



*Florida Department of Transportation*

RICK SCOTT  
GOVERNOR

605 Suwannee Street  
Tallahassee, FL 32399-0450

ANANTH PRASAD, P.E.  
SECRETARY

December 15, 2014

Khoa Nguyen  
Director, Office of Technical Services  
Federal Highway Administration  
545 John Knox Road, Suite 200  
Tallahassee, Florida 32303

Re: State Specifications and Estimates Office  
Section **711**  
Proposed Specification: **7110401 Thermoplastic Traffic Stripes and Markings.**

Dear Mr. Nguyen:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.

This change was proposed by Chester Henson of the State Roadway Design Office to include language for cure time for permanent stripes and markings. Currently, when permanent markings are included in the Contract, a Modified Special Provision (MSP) is necessary to address the cure time for the permanent markings. This proposed change will remove the need for an MSP to be included.

Tracking of residual asphalt onto a white thermoplastic longitudinal marking has been discussed for many years and is dependent on many combinations of variables such as ambient air temperature, asphalt mix, traffic type and volume, and roadway geometry. If tracking does occur, the white longitudinal marking would become dirty creating a gray appearance. The impact to the road user would be a temporary reduction in contrast between the longitudinal marking and the background surface of the asphalt which will never be darker. This reduction of contrast would be temporary until traffic cleans the residual asphalt off the thermoplastic. This cleaning or removal is dependent on the same variables that caused the tracking. Tracking has not been shown to substantially affect our thermoplastic retroreflectivity with the large beads.

There is no contract measurement of dirtiness, white color, or contrast in the specifications. To achieve the level of white color desired for daytime visibility, the Department specifies the minimum amount of titanium dioxide in white thermoplastic in subarticle 971-5.2.

There is a 180 day observation period for longitudinal pavement markings. Subarticle 711-7 states in part, "The longitudinal pavement markings shall show no signs of failure due to blistering, excessive cracking, chipping, discoloration, poor adhesion to the pavement, loss of



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reflectivity or vehicular damage.” Discoloration is the thermoplastic material itself changing color, not from dirty or tracked markings. The predominant factor in determining the condition of a longitudinal marking is retroreflectivity. The Department specifies the minimum levels of initial and final retroreflectivity to be provided and these levels must be satisfied regardless of how dirty or tracked the marking may be. A contractor may choose to wait more than 14 days to place a longitudinal marking if the contractor feels retroreflectivity may be impacted by tracking.

The State Construction Office does not feel this will be an issue; but will monitor the situation and make adjustments accordingly, if needed.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via email to SP965DS or [daniel.scheer@dot.state.fl.us](mailto:daniel.scheer@dot.state.fl.us).

If you have any questions relating to this specification change, please call me at 414-4130.

Sincerely,

Signature on file

Daniel Scheer, P.E.  
State Specifications Engineer

DS/dt

Attachment

cc: Florida Transportation Builders' Assoc.  
State Construction Engineer

**THERMOPLASTIC TRAFFIC STRIPES AND MARKINGS.****(REV ~~10-112-15~~-14)**

SUBARTICLE 710-4.1 is deleted and the following substituted:

**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 and markings* by a method approved by the Engineer ~~that would adversely affect the bond of the traffic stripes. All pavement should must be more than visibly dry. Check for moisture by placing an 18 inch by 18 inch piece of tar paper on the pavement and apply thermoplastic heated to 420°F to the top of the paper. Wait two minutes and lift the tar paper. If moisture is present on the underside, do not apply thermoplastic marking~~

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 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 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 Do not place~~ *Wait at least 14 days after constructing the final asphalt surface course to place thermoplastic traffic stripes and markings on newly constructed final surface courses prior to 30 calendar days after placement of the final surface course. Provide temporary pavement markings during the interim period 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.

**THERMOPLASTIC TRAFFIC STRIPES AND MARKINGS.**  
**(REV 12-15-14)**

SUBARTICLE 710-4.1 is deleted and the following substituted:

**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 and markings 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 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 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.

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