

CHAPTER 3F. DELINEATORS

Section 3F.01 Delineators

Support:

01 Delineators are particularly beneficial at locations where the alignment might be confusing or unexpected, such as at lane-reduction transitions and curves. Delineators are effective guidance devices at night and during adverse weather. An important advantage of delineators in certain locations is that they remain visible when the roadway is wet or snow covered.

02 Delineators are considered guidance devices rather than warning devices.

Option:

03 Delineators may be used on long continuous sections of highway or through short stretches where there are changes in horizontal alignment.

Section 3F.02 Delineator Design

Standard:

01 **Delineators shall consist of retroreflective devices that are capable of clearly retroreflecting light under normal atmospheric conditions from a distance of 1,000 feet when illuminated by the high beams of standard automobile lights.**

02 **Retroreflective elements for delineators shall have a minimum dimension of 3 inches.**

Support:

03 Within a series of delineators along a roadway, delineators for a given direction of travel at a specific location are referred to as single delineators if they have one retroreflective element for that direction, double delineators if they have two identical retroreflective elements for that direction mounted together, or vertically elongated delineators if they have a single retroreflective element with an elongated vertical dimension to approximate the vertical dimension of two separate single delineators.

Option:

04 A vertically elongated delineator of appropriate size may be used in place of a double delineator.

Section 3F.03 Delineator Application

Standard:

01 **The color of delineators shall comply with the color of edge lines stipulated in Section 3B.06.**

02 **A series of single delineators shall be provided on the right-hand side of freeways and expressways and on at least one side of interchange ramps, except when either Condition A or Condition B is met, as follows:**

A. On tangent sections of freeways and expressways when both of the following conditions are met:

- 1. Raised pavement markers are used continuously on lane lines throughout all curves and on all tangents to supplement pavement markings, and**
- 2. Roadside delineators are used to lead into all curves.**

B. On sections of roadways where continuous lighting is in operation between interchanges.

Option:

03 Delineators may be provided on other classes of roads. A series of single delineators may be provided on the left-hand side of roadways.

Standard:

04 **Delineators on the left-hand side of a two-way roadway shall be white (see Figure 3F-1).**

Guidance:

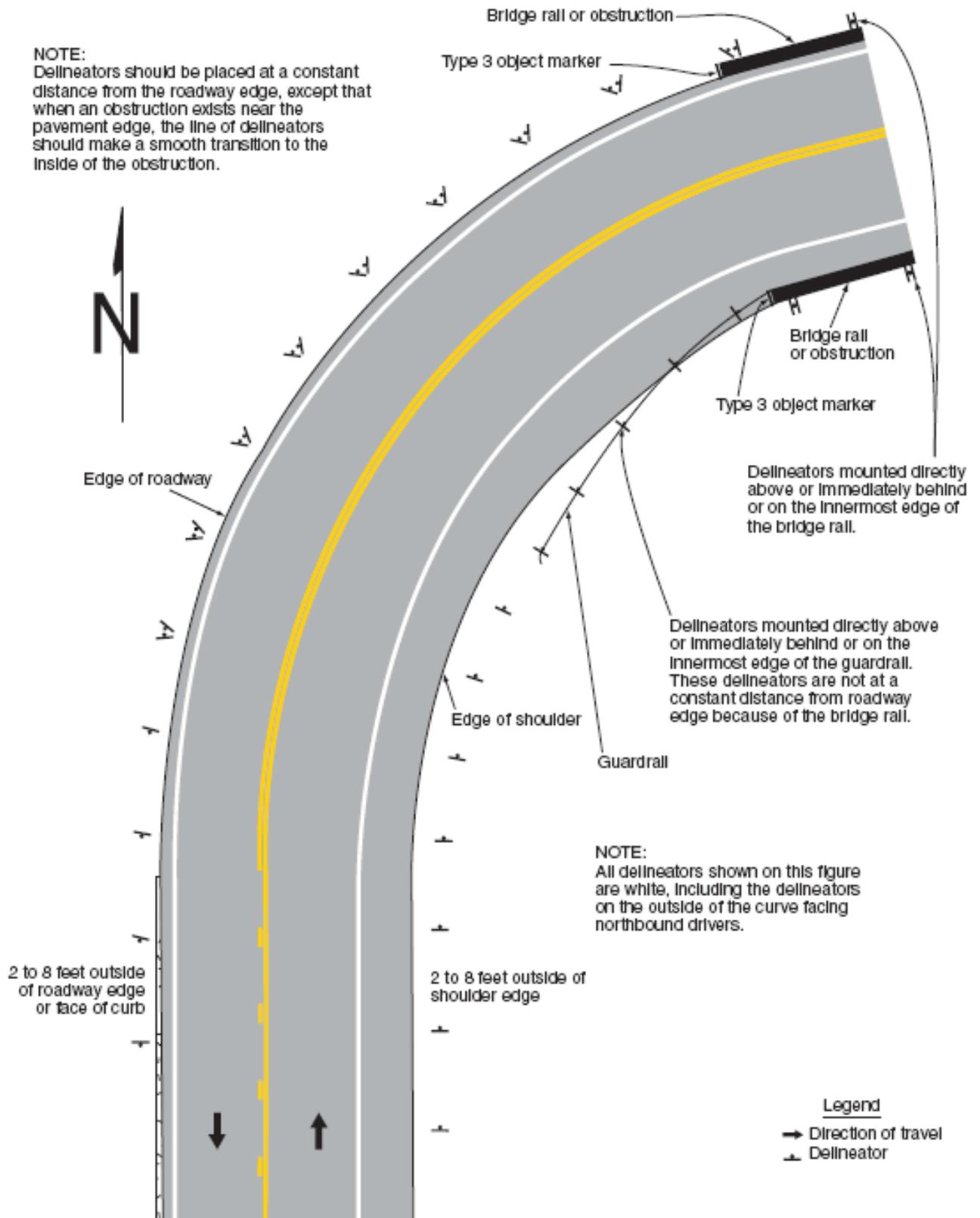
05 *A series of single delineators should be provided on the outside of curves on interchange ramps.*

06 *Where median crossovers are provided for official or emergency use on divided highways and where these crossovers are to be marked, a double yellow delineator should be placed on the left-hand side of the through roadway on the far side of the crossover for each roadway.*

07 *Double or vertically elongated delineators should be installed at 100-foot intervals along acceleration and deceleration lanes.*

08 *A series of delineators should be used wherever guardrail or other longitudinal barriers are present along a roadway or ramp.*

Figure 3F-1. Examples of Delineator Placement



Option:

- 09 Red delineators may be used on the reverse side of any delineator where it would be viewed by a road user traveling in the wrong direction on that particular ramp or roadway.
- 10 Delineators of the appropriate color may be used to indicate a lane-reduction transition where either an outside or inside lane merges into an adjacent lane.

Guidance:

- 11 *When used for lane-reduction transitions, the delineators should be installed adjacent to the lane or lanes reduced for the full length of the transition and should be so placed and spaced to show the reduction (see Figure 3B-14).*

Support:

- 12 Delineators are not necessary for traffic moving in the direction of a wider pavement or on the side of the roadway where the alignment is not affected by the lane-reduction transition.

Guidance:

- 13 *On a highway with continuous delineation on either or both sides, delineators should be carried through transitions.*

Option:

- 14 On a highway with continuous delineation on either or both sides, the spacing between a series of delineators may be closer.

Standard:

- 15 **When used on a truck escape ramp, delineators shall be red.**

Guidance:

- 16 *Red delineators should be placed on both sides of truck escape ramps. The delineators should be spaced at 50-foot intervals for a distance sufficient to identify the ramp entrance. Delineator spacing beyond the ramp entrance should be adequate for guidance according to the length and design of the escape ramp.*

Section 3F.04 Delineator Placement and Spacing*Guidance:*

- 01 *Delineators should be mounted on suitable supports at a mounting height, measured vertically from the bottom of the lowest retroreflective device to the elevation of the near edge of the roadway, of approximately 4 feet.*

Option:

- 02 When mounted on the face of or on top of guardrails or other longitudinal barriers, delineators may be mounted at a lower elevation than the normal delineator height recommended in Paragraph 1.

Guidance:

- 03 *Delineators should be placed 2 to 8 feet outside the outer edge of the shoulder, or if appropriate, in line with the roadside barrier that is 8 feet or less outside the outer edge of the shoulder.*

- 04 *Delineators should be placed at a constant distance from the edge of the roadway, except that where an obstruction intrudes into the space between the pavement edge and the extension of the line of the delineators, the delineators should be transitioned to be in line with or inside the innermost edge of the obstruction. If the obstruction is a guardrail or other longitudinal barrier, the delineators should be transitioned to be just behind, directly above (in line with), or on the innermost edge of the guardrail or longitudinal barrier.*

- 05 *Delineators should be spaced 200 to 530 feet apart on mainline tangent sections. Delineators should be spaced 100 feet apart on ramp tangent sections.*

Support:

- 06 Examples of delineator installations are shown in Figure 3F-1.

Option:

- 07 When uniform spacing is interrupted by such features as driveways and intersections, delineators which would ordinarily be located within the features may be relocated in either direction for a distance not exceeding one quarter of the uniform spacing. Delineators still falling within such features may be eliminated.

- 08 Delineators may be transitioned in advance of a lane transition or obstruction as a guide for oncoming traffic.

Guidance:

- 09 *The spacing of delineators should be adjusted on approaches to and throughout horizontal curves so that several delineators are always simultaneously visible to the road user. The approximate spacing shown in Table 3F-1 should be used.*

Option:

- 10 When needed for special conditions, delineators of the appropriate color may be mounted in a closely-spaced manner on the face of or on top of guardrails or other longitudinal barriers to form a continuous or nearly continuous “ribbon” of delineation.

Table 3F-1. Approximate Spacing for Delineators on Horizontal Curves

| Radius (R) of Curve | Approximate Spacing (S) on Curve |
|---------------------|----------------------------------|
| 50 feet | 20 feet |
| 115 feet | 25 feet |
| 180 feet | 35 feet |
| 250 feet | 40 feet |
| 300 feet | 50 feet |
| 400 feet | 55 feet |
| 500 feet | 65 feet |
| 600 feet | 70 feet |
| 700 feet | 75 feet |
| 800 feet | 80 feet |
| 900 feet | 85 feet |
| 1,000 feet | 90 feet |

- Notes:
1. Spacing for specific radii may be interpolated from table.
 2. The minimum spacing should be 20 feet.
 3. The spacing on curves should not exceed 300 feet.
 4. In advance of or beyond a curve, and proceeding away from the end of the curve, the spacing of the first delineator is 2S, the second 3S, and the third 6S, but not to exceed 300 feet.
 5. S refers to the delineator spacing for specific radii computed from the formula $S=3\sqrt{R-50}$.
 6. The distances for S shown in the table above were rounded to the nearest 5 feet.