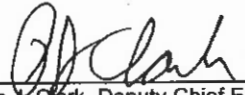


To: n-30-1-87728- Design Quality Assurance Bureau EITS Administrator Bldg. 5, Rm. 408 MC 0750,		New York State Department of Transportation ENGINEERING INSTRUCTION	EI 99-021
Title: REFLECTORIZED PAVEMENT MARKING PAINTS			
SUPERSEDED BY EB 15-031 EFFECTIVE 9/28/15	Approved:  Philip J. Clark, Deputy Chief Engineer, Design Division Date <u>06/18/99</u>		

This Engineering Instruction does not supersede any older issuances.

EFFECTIVE DATE. This Engineering Instruction is effective with projects submitted for letting on or after November 4, 1999.

PURPOSE. This Engineering Instruction transmits a revised specification for reflectORIZED pavement marking traffic paint. The attached specification includes new requirements for the application of painted pavement markings to improve their performance.

For better pavement marking durability, new pay items are included to apply a minimum marking thickness of 0.51 mm (20 mils) when traffic paint is installed on new asphalt pavement surfaces.

This revised specification will be included in the next addendum or edition of the Standard Specifications.

NEW SPECIFICATION PAY ITEMS. The following new pay items are implemented:

- 640.10 M - White Paint ReflectORIZED Pavement Stripes - 0.38 mm
- 640.11 M - Yellow Paint ReflectORIZED Pavement Stripes - 0.38 mm
- 640.12 M - White Paint ReflectORIZED Pavement Letters - 0.38 mm
- 640.13 M - White Paint ReflectORIZED Pavement Symbols - 0.38 mm
- 640.20 M - White Paint ReflectORIZED Pavement Stripes - 0.51 mm
- 640.21 M - Yellow Paint ReflectORIZED Pavement Stripes - 0.51 mm
- 640.22 M - White Paint ReflectORIZED Pavement Letters - 0.51 mm
- 640.23 M - White Paint ReflectORIZED Pavement Symbols - 0.51 mm

OLD SPECIFICATION PAY ITEMS. The following pay items are being disapproved:

- 640.0102 M - White Paint ReflectORIZED Pavement Stripes
- 640.0202 M - Yellow Paint ReflectORIZED Pavement Stripes
- 640.0302 M - White Paint ReflectORIZED Pavement Letters
- 640.0402 M - White Paint ReflectORIZED Pavement Symbols

PROGRAM POLICY. This Engineering Instruction does not change the policy for the use of reflectORIZED pavement marking paint.

DESIGNER INFORMATION. Designers should include the pay items for 0.38 mm (15 mil) painted pavement markings in the project documents when the pavement markings will be applied on existing asphalt pavement, or on existing or new concrete pavement surfaces.

Designers should include the pay items for 0.51 mm (20 mil) painted pavement markings in the project documents under the following conditions:

1. When the painted markings will be applied on the top course of new asphalt pavement.
2. When the painted markings will be applied to underlying asphalt pavement courses that will not be paved with top course until the following construction season.

New asphalt pavement is defined as a pavement that is constructed during the same construction season as the application of the pavement markings.

COST IMPACT. The new specification requires that the minimum paint thickness will be 0.38 mm (15 mils) on existing pavement surfaces and 0.51 mm (20 mils) on new asphalt surfaces. There will be no cost increase for 0.38 mm (15 mil) painted lines and it is estimated that the cost to apply the 0.51 mm (20 mil) marking will be less than \$0.04 per meter (\$.01 per foot) more than the cost of a 0.38 mm (15 mil) thick marking.

CONTACT PERSON. Questions regarding this issuance should be directed to the Materials Bureau at (518) 457-4285.

Make the following change to the Standard Specifications of January 2, 1995:

Page 6-134, *replace* Section 640 Reflectorized Pavement Marking Paints with the following:

"SECTION 640 - REFLECTORIZED PAVEMENT MARKING PAINTS

640-1 DESCRIPTION. Under this work, the Contractor shall furnish and apply painted reflectorized pavement marking paint at the locations and in accordance with the patterns indicated on the plans or as directed by the Engineer, and in accordance with the NYSMUTCD and these specifications.

640-2 MATERIALS. Reflectorized pavement marking paints shall be selected from the Department's Approved List of White and Yellow Reflectorized Pavement Marking Paints. Project acceptance will be based on the appearance of an approved brand name on the container label.

All paints shall conform to Federal, State, and local air pollution regulations, including those for the control (emission) of volatile organic compounds (VOC) as established by the U.S. Environmental Protection Agency, and the New York State Department of Environmental Conservation.

Reflective glass beads shall conform to §727-05 Glass Beads for Reflectorized Pavement Marking Paints.

Details for obtaining Approved List status are available from the Materials Bureau.

640-3 CONSTRUCTION DETAILS

640-3.01 General. All pavement markings and patterns shall be placed as shown in the contract documents and in accordance with the New York State Manual of Uniform Traffic Control Devices.

Before any pavement marking work is begun a schedule of operations shall be submitted to and approved by the Engineer.

When pavement markings are applied under traffic, the Contractor shall provide all the necessary flags, signs, cones, shadow vehicles, flashing arrow boards, etc. to maintain and protect traffic, to protect the work operation, and to protect the painted pavement markings until thoroughly dry and serviceable. No additional payment will be made for these items. The application of pavement markings shall be done in the general direction of traffic. Striping against the direction of normal flow of traffic shall not be allowed.

The Contractor shall be responsible for cleaning the pavement, to the satisfaction of the Engineer, of dust, dirt, and other foreign material which may be detrimental to the adhesion of the paint film.

When necessary, the Contractor shall establish marking line points at nine (9) meter intervals throughout the length of the pavement or as directed by the Engineer.

The Contractor shall be responsible for removing, to the satisfaction of the Engineer, all tracking marks, spilled paint, and paint applied in unauthorized areas.

640-3.02 Application of Pavement Markings. Painted pavement markings shall be applied with either atomizing or airless type striping equipment. The striping equipment may be either truck mounted or hand operated, and shall be equipped with glass bead dispensing equipment. The striping equipment shall be compatible with and suitable for the application of the type of paint being used.

At the time of paint application, the pavement surface and ambient temperature shall not be less than 10°C, the relative humidity shall not exceed 85%, and the pavement surface shall be dry. Painted pavement markings shall not be applied during periods of rain or if rain is imminent. Waterborne type paints shall not be applied if rain is expected within 4 hours after the paint application.

Paint shall be applied in strict accordance with the manufacturer's recommendations for use. In no case shall the paint be heated above 65°C.

The painted pavement markings shall be uniformly applied to the pavement surface at the minimum specified wet film thickness. Immediately following paint application reflective glass beads shall be uniformly applied to the wet paint film at the rate of 0.75 kg/L of paint. The applied pavement markings shall have clean-cut edges, and true and smooth alignment.

On pavements where traffic is to be maintained and the final marking pattern is known, reflectorized pavement marking paint shall be applied before nightfall or before the end of the working day, whichever comes sooner. If the Contractor is unable to apply these final pavement markings, where traffic is to be maintained, then Short-Term Pavement Markings meeting the requirements of §619-3.06 shall be installed using removable reflectorized pavement markings, offset from the location of the project's final pavement markings, at no additional cost to the State.

640-4 METHOD OF MEASUREMENT. Pavement striping will be measured in linear meters along the centerline of the pavement stripe and shall be based on a 100 mm wide stripe. Measurement for striping with a plan width greater or less than the basic 100 mm as shown in the contract documents or as directed by the Engineer, will be made by the following method:

$$\frac{\text{Plan Width of Striping (Millimeters)} \times \text{Meters}}{100 \text{ Millimeters}}$$

No payment will be made for the number of meters of gaps in between the dashed lines. Letters and symbols will be measured by each unit applied. A unit will consist of one letter or one symbol. Examples: "SCHOOL" will be measured as six units. Double and triple headed arrows will each be measured as a single unit. The "X" in railroad grade crossing markings (MUTCD figure 263-33) will be measured by meter of 100 mm stripe.

640-5 BASIS OF PAYMENT. The accepted quantities of pavement markings will be paid for at the contract unit price bid, which shall include the cost of furnishing all labor, materials, and equipment to satisfactorily complete the work. The cost for maintaining and protecting traffic during the painting operations shall be included in the price bid. The application of Short-Term Pavement Markings, necessitated by the Contractor's failure to apply the required Reflectorized Pavement Marking Paints, shall be at no additional cost to the State.

Payment will be made under:

Item No.	Item	Pay Unit
640.10 M	White Paint Reflectorized Pavement Stripes - 0.38 mm	Meter
640.11 M	Yellow Paint Reflectorized Pavement Stripes - 0.38 mm	Meter
640.12 M	White Paint Reflectorized Pavement Letters - 0.38 mm	Each

Item No.	Item	Pay Unit
640.13 M	White Paint Reflectorized Pavement Symbols - 0.38 mm	Each
640.20 M	White Paint Reflectorized Pavement Stripes - 0.51 mm	Meter
640.21 M	Yellow Paint Reflectorized Pavement Stripes - 0.51 mm	Meter
640.22 M	White Paint Reflectorized Pavement Letters - 0.51 mm	Each
640.23 M	White Paint Reflectorized Pavement Symbols - 0.51 mm	Each"