

THERMOPLASTIC TRAFFIC STRIPES AND MARKINGS – HOT SPRAY.

(REV ~~7-11-11~~9-29-15) (~~1-131-16~~)

SUBARTICLE 711-2 is deleted and the following substituted:

711-2 Materials.

Use only materials listed on the Department's Approved Product List (APL) meeting the following requirements.

Standard and Refurbishment Thermoplastic..... 971-1 and 971-5

Refurbishment of Existing Stripes.....971-1, 971-5 and 971-10

Preformed Thermoplastic..... 971-1 and 971-6

Glass Spheres 971-1 and 971-2

Use sand materials meeting the requirements of 971-5.4.

The Engineer will take random samples of all material in accordance with the Department's Sampling, Testing and Reporting Guide schedule.

~~711-2.1.2 Refurbishing Existing Stripes and Markings: Use materials meeting the requirements of 971-1, 971-5 and 971-11.~~

ARTICLE 711-4 is deleted and the following substituted:

711-4 Application.

***711-4.1 General:** Remove existing pavement markings such that scars or traces of removed markings will not conflict with new pavement markings by a method approved by the Engineer. Cost for removing conflicting pavement markings during maintenance of traffic operations to be included in Maintenance of Traffic, Lump Sum.*

Before applying pavement markings, remove any material that would adversely affect the bond of the pavement markings by a method approved by the Engineer.

Before applying pavement markings to any portland cement concrete surface, apply a primer, sealer, or surface preparation adhesive of the type recommended by the manufacturer. Offset longitudinal lines at least 2 inches from any longitudinal joints of portland cement concrete pavement.

Apply pavement markings to dry surfaces only, and when the ambient air and surface temperature is at least 50°F and rising for asphalt surfaces and 60°F and rising for concrete surfaces.

Apply pavement markings to the same tolerances in dimensions and in alignment specified in 710-5. When applying pavement markings over existing markings, ensure that no more than 2 inches on either end and not more than 1 inch on either side of the existing line is visible.

Apply thermoplastic material to the pavement by extrusion or other means approved by the Engineer.

Conduct field tests in accordance with FM 5-541. Take test readings representative of the pavement marking performance. Remove and replace pavement markings not meeting the requirements of this Section at no additional cost to the Department.

Wait at least 14 days after constructing the final asphalt surface course to place thermoplastic pavement markings. Provide temporary pavement markings during the interim period prior to opening the road to traffic.

711-4.1.1 Preformed Thermoplastic: *Apply markings to dry surfaces only and when ambient air temperature is at least 32°F. Prior to installation, follow the manufacturer's recommendations for pre-heating.*

711-4.2 Thickness:

711-4.2.1 Standard Thermoplastic Markings: *Apply or recap standard thermoplastic pavement markings for longitudinal lines to attain a minimum thickness of 0.10 inch or 100 mils and a maximum thickness 0.15 inch or 150 mils maximum thickness, when measured above the pavement surface.*

All chevrons, diagonal and transverse lines, messages, symbols, and arrows, wherever located, will have a thickness of 0.09 inch or 90 mils to 0.12 inch or 120 mils when measured above the pavement surface.

Measure, record and certify on Department approved form and submit to the Engineer, the thickness of white and yellow pavement markings in accordance with FM 5-541.

The Engineer will verify the thickness of the pavement markings in accordance with FM 5-541 within 30 days of receipt of the Contractor's certification.

711-4.2.2 Refurbishment Thermoplastic Markings: *Apply a minimum of 0.06 inch or 60 mils of thermoplastic material. Ensure that the combination of the existing marking and the overlay after application of glass spheres does not exceed the maximum thickness of 0.150 inch or 150 mils for all lines.*

Measure, record and certify on Department approved form and submit to the Engineer, the thickness of white and yellow pavement markings in accordance with FM 5-541.

The Engineer will verify the thickness of the pavement markings in accordance with FM 5-541 within 30 days of receipt of the Contractor's certification.

711-4.2.3 Preformed Thermoplastic: *Apply 0.125 inch or 125 mils of preformed thermoplastic material.*

Measure, record and certify on Department approved form and submit to the Engineer, the thickness of the pavement markings in accordance with FM 5-541.

711-4.3 Retroreflectivity: *Apply white and yellow pavement markings that will attain an initial retroreflectivity of not less than 450 mcd/lx·m² and not less than 350 mcd/lx·m², respectively for all longitudinal lines. All chevrons, diagonal lines, stop lines, messages, symbols, and arrows will attain an initial retroreflectivity of not less than 300 mcd/lx·m² and 250 mcd/lx·m² for white and yellow respectively. All crosswalks and bicycle markings shall attain an initial retroreflectivity of not less than 275 mcd/lx·m².*

When using hot spray thermoplastic material, apply white and yellow traffic stripes and markings that will attain an initial retroreflectivity of not less than 300 mcd/lx·m² and not less than 250 mcd/lx·m², respectively for all longitudinal lines. All pedestrian crosswalks shall attain an initial retroreflectivity of not less than 275 mcd/lx·m².

Measure, record and certify on Department approved form and submit to the Engineer, the retroreflectivity of white and yellow pavement markings in accordance with FM 5-541.

711-4.4 Glass Spheres:

711-4.4.1 Longitudinal Lines: *For standard thermoplastic markings, apply the first drop of Type 4 or larger glass spheres immediately followed by the second drop of Type 1 glass spheres. For refurbishment thermoplastic markings, apply a single drop of Type 3 glass spheres. Apply reflective glass spheres to all markings at the rates determined by the manufacturer's recommendations.*

711-4.4.2 Chevrons, Diagonal and Transverse Lines, Messages, Symbols, and Arrows: *For standard or refurbishment thermoplastic markings, apply a single drop of Type 1 glass spheres. Apply retroreflective glass spheres to all markings at the rates determined by the manufacturer's recommendations.*

Apply a mixture consisting of 50% glass spheres and 50% sharp silica sand to all standard thermoplastic crosswalk lines at the rates determined by the manufacturer's recommendations.

711-4.4.3 Preformed Markings: *These markings are factory supplied with glass spheres and skid resistant material. No additional glass spheres or skid resistant material should be applied during installation.*

711-4 Application^[TF1]:

~~711-4.1 General:~~ Remove existing pavement markings such that scars or traces of removed markings will not conflict with new stripes and markings by a method approved by the Engineer. Cost for removing conflicting pavement markings during maintenance of traffic operations to be included in Maintenance of Traffic, Lump Sum.

~~Before applying traffic stripes and markings, remove any material that would adversely affect the bond of the traffic stripes by a method approved by the Engineer. Before applying traffic stripes to any Portland cement concrete surface, apply a primer, sealer or surface preparation adhesive of the type recommended by the manufacturer. Offset longitudinal lines at least 2 inches from any longitudinal joints of Portland cement concrete pavement.~~

~~Apply traffic stripes or markings only to dry surfaces, and when the ambient air and surface temperature is at least 50°F and rising for asphalt surfaces and 60°F and rising for concrete surfaces.~~

~~Apply striping to the same tolerances in dimensions and in alignment specified in 710-5. When applying traffic stripes and markings over existing markings, ensure that not more than 2 inches on either end and not more than 1 inch on either side of the existing line is visible.~~

~~Apply thermoplastic material to the pavement either by spray, extrusion or other means approved by the Engineer.~~

~~Conduct field tests in accordance with FM 5-541. Take test readings representative of the striping performance. Remove and replace traffic stripes and markings not meeting the requirements of this Section at no additional cost to the Department.~~

~~Apply all final pavement markings prior to opening the road to traffic.~~

~~**711-4.1.1 Preformed Thermoplastic:** Apply markings only to dry surfaces and when ambient air temperature is at least 32°F. Prior to installation, follow the manufacturer's recommendations for pre-heating.~~

~~**711-4.2 Thickness:**~~

~~**711-4.2.1 Initial or Recapped Stripes and Markings:** Apply or recap traffic stripes or markings such that all lane lines, center lines, transverse markings and traffic stripes and markings within traffic wearing areas, will have a thickness of 0.10 to 0.15 inch when measured above the pavement surface.~~

~~Also, all gore, island, and diagonal stripe markings, bike lane symbols and messages, wherever located, will have a thickness of 0.09 to 0.12 inch when measured above the pavement surface.~~

~~Measure, record and certify on Department approved form and submit to the Engineer, the thickness of white and yellow pavement markings in accordance with Florida Method FM 5-541.~~

~~**711-4.2.2 Refurbishing Existing Traffic Stripes and Markings:** Apply a minimum of 0.06 inch of thermoplastic material when using refurbishment thermo or 0.04 inch of thermoplastic material when using hot spray. Ensure that the combination of the existing stripe and the overlay after application of glass spheres does not exceed the maximum thickness of 0.150 inch for all lines.~~

~~**711-4.3 Retroreflectivity:** When using standard or refurbishment thermoplastic material, apply white and yellow traffic stripes and markings that will attain an initial retroreflectivity of not less than 450 mcd/lx-m² and not less than 350 mcd/lx-m², respectively for all longitudinal lines. All transverse lines, messages and arrows will attain an initial retroreflectivity of not less than 300 mcd/lx-m² and 250 mcd/lx-m² for white and yellow respectively. All pedestrian crosswalks shall attain an initial retroreflectivity of not less than 275 mcd/lx-m².~~

~~When using hot spray thermoplastic material, apply white and yellow traffic stripes and markings that will attain an initial retroreflectivity of not less than 300 mcd/lx-m² and not less than 250 mcd/lx-m², respectively for all longitudinal lines. All pedestrian crosswalks shall attain an initial retroreflectivity of not less than 275 mcd/lx-m².~~

~~For preformed thermoplastic materials, apply white traffic stripes and markings that will attain an initial retroreflectivity of not less than 300 mcd/lx-m². All pedestrian crosswalks, bike lane symbols and messages in a proposed bike lane shall attain initial retroreflectivity of not less than 275 mcd/lx-m².~~

~~Measure, record and certify on Department approved form and submit to the Engineer, the retroreflectivity of white and yellow pavement markings in accordance with Florida Method FM 5-541.~~

~~**711-4.4 Glass Spheres:**~~

~~**711-4.4.1 Longitudinal Lines:** For initial traffic striping and marking, apply the first drop of Type 4 or larger glass spheres immediately followed by the second drop of Type 1 glass spheres. For refurbishment thermoplastic material, apply a single drop of Type 3 glass spheres. For hot spray thermoplastic material, apply a single drop of Type 1 glass spheres. Apply reflective glass spheres to all markings at the rates determined by the manufacturer's recommendations.~~

~~**711-4.4.2 Transverse Stripes and Markings:** Apply a single drop of Type 1 glass spheres. Apply reflective glass spheres to all markings at the rates determined by the manufacturer's recommendations.~~

~~Apply a mixture consisting of 50% glass spheres and 50% sharp silica sand to all thermoplastic pedestrian crosswalk lines at the rates determined by the manufacturer's recommendations.~~

~~**711-4.4.3 Preformed Markings:** These markings are factory supplied with glass spheres and skid resistant material. No additional glass spheres or skid resistant material should be applied during installation.~~

ARTICLE 711-7 is deleted and the following substituted:

711-7 Observation Period.

Standard and refurbishment pavement markings are subject to a 180 day observation period under normal traffic. The observation period shall begin with the satisfactory completion and acceptance of the work.

The pavement markings shall show no signs of failure due to blistering, excessive cracking, chipping, discoloration, poor adhesion to the pavement, loss of reflectivity or vehicular damage. The retroreflectivity shall meet the initial requirements of 711-4.3. The Department reserves the right to check the color and retroreflectivity any time prior to the end of the observation period.

Replace, at no additional expense to the Department, any pavement markings that do not perform satisfactorily under traffic during the 180 day observation period.

Hot spray pavement markings are not subject to an observation period.