



Florida Department of Transportation

CHARLIE CRIST
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

STEPHANIE KOPELOUSOS
SECRETARY

June 22, 2009

Monica Gourdine
Program Operations Engineer
Federal Highway Administration
545 John Knox Road, Suite 200
Tallahassee, Florida 32303

Re: Office of Design, Specifications
Section 701
Proposed Specification: 7010201 Audible and Vibratory Pavement Markings

Dear Ms. Gourdine:

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

These changes were proposed by Chester Henson of the State Roadway Design Office to remove references to FM 5-579 as it has been moved into FM 5-541, to increase the upper limit of the range of baseline thickness to allow for more flexibility in the field and to provide consistency with other pavement marking sections by clarifying the signs of failure during the observation period.

Please review and transmit your comments, if any, within four weeks. Comments should be sent via Email to ST986RP or rudy.powell@dot.state.fl.us.

If you have any questions relating to this specification change, please call Rudy Powell, State Specifications Engineer at 414-4110.

Sincerely,

Rudy Powell, Jr., P.E.
State Specifications Engineer

RP/dt

Attachment

cc: Gregory Jones, Chief Civil Litigation
Florida Transportation Builders' Assoc.
State Construction Engineer

AUDIBLE AND VIBRATORY PAVEMENT MARKINGS.
(REV-5-1-09)

SUBARTICLE 701-2.1 (page 787) is deleted and the following substituted:

701-2.1 Thermoplastic: Use thermoplastic material meeting the requirements of 971-1 and 971-409 and listed on the Qualified Products List (QPL). The Engineer will take random samples of the materials in accordance with the Department's Sampling, Testing and Reporting Guide schedule.

ARTICLE 701-4 (pages 787 - 788) is deleted and the following substituted:

701-4 Application.

701-4.1 General: 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 surface, apply a primer, sealer or surface preparation adhesive of the type recommended by the manufacturer. Offset longitudinal lines at least 2 inches from construction 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 surface.

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

Conduct field tests in accordance with FM 5-541 and 5-579. Remove and replace markings not meeting the requirements of this Section.

701-4.2 Thickness: Apply base lines having a thickness of 0.079 to 0.085 ~~120~~ inches, exclusive of the transverse audible bars, when measured above the pavement surface at the edge of the base line.

As an alternative to the flat base line, a profiled baseline meeting the following dimensions may be applied. The profiled baseline shall have a minimum height of 0.155 inches, when measured above the pavement surface at the edge of the inverted rib profile. The thickness in the bottom of the profile marking shall be 0.035 to 0.050 inches. The individual profiles shall be located transversely across the full width of the traffic stripe at approximately 1.0 inch on center, with a bottom width between 0.090-0.310 inches.

701-4.3 Dimensions of Transverse Audible Bars: Apply the raised transverse bar with a profile such that the leading and trailing edge are sloped at a sufficient angle to create an audible and vibratory warning.

Transverse bars on shoulder and centerline markings shall have a *minimum* height of 0.45 to 0.55 inches, including the base line. The height shall be measured above the pavement surface at the edge of the marking, after application of

drop-on glass spheres. The bars shall have an approximate length of 2.5 inches. The bars may have a drainage channel on each bar, the width of each drainage channel will not exceed 1/4 inch at the bottom of the channel. The longitudinal distance between bars shall be *approximately* 30 inches.

701-4.4 Retroreflectivity: Apply white and yellow audible and vibratory markings that will attain an initial retroreflectance of not less than 300 mcd/lx·m² and not less than 250 mcd/lx m², respectively. Measure, record and certify on a Department approved form and submit to the Engineer, the retroreflectivity of white and yellow pavement markings in accordance with FM-5-579**41**.

The Department reserves the right to test the markings within 3 days of receipt of the Contractor's certification. If the retroreflectivity values measure below values shown above, remove and reapply the striping.

701-4.5 Color: *Use pavement marking materials that meet the requirements of 971-1.*

701-4.56 Glass Spheres: Apply glass spheres to all markings. The manufacturer shall determine if a single or double application of glass spheres is used and the recommended drop rates for each application.

ARTICLE 701-5 (page 789) is deleted and the following substituted:

701-5 Contractor's Responsibility for Notification.

Notify the Engineer prior to the placement of audible and vibratory markings. Furnish the Engineer with the manufacturer's name and ~~LOT~~*batch* numbers of the thermoplastic materials and glass spheres to be used. Ensure that the ~~LOT~~*batch* numbers appear on the thermoplastic materials and glass spheres packages.

ARTICLE 701-7 (page 789) is deleted and the following substituted:

701-7 Observation Period.

Pavement markings are subject to a 180 day observation period under normal traffic. The observation period will begin with the satisfactory completion and acceptance of the pavement marking 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 701-4.4. ~~The pavement markings shall show no signs of failure during the observation period.~~ The Department reserves the right to check the color and retroreflectivity ~~within 30 days~~ *anytime* prior to the end of the observation period.

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

ARTICLE 701-8 (page 789) is deleted and the following substituted:

701-8 Corrections for Deficiencies.

Correct all deficiencies by removal and reapplication of a 1.0 mile ~~LOT~~*section* centered around the deficiency at no cost to the Department.

AUDIBLE AND VIBRATORY PAVEMENT MARKINGS.
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701-2.1 Thermoplastic: Use thermoplastic material meeting the requirements of 971-1 and 971-9 and listed on the Qualified Products List (QPL). The Engineer will take random samples of the materials in accordance with the Department's Sampling, Testing and Reporting Guide schedule.

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Conduct field tests in accordance with FM 5-541. Remove and replace markings not meeting the requirements of this Section.

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Transverse bars on shoulder and centerline markings shall have a minimum height of 0.45 inches, including the base line. The height shall be measured above the pavement surface at the edge of the marking, after application of drop-on glass

spheres. The bars shall have an approximate length of 2.5 inches. The bars may have a drainage channel on each bar, the width of each drainage channel will not exceed 1/4 inch at the bottom of the channel. The longitudinal distance between bars shall be approximately 30 inches.

701-4.4 Retroreflectivity: Apply white and yellow audible and vibratory markings that will attain an initial retroreflectance of not less than 300 mcd/lx·m² and not less than 250 mcd/lx m², respectively. Measure, record and certify on a Department approved form and submit to the Engineer, the retroreflectivity of white and yellow pavement markings in accordance with FM-5-541.

The Department reserves the right to test the markings within 3 days of receipt of the Contractor's certification. If the retroreflectivity values measure below values shown above, remove and reapply the striping.

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