

ATTACHMENT NO. 5h

TECHNICAL COMMITTEE:

**Regulatory & Warning Signs
Chapter 2L – FHWA NPA 1/02/08**

TOPIC:

STATUS/DATE OF ACTION

TECH COMM DRAFTS:

04/29/08, 5/9/08, 6/10/08

TECH COMM APPROVAL:

June 20th, 2008

TRANSMITTED TO SPONSORS:

N/A

COUNCIL APPROVAL:

June 21st, 2008

ORIGIN OF REQUEST:

RWSTC Task Force

MUTCD SECTIONS:

Chapter 2L

SUMMARY: The FHWA published a Notice of Rulemaking in the Federal Register on January 2, 2008, covering the MUTCD Revisions for the 2009 Manual. The RWSTC has reviewed this proposed Part of the NPA providing the following comments on behalf of the National Committee on Uniform Traffic Control Devices.

COLOR CODES

YELLOW **Approved by Council at June 2008 Meeting**

RED **NCUTCD additions/revisions to text, approved by Council**

CHAPTER ~~3C~~ 2L. OBJECT MARKERS, BARRICADES, AND GATES Chapter
~~3C~~ and barricades both relocated, and gates added

Section ~~3C.01~~ 2L.01 Object Marker Design and Placement Height

Support:

Type 1, 2, 3 added to increase accuracy object markers are used to mark obstructions within or adjacent to the roadway.

Type 4 object markers are used to mark the end of a roadway.

Standard:

When used, Type 1, 2, and 3 and 4 added to increase accuracy object markers (see Figure 2L-1) shall consist of an arrangement of one or more of the following types:

~~———— Type 1 — either a marker consisting of nine yellow retroreflectors, each with a minimum diameter of 75 mm (3 in), mounted symmetrically on a yellow (OM1-1) or black (OM1-2) diamond panel sign edited to increase accuracy 450 mm (18 in) or more on a side; or on an all-yellow retroreflective diamond panel sign edited to increase accuracy (OM1-3) of the same size.~~

Type 1 - A diamond-shaped sign, at least 450 mm (18 in) on a side, consisting of either a yellow (OM1-1) or black (OM1-2) sign with nine yellow retroreflectors, each with a minimum diameter of 75 mm (3 in), mounted symmetrically on the sign, or an all-yellow retroreflective sign (OM1-3).

Type 2—either a marker (OM2-1V or OM2-1H) consisting of three yellow retroreflectors, each with a minimum diameter of 75 mm (3 in), arranged either horizontally or vertically on a white ~~panel sign~~ edited to increase accuracy measuring at least 150 x 300 mm (6 x 12 in); or ~~on~~ an all-yellow horizontal or vertical retroreflective ~~panel sign~~ edited to increase accuracy (OM2-2V or OM2-2H), measuring at least 150 x 300 mm (6 x 12 in).

Type 3—a striped marker, 300 x 900 mm (12 x 36 in), consisting of a vertical rectangle with alternating black and retroreflective yellow stripes sloping downward at an angle of 45 degrees toward the side of the obstruction on which traffic is to pass. The minimum width of the yellow and black stripes shall be 75 mm (3 in).

Type 4 - A diamond-shaped sign, at least 450 mm (18 in) on a side, consisting of either a red (OM4-1) or black (OM4-2) sign with nine red retroreflectors, each with a minimum diameter of 75 mm (3 in), mounted symmetrically on the sign, or an all-red retroreflective sign (OM4-3).

REASON: Added to address the design of a Type 4 End of Roadway Object Marker.

Support:

A better appearance can be achieved if the black stripes are wider than the yellow stripes.

Type 3 object markers with stripes that begin at the upper right side and slope downward to the lower left side are designated as right object markers (~~OM-3R~~ OM3-R). Object markers with stripes that begin at the upper left side and slope downward to the lower right side are designated as left object markers (~~OM-3L~~ OM3-L).

Guidance:

When used for marking ~~objects in obstructions within~~ edited to increase consistency the roadway or ~~objects obstructions~~ edited to increase consistency that are 2.4 m (8 ft) or less from the shoulder or curb, the minimum mounting height, measured ~~to~~ from the bottom of the object

marker to the elevation of the near edge of the traveled way, should be ~~at least~~ 1.2 m (4 ft) ~~above the surface of the nearest traffic lane~~.

When used to mark ~~objects~~ obstructions ~~edited to increase consistency~~ more than 2.4 m (8 ft) from the shoulder or curb, the ~~mounting height~~ clearance from the ground to the bottom of the object marker should be at least 1.2 m (4 ft) ~~above the ground~~.

Object markers should not present a vertical or horizontal clearance obstacle for pedestrians.
~~relocated from last paragraph of Section 3A.03~~

Option:

When object markers or markings are applied to an ~~object~~ obstruction ~~edited to increase consistency~~ that by its nature requires a lower or higher mounting, the vertical mounting height may vary according to need.

Section ~~3C.02~~ 2L.02 ~~Markings~~ Object Markers for Objects in Obstructions Within the Roadway ~~edited to increase consistency~~

Standard:

Obstructions within the roadway shall be marked with a Type 1 or Type 3 object marker. In addition to markers on the face of the obstruction, warning of approach to the obstruction shall be given by appropriate pavement markings (see Section 3B.10).

Option:

To provide additional emphasis, a Type 1 or Type 3 object marker may be installed on the nose of a median island at an intersection.

REASON: A median can also exist at a driveway that may require the Object Marker

To provide additional emphasis, large surfaces such as bridge piers may be painted with diagonal stripes, 300 mm (12 in) or greater in width, similar in design to the Type 3 object marker.

Standard:

The alternating black and retroreflective yellow stripes (~~OM-3L~~ OM3-L, ~~OM-3R~~ OM3-R) shall be sloped down at an angle of 45 degrees toward the side on which traffic is to pass the obstruction. If traffic can pass to either side of the obstruction, the alternating black and retroreflective yellow stripes (~~OM-3C~~ OM3-C) shall form chevrons that point upwards.

Option:

Appropriate signs (see Sections 2B.40 and 2C.24) directing traffic to one or both sides of the obstruction may be used instead of the object marker.

Section ~~3C.03~~ 2L.03 ~~Markings~~ Object Markers ~~edited to increase clarity for Objects Obstructions Adjacent to the Roadway~~ ~~changes to this section made to increase clarity~~

Support:

~~Objects~~ Obstructions ~~edited to increase consistency~~ not actually ~~in~~ within ~~edited to increase consistency~~ the roadway are sometimes so close to the edge of the road that they need a marker. These include underpass piers, bridge abutments, handrails, ends of traffic barriers, utility poles, and culvert headwalls. In other cases there might not be a physical object involved, but other roadside conditions exist, such as narrow shoulders, drop-offs, gores, small islands, and abrupt changes in the roadway alignment, that might make it undesirable for a road user to leave the roadway, and therefore would create a need for a marker.

~~Option:~~

~~Type 2 or Type 3 object markers may be used at locations such as those described in the preceding Support paragraph.~~

Standard:

~~If The Type 2 or Type 3 object markers shall be installed such are used at locations such as those described in the preceding Support paragraph, the inside edge of the marker shall be in line with the inner edge of the obstruction. that the edge of the marker closest to the road user is in line with the edge of the obstruction closest to the road user.~~

~~Type 1 and Type 4 object markers shall not be used at locations such as those described in the preceding Support paragraph. to mark obstructions adjacent to the roadway.~~

REASON: Edited for clarification.

Guidance:

Standard warning signs (see Chapter 2C) should also be used where applicable.

Section ~~3C.04~~ 2L.04 End of Roadway Object Markers for Ends of Roadways edited to increase consistency

Support:

The ~~end-of-roadway~~ Type 4 object edited to increase consistency marker is used to warn and alert road users of the end of a roadway in other than construction or maintenance areas.

Standard:

If an object marker is used to mark the end of a roadway, a Type 4 object marker shall be used.

~~If used, the end-of-roadway Type 4 object edited to increase consistency marker (see Figure 2L-1) shall be one of the following: a marker consisting of nine red retroreflectors, each with a minimum diameter of 75 mm (3 in), mounted symmetrically on a red (OM4-1) or black (OM4-2) diamond panel sign edited to increase accuracy 450 mm (18 in) or more on a side; or a retroreflective red diamond panel sign edited to increase accuracy (OM4-3) 450 mm (18 in) or more on a side.~~

REASON: Deleted, Design of Type 4 Object Marker covered above in Section 2L.01.

Option:

The ~~end-of-roadway~~ Type 4 object edited to increase consistency marker may be used in instances where there are no alternate vehicular paths.

Where conditions warrant, more than one marker, or a larger marker with or without a Type ~~III~~ 3 Barricade (see Section 2L.05), may be used at the end of the roadway.

Standard:

~~The minimum mounting height, measured vertically from to the bottom of an end-of-roadway a Type 4 object edited to increase consistency marker to the elevation of the near edge of the pavement, shall be 1.2 m (4 ft) above the edge of the pavement.~~

Guidance:

Appropriate advance warning signs (see Chapter 2C) should be used.

Section ~~3F.01~~ 2L.05 Barricades relocated from Chapter 3F

Standard:

When used to warn and alert road users of the terminus of a roadway in other than temporary traffic control zones, barricades shall meet the design criteria of Section 6F.65 for a Type ~~III~~ 3 Barricade, except that the colors of the stripes shall be retroreflective white and retroreflective red.

Option:

An end-of-roadway marker or markers may be used as described in Section 2L.04.

Barricades may be used to mark any of the following conditions:

- A. A roadway ends,
- B. A ramp or lane closed for operational purposes, or
- C. The permanent or semipermanent closure or termination of a roadway.

Guidance:

Appropriate advance warning signs (see Chapter 2C) should be used.

Section 2L.06 Gates and Fences

REASON: Fences are addressed in second paragraph of Standard below.

Support:

A gate is an automatically-operated or manually-operated traffic control device that is used to physically obstruct road users such that they cannot proceed past a particular point on a roadway, sidewalk or pathway, or such that they cannot enter a particular ramp, lane, roadway, or facility.

Gates described in this section used for weather or other emergency conditions are typically permanently installed to enable the gate to be immediately deployed as needed to prohibit the entry of traffic to the highway segment(s).

A gate typically features a gate arm that is moved from a vertical to a horizontal position or is rotated in a horizontal plane from parallel to traffic to perpendicular to traffic. Traffic is obstructed and required to stop when the gate arm is placed in a horizontal position perpendicular to traffic. Another type of gate consists of a segment of fence (usually on rollers) that swings open and closed, or that is retracted to open and then extended to close.

Gates are sometimes used to enforce a required stop. Some examples of such uses are the following:

- A. Parking facility entrances and exits,
- B. Private community entrances and exits,
- C. Military base entrances and exits,
- D. Toll plaza lanes,
- E. Movable bridges (see Chapter 4J),
- F. Automated Flagger Assistance Devices (see Chapter 6E),
- G. Highway-rail grade crossings (see Part 8), and
- H. Highway-light rail transit grade crossings (see Part 10).

Gates are sometimes used to periodically close a roadway or a ramp. Some examples of such uses are the following:

- A. Closing ramps to implement counter-flow operations for evacuations,
- B. Closing ramps that lead to reversible lanes, and
- C. Closing roadways for weather events such as snow, ice, or flooding, or for other emergencies.

Standard:

Gate arms, if used, shall be fully retroreflectorized on both sides, except at entrance ramps, where reflectorization is required only on the side(s) facing traffic moving in the normal direction(s), have vertical stripes alternately red and white at 400 mm (16 in) intervals measured horizontally as shown in Figure 8C-1. When in the horizontal position, the bottom of the gate arm shall be 1.1 to 1.4 m (3.5 to 4.5 ft) above the roadway, sidewalk, or pathway surface. The gate arm shall extend across the approaching lane or lanes of traffic to effectively block motor vehicle and/or pedestrian travel as appropriate.

REASON: Gate arms at entrance ramps do not need to be retroreflectorized on both sides.

Rolling sections of fence, if used, shall include either a horizontal strip of retroreflectorized sheeting with vertical stripes alternately red and white at 400 mm (16 in) intervals measured horizontally to simulate the appearance of a gate arm in the horizontal position, or one or more Type 4 end-of-roadway object markers (see Section 2L.04), or both. If a horizontal strip of retroreflectorized sheeting is used, the bottom of the sheeting shall be located 1.1 to 1.4 m (3.5 to 4.5 ft) above the roadway surface.

When gate arms are in the vertical position or rotated to an open position, the closest part of the gate arm and support shall have a lateral offset of at least 0.6 m (2 ft) from the face of the curb or the edge of the pavement.

When gate arms that are located in the median or on an island are in the horizontal position or rotated to a closed position, the closest part of the counterweight or its supports shall have a lateral offset of at least 0.6 m (2 ft) from the face of the curb or the edge of the pavement of the open roadway on the opposite side of the median or island.

Gates shall meet the crashworthy performance criteria contained in the National Cooperative Highway Research Program (NCHRP) Report 350, "Recommended Procedures for the Safety Performance Evaluation of Highway Features" (see Section 6F.01).

Guidance:

When a gate that is rotated in a horizontal plane is in the position where it is parallel to traffic (indicating that the roadway is open), the outer end of the gate arm should be rotated to the downstream direction (from the perspective of traffic in the lane adjacent to the gate support) to prevent spearing if the gate is struck by an errant vehicle.

If a pedestrian route is present and if it is not intended that pedestrian traffic be controlled by the gate, sufficient lateral offset from supports, posts, counterweights, and gate mechanisms should be provided when the gate arm is in the open position and when the gate arm is in the closed position such that pedestrian travel is not impeded.

Option:

Red lights may be attached to traffic gates. If used, the red lights shall be steadily illuminated or flashed only during the period when the gate is in the horizontal or closed position and when the gate is in the process of being opened or closed.

Figure 2L-1: Acceptable as contained in the NPA.