



Florida Department of Transportation

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ANANTH PRASAD, P.E.
SECRETARY

August 13, 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 **993**
Proposed Specification: **9930206 Object Markers and Delineators.**

Dear Mr. Nguyen:

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

This change is proposed by Chester Henson of the State Roadway Design Office to add express lane delineators.

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.

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

OBJECT MARKERS AND DELINEATORS.(REV ~~6-45308-12~~-14)

SUBARTICLE 993-2.6 is deleted and the following substituted:

993-2.6 ~~BarrierExpress~~High Performance Managed Lane Delineators:

993-2.6.1 Dimensions: *The delineator shall have a height of 36 inches above the pavement surface and have a minimum dimension of 2 inches.*

993-2.6.2 Post Base: *The base shall be manufactured to accommodate the replacement of the post without tools. The base shall be capable of withstanding 100- vehicle impacts without damage or failure.*

993-2.6.3 Color: *The plastic post shall be white or orange. For white delineators, the yellowness index shall not exceed- 12 when tested in accordance with ASTM D1925 or ASTM E313. The daylight 45 degree, 0 degree luminous directional reflectance shall be a minimum of 70 when tested in accordance with ASTM E1347 or ASTM E1164. The orange posts shall meet the color requirements as identified in 23 CFR Table 5 Appendix to Part 655, Subpart F.*

993-2.6.4 Retroreflective Sheeting: *The reflective sheeting shall be Type V white abrasion resistant sheeting and meet the requirements of Section 994. The reflective sheeting shall be a single wrap around the post and have a minimum omni directional area of 30 square inches.*

993-2.6.5 Impact Performance: *The post, installed according to manufacturer's recommendations, shall be capable of returning to a vertical position plus or minus 5 degrees ~~with no delaminating~~ after receiving 100- vehicle impacts at 70 mph when tested according to FM 5-581 ~~National Testing Product Evaluation Program (NTPEP). The NTPEP requirement of one half of the hits at 32°F is waived. All hits shall be at 65°F or greater.~~ For acceptance purposes there shall be no post failures and no more than two posts may list between 5°degrees and 10°degrees after receiving 100- vehicle impacts. Impact testing must be performed by a recognized ~~delineator~~ testing facility that is listed on the FHWA Laboratories Accredited to Crash Test Roadside Safety Hardware, http://safety.fhwa.dot.gov/roadway_dept/policy_guide/road_hardware/laboratories/ or any testing facility that is approved by the State Roadway Design Engineer. ~~Approved testing facilities include Texas Transportation Institute, E Tech Testing Services or other laboratories approved by the Department.~~*

993-2.67 Barrier Delineators:

993-2.67.1 General: Barrier delineators for use on guardrail, concrete barrier and traffic railing shall consist of retroreflective sheeting permanently adhered to 0.090 inch minimum thick body. The body shall have a flexible hinge which allows the reflector to fold down and spring back to an upright position after impact. Barrier delineators for guardrail shall be designed for mounting to the web of steel posts or designed for mounting to wood posts. Barrier delineators for concrete barrier wall and traffic railings shall be designed for mounting to the top of the barrier wall.

993-2.67.2 Retroreflective Sheeting: The sheeting for barrier delineators shall be Type IV or XI meeting the requirements of Section 994. The sheeting shall be yellow or white, depending on the locations of use for each. The dimensions of the retroreflective sheeting shall be 3 inches wide by 4 inches high. The sheeting shall be installed by the delineator manufacturer.

OBJECT MARKERS AND DELINEATORS.**(REV 8-12-14)**

SUBARTICLE 993-2.6 is deleted and the following substituted:

993-2.6 High Performance Managed Lane Delineators:

993-2.6.1 Dimensions: The delineator shall have a height of 36 inches above the pavement surface and have a minimum dimension of 2 inches.

993-2.6.2 Post Base: The base shall be manufactured to accommodate the replacement of the post without tools. The base shall be capable of withstanding 100 vehicle impacts without damage or failure.

993-2.6.3 Color: The plastic post shall be white or orange. For white delineators, the yellowness index shall not exceed 12 when tested in accordance with ASTM D1925 or ASTM E313. The daylight 45 degree, 0 degree luminous directional reflectance shall be a minimum of 70 when tested in accordance with ASTM E1347 or ASTM E1164. The orange posts shall meet the color requirements as identified in 23 CFR Table 5 Appendix to Part 655, Subpart F.

993-2.6.4 Retroreflective Sheeting: The reflective sheeting shall be Type V white abrasion resistant sheeting and meet the requirements of Section 994. The reflective sheeting shall be a single wrap around the post and have a minimum omni directional area of 30 square inches.

993-2.6.5 Impact Performance: The post, installed according to manufacturer's recommendations, shall be capable of returning to a vertical position plus or minus 5 degrees after receiving 100 vehicle impacts at 70 mph when tested according to FM 5-581. For acceptance purposes there shall be no post failures and no more than two posts may list between 5°degrees and 10°degrees after receiving 100 vehicle impacts. Impact testing must be performed by a recognized testing facility that is listed on the FHWA Laboratories Accredited to Crash Test Roadside Safety Hardware, http://safety.fhwa.dot.gov/roadway_dept/policy_guide/road_hardware/laboratories/ or any testing facility that is approved by the State Roadway Design Engineer.

993-2.7 Barrier Delineators:

993-2.7.1 General: Barrier delineators for use on guardrail, concrete barrier and traffic railing shall consist of retroreflective sheeting permanently adhered to 0.090 inch minimum thick body. The body shall have a flexible hinge which allows the reflector to fold down and spring back to an upright position after impact. Barrier delineators for guardrail shall be designed for mounting to the web of steel posts or designed for mounting to wood posts. Barrier delineators for concrete barrier wall and traffic railings shall be designed for mounting to the top of the barrier wall.

993-2.7.2 Retroreflective Sheeting: The sheeting for barrier delineators shall be Type IV or XI meeting the requirements of Section 994. The sheeting shall be yellow or white, depending on the locations of use for each. The dimensions of the retroreflective sheeting shall be 3 inches wide by 4 inches high. The sheeting shall be installed by the delineator manufacturer.