

EXPECTED IMPLEMENTATION JANUARY 2019

D 990 TEMPORARY TRAFFIC CONTROL DEVICE MATERIALS. (REV 8-20-18) (FA 8-20-18) (1-19)

SUBARTICLE 990-3.1 is deleted and the following substituted:

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 certification showing that the product meets the requirements of this Section.

1. 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.

2. 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.

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

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

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

6. Portable devices and trailers shall be delineated on a permanent basis by affixing retroreflective material, known as conspicuity material, in a continuous line on the face of the trailer as seen by oncoming road users.

SUBARTICLE 990-3.1.2 is deleted and the following substituted:

990-3.1.2 Display Panel and Housing:

1. The display housing assembly shall be weather-tight.

2. The display assembly shall be equipped with an automatic dimming operational mode capable of a minimum of 50% dimming and a separate manual dimmer switch

3. The display panel background and frame for the display assembly shall be painted flat black and shall meet Federal Specification TT-E-489.

4. The display panel for arrow boards and changeable message signs, when raised in the upright position, shall have a minimum height of 7 feet from the bottom of the panel to the ground, in accordance with the MUTCD. The display panel for radar speed display units, when raised in the upright position, will have a minimum height of 5 feet from the bottom of the panel to the ground.

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D 5. The regulatory speed sign panel for regulatory signs and radar speed display units, when raised in the upright position, shall have a minimum height of 7 feet from the bottom of the regulatory sign panel to the ground.

R 6. The unit shall have an accessible mechanism to easily raise and lower the display assembly. A locking device shall also be provided to ensure the display panel will remain in the raised or lowered position.

A 7. The display panel for changeable message signs shall have a safety system to protect against the panel falling from the trailer to the roadway should the panel separate from the lift system.

SUBARTICLE 990-7.1 is deleted and the following substituted:

990-7.1 General: Temporary traffic control signals shall meet the physical display and operational requirements of conventional traffic signal described in the MUTCD for portable traffic signals and be listed on the APL. The standard includes but is not limited to the following:

1. Use signal heads having three 12 inch vehicular signal indications (Red, Yellow and Green). Ensure there are two signal heads for each direction of traffic.
2. The traffic signal heads on this device will be approved by the Department.
3. Department approved lighting sources will be installed in each section in accordance with the manufacturer's permanent directional markings, that is, an "Up Arrow", the word "UP" or "TOP," for correct indexing and orientation within a signal housing.
4. The masts supporting the traffic signal heads will be manufactured with the lowest point of the vehicular signal head as follows:
 - a. Eight feet above finished grade at the point of their installation for "pedestal" type application or
 - b. Seventeen to 19 feet above pavement grade at the center of roadway for "overhead" type application.

F 5. The yellow clearance interval will be programmed 3 seconds or more. Under no condition can the yellow clearance interval be manually controlled. It must be timed internally by the controller as per Department specifications.

E 6. The green interval must display a minimum of 5 seconds before being advanced to the yellow clearance interval.

T 7. The controller will allow for a variable all red clearance interval from 0 seconds to 999 seconds.

8. Portable traffic control signals will be either manually controlled or traffic actuated. Indicator lights for monitoring the signal operation of each approach will be supplied and visible from within the work zone area.

9. When the portable traffic control signals are radio actuated the following will apply:

a. The transmitter will be FCC Type accepted and not exceed 1 watt output per FCC, Part 90.17. The manufacturer must comply with all "Specific limitations" noted in FCC Part 90.17.

b. The Controller will force the traffic signal to display red toward the traffic approach in case of radio failure or interference.

10. The trailer and supports will be painted construction/maintenance orange enamel in accordance with the MUTCD color.

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- 11. Ensure the certification number is engraved or labeled permanently on equipment.
 - 12. Ensure the device has an external, visible, water resistant label with the following information: "Certification of this device by the Florida Department of Transportation allows for its use in Construction Zones Only".
 - 13. All electronic assemblies shall meet the requirements of NEMA TS-5-2017 Section 4.
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SUBARTICLE 990-10.1 is deleted and the following substituted:

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 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.

990-10.1.1 Stop/Slow Automated Flagger Assistance Devices: Provide a remotely operated Stop/Slow AFAD including a Stop/Slow sign that alternately displays the stop face and the slow face of a Stop/Slow paddle.

When a gate arm is used, ensure that the gate arm descends to a down position across the approach lane of traffic when the stop face is displayed and then ascends to an upright position when the slow face is displayed.

Ensure the gate arm is fully retroreflectorized on both sides, with vertical alternating red and white stripes at 16 inch intervals measured horizontally in accordance with the MUTCD. When the arm is in the down position blocking the approach lane:

- 1. The minimum vertical aspect of the arm and sheeting shall be 2 inches; and,
- 2. The end of the arm shall reach at least to the center of the lane being controlled.

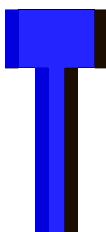
990-10.1.2 Red/Yellow Lens Automated Flagger Assistance Devices: Provide a remotely operated Red/Yellow Lens AFAD that alternately displays a steadily illuminated circular red lens and a flashing circular yellow lens to control traffic .

Ensure that the Red/Yellow Lens AFAD includes a gate arm that descends to a down position across the approach lane of traffic when the steady circular red lens is illuminated and then ascends to an upright position when the flashing circular yellow lens is illuminated.

Ensure that the gate arm is fully retroreflectorized on both sides, with vertical alternating red and white stripes at 16 inch intervals measured horizontally in accordance with the MUTCD. When the arm is in the down position blocking the approach lane:

- 1. The minimum vertical aspect of the arm and sheeting shall be 2 inches; and,
- 2. The end of the arm shall reach at least to the center of the lane being controlled.

Do not provide a change interval between the display of the steady circular red indication and the display of the flashing circular yellow indication. Provide a steady illuminated circular yellow indication, with at least a 5 second duration, between the transition from flashing circular yellow indication and the display of the steady circular red indication. The



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Engineer may approve a different duration, provided it falls within the range recommended by the MUTCD.

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