ORIGINATION FORM
Proposed Revisions to the Specifications

(Please provide all information - incomplete forms will be returned)

Date: 10/16/2019

Office: Roadway Design Office

Originator: Ed Cashman

Specification Section: 008, 102 & 990

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Article/Subarticle: See Redline

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****Will the proposed revision require changes to:**

Publication	Yes	No	Office Staff Contacted and date contacted
Standard Plans Index	◉	○	See Page 2 for all
Traffic Engineering Manual	○	◉	
FDOT Design Manual	◉	○	
Construction Project Administration Manual	○	◉	
Basis of Estimate/Pay Items	◉	○	
Structures Design Guidelines	○	◉	
Approved Product List	◉	○	
Materials Manual	○	◉	

**This section must be completed prior to processing proposed revisions.

Will this revision necessitate any of the following:

Design Bulletin ☐ **Construction Bulletin** ☐ **Estimates Bulletin** ☐ **Materials Bulletin** ☐

Are all references to external publications current? **Yes** ◉ **No** ○

If not, what references need to be updated? (Please include changes in the redline document.)

Why does the existing language need to be changed?

Currently, the Standard Plans (especially Index 102-600) contain a mixture of material, design, and construction specifications. Some of this information is contradictory and duplicated. In the absence of a temporary traffic control plan, contractors are being asked to fill in the gaps. By putting information in the proper document, the correct person will be

Summary of the changes:

Section-wide changes to Sections 102 & 990. Added language into Section 008 for work zone coordination.

Are these changes applicable to all Department jobs? **Yes** ◉ **No** ○

If not, what are the restrictions?

Contact the State Specifications Office for assistance in completing this form.
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Central Office Review – 2/4/2019

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District Review – 4/19/2019

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Industry Review – 7/15/2019

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SECRETARY

M E M O R A N D U M

DATE: December 12, 2019

TO: Specification Review Distribution List

FROM: Daniel Strickland, P.E., State Specifications Engineer

SUBJECT: Proposed Specification: **9900200 Temporary Traffic Control Device Materials.**

In accordance with Specification Development Procedures, we are sending you a copy of a proposed specification change.

This change was proposed by Ed Cashman from the Roadway Design Office to improve work zones safely for all users.

Please share this proposal with others within your responsibility. Review comments are due within four weeks and should be sent to Mail Station 75 or online at http://fdotewp1.dot.state.fl.us/programmanagement/development/industryreview.aspx . Comments received after **January 9, 2020,** may not be considered. Your input is encouraged.

DS/rf
Attachment

TEMPORARY TRAFFIC CONTROL DEVICE MATERIALS
(REV 10-31-19)

ARTICLE 990-2 is deleted and the following substituted:

990-2 Retroreflective Sheeting for Temporary Traffic Control Devices.

~~**990-2.1 Approved Product List (APL):** Sheeting for use on Temporary Traffic Control Devices shall be one of the products listed on the Department's Approved Product List (APL). Manufacturers seeking evaluation of their product shall submit an application in accordance with Section 6.~~

~~**990-2.1.**~~**1 Bands for Tubular Markers, Vertical Panels, Barricades, Vehicular Longitudinal Channelizing Devices, and other Devices:** Bands for tubular markers, vertical panels, barricades, vehicular longitudinal channelizing devices, and other devices shall meet the requirements of ASTM D4956 for Type III or higher retroreflective sheeting materials identified in Section 994.

~~**990-2.1.**~~**2 Collars for Traffic Cones:** Collars for traffic cones shall meet the requirements of ASTM D4956 Type III or higher retroreflective prismatic sheeting materials identified in Section 994 including supplementary requirements for reboundable sheeting. The outdoor weathering shall be for 12 months for all sheeting types.

~~**990-2.1.**~~**3 Drums:** Drums shall meet the requirements of ASTM D4956 for Type III or higher retroreflective sheeting materials identified in Section 994 including supplementary requirements for reboundable sheeting.

~~**990-2.1.**~~**4 Sign Panels:** Meet the requirements of 990-8.

SUBARTICLE 990-3.1 is deleted and the following substituted:

990-3 Portable Devices (Arrow Boards, Changeable Message Signs, Regulatory Signs, Radar Speed Display Units and Truck Mounted Changeable Message Signs).

990-3.1 General: All portable devices shall meet the physical display and operational requirements of the Manual on Uniform Traffic Control Devices (MUTCD) and be listed on the Department's Approved Product List (APL). Manufacturers seeking evaluation of their product shall submit ~~an application in accordance with Section 6 and include~~ the following:

1. Certification showing that the product meets the requirements of this Section.

2. Drawings of the device along with technical information necessary for proper application, field assembly, and installation.

Portable devices shall meet the following requirements:

3. Ensure that all assembly hardware less than 5/8 inch in diameter, including nuts, bolts, external screws and locking washers are Type 304 or 316 passivated stainless steel. Stainless steel bolts, screws and studs shall meet ASTM F593. Nuts shall meet ASTM F594. All assembly hardware greater than or equal to 5/8 inch in diameter shall be galvanized. Bolts, studs, and threaded rod shall meet ASTM A307. Structural bolts shall meet ASTM F3125, Grade A325.

4. The controllers and associated on-board circuitry shall meet the requirements of the Federal Communications Commission (FCC) Title 47, Subpart B, Section 15

regulations concerning the emission of electronic noise by Class A digital devices. All electronic assemblies shall meet the requirements of NEMA TS-4-2016 Section 2.

5. The controller and associated on-board circuitry shall not be affected by mobile radio, or any other radio transmissions.

6. An operator's manual shall be furnished with each unit.

7. All portable devices shall be permanently marked with, manufacturer's name or trademark, model/part number, and date of manufacture or serial number.

8. Portable devices and trailers shall be delineated on a permanent basis by affixing retroreflective sheeting in a continuous line on the face of the trailer as seen by oncoming road users.

SUBARTICLE 990-4.11 is deleted and the following substituted:

990-4.11 Removability: Ensure that the manufacturer shows documented reports that the removable tape is capable of being removed intact or in substantially large strips after being in place for a minimum of 90 days and under an average daily traffic count per lane of at least 5,000 vehicles per day at temperatures above 40ºF, without the use of heat, solvents, grinding or blasting.

ARTICLE 990-4 is expanded by the following new Subarticle:

990-4.12 Retroreflectivity: Ensure white and yellow pavement markings will attain an initial retroreflectivity of not less than 300 mcd/lx·m^2 for white and contrast markings and not less than 250 mcd/lx·m^2 for yellow markings. Black portions of contrast tapes and black masking tapes must be non-reflective and have a reflectance of less than 5 mcd/lx m^2. At the end of the six-month service life, the retroreflectivity of white and yellow removable tape shall not be less than 150 mcd/lx·m^2.

SUBARTICLE 990-6.1 is deleted and the following substituted:

990-6 Temporary Glare Screen.

990-6.1 Design and Installation: Manufactured glare screen systems may be modular or individual units listed on the APL and shall meet the following requirements:

1. Glare screen units shall be manufactured in lengths such that when installed the joint between any one modular unit will not span barrier sections. Color shall be green, similar to FED-STD-595-34227.

2. Blades, rails and/or posts shall be manufactured from polyethylene, fiberglass, plastic, polyester or polystyrene, and be ultraviolet stabilized and inert to all normal atmospheric conditions and temperature ranges found in Florida.

3. For paddle type designs, the blade width shall not be more than 9 inches. Blades or screen for individual or modular systems shall be 24 inches to 30 inches high and capable of being locked down at an angle and spacing to provide a cut-off angle not less than 20 degrees.

4. For glare screen mounted on temporary concrete barrier, a strip (minimum 3 inch width and minimum 72 square inches) of reflective sheeting as specified in 994-2 must be placed on each side of a panel, centered in each barrier section (at a spacing not to exceed 15 feet) and positioned in such a manner as to permit total right angle observation by parallel traffic.

5. Prior to approval an impact test shall be performed by the manufacturer to verify the safety performance of the proposed system. The minimum impact strength of the posts, blades, rail and the barrier attachment design shall be sufficient to prevent the unit from separating from the barrier when impacted by a 3 inches outside diameter steel pipe traveling at 30 mph and impacting mid-height on the glare screen assembly.

6. All hardware shall be galvanized in accordance with ASTM A123 or stainless steel in accordance with AISI 302/305.

7. The anchorage of the glare screen to the barrier must be capable of safely resisting an equivalent tensile load of 600 pounds per foot of glare screen.

Alternative designs for temporary glare screen may be submitted as a Cost Savings Initiative Proposal in accordance with 4-3.9.

ARTICLE 990-8 is deleted and the following substituted:

990-8 ~~Work Zone~~ Signs.

990-8.1 Post Mounted Sign Supports.~~:~~

990-8.1.1 General: Provide steel u-channel posts that conform to ASTM A499 Grade 60, or ASTM A576 Grade 1080 (with a minimum yield strength of 60 ksi). Provide sign attachment bolts, washers, nuts, and spacers that conform to ASTM A307 or A36. For each u-channel post, punch or drill 3/8 inch diameter holes on 1 inch centers through the center of the post, starting approximately 1 inch from the top and extending the full length of the post. Ensure that the weight per foot of a particular manufacturer's post size does not vary more than plus or minus 3.5% of its specified weight per foot. Taper the bottom end of the post for easier installation. Machine straighten the u-channel to a tolerance of 0.4% of the length. ~~Use only non-corrosive metal, aluminum, or galvanized steel attachment hardware.~~

990-8.1.2 3 lb./ft. Steel U-Channel Posts: Provide 3 lb./ft. steel u-channel posts with a minimum section modulus of 0.43 in^3 for 60 ksi steel, a minimum section modulus of 0.37 in^3 for 70 ksi steel, or a minimum section modulus of 0.34 in^3 for 80 ksi steel.

990-8.1.3 4 lb./ft. Steel U-Channel Posts: Provide 4 lb./ft. steel u-channel posts with a minimum section modulus of 0.56 in^3 for 60 ksi steel, or a minimum section modulus of 0.47 in^3 for 70 ksi or 80 ksi steel. Provide 4 lb./ft. steel u-channel posts with a breakaway splice.

ARTICLE 990-9 is deleted and the following substituted:

990-9 Temporary Raised Rumble Strips.

990-9.1 General: Temporary raised rumble strips shall meet the physical display and operational requirements in the MUTCD for temporary raised rumble strips and be listed on the APL. The temporary raised rumble strip may be either a removable ~~polymer~~ striping ~~tape~~ type or a ~~molded engineered polymer material~~ portable type as described below:

990-9.1.1 Removable ~~Polymer~~ Striping T~~a~~ype:

Characteristic	Requirement
Composition:	Removable Polymer Striping Tape with pre-applied adhesive
Color:	White, Black or Orange
Cross-section:	0.25 in. to 0.50 in. (height) x 4 in. (wide)

990-9.1.2 ~~Molded Engineered Polymer Material~~Portable Type:

Characteristic	Requirement
~~Composition:~~	~~Molded Engineered Polymer Material~~
Weight	Internally ballasted to a minimum of 100 lbs. to maintain position in use without the use of adhesives or mechanical fasteners
Color:	White, Black or Orange
Shape	Beveled on the leading edge
Cross-section:	0.625 in. to 0.875 in. (height) x 12 in. to 14 in. (wide)

ARTICLE 990-14 is expanded by the following new Subarticle:

990-14 Channelizing Devices.

990-14.1 General: Provide channelizing devices in accordance with the MUTCD and the dimensions shown in the Standard Plans.

990-14.1.1 Striping Width: Provide 4 inch stripes for type I barricades, type II barricades, direction indicator barricades, and vertical panels.

990-14.2 Product Application: Manufacturers seeking inclusion of channelizing devices on the APL shall submit the following:

1. For Cones, Drums, and Tubular Markers:
    a. Photographs
    b. Drawings of sufficient detail to distinguish between similar devices
    c. Manufacturer self-certification of MASH compliant
2. For Barricades and Vertical Panels:
    a. Installations Instructions
    b. Photographs
    c. Drawings (may be included in Installation Instructions) of sufficient detail to distinguish between similar devices
    d. Any field assembly details and technical information necessary for proper application and installation
    e. Crash testing reports demonstrating the device meets MASH TL-3
    f. All relevant FHWA Eligibility Letters

SUBARTICLE 990-15.1 is deleted and the following substituted:

990-15 Pedestrian Longitudinal Channelizing Devices.

990-15.1 General: Provide pedestrian Longitudinal Channelizing Devices (LCDs) in accordance with the MUTCD and the ~~Standard Plans.~~ following:

1. For internal ballasting, provide an indicator that identifies the proper ballast required. For external ballasting, detail the ballasting method in the APL drawings, including ballasting type and minimum weight.

2. Provide a minimum of 6 inches of continuous detectable edging along the bottom of the pedestrian LCDs.

3. Provide 32 inches in height or greater and have a footprint width of 24 inches or greater. If the footprint width is less than 24 inches, provide pedestrian LCDs that are 42 inches in height or greater and can withstand a 200-pound lateral point load at the top of the pedestrian LCD with anchoring or ballasting.

4. Ensure that the top surface of the pedestrian LCDs has 1/8 inch or less difference in any plane at all connection points between the devices to facilitate hand trailing.

5. Ensure that the bottom and top surface of the pedestrian LCDs are in the same vertical plane.

990-15.2 Product Application: Manufacturers seeking inclusion of pedestrian LCDs on the APL must submit the following:

a. Installations Instructions

b. Photographs

c. Drawings (may be included in Installations Instructions) of sufficient detail to distinguish between similar devices

d. Any field assembly details and technical information necessary for proper application and installation

e. Crash testing reports demonstrating the device meets MASH TL-3

f. All relevant FHWA Eligibility Letters

ARTICLE 990-16 is deleted and the following substituted:

990-16 Flagger Equipment.

990-16.1 STOP/SLOW Paddles: Provide STOP/SLOW paddles with rigid handles in accordance with the MUTCD and the ~~Standard Plans~~following:~~.~~

1. Paddles are 24 inches in width

2. Rigid handle is a minimum of 6 feet in length from the bottom of the paddle to the end of the staff that rests on the ground

990-16.1.1 Product Application: Manufacturers seeking inclusion of STOP/SLOW Paddles on the APL must submit the following:

a. Photographs or drawings of sufficient detail to distinguish between similar devices

b. Manufacturer self-certification of MASH compliance

990-16.2 High-Visibility Safety Apparel: Provide high-visibility safety apparel in accordance with the MUTCD.

990-16.3 Flags: Provide flags in accordance with the MUTCD.

SECTION 990 is expanded by the following new Article:

990-18 Type III Barricade.

990-18.1 General: Provide type III barricades in accordance with the requirements of the MUTCD and the dimensions shown in the Standard Plans.

990-18.2 Product Application: Manufacturers seeking inclusion of type III barricades on the APL shall submit the following:

a. Installations Instructions

b. Photographs

c. Drawings (may be included in Installation Instructions) of sufficient detail to distinguish between similar devices

d. Any field assembly details and technical information necessary for proper application and installation

e. Crash testing reports demonstrating the device meets MASH TL-3

f. All relevant FHWA Eligibility Letters