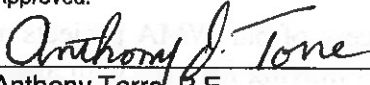


SUPERSEDED BY EB 15-031 EFFECTIVE 9/28/15		New York State Department of Transportation ENGINEERING INSTRUCTION	EI 12-008								
Title: OPTIONAL USE OF WARM MIX ASPHALT (WMA) TECHNOLOGIES											
Target Audience: <table border="0"> <tr> <td>☐ Manufacturers (18)</td> <td>☐ Surveyors (33)</td> </tr> <tr> <td>☒ Local Govt. (31)</td> <td>☒ Consultants (34)</td> </tr> <tr> <td>☒ Agencies (32)</td> <td>☒ Contractors (39)</td> </tr> <tr> <td></td> <td>☐ _____ ()</td> </tr> </table>		☐ Manufacturers (18)	☐ Surveyors (33)	☒ Local Govt. (31)	☒ Consultants (34)	☒ Agencies (32)	☒ Contractors (39)		☐ _____ ()	Approved:  04-03-2012 Anthony Torre, P.E. Date Acting Deputy Chief Engineer (Research)	
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☒ Local Govt. (31)	☒ Consultants (34)										
☒ Agencies (32)	☒ Contractors (39)										
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ADMINISTRATIVE INFORMATION:

- This Engineering Instruction (EI) is effective beginning with projects submitted for the letting of 09/06/2012.
- This EI does not supersede any other issuance.

PURPOSE: The purpose of this EI is to issue a Special Note pertaining to Warm Mix Asphalt (WMA) Technologies, which is to be inserted into contracts containing Hot Mix Asphalt (HMA) pavement pay items.

TECHNICAL INFORMATION: The special note included in this document informs the contractor of their option to use an Approved WMA Technology in the production of asphalt mixtures, and the additional requirements they must satisfy. This note was developed to allow the use of WMA. These changes will be incorporated into future revisions of the affected standard specifications.

IMPLEMENTATION:

- Main Office Design Quality Assurance Bureau will insert the special note into contract proposals containing 402 items, beginning with projects submitted for the letting of 09/06/2012.
- For on-going contracts, at the Contractor's option, HMA may be replaced with an approved WMA mix at no additional cost to the State. The Contractor shall provide the Engineer with written notice and a mix design in accordance with the Special Note *Optional Use of Warm Mix Asphalt (WMA) Technologies*.
- Engineers-in-Charge of ongoing contracts and contracts let without the shelf note shall file a copy of this EI in the contract records as documentation of the change in accordance with the Contract Administration Manual (CAM) §104-02.
- All 404.XXYZQ291, Warm Mix Asphalt, item numbers are hereby disapproved. The Regional special specifications are still approved. Designers wishing to require the use of Warm Mix Asphalt on a project need to contact the Main Office Materials Bureau for guidance.

TRANSMITTED MATERIALS: Special note regarding the optional use of Warm Mix Asphalt (WMA) Technologies. Both USC and metric special notes are attached.

BACKGROUND: WMA is a group of technologies which allow asphalt mixtures to be produced and placed at lower temperatures. The technologies allow complete aggregate coating at lower temperatures and aid in the placement and compaction of the mixture. The mechanisms that aid the coating and compaction can vary from technology to technology. Currently there are more than 20 technologies that are being marketed in the U.S.

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Originally developed in Europe, WMA was showcased at a convention in the U.S. in 2003. Since 2004 NYSDOT has been monitoring the use of WMA on a national level and began placing trial sections on NYSDOT roadways in 2006. In 2009, with the help of the asphalt industry, NYSDOT developed an Experimental Work Plan, a specification for the use of WMA, and a WMA Technology Approval Process. In 2010, several projects across the state were designed, let, and awarded with the WMA specification. All these projects were constructed in 2010 and 2011 successfully.

Based on the success of our WMA projects and the success of using WMA Technologies on a national level, NYSDOT is moving forward with allowing contractors to use these technologies. Contractors will be able to use any technology appearing on the Approved List for *Technologies for Warm Mix Asphalt* in the production of asphalt mixtures.

CONTACT: Direct questions regarding this issuance to Christopher Euler of the Materials Bureau at (518) 457-4581 or via e-mail at ceuler@dot.state.ny.us.

SPECIAL NOTE

OPTIONAL USE OF WARM MIX ASPHALT (WMA) TECHNOLOGIES

The contractor has the option of using an Approved WMA Technology in the production of all 402, *Hot Mix Asphalt (HMA)* items, except *SUPERPAVE HMA with Ice Retardant* items, *Waterproofing Bridge Deck HMA* items, and *Paver-Placed Surface Treatment* items, at no additional cost to the State.

If the contractor chooses to use a WMA technology, the provisions of §401 and §402 shall apply including the following:

Use an approved technology appearing on the Approved List for *Technologies for Warm Mix Asphalt*. Design a mixture using a WMA Technology in accordance with MM 5.16, *Superpave Hot Mix Asphalt Mixture Design and Mixture Verification Procedure*. At a minimum, a one point verification of the mixture's volumetric properties is acceptable for the following situations:

- When the WMA mix design is based on an existing Production Status HMA mix design.
- When the WMA mix design is based on, and utilizes a different WMA technology than, an existing Production Status WMA mix design.

Comply with the latest manufacturer's "Production, Testing, and Compaction Details" from the Approved List for incorporating the WMA technology. Test specimens may be made from plant produced or laboratory prepared WMA. Test specimens must be made from plant produced WMA if adding the WMA technology in the lab does not simulate the production process. The Regional Materials Engineer (RME) may require a State representative be present during the fabrication and testing. Submit the WMA design to the RME for review and verification at least 14 calendar days before production, including:

- Name of WMA technology and the target dosage rate.
- If using an additive other than water,
 - Submit a MSDS for the additive.
 - Submit either enough of the additive for the laboratory mix design verification, or the additive pre-blended in the PG Binder at the correct dosage. If the additive is not pre-blended into the PG Binder, include directions for properly incorporating the additive into the laboratory made mixture.
- Prior to the submission of any mix design, contact the RME to determine if there is an increased concern regarding the mixture's moisture susceptibility based on the WMA technology and/or the type of aggregate being used, or the performance of similar mixes. The RME may require AASHTO T 283 moisture susceptibility test results, meeting a minimum Tensile Strength Ratio (TSR) of 80%, as part of the mix design submission.

Submit Production Quality Control Plan revisions incorporating the WMA technology if not previously submitted.

For 80 Series Compaction Method, complete all breakdown roller passes before the mat temperature falls below 230° F, unless approved by the Director, Materials Bureau.

When the asphalt mixture is being placed over a *Sheet-Applied Waterproofing Membrane*, maintain a minimum delivery temperature in accordance with the Material Detail Sheets prepared by the membrane manufacturer.

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If the contractor chooses to use a WMA technology, the provisions of §401 and §402 shall apply including the following:

Use an approved technology appearing on the Approved List for *Technologies for Warm Mix Asphalt*. Design a mixture using a WMA Technology in accordance with MM 5.16, *Superpave Hot Mix Asphalt Mixture Design and Mixture Verification Procedure*. At a minimum, a one point verification of the mixture's volumetric properties is acceptable for the following situations:

- When the WMA mix design is based on an existing Production Status HMA mix design.
- When the WMA mix design is based on, and utilizes a different WMA technology than, an existing Production Status WMA mix design.

Comply with the latest manufacturer's "Production, Testing, and Compaction Details" from the Approved List for incorporating the WMA technology. Test specimens may be made from plant produced or laboratory prepared WMA. Test specimens must be made from plant produced WMA if adding the WMA technology in the lab does not simulate the production process. The Regional Materials Engineer (RME) may require a State representative be present during the fabrication and testing. Submit the WMA design to the RME for review and verification at least 14 calendar days before production, including:

- Name of WMA technology and the target dosage rate.
- If using an additive other than water,
 - Submit a MSDS for the additive.
 - Submit either enough of the additive for the laboratory mix design verification, or the additive pre-blended in the PG Binder at the correct dosage. If the additive is not pre-blended into the PG Binder, include directions for properly incorporating the additive into the laboratory made mixture.
- Prior to the submission of any mix design, contact the RME to determine if there is an increased concern regarding the mixture's moisture susceptibility based on the WMA technology and/or the type of aggregate being used, or the performance of similar mixes. The RME may require AASHTO T 283 moisture susceptibility test results, meeting a minimum Tensile Strength Ratio (TSR) of 80%, as part of the mix design submission.

Submit Production Quality Control Plan revisions incorporating the WMA technology if not previously submitted.

For 80 Series Compaction Method, complete all breakdown roller passes before the mat temperature falls below 110° C, unless approved by the Director, Materials Bureau.

When the asphalt mixture is being placed over a *Sheet-Applied Waterproofing Membrane*, maintain a minimum delivery temperature in accordance with the Material Detail Sheets prepared by the membrane manufacturer.