ADTT} = \text{Current ADT} \times \%B\&C \text{ trucks} \times 0.5 \times 0.9$$

If multiple  $N_{des}$  exist due to a multiple section project etc. the lower design gyrations shall apply unless otherwise specified in the plans.

Gyrations Level and Material Requirements							
Lane ADTT	$N_{ini}$	$N_{des}$	$N_{max}$	Coarse Agg. Angularity	Fine Agg. Angularity	Flat and Elong. Particles	Sand Equiv.
<4000	7	86	134	95/90	44	10	45
>4000	8	109	174	100/100	44	10	50

All virgin aggregate used shall be approved by the Department. If fine aggregate is from crushed carbonate stone or air cooled blast furnace slag, the fine aggregate angularity (FAA) test is not required. For any other material FAA shall be 44. A blend of a material not meeting FAA with a material that meets FAA is allowed, but the FAA result shall be calculated mathematically based on the individual Department FAA results and actual blend percentages. Blends must be approved by the Department. All other department aggregate requirements will apply except gradation for fine aggregate. Aggregate to be used must be submitted to the Laboratory with sufficient lead time to perform testing for JMF approval.

Control points shall be per SP-2 except as follows (gradations shall not end before the first control point sieve to allow 100 percent passing):

Sieve	12.5mm mix	19mm mix
2.36mm (No. 8)	28-43%	25-40%
12.5mm (1/2 inch)	95-100%	
19mm (3/4 inch)		85-100%
37.5mm (1 1/2 inch)		100%

If 100 percent of fine aggregate is crushed carbonate stone or air cooled blast furnace slag, the design gradation may pass through the restricted zone. Design gradations with other materials may pass through the restricted zone provided: (1) a Loaded Wheel Test (LWT) is performed according to Supplement 1057 and the results are submitted with the mix design; (2) the LWT is run during initial production as a quality control function; and, (3) no excess tenderness is exhibited during lay down. For estimating LWT sample mix volume, the bulk density from gyratory specimens at  $N_{des}$  is required. Results less than 5.0mm (0.20 in) at 46C (115F) are considered passing. Rollers keeping far back on a mix at normal compaction temperature is an indication of a tender, rut prone mix and may be justification for requiring a redesign.

Recycled asphalt concrete or bituminous aggregate base (RAP) can be used per Supplement 1055 in surface courses or up to 20 percent in intermediate courses per 441.03. RAP stockpiles shall be visually inspected and approved by the District prior to production. Final RAP gradation and asphalt content is to be based on four separate stockpile (or roadway for concurrent grinding) samples all agreeing within 0.4 percent for asphalt content and 5 percent passing the 4.75mm (No. 4) sieve. All four test results and an average shall be reported in the JMF.

SP-2 Table 5.2 VMA shall be (percent minimum):  
 9.5mm - 15  
 12.5mm - 14.0