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990 TEMPORARY TRAFFIC CONTROL DEVICE MATERIALS (REV 7-10-19) (FA 8-12-19) (1-20)

ARTICLE 990-1 is deleted and the following substituted:

990-1 General.

This Section specifies the material requirements for temporary traffic control devices.

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.

ARTICLE 990-3 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.

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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.

ARTICLE 990-8 is deleted and the following substituted:

990-8 Work Zone Signs.

990-8.1 Post Mounted Sign Supports: Provide steel u-channel posts that conform to ASTM A499 Grade 60. 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.

990-8.2 Portable Sign Stands: Provide portable sign stands that meet the requirements of MASH TL-3.

990-8.2.1 Product Application: Manufacturers seeking inclusion on the APL must submit the following:

1. Product Drawing, which at a minimum includes:

- a. Model Number
- b. Sign panel size
- c. Allowable sign panel substrate material
- d. Height to bottom of sign panel
- e. Any field assembly details and technical information necessary

for proper application and installation

2. Crash testing reports.

3. All relevant FHWA Eligibility Letters.

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D **990-8.3 Sign Panels:** Use signs that meet the material and process requirements of ASTM D4956 and Section 994. Use the Type VI sheeting for vinyl signs. Mesh signs must meet the color, daytime luminance, and non-reflective requirements of Section 994, Type VI. Use Type IV sheeting for fluorescent orange work zone signs. Use Type IV and Type XI sheeting for all other work zone signs.

SUBARTICLE 990-10.1 is deleted and the following substituted:

R **990-10 Automated Flagger Assistance Devices (AFAD).**

990-10.1 General: AFAD's shall meet the physical display and operational requirements in the MUTCD and be listed on the APL. Manufacturers seeking evaluation of their product for the APL must include detailed vendor drawings, signed and sealed by a Professional Engineer registered in the State of Florida, showing typical application of the device in accordance with Standard Plans, Index 102-603. All electronic assemblies shall meet the requirements of NEMA TS-5-2017 Section 4.

ARTICLE 990-11 is deleted and the following substituted:

A **990-11 Temporary Barrier.**

Producers of temporary concrete barrier seeking inclusion on the Department's Production Facility Listing shall meet the requirements of Section 105.

Manufacturers seeking evaluation of proprietary temporary barrier systems for inclusion on the APL must meet MASH TL-3 criteria and submit the following:

1. Product drawings, signed and sealed by a Professional Engineer registered in the State of Florida, which at a minimum must include:
 - a. Freestanding and anchored details, as appropriate
 - b. Section views and tables showing required setback distance (deflection space) for all installation configuration options
 - c. Alignment and Length of Need requirements
 - d. Transition and overlap details

End treatment details

2. Installation manuals
3. Crash testing reports
4. All relevant FHWA Eligibility Letters

ARTICLE 990-12 is deleted and the following substituted:

T **990-12 Temporary Crash Cushion (Redirective or Gating).**

Manufacturers seeking evaluation of crash cushions for inclusion on the APL must meet MASH TL-2 or TL-3 criteria and submit the following:

1. Product drawings, signed and sealed by a Professional Engineer registered in the State of Florida, which at a minimum must include:
 - a. Anchorage details for both the crash cushion and abutting temporary barrier

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all options

- b. Tables showing the relevant system information and lengths for
- c. Length of need location
- d. Transition details
- e. List of all components
2. Installation manuals
3. Crash testing reports
4. All relevant FHWA Eligibility Letters

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ARTICLE 990-13 is deleted and the following substituted:

990-13 Truck Mounted Attenuators and Trailer Mounted Attenuators:

Equip truck mounted and trailer mounted attenuator units with lights and reflectors in compliance with applicable Florida motor vehicle laws, including turn signals, dual tail lights, and brake lights. Ensure that lights are visible in both the raised and lowered positions if the unit is capable of being raised.

Install either alternating black with yellow or white with orange sheeting on the rear of trailer mounted attenuators and truck mounted attenuators in both the operating and raised position. Use Type III (work zone) or Type IV sheeting consisting of 4 or 6 inch wide stripes installed to form chevrons that point upward. All sheeting except black must be retroreflective.

Manufacturers seeking evaluation of truck mounted attenuators or trailer mounted attenuators for inclusion on the APL must meet the MASH TL-2 or TL-3 criteria and submit the following:

1. Minimum and maximum support vehicle weights
2. User manuals
3. Crash testing reports
4. All relevant FHWA Eligibility Letters

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SECTION 990 is expanded by the following new Article:

990-14 Channelizing Devices.

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

990-14.2 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

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- c. Manufacturer self-certification of MASH compliant
2. For Barricades and Vertical Panels:
 - a. Installations Instructions
 - b. Photographs

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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

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.

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

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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.

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

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990-17 Portable Temporary Lane Separator.

990-17.1 General: Provide portable temporary lane separator in accordance with the Standard Plans and must come in connectable sections of 36 inches to 48 inches in length.

990-17.2 Product Application: Manufacturers seeking inclusion of portable temporary lane separator 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

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f. All relevant FHWA Eligibility Letters

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