

ITEM 456.**WARM-MIX ASPHALT (WMA) PAVEMENT****TON**

All permanent SUPERPAVE Hot Mix Asphalt Mixture shall be modified using a WMA additive capable of lowering plant production temperatures to below 260° F. Warm Mix Asphalt additives reduce compaction effort and permit lower production temperatures than conventional hot mix asphalt. The WMA additive shall be a product listed on the Northeast Asphalt User Producer Group (NEAUPG) website (<http://www.superpave.psu.edu/NEAUPG.html>), except that no WMA foaming technology will be permitted which requires the mechanical injection of steam or water into the liquid asphalt.

The WMA additive must be compatible with polyphosphoric acid modified binders, polymer modified binders, and the HMA producer's HMA anti-stripping agents. The WMA additive shall be introduced in accordance with the Manufacturer's dosing rates and approved blending methods. The WMA additive Manufacturer shall have an on-site representative at the beginning of paving operations. The Manufacturer's representative shall be available for additional consultation during the remaining Warm Mix production.

All work done under this Item shall conform to the provisions of Sections 450 and 455. The WMA mixture design shall incorporate the requirements of NCHRP Report 691: Mix Design Practices for Warm Mix Asphalt "*Draft Appendix to AASHTO R35, Special Mixture Design Considerations and Methods for Warm Mix Asphalt (WMA)*". In addition to the provisions of Sections 450 and 455, laboratory prepared samples that have been manufactured at specified temperatures with and without the WMA additive shall be submitted to MassDOT at least 45 days prior to placement for testing. These samples shall be subject to Hamburg Wheel testing for moisture damage and rutting for verification that the WMA is at least equal in performance to the HMA. Preparation of these samples shall be coordinated with the MassDOT.

All costs associated with these provisions will be considered incidental to Item 456. No additional compensation will be provided for the Manufacturer's representative, production of samples, the Warm Mix additive or other incidental costs.

Method of Measurement

Item 456 Warm-Mix Asphalt (WMA) Pavement shall be measured by the ton of hot mix asphalt modified with warm-mix additive.

Basis of Payment

Payment under Item 456 includes the cost of the WMA modifier and all equipment, labor, manufacturer's representative and incidental costs required to produce WMA. Costs for Superpave HMA production and placement is compensated under the respective Superpave pay items.