

640 PAVEMENT MARKING

ITEM 644 - THERMOPLASTIC

- 644.01 Description**
- 644.02 Equipment**
- 644.03 Application**
- 644.04 Layout and Premarking**
- 644.05 Basis of Payment**

644.01 Description. This work shall consist of furnishing and applying extruded thermoplastic pavement markings in accordance with Item 641, Section 740.04, and the additional requirements as described herein.

644.02 Equipment. Equipment for applying thermoplastic marking material shall include a kettle for melting the material and maintaining it at the proper temperature. The kettle shall have a thermostat to control material temperature and prevent overheating. The equipment shall continuously mix and agitate the molten material. The parts of the equipment which convey the material from the kettle to the application point shall maintain the material at the required temperature. Thermometers shall be furnished which measure the temperature of the kettle contents and the material temperature in close proximity to the point of application. The equipment shall provide a means for cutting off lines with a square end and shall provide means for applying dashed lines. Surface applied glass beads shall be applied by an automatic bead dispenser attached to the equipment so that the beads are immediately and uniformly dispensed over the marking surface. The bead dispenser shall be equipped with an automatic cut-off control synchronized with the cut-off of the thermoplastic material.

The applicator portion of the equipment shall be suitable for the extruded markings application method. The application equipment for applying extruded markings shall consist of dies of varying width to produce different widths of lines. The use of pans, aprons or similar devices which the die overruns shall not be permitted.

The equipment shall ensure uniformity in the thickness and width of lines. Lines 12 inches (305 mm) wide or less shall be formed by one application pass; lines wider than 12 inches (305 mm) shall be formed by no more than two passes. Individual passes shall not overlap but may be separated by a gap not greater than 1/4 inch.

644.03 Application. When thermoplastic markings are applied to new pavements, both the pavement surface and the ambient air temperature at the time of material application shall be not less than 50°F (10°C) and rising. However, when thermoplastic markings are applied to existing pavements, both the pavement surface and the ambient air temperature at the time of material application shall not be less than 60°F (15°C) and rising. The temperature of thermoplastic material at the point of application shall be at least 400°F (204°C) and not more than 440°F (227°C). Extruded thermoplastic material shall be applied at a thickness of 0.125 to 0.188 inches (3 to 5 mm).

Thermoplastic pavement marking material shall be applied at the following rates:

Pounds per Mile (Kilograms per Kilometer) of Line	Width of Line (Inches) (Millimeters)			
	4	5	10	20
Solid line	2340 (650)	2925 (813)	5850 (1626)	11700 (3252)
Dashed line	585 (165)	731 (203)	1462 (406)	2925 (813)
Dotted line	780 (220)	975 (271)	1950 (542)	3900 (1084)
For Areas	133 pounds per 100 square feet			
Symbols, Words	(6.5 kilograms per square meter)			

Glass beads shall be mechanically dispensed uniformly at a rate of 15 pounds (5.6 kg) of beads for each 100 square feet (square meter) of thermoplastic material surface area. Hand beading shall not be permitted, except to complete the end of the line.

Any required primer shall be the type contained in the prequalified list, shall be furnished with the marking material, and shall be applied in accordance with the marking material manufacturer's recommendations.

Spray application of thermoplastic shall not be permitted.

644.04 Layout and Premarking. A prequalified primer shall be used except on new asphalt pavements.

- 1. Initial Thermoplastic Installation.** In addition to Section 641.06, auxiliary markings shall only be placed on new pavement. Initial thermoplastic markings may be placed over temporary traffic paint markings.
- 2. Subsequent Thermoplastic Installation (Repair or Refurbishing).** In addition to Section 641.06, markings shall be placed over existing thermoplastic markings, or portions thereof. Prior to installation of new thermoplastic markings, the existing thermoplastic markings shall be removed by grinding so that the final combined thickness of the old and new thermoplastic markings shall be between 0.125 and 0.188 inches (3 and 5 mm) and a clean, intact substrate is present.

644.05 Basis of Payment. Payment for accepted quantities complete in place will be made at contract prices, or prices adjusted in accordance with Section 641.11, for:

Item	Unit	Description
644	Mile (Kilometer)	Edge Line
644	Mile (Kilometer)	Lane Line

644	Mile (Kilometer)	Center Line
644	Linear Foot (Meter)	Channelizing Line
644	Linear Foot (Meter)	Stop Line
644	Linear Foot (Meter)	Crosswalk Line
644	Linear Foot (Meter)	Transverse Line
644	Linear Foot (Meter)	Curb Marking
644	Square Foot (Square meter)	Island Marking
644	Each	Railroad Symbol Marking, _____ Inch (mm)
644	Each	School Symbol Marking, _____ Inch (mm)
644	Linear Foot (Meter)	Lane Arrow
644	Each	Word on Pavement, _____ Inch (mm)
644	Linear Foot (Meter)	Dotted Line, _____ Inch (mm)
644	Linear Foot (Meter), Square Foot, or Each	Removal of Pavement Marking
644	Lump Sum	Two-Way Radio Equipment