

PART 3

MARKINGS

CHAPTER 3B. PAVEMENT AND CURB MARKINGS

Section 3B.02 No-Passing Zone Pavement Markings and Warrants

Standard:

- 01 **No-passing zones shall be marked by either the one direction no-passing zone pavement markings or the two-direction no-passing zone pavement markings described in Section 3B.01 and shown in Figures 3B-1 and 3B-3.**
- 02 **When center line markings are used, no-passing zone markings shall be used on two-way roadways at lane-reduction transitions (see Section 3B.09) and on approaches to obstructions that must be passed on the right (see Section 3B.10).**
- 03 **On two-way, two- or three-lane roadways where center line markings are installed, no-passing zones shall be established at vertical and horizontal curves and other locations where an engineering study indicates that passing must be prohibited because of inadequate sight distances or other special conditions.**
- 04 **On roadways with center line markings, no-passing zone markings shall be used at horizontal or vertical curves where the passing sight distance is less than the minimum shown in Table 3B-1 (also shown in Table 3B-100) for the 85th-percentile speed or the posted or statutory speed limit. The passing sight distance on a vertical curve is the distance at which an object 3.5 feet above the pavement surface can be seen from a point 3.5 feet above the pavement (see Figure 3B-4). Similarly, the passing sight distance on a horizontal curve is the distance measured along the center line (or right-hand lane line of a three-lane roadway) between two points 3.5 feet above the pavement on a line tangent to the embankment or other obstruction that cuts off the view on the inside of the curve (see Figure 3B-4).**
- 04A **One- and two-direction no-passing zones for one direction of traffic shall be no shorter than 500 feet.**
- 04B **Passing zones for one direction of traffic shall be no shorter than the distances shown in Table 3B-100 at the 85th-percentile speed (when speed data is available), or the posted or statutory speed limit, whichever is higher.**

Guidance:

- 05 ~~Where the distance between successive no-passing zones is less than 400 feet, no-passing markings should connect the zones.~~

Standard:

- 08 **Where center line markings are used, no-passing zone markings shall be used on approaches to grade crossings in compliance with Section 8B.27.**

Option:

- 08A **A one-way no-passing marking may be placed on any approach to an intersection.**

Guidance:

- 08B *If used, no-passing zone markings should be placed on stopped approaches to intersections to prohibit passing for the last five seconds of travel distance at the 85th-percentile speed (when speed data is available), or the posted or statutory speed limit. See Table 3B-100.*

Table 3B-100. Minimum Distances for Marking No-Passing and Passing Zones

Speed (MPH)	Minimum Passing Sight Distance and Minimum Length of Passing Zone (ft)	Minimum No-Passing Zone on Stopped Approaches to Intersections (ft)
15	400	110
20	400	145
25	450	185
30	500	220
35	550	255
40	600	295
45	700	330
50	800	365
55	900	405
60	1,000	440
65	1,100	480
70	1,200	515

Section 3B.03 Other Yellow Longitudinal Pavement Markings

Guidance:

- 04 White two-way left-turn lane-use arrows (see Figure 3B-7), should be used in conjunction with the longitudinal two-way left-turn markings at the locations described in Section 3B.20.
- 05 Signs should be used in conjunction with the two-way left turn markings (see Section 2B.24).
- 05A Two-way left-turn lane markings should be broken at intersections with roads classified as collectors or arterials or with other high volume roads.

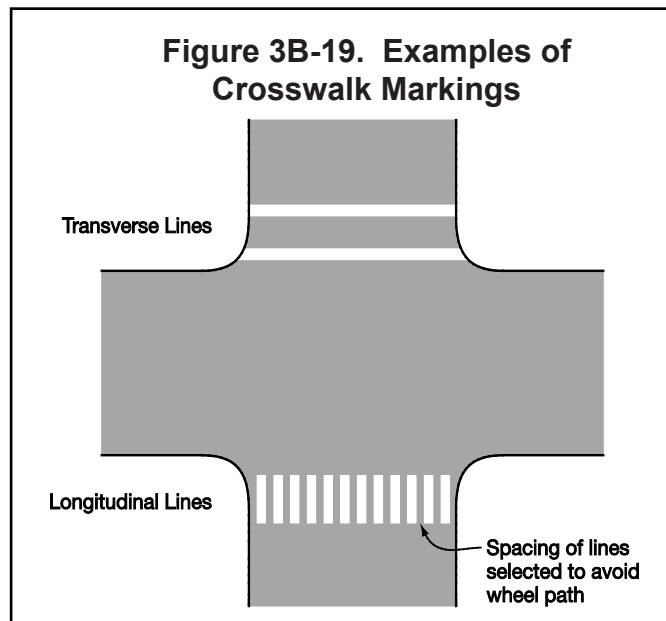
Section 3B.18 Crosswalk Markings

Standard:

- 03A Crosswalk markings shall be placed at the following locations:
 - A. At officially designated school crossings, and
 - B. At intersections controlled by traffic signals where pedestrian phases are used.
- 04 When crosswalk lines are used, they shall consist of solid white lines that mark the crosswalk. They shall **not be less than 6 inches or greater than 24 inches** in width.

Guidance:

- 05 ~~If transverse lines are used to mark a crosswalk, the gap between the lines should not be less than 6 feet. If diagonal or longitudinal lines are used without transverse lines to mark a crosswalk, the crosswalk should be not less than 6 feet wide. Marked crosswalks should not be less than 10 feet from inside edge to inside edge of transverse crosswalk lines or from outside edge to outside edge of longitudinal crosswalk lines.~~
- 06 ~~Crosswalk lines, if used on both sides of the crosswalk, should extend across the full width of pavement or to the edge of the intersecting crosswalk to discourage diagonal walking between crosswalks (see Figures 3B-17 and 3B-19).~~
- 07 ~~At locations controlled by traffic control signals or on approaches controlled by STOP or YIELD signs, crosswalk lines should be installed where engineering judgment indicates they are needed to direct pedestrians to the proper crossing path(s).~~
- 08 ~~Crosswalk lines should not be used indiscriminately. An engineering study should be performed before a marked crosswalk is installed at a location away from a traffic control signal or an approach controlled by a STOP or YIELD sign. The engineering study should consider the number of lanes, the presence of a median, the distance from adjacent signalized intersections, the pedestrian volumes and delays, the average daily traffic (ADT), the posted or statutory speed limit or 85th-percentile speed, the geometry of the location, the possible consolidation of multiple crossing points, the availability of street lighting, and other appropriate factors.~~
- 09 ~~New marked crosswalks alone, without other measures designed to reduce traffic speeds, shorten crossing distances, enhance driver awareness of the crossing, and/or provide active warning of pedestrian presence, should not be installed across uncontrolled roadways where the speed limit exceeds 40 mph and either:
 - A. The roadway has four or more lanes of travel without a raised median or pedestrian refuge island and an ADT of 12,000 vehicles per day or greater; or
 - B. The roadway has four or more lanes of travel with a raised median or pedestrian refuge island and an ADT of 15,000 vehicles per day or greater.~~
- 09A Where crosswalks are marked on approaches controlled by traffic signals or stop signs, transverse crosswalk lines should be used.



- 09B *Where crosswalks are marked on uncontrolled approaches or at midblock locations, longitudinal crosswalk lines should be used.*
- 09C *Decisions to mark crosswalks on uncontrolled approaches or at midblock locations should be made in accordance with Table 3B-101.*
- 09D *Crosswalks at intersections should be located as shown in Alaska Standard Drawings Manual, Standard Drawing T-23.*

Table 3B-101. Recommended Practice for Crosswalk Marking on Uncontrolled Approaches or at Midblock Locations

No of Lanes	Raised Median?	Vehicle ADT													
		<9,000				>9,000 to 12000				>12,000 to 15,000				>15,000	
		Speed Limit (MPH)													
		<30	35	40	>45	<30	35	40	>45	<30	35	>40	<30	35	>40
2	No	C	C	M	N	C	C	M	N	C	C	N	C	M	N
3	No	C	C	M	N	C	M	M	N	M	M	N	M	N	N
>4	Yes	C	C	M	N	C	M	N	N	M	M	N	N	N	N
>4	No	C	M	N	N	M	M	N	N	N	N	N	N	N	N

Source: FHWA-RD-01-075, Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations, 2002

- C** Candidate sites for marked crosswalks. Before marking a crosswalk, the site should be studied to ensure it is suitable. The study may include a review of pedestrian volumes, available gaps, sight distance (see Note 1), vehicle mix, pedestrian mix, distance to adjacent crossings (see Note 2), etc. Crosswalks should not be installed at locations with fewer than 20 pedestrian crossings per peak hour (or 15 for elderly and/or child pedestrians).
- M** Marginal candidate sites for marked crosswalks: Pedestrian accident risk may increase if crosswalks are marked. If pedestrian improvements are necessary, other options should be explored before marking crosswalks.
- N** Crosswalks should not be installed at these locations.

Notes: 1. Marked crosswalks should not be installed on uncontrolled approaches or at midblock locations where visibility distance of pedestrians or the crosswalk would be less than the "Stopping Sight Distance for Design" given in the latest version of the AASHTO A Policy on Geometric Design of Highways and Streets. Desirably, crosswalks would only be installed where there is sufficient sight distance to allow pedestrians to cross the road without conflicting with vehicles continuing at the 85th-percentile speed, assuming the pedestrian starts walking at the moment the vehicle comes into sight. Pedestrian crossing time should be computed in accordance with the procedure for determining adequate gaps given in the Institute of Transportation Engineers Traffic Engineering Handbook (page 78 in the 4th Edition).

2. Crosswalks should not be installed on uncontrolled approaches or at midblock locations where they will encourage pedestrians to divert from nearby signalized or grade-separated pedestrian crossings.

Support:

12 Section 3B.16 contains information regarding placement of stop line markings near crosswalk markings.

Option:

13 ~~When diagonal or longitudinal lines are used to mark a crosswalk, the transverse crosswalk lines may be omitted. This type of marking may be used at locations where substantial numbers of pedestrians cross without any other traffic control device, at locations where physical conditions are such that added visibility of the crosswalk is desired, or at places where a pedestrian crosswalk might not be expected.~~

13A For added visibility, transverse crosswalk lines may be placed on the outside edge of longitudinal crosswalk lines.

13B Longitudinal crosswalk lines may be installed with gaps in the rungs, as shown in Figure 3B-100, to allow pedestrians to walk on an unpainted surface.

~~44 For added visibility, the area of the crosswalk may be marked with white diagonal lines at a 45-degree angle to the line of the crosswalk or with white longitudinal lines parallel to traffic flow as shown in Figure 3B-19.~~

Guidance:

~~45 If used, the diagonal or longitudinal lines should be 12 to 24 inches wide and separated by gaps of 12 to 60 inches. The design of the lines and gaps should avoid the wheel paths if possible, and the gap between the lines should not exceed 2.5 times the width of the diagonal or longitudinal lines.~~

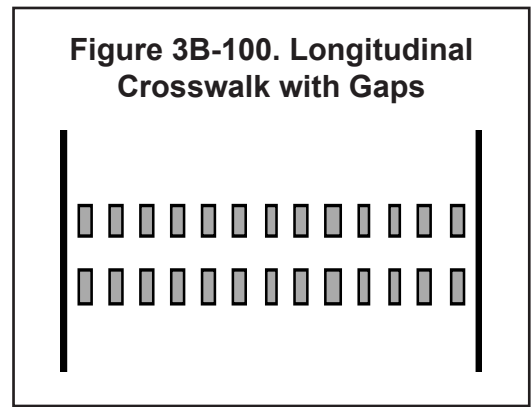
15A If used, the longitudinal lines should be 24 to 36 inches wide and spaced 24 to 36 inches apart. The design of the lines and gaps should avoid wheel paths if possible.

Standard:

15B **On-street parking shall not be marked for at least 20 feet on either side of a crosswalk (13 AAC 02.340).**

Guidance:

15C Additional parking prohibitions should be considered adjacent to crosswalks if engineering judgment indicates additional sight distance would be desirable.



Section 3B.20 Pavement Word, Symbol, and Arrow Markings

Option:

37 The wrong-way arrow markings shown in Drawing D in Figure 3B-24 may be placed near the downstream terminus of a ramp as shown in Figures 2B-18 and 2B-19, or at other locations where lane-use arrows are not appropriate, to indicate the correct direction of traffic flow and to discourage drivers from traveling in the wrong direction.

Support:

37A Wrong-way arrows are for situations where ramp travel direction is not made obvious by the layout of the ramp intersection or merge.

Section 3B.100 Markings for Climbing and Passing Lanes

[This is a new section. There is no corresponding section in the MUTCD.]

Support:

01 See Figure 2B-100 for pavement marking layout for climbing and passing lanes.

CHAPTER 3F. DELINEATORS

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.**
 - C. On sections of roadways where continuous lighting is in operation between interchanges.**
- 02A **Delineators shall be installed in accordance with Table 3F-100.**

Option:

- 02B Delineators may also be used for applications not covered by the table, including safety emphasis areas. See Section 3F of the MUTCD for additional information on the application of delineators.

Guidance:

- 02C *When used, snow pole delineators should be constructed in accordance with Figure 3F-100 and Figure 3F-101.*

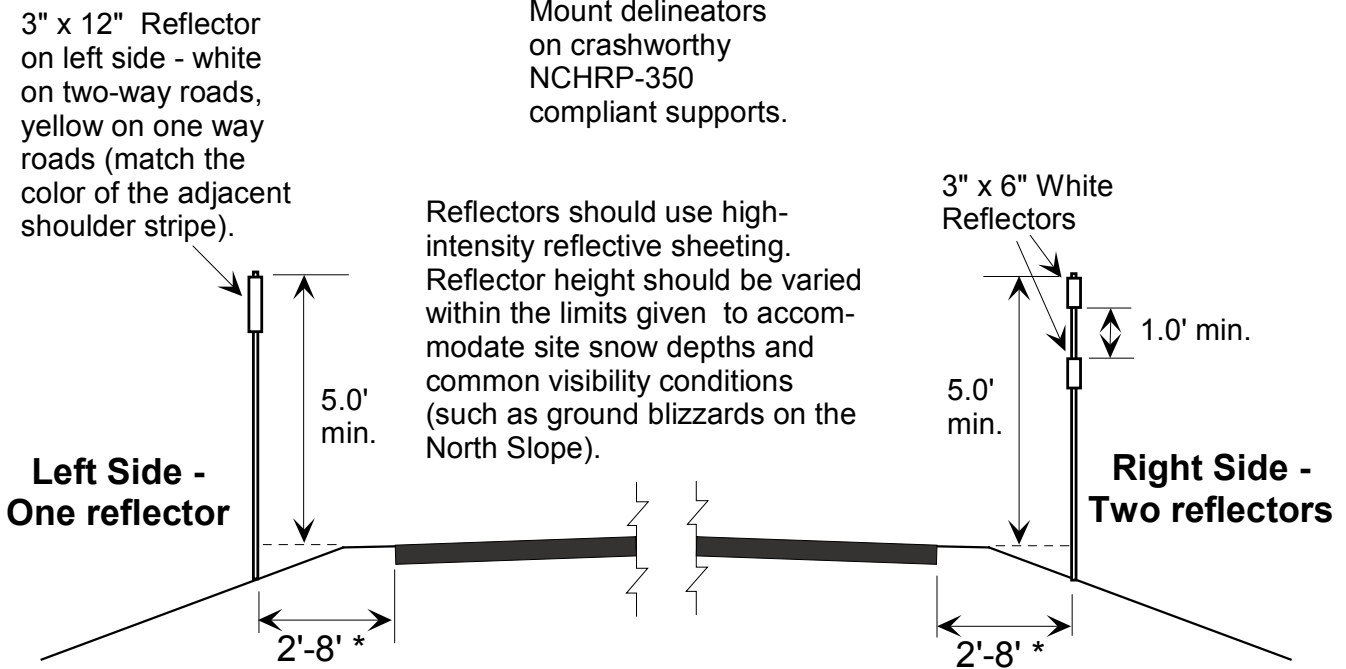
Option:

- 02D Snow poles may be installed in three layout patterns: opposite, one-sided, or staggered.
- A. Opposite Layout: poles are placed on both shoulders across from each other.
 - B. One-sided Layout: poles are placed on one shoulder.
 - C. Staggered Layout: poles are placed on alternate shoulders.

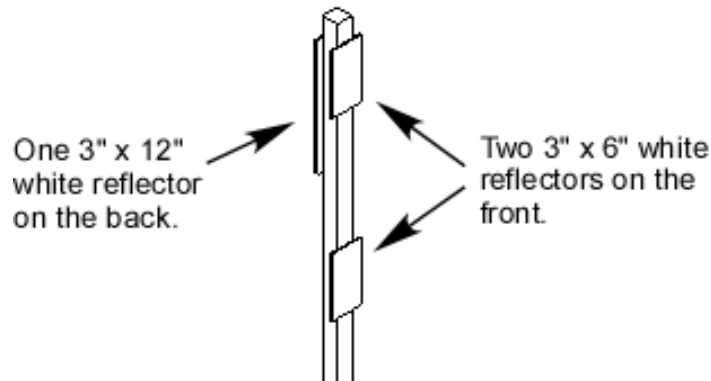
Table 3F-100. Delineator Application

Application	Required/ Optional	Delineator- Type	Spacing		Offset from Edge of Pvmt	Post Material	Notes
			Tangent	Curves <40 MPH			
Right side of Freeways and Expressways, and one side of interchange ramps	Required except when exempting conditions of MUTCD Section 3F.03 are met	See MUTCD Section 3F.02	See MUTCD Section 3F.04	See MUTCD Section 3F.04	8'	Crash-worthy support (NCHRP 350 or MASH)	Red reflectors should be placed on the back of delineators on one-way roads.
Along acceleration or deceleration lanes and at median cross-overs	Optional	See MUTCD Section 3F.02 (double height reflector)	See MUTCD Section 3F.04	See MUTCD Section 3F.04	2' – 8'	Crash-worthy support (NCHRP 350 or MASH)	Delineators provide better guidance to motorists when they are placed close (2') to the edge of pavement. However, offsets nearer 8' make road maintenance easier. Maintenance workers should be consulted when determining delineator offsets.
Areas with poor winter visibility	Optional	Shoulder snow pole (see Figure 3F-100)	200' max.	100' max.	2' - 8'	Crash-worthy support (NCHRP 350 or MASH)	
Areas with poor winter visibility and extremely heavy snow accumulations	Optional	Overhead snow pole (see Figure 3F-101)	200' max.	100' max.	12'	Steel pipe, concrete foundation, breakaway base	
Guardrail End Terminals (GETs)	Required On state highways	Terminal Marker Posts	On every GET	On every GET	At GET	Two flexible delineators, one at each end of GET	Each delineator should have at least a 3" x 6" area of reflective sheeting with color matching edgeline.

Figure 3F-100. Shoulder Snow Pole

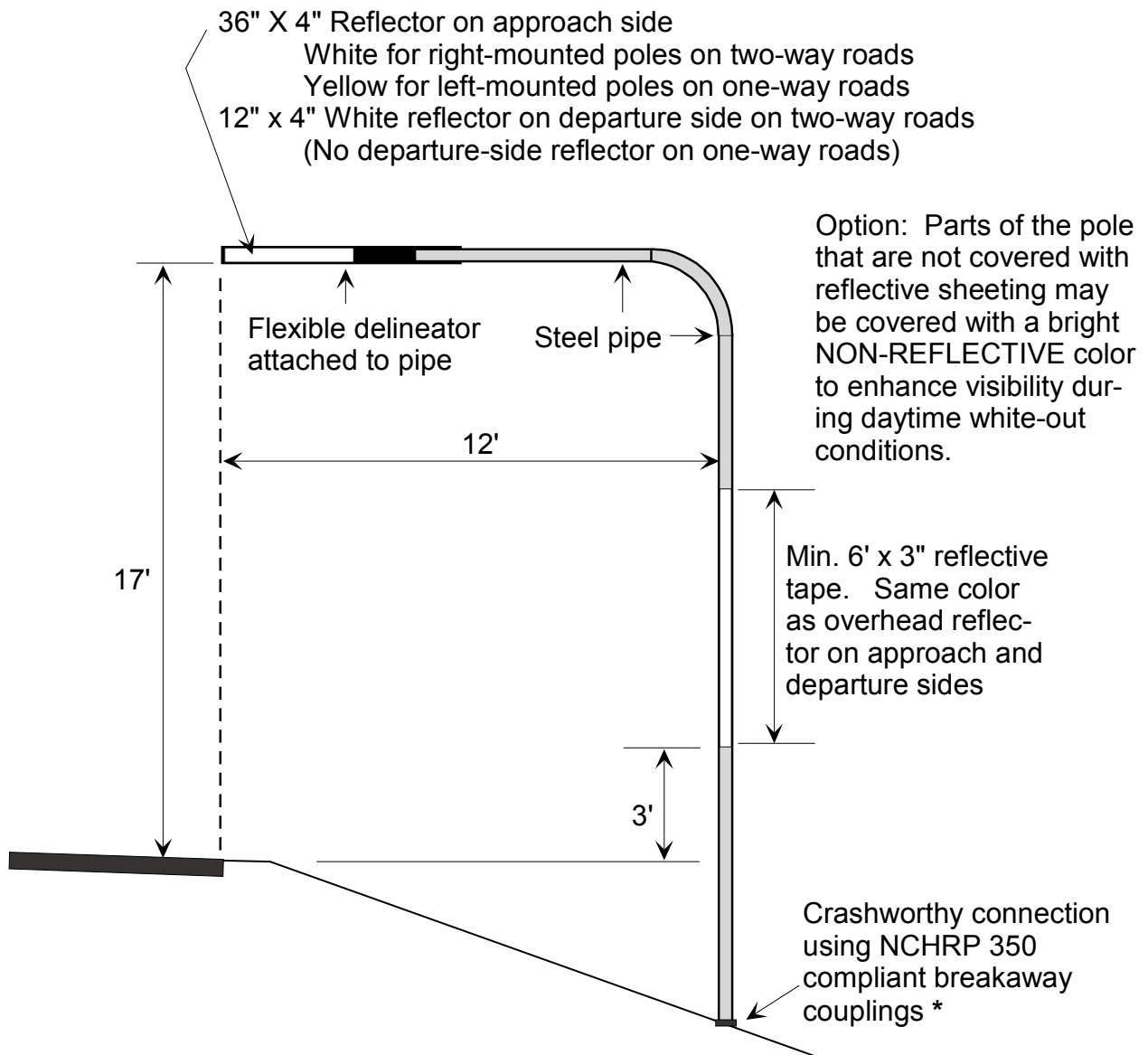


* Delineators provide better guidance to motorists when they are placed close (2') to the edge of pavement. However, offsets nearer 8' makes road maintenance easier. Maintenance workers should be consulted when determining delineator offsets.



Typical right-shoulder Installation on a two-lane, two-way road.

Figure 3F-101. Overhead Snow Pole



* Where installed 4 feet or more behind the near edge of the nearest guardrail post and where it is not possible for a vehicle to penetrate a guardrail end terminal and strike the support, the breakaway couplings may be omitted.

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