
	CENTRAL REGION STANDARD DETAIL DEVELOPMENT REPORT (CRSDR)
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Regional Plan No.: CR-T-04.10

Title: Guide Marker and Delineator Details

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Date: 06-22-2020

Use: This regional detail shows how to implement the more commonly used nighttime delineators into project plansets. The first goal is consistent installation of roadside reflectors without having to look up details residing only in manuals. Another goal is to provide additional daytime visibility when needed in high crash areas. (Attachments are shown in **underlined bold italics**)

Design and Application Considerations:

- Standards require roadside delineators along freeways and expressways, unless continuous lighting is present. Central Region uses delineators along freeways, expressways, and ramps in preparation for the potential of event of lighting curfews.
- Elsewhere, delineators are optional, but used on some auxiliary speed lanes, median crossovers, areas with poor winter visibility, heavy snow accumulation areas, and at guardrail end terminals.
- Delineators are visibly placed in a vertical position similar to signs above the roadway and should not present a horizontal clearance obstacle for pedestrians.
- Delineator use for nighttime visibility shall include reflectors matching the color of edge lines.
- Delineator offset is desirable closer to the road edge. However, greater offsets makes winter road maintenance easier. M&O workers should be consulted when determining delineator offsets. Offsets can vary depending on snow removal methods such as truck removal versus grader and wing blade application. In lighter snowfall and high wind areas, closer offsets may be feasible.
- Delineators are not critical behind guardrail, especially when post top reflectors are used.

History:

- Central Region usage has shown rigid PST posts or fiberglass u-channel posts are durable and have been in place for 10 years or more in most locations.
- CR DOTPF has used the attached detail for consistent marking of freeways, expressways, and high crash areas.
- CR DOTPF uses the attached detail to mark HSIP identified high crash areas requiring daytime visibility as well as nighttime visibility. Daytime post visibility is selected in accordance with ATMS Fig 3F-101. (Example NHS Delineation).

- Marking objects and areas of concern for daytime visibility has been considered against the color of edge lines. Instead of using galvanized grey steel posts, colored posts provide increased daytime visibility against green vegetation or snow backdrops in comparison to white or grey posts.
- CR use has not resulted in any calls of confusion of HSIP daytime curve delineated areas with active work zones.
- Past statewide discussions and reviews of shoulder snow poles with HQ resulted in recognition of colored posts as a critical winter visibility need, as long as retroreflective surfaces were the same colors as edge lines. The posts themselves were considered more as objects or indicators of objects.

Standards, Codes, and Specifications (Additional references as follows):

- **MUTCD Section 3A.04**, Materials. Delineator post placement is similar to placing sign posts.
- **MUTCD Section 3F.03**, Delineator Application
- **ATMS Tbl 3F-100**, Delineator Application
- **ATMS Fig 3F-100**, Shoulder Snow Pole
- **ATMS Fig 3F-101**, Overhead Snow Pole
- **Std Plan S-05.01** offset intent for signs as it compares to delineators.

Tests or Backup Data: No crash testing or backup data other than cited above.

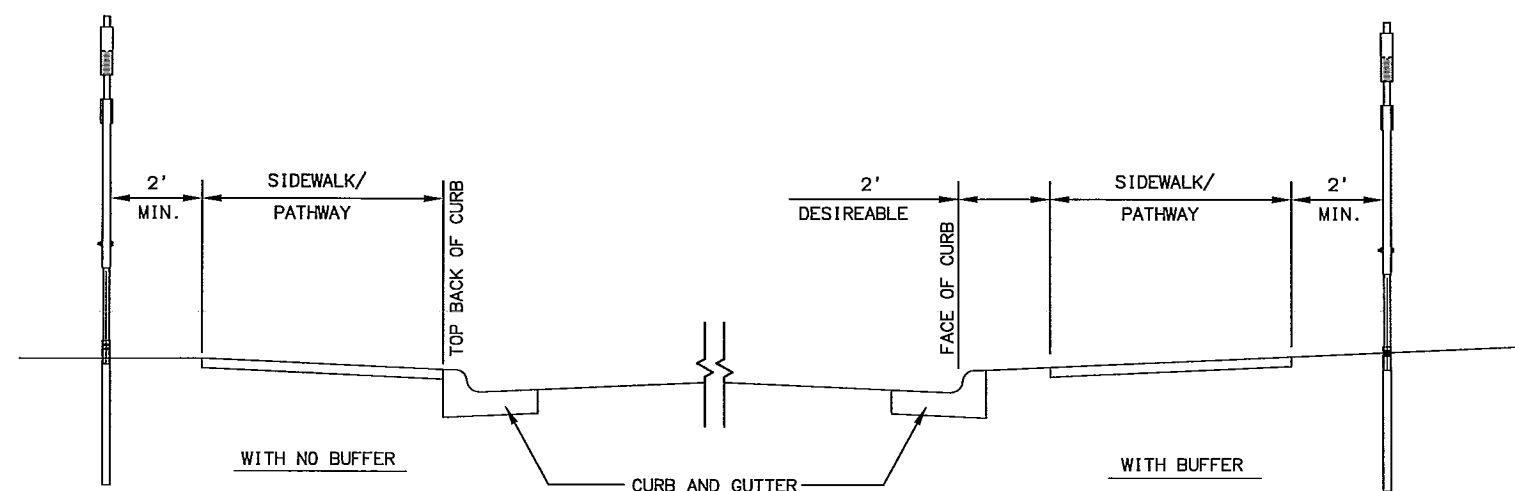
Design Backup: Detail implements Standards and History noted above.

Construction Considerations: (not necessary for all plans) Regional Detail may be overridden by Design Details or specific design sheets for specific cases in the Design.

M&O Considerations: See Design Considerations for offset and plowing. CR uses 12 foot minimum for most plowing operations, similar to minimum sign post offsets.

Abbreviations:

ATMS	Alaska Traffic Manual Supplement
CR	Central Region
DOTPF	(Alaska) Department of Transportation and Public Facilities
HSIP	Highway Safety Improvement Program
M&O	Maintenance and Operations
MUTCD	Manual on Uniform Traffic Control Devices
PST	Perforated Steel Tube (Galvanized, typically 2")



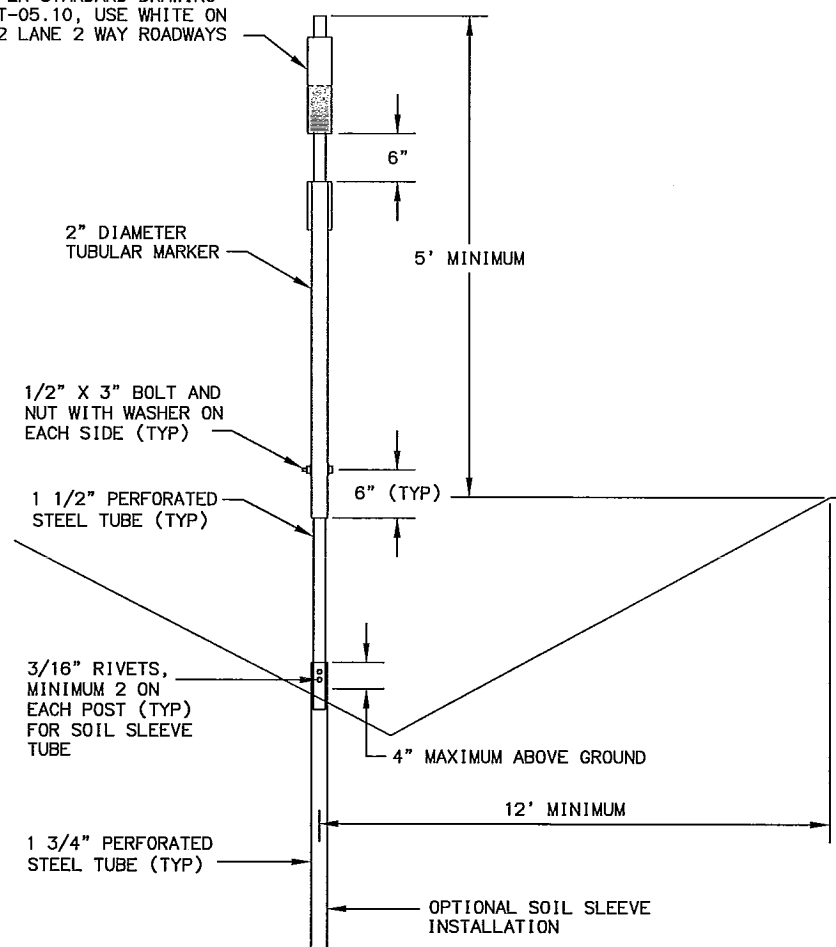
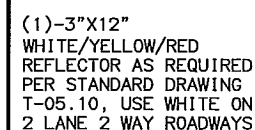
RIGID DELINEATOR DETAIL
URBAN SECTION

(WHEN LIGHTING IS NOT INSTALLED)
NTS

EXISTING LIGHT POLES OR
SIGN POSTS MAY BE
SUBSTITUTED WHERE
INDIVIDUAL LOCATIONS FIT
SPACING AND OFFSET GOALS.

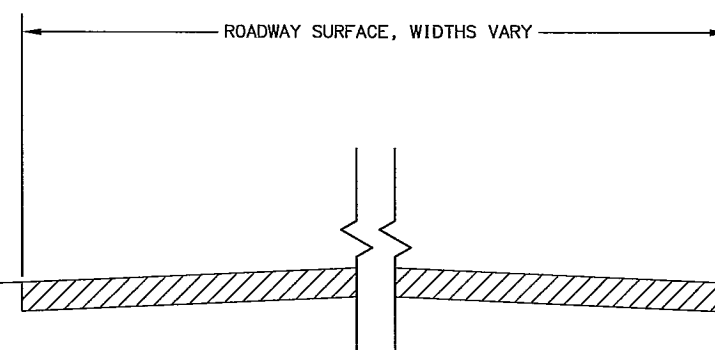
NOTES:

1. ON 2 LANE, 2 WAY ROADWAYS INSERT TUBULAR MARKERS OVER POST WHEN SPECIFIED IN THE PLANS. MATERIALS FOR MARKERS ARE SPECIFIED IN 643-2.01, AND ARE TO BE INSTALLED WITHOUT REFLECTORS ON THE MARKER. FASTEN THE MARKERS TO THE DELINEATOR POST WITH GALVANIZED HARDWARE. TAKE CARE TO NOT OVER TIGHTEN BOLTS, DO NOT ALLOW MARKER TO BE CRIMPED. TUBULAR MARKERS ARE SUBSIDIARY TO DELINEATOR POST WORK.
2. 12' OFFSET FOR DELINEATORS IS MINIMUM, BUT DISTANCE SHALL NOT EXCEED 15'. FINAL LOCATIONS TO BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
3. DELINEATORS SHALL NOT BE PLACED IN THE DITCH LINE AND SHOULD BE LOCATED 2' ABOVE THE DITCH LINE TOWARDS BACK SLOPE WHERE POSSIBLE.
4. WHERE DELINEATOR INSTALLATION REQUIRES REMOVAL OF SMALL TREES AND/OR SHRUBS, REMOVE IN ACCORDANCE WITH SUBSECTION 201-3.04 HAND CLEARING. ALL CLEARING IS SUBSIDIARY TO 615(4).
5. INSTALL DELINEATOR POST FOUNDATIONS IN ACCORDANCE WITH THE SLEEVE TYPE FOUNDATION IN STANDARD DRAWING S-30.
6. ENSURE THAT THE DELINEATORS HAVE A UNIFORM APPEARANCE. THIS MAY REQUIRE OFFSET TRANSITIONS TO ACHIEVE THE UNIFORMITY.
7. EACH DELINEATOR SHALL BE EQUIPPED WITH THREE REFLECTORS AS SHOWN, EXCEPT OMIT THE 3"x12" INCH REFLECTOR FROM THE BACK SIDE OF DELINEATORS ON DIVIDED HIGHWAY SECTIONS EXCEPT ON RAMPS.
8. DELINEATORS ARE NOT REQUIRED ALONG FREEWAY RAMPS WITH CONTINUOUS LIGHTING, UNLESS SHOWN IN THE PLANS.
9. SEE STANDARD DETAIL T-05 FOR ADDITIONAL INFORMATION FOR DELINEATOR INSTALLATION.
10. USE TYPE IX RETROREFLECTIVE SHEETING ON DELINEATORS.
11. INSTALL AT LOCATIONS BELOW 500' ELEVATION ABOVE SEA LEVEL, UNLESS OTHERWISE SPECIFIED IN THE PLANS.
12. DO NOT INSTALL DELINEATORS BEHIND GUARDRAIL, USE CR-G-04 FOR GUARDRAIL DELINEATION.
13. COLORED FIBERGLASS U-CHANNEL POSTS MAY BE SUBSTITUTED FOR STEEL POSTS AND MARKERS.



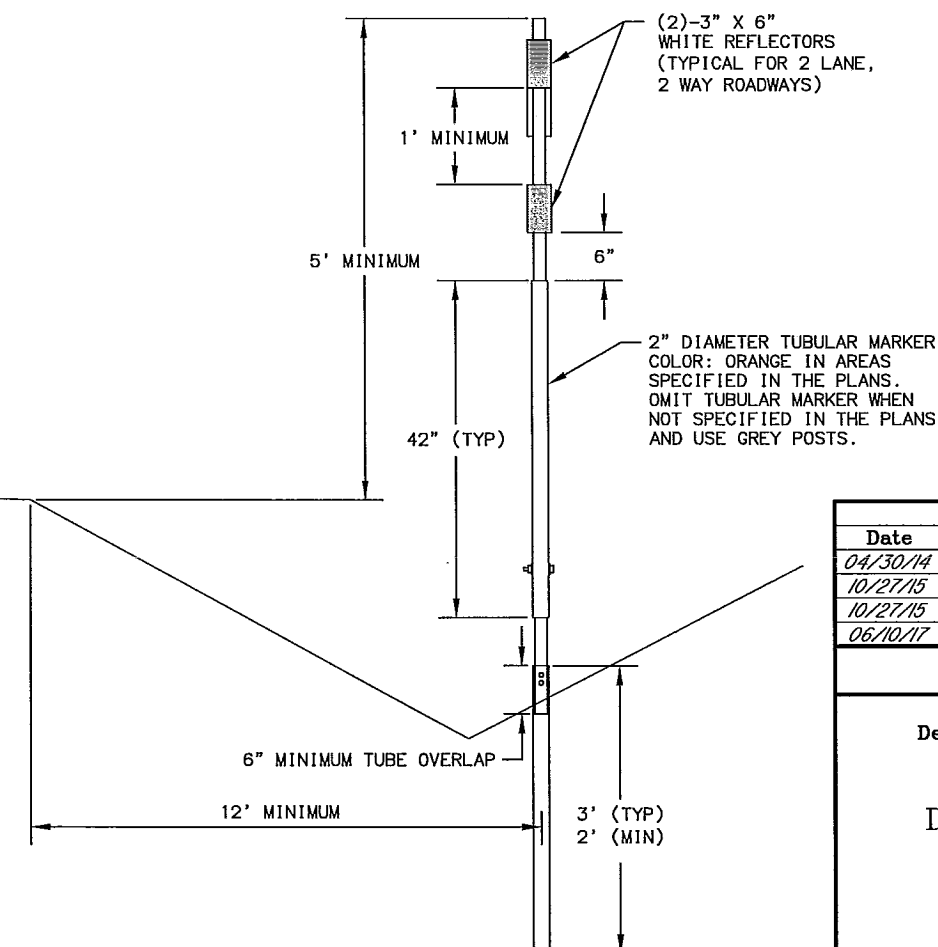
LEFT SIDE

(NOT REQUIRED FOR DIVIDED HIGHWAY MEDIANS)



RIGID DELINEATOR DETAIL RURAL SECTION

NTS



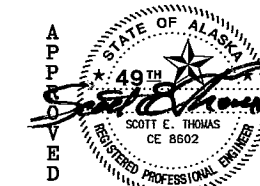
RIGHT SIDE

REVISIONS		
Date	Description	By
04/30/14	ADDED NOTE 10	SET
10/27/15	DELETED GUARDRAIL	SET
10/27/15	URBAN OPTION ADDED	SET
06/10/17	POST COLORS	SET

SHEET 1 OF 1

State of Alaska
Department of Transportation
& Public Facilities

GUIDE MARKER/ DELINEATOR DETAILS

Date 06/10/17

PART 3

MARKINGS

CHAPTER 3A. GENERAL

Section 3A.01 Functions and Limitations

Support:

- 01 Markings on highways and on private roads open to public travel have important functions in providing guidance and information for the road user. Major marking types include pavement and curb markings, delineators, colored pavements, channelizing devices, and islands. In some cases, markings are used to supplement other traffic control devices such as signs, signals, and other markings. In other instances, markings are used alone to effectively convey regulations, guidance, or warnings in ways not obtainable by the use of other devices.
- 02 Markings have limitations. Visibility of the markings can be limited by snow, debris, and water on or adjacent to the markings. Marking durability is affected by material characteristics, traffic volumes, weather, and location. However, under most highway conditions, markings provide important information while allowing minimal diversion of attention from the roadway.

Section 3A.02 Standardization of Application

Standard:

- 01 **Each standard marking shall be used only to convey the meaning prescribed for that marking in this Manual. When used for applications not described in this Manual, markings shall conform in all respects to the principles and standards set forth in this Manual.**

Guidance:

- 02 *Before any new highway, private road open to public travel (see definition in Section 1A.13), paved detour, or temporary route is opened to public travel, all necessary markings should be in place.*

Standard:

- 03 **Markings that must be visible at night shall be retroreflective unless ambient illumination assures that the markings are adequately visible. All markings on Interstate highways shall be retroreflective.**
- 04 **Markings that are no longer applicable for roadway conditions or restrictions and that might cause confusion for the road user shall be removed or obliterated to be unidentifiable as a marking as soon as practical.**

Option:

- 05 Until they can be removed or obliterated, markings may be temporarily masked with tape that is approximately the same color as the pavement.

Section 3A.03 Maintaining Minimum Pavement Marking Retroreflectivity

(This Section is reserved for future text based on FHWA rulemaking.)

Section 3A.04 Materials

Support:

- 01 Pavement and curb markings are commonly placed by using paints or thermoplastics; however, other suitable marking materials, including raised pavement markers and colored pavements, are also used. Delineators and channelizing devices are visibly placed in a vertical position similar to signs above the roadway.
- 02 Some marking systems consist of clumps or droplets of material with visible open spaces of bare pavement between the material droplets. These marking systems can function in a manner that is similar to the marking systems that completely cover the pavement surface and are suitable for use as pavement markings if they meet the other pavement marking requirements of the highway agency.

Guidance:

- 03 *The materials used for markings should provide the specified color throughout their useful life.*
- 04 *Consideration should be given to selecting pavement marking materials that will minimize tripping or loss of traction for road users, including pedestrians, bicyclists, and motorcyclists.*
- 05 *Delineators should not present a vertical or horizontal clearance obstacle for pedestrians.*

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.*

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.

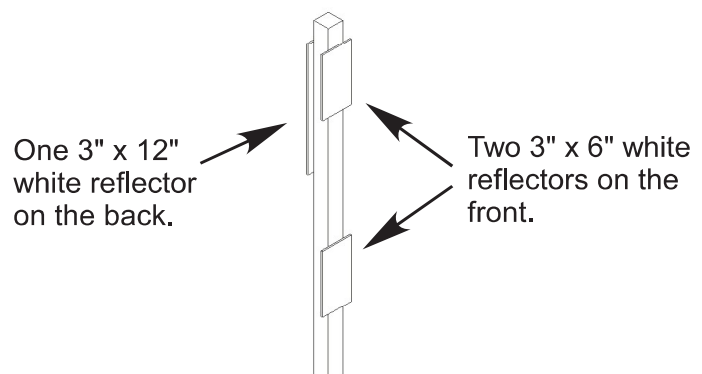
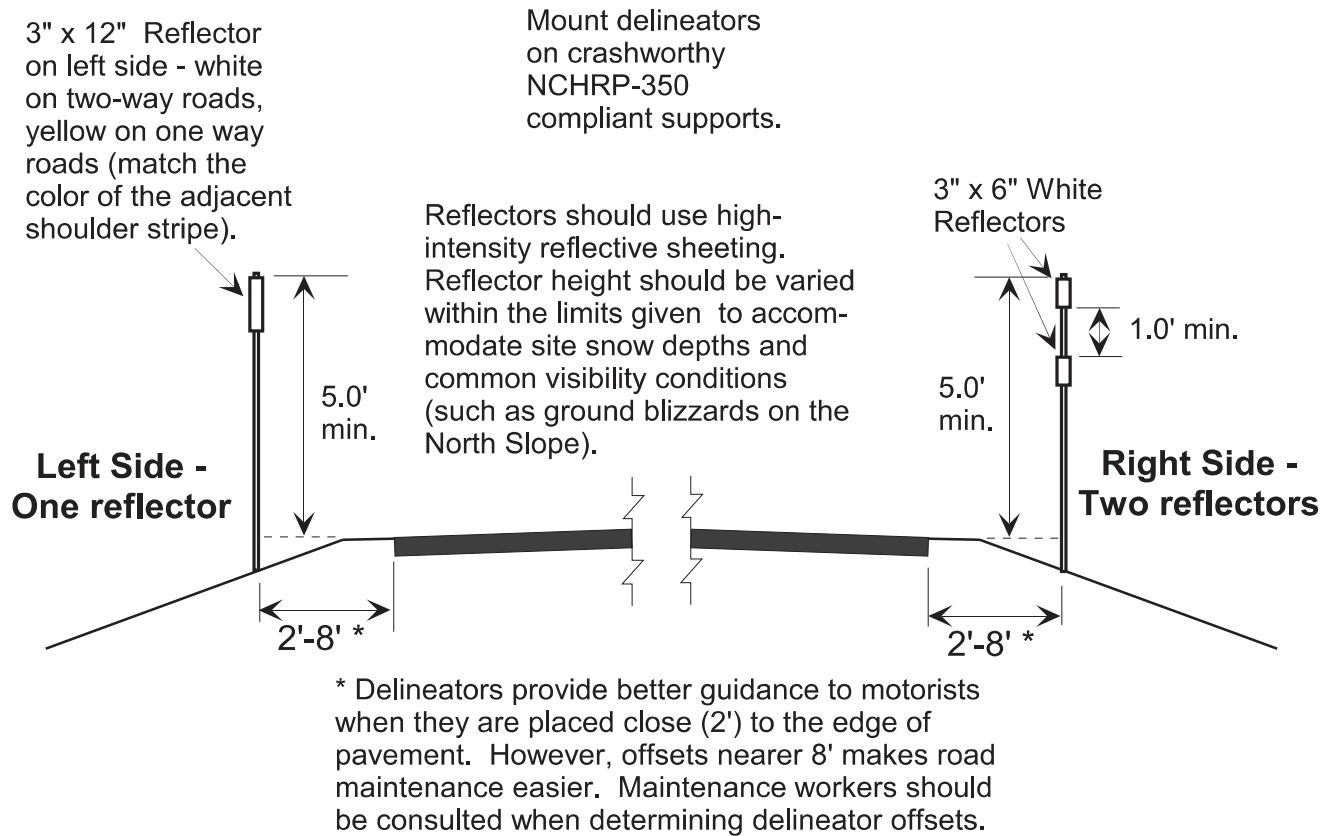
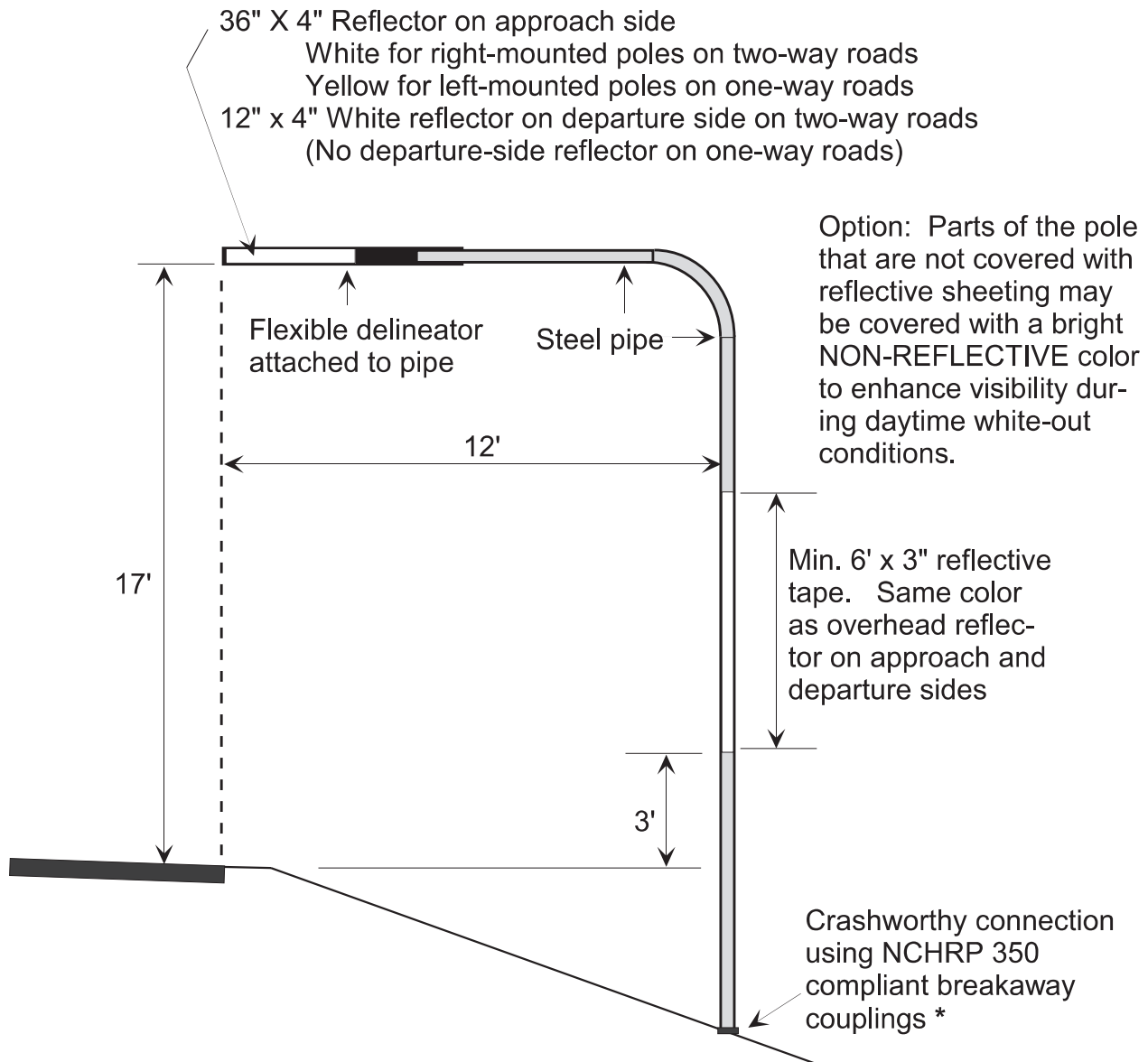
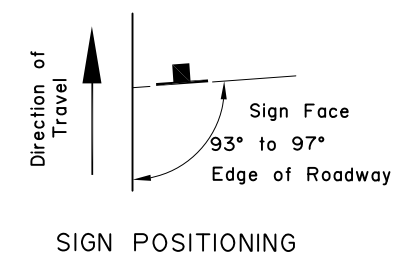
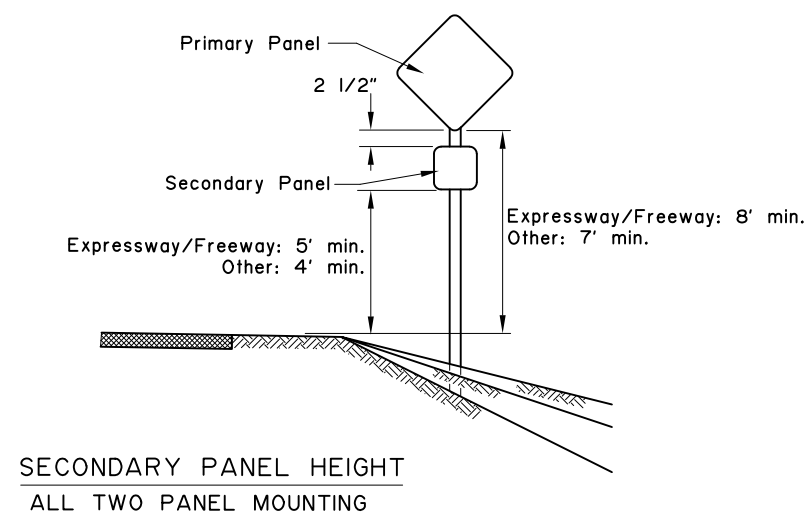
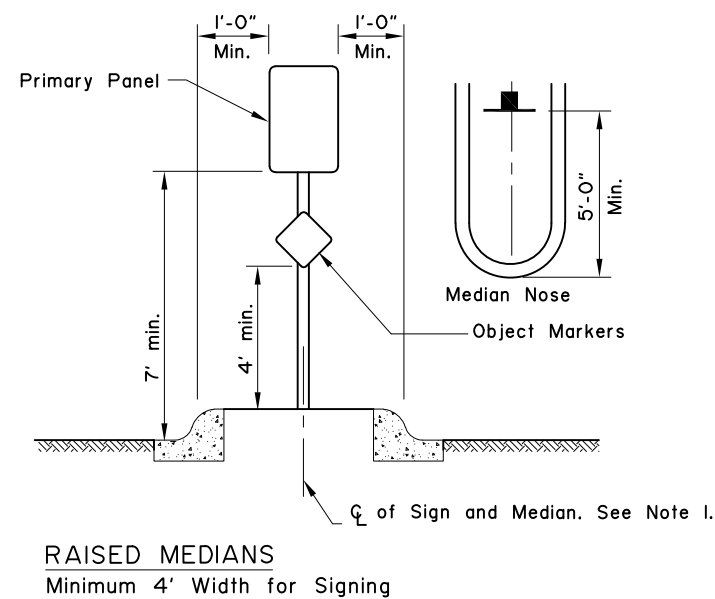
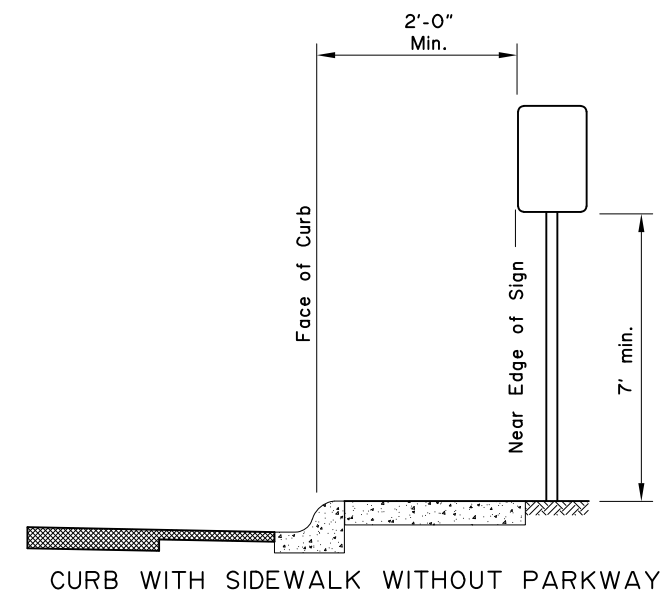
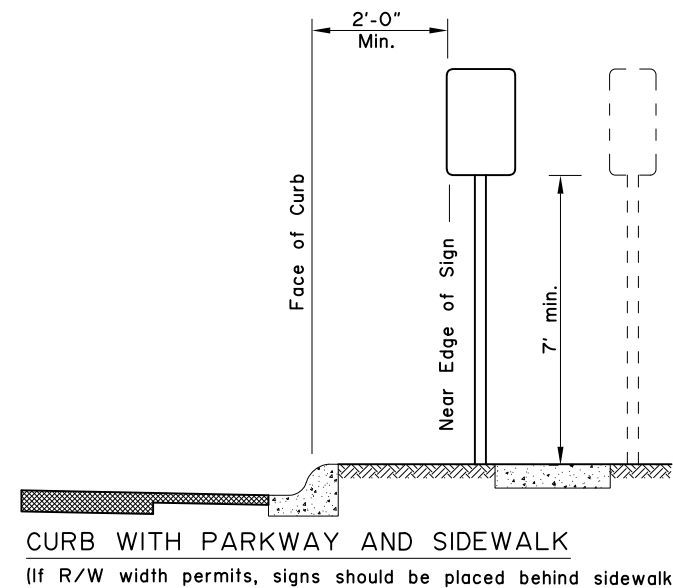
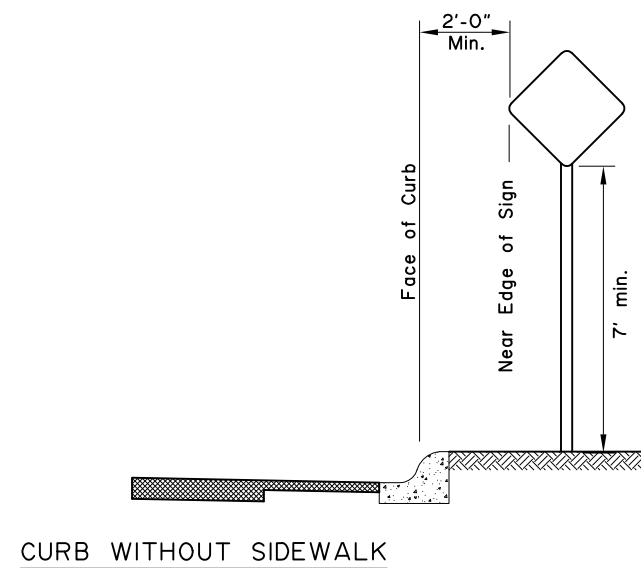
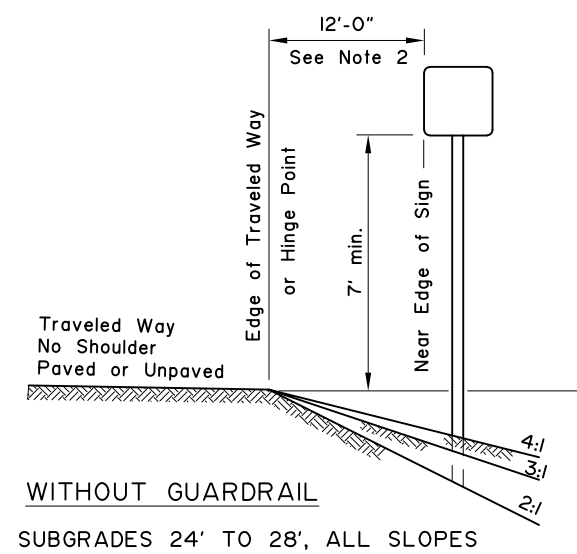
Figure 3F-100. Shoulder Snow Pole**Typical right-shoulder Installation on a two-lane, two-way road.**

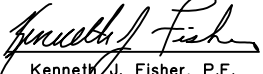
Figure 3F-101. Overhead Snow Pole

* 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.

1. Unless shown otherwise on the plans, the standard sign offset is 12'. The minimum is 6'.
2. If signs extend over sidewalks, the minimum vertical clearance is 7'-0".
3. Add 6" to mounting height on unpaved roads.
4. If signs extend over bike paths, the minimum vertical clearance is 8' 0".
5. When signs are placed 30' or more from the edge of traveled way, mount them with the bottom of the sign at least 5' above the road surface at the near edge of the road.
6. When multiple hinged sign supports are used, mount hinges at least 7' above the ground.



State of Alaska DOT&PF
ALASKA STANDARD PLAN
POST MOUNTED SIGN
OFFSET AND HEIGHT

Adopted as an Alaska
Standard Plan by: 
Kenneth J. Fisher, P.E.
Chief Engineer

Adoption Date: 02/08/2019

Last Code and Stds. Review
By: _____ Date: _____

Next Code and Standards Review date: 02/08/2029