



**Alaska
Department of
Transportation
and
Public Facilities**

**Alaska
Traffic Manual
Supplement**

INTRODUCTION

Traffic control devices installed on state roads are required to conform to the Alaska Traffic Manual (ATM). Traffic control devices on roads under municipal jurisdiction are required to conform “as far as practicable.” To promote uniformity and understandability of traffic control devices, private property owners are also encouraged to conform to this manual when installing devices on roads that are on private property.

The ATM is comprised of this document, The Alaska Supplement, and the Manual on Uniform Traffic Control Devices (MUTCD) published by the Federal Highway Administration.

Devices installed or replaced after the publication date of the Alaska Supplement shall conform to the ATM upon installation. Unless noted otherwise, existing devices that do not conform to the current ATM shall be replaced at the end of their useful life.

The intent of the ATM is to enhance road safety and operation by requiring uniform, understandable, and effective traffic control devices on Alaskan roads.

How to Use the Alaska Supplement

This document supplements the 1988 MUTCD as updated with revisions 1 through 7. Both documents need to be consulted when researching traffic control issues.

The Alaska Supplement conforms to the organization and section numbering of the MUTCD. The two documents interact as follows:

- Unless otherwise noted, language in the Alaska Supplement is added to the end of the referenced MUTCD section.
- In other cases, the MUTCD language is deleted and/or the Alaska Supplement language inserted as directed by the instructions in italics.
- Where no equivalent section exists in the MUTCD, the section in the Alaska Supplement is the standard.

Obtaining an MUTCD

The MUTCD and revisions may be obtained from the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 371954, Pittsburgh, PA 15250-7954, Stock No. 650-001-00001-0. It may also be purchased on the web at <http://mutcd.fhwa.dot.gov/ser-pubs.htm>.

Other Related Documents

Design details for signs and a variety of markers are not included in the ATM. They are in the Alaska Sign Design Specifications (ASDS).

The Alaska Department of Transportation and Public Facilities (DOT&PF) Highway Preconstruction Manual contains additional information on highway construction, street lighting, and supports for signs, streetlights, and traffic. It pertains only to DOT&PF construction projects.

The 1998 DOT&PF Standard Specifications for Highway Construction contains descriptions, material requirements, and construction methods for traffic control devices and other items. It pertains only to DOT&PF construction projects.

Obtaining the Supplement and Other DOT&PF Documents

You may purchase these documents from the Alaska Department of Transportation and Public Facilities, 3132 Channel Drive, Room 115, Juneau, Alaska 99801. (907-465-2985). With the exception of the Alaska Sign Design Specifications, they are available for free at the DOT&PF Design and Construction Standards web site at:

http://www.dot.state.ak.us/external/state_wide/dnc/eos.d/standards/pubdocs.html

The web site also provides information on the latest updates to the ATM.

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Part I. GENERAL PROVISIONS

1A-3 Responsibility for Traffic Control Devices

Responsibility for traffic control devices on state highways in Alaska rests with the State and all its political subdivisions that have jurisdiction over highways. Alaska Statutes (Sec. 19.10.040) state:

The Department of Transportation and Public Facilities shall classify, designate, and mark highways under its jurisdiction and shall provide a uniform system of marking and posting these highways. The system of marking and posting shall correlate with and shall, as far as possible, conform to the recommendations of the Manual on Uniform Traffic Control Devices as adopted by the American Association of State Highway and Transportation Officials. (Sec. 3, Art. III Title II Ch. 152 SLA 1957)

The required uniform system of marking and posting is defined in the Alaska Traffic Manual.

The Department of Transportation and Public Facilities determines the need for all traffic control devices on state highways, prepares designs, maintains records, and supervises their installation. These activities may be done by contract with others or by State forces. Traffic control devices that are not in conformance with this standard or that require specific approval for their installation shall not be installed without the approval of the State Traffic Engineer.

As additional specific powers, the Department of Transportation and Public Facilities "may conduct investigations..." and "shall determine safe speed limits, with the assistance of the Department of Public Safety" (AS 19.10.070) and may designate through highways by erecting stop signs on side road approaches (AS 19.10.080). The Department is authorized to make policy for installing, maintaining, and performing all related functions pertaining to traffic control devices on state highways.

1A-3.1 Placement Authority

The Department of Transportation and Public Facilities is responsible for erecting and maintaining traffic control devices on state highways. Alaska Statute 28.01.010, the Alaska Uniform Traffic Laws Act, states, in part, that a municipality is

required to "erect necessary official traffic control devices on streets and highways within its jurisdiction that as far as practicable conform to the current edition of the Alaska Traffic Manual prepared by the Department of Transportation and Public Facilities."

1A-6 Meaning of "Intended for Use"

Add the following definition:

"Intended for use" A permissive condition. When the device is used, it shall meet the stated requirements.

1A-6 Manual Changes, Interpretations, and Authority to Experiment

To promote the use of uniform, understandable, and effective traffic control devices, to avoid varying official interpretations, and to facilitate the orderly development of traffic control policy, the State Traffic Engineer shall be the focal point for policy in all matters concerning the ATM.

To that end:

1. Official interpretations for purposes of Alaska Department of Transportation and Public Facilities' practice of these standards shall be made by the State Traffic Engineer.
2. Those who desire interpretation of a clause in this standard, a revision, or permission to experiment with a traffic control device not in the Alaska Sign Design Specifications or in the Alaska Department of Transportation and Public Facilities' Standard Drawings, shall submit a written request to the State Traffic Engineer. The request should clearly identify the existing standard (if any), and the proposed standard including a complete statement as to how and when it is to be applied, the date, and the name and address of the person making the request. The State Traffic Engineer will circulate requests for new traffic control devices and significant changes in policy to the Regional Traffic Engineers, the FHWA Alaska Division Safety/Traffic Operations Engineer, and the Anchorage Traffic Engineer for their input. Responses to the requestor will be sent within 60 days of receipt of the request.

3. Revisions to the MUTCD will not become part of the ATM until they have been reviewed by the State Traffic Engineer, any necessary changes have been made to the Alaska Supplement, the FHWA has approved those changes, and the State Traffic Engineer informs users of the adoption of the revised MUTCD.

The state has two years from date of final ruling to adopt or revise MUTCD amendments.

1A-9 Definitions of Words and Phrases

1. General Terms

- A. Alaska Sign Design Specifications: The Alaska Sign Design Specifications (ASDS) contains drawings showing dimensions, shapes, colors, and other information necessary for laying out the signs that are used in Alaska. The ASDS is a supplement to the ATM.
- B. Alaska Traffic Manual: The Alaska Traffic Manual (ATM) consists of the 1988 edition of the Manual on Uniform Traffic Control Devices (MUTCD), including revisions 1 - 7, and this Alaska Supplement.
- C. Commissioner: All references to the Commissioner herein, not otherwise identified, shall refer to the Commissioner of the Alaska Department of Transportation and Public Facilities, the Commissioner's duly authorized agents, representatives and assigns, and those who by nature of their regular duties or emergency situations are required to act in matters of policy concerning traffic control devices. "Duly authorized" in times of emergency does not relieve anyone of the responsibility of obtaining approvals and authority from the regular authority when the emergency is past.
- D. Expressways: Divided arterial highways for through traffic with full or partial control of access and with at-grade intersections.
- E. Freeways: Divided arterials with full access control and no at-grade intersections.

- F. Highways (or Streets): The entire width between boundary lines of every public way when any part thereof is available for public vehicular travel.
- G. Public Roadways: All vehicular ways maintained by State, Borough, or Municipal bodies, and under their respective jurisdiction.
- H. State Highways: All public vehicular ways designated as State Highways in accordance with Title 19 of the Alaska Statutes, and all State-maintained roads.
- I. State-Maintained Roads: The roads maintained by State forces or maintained by others at State expense.
- J. Traffic Control Devices Handbook (TCD Handbook): A publication available from the U.S. Government Printing Office that augments the MUTCD by providing guidance in the application and implementation of the national standards contained therein.
- K. City Traffic Engineer: An employee of a local government agency with road jurisdiction who is responsible for traffic control devices.
- L. Regional Traffic Engineer: One of three DOT&PF employees with this title. There is one in the Northern Region (based in Fairbanks), another in the Central Region (based in Anchorage), and another in the Southeast Region (based in Juneau).
- M. State Traffic Engineer: Individual with this title employed by the Design and Construction Standards Section of the Design and Engineering Services Division of DOT&PF in Juneau.

2. Roadway Terms

- A. Buffer: That area between the back of curb and the near edge of sidewalk.
- B. Hinge Point: The angle point where the top surface of a road intersects a fore slope, typically at the outside edge of the shoulder.
- C. Median: That portion of a divided roadway between traveled ways.

- D. **Shoulder:** That portion of the roadway outside of the traveled way. Left shoulders on divided roadways are considered part of the median. Shoulders should normally be considered refuge or emergency lanes rather than parking areas.
- E. **Sidewalk:** The improved all-weather pedestrian way adjacent to the roadway.
- F. **Traveled Way:** The portion of a roadway intended for use by motor vehicles. On paved roadways, the traveled way is the area between striped edge lines. On gravel roads or paved roads without striping, the traveled way is considered the twenty-four foot area centered between hinge points. If the distance between hinge points is twenty feet or less, the traveled way shall be considered twenty feet wide in placement of traffic control devices. If the distance between hinge points exceeds twenty feet but does not exceed twenty-four feet, the traveled way shall be considered the area between hinge points.

Part II. SIGNS

A. INTRODUCTION AND GENERAL STANDARDS

2A-9 Design

Specific sign designs are provided in the Alaska Sign Design Specifications (ASDS), latest edition. The material specifications for traffic control devices for use on DOT&PF-owned roads are specified in the Alaska DOT&PF Standard Specifications for Highway Construction, latest edition.

Signs not shown therein or specified herein shall be used only with the approval of the State Traffic Engineer, except in temporary emergency situations.

2A-12 Dimensions

Delete the last sentence in the MUTCD and insert the following:

The specific sizes of signs to be used on all classes of highways in Alaska are as specified in the ASDS, latest edition. Roadway classes for purposes of sign size specifications are as follows:

**Table 2A-12
Roadway Classes**

Roadway Class	Definition
S	City streets, not arterials, less than 38 feet wide.
L	Local roads, not arterials, less than 38 feet wide, and roads with ADT of less than 100, or where space limitations govern.
T	Typical state highways and roads greater than 38 feet wide.
E	Expressways
F	Freeways
Bike	See Section 9A-3 of the MUTCD

2A-13 Symbols

In general, whenever the ATM allows symbols or word legends as alternatives, the symbol should be used. As older signs are replaced under routine maintenance operations, symbol signs should be installed.

2A-15 Lettering

Add the following wording after the third paragraph:

Upper case/lower case letters shall be used on all destination-type signs except as indicated in the ASDS, latest edition.

2A-16 Illumination and Reflectorization

Delete the last sentence in the MUTCD and add the following:

All signs shall be either reflectorized or illuminated. Reflective sheeting on signs on state roads shall comply with the Alaska DOT&PF Standard Specifications for Highway Construction, current edition.

2A-23 Height

Delete the last paragraph in the MUTCD and substitute the following:

Overhead signs and sign structures shall provide a vertical clearance of not less than 18.5 feet over the entire width of pavement except when mounted on a structure with restricted clearance. Where clearance is restricted to less than 18.5 feet by the structure, the sign shall not further restrict clearance.

Height of Post-Mounted Signs:

Sign height shall meet both of the following criteria:

1. The vertical clearance from the bottom of a sign panel to the surface of the roadway shall be at least as high as specified in Sec. 2A-23 and Figure 2-1 of the MUTCD.
2. The vertical clearance from the bottom of the highest sign panel on a post to the terrain below the sign shall be at least 7 feet.

2A-24 Lateral Clearance

In the first paragraph, last sentence, change "should" to "shall."

Delete MUTCD Section 2A-26 Erection and substitute the following:

2A-26 Erection

Orientation Angle

Normally signs should be mounted approximately at right angles to the direction of, and facing, the traffic they serve.

Where a mirror reflection from a post-mounted sign located close to the traveled way reduces legibility, the sign should be turned about 3° away from the road. When the sign is offset 30 feet or more from the pavement edge, the sign should generally be turned 3° toward the road.

At curved alignments, the angle of sign placement should be determined by the course of approaching traffic rather than by the roadway edge at the point where the sign is located. Sign faces are normally vertical, but on grades it may be desirable to tilt a sign forward or back from vertical to improve the viewing angle.

The face of all overhead signs should be tilted at least 3° downward to reduce the amount of dirt, dust, snow, and bird droppings that would otherwise build up on the face of a sign.

Parking signs are excepted from being mounted at right angles to the direction of the traffic they serve.

2A-31 Wrong Way Traffic Control

See also Sections 2B-26, 2B-27, and 2E-40 in the MUTCD.

B. REGULATORY SIGNS

2B-4 Stop Sign (R1-1)

In the first sentence of the second paragraph, change "should" to "shall."

Insert after the third paragraph:

STREET NAME (D3-1) signs and ONE WAY (Arrow) (R6-1) signs may be mounted on the same post above a STOP (R1-1) sign to conserve space and reduce the number of posts at urban intersections. The DO NOT ENTER (R5-1) sign may be mounted back-to-back to a STOP (R1-1) sign (see below). No other signs may be installed on the same post unless permitted in other sections of the ATM.

Insert after the last paragraph:

In locations such as off-ramp intersections or one-way streets where the DO NOT ENTER (R5-1) sign is installed back-to-back with a STOP (R1-1) sign, the dimensions of the R5-1 sign should be less than that of the R1-1 sign so as not to detract from the visual impact of the R1-1 sign.

2B-7 Yield Sign (R1-2)

Insert after the second paragraph:

STREET NAME (D3-1) signs and ONE WAY (Arrow) (R6-1) signs may be mounted on the same post above a YIELD (R1-2) sign to conserve space and reduce the number of posts at urban intersections. No other signs may be installed on the same post unless permitted in other sections of the ATM.

2B-11 Night Speed Sign (R2-3)

Delete the wording in this section and insert the following:

NIGHT SPEED signs shall not be used in Alaska.

2B-24 Signs for Uphill Traffic Lanes (R4-3, R4-5, R4-6)

Signs and pavement markings for climbing and passing lanes should be installed as shown in Figure 2B-24 on the following page.

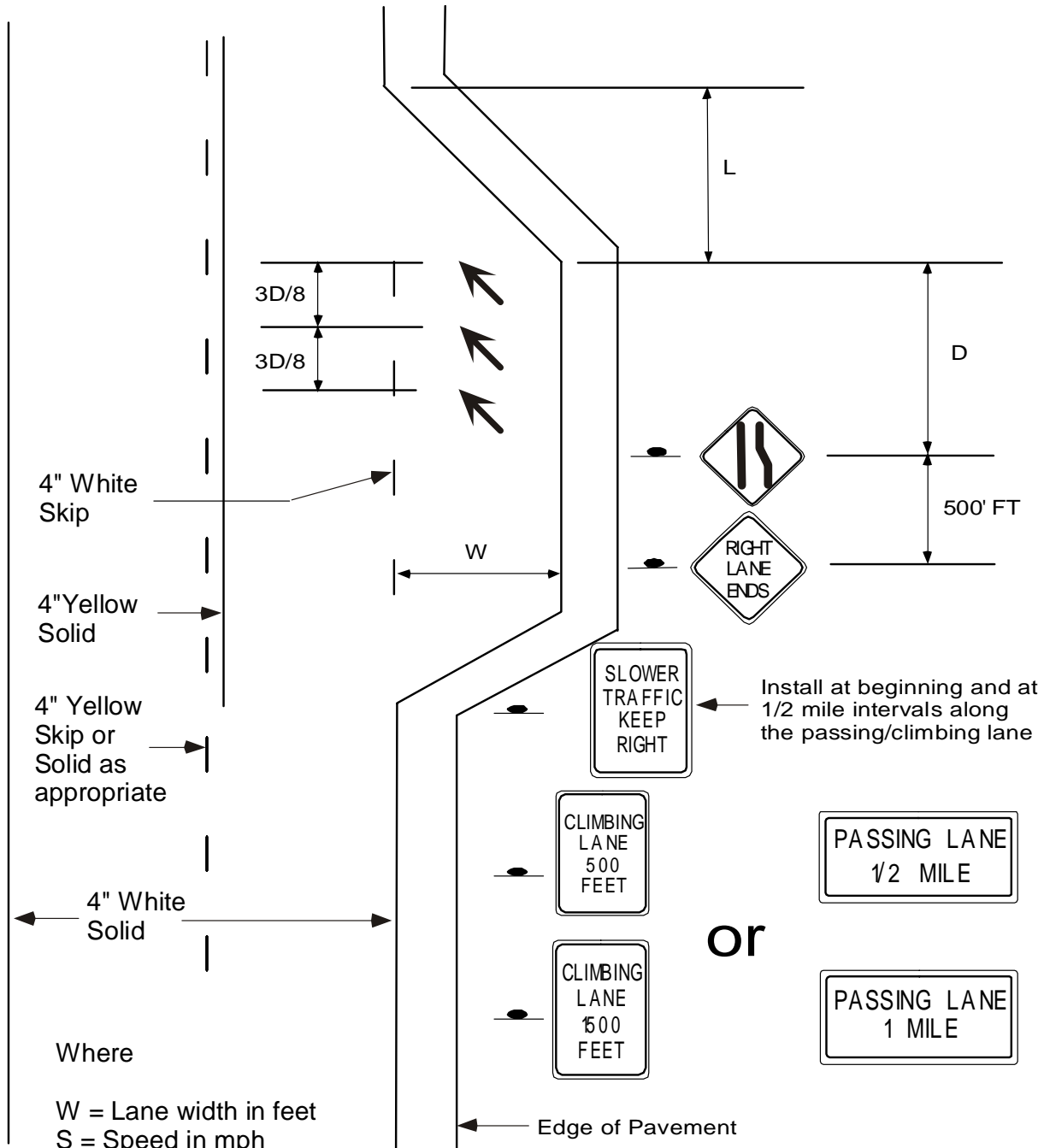


Figure 2B-24
Typical Traffic Controls
for Climbing and Passing Lanes

2B-26 Do Not Enter Sign (R5-1)

Insert after the first paragraph:

At locations where the DO NOT ENTER (R5-1) sign is installed back-to-back with a STOP (R1-1) sign, the dimensions of the R5-1 sign should be less than those of the R1-1 sign so as not to detract from the visual impact of the R1-1 sign. See Section 2B-4 of the MUTCD.

2B-28 Selective Exclusion Signs

Delete the second paragraph in the MUTCD and insert the following:

The NO TRUCKS SYMBOL (R5-2) sign shall be used to indicate to truckers that certain streets are closed to commercial vehicles. The COMMERCIAL VEHICLES EXCLUDED (R5-4) sign shall not be used in the State of Alaska.

Install the R5-2 sign in the far right position at the last intersection where trucks may turn to avoid the prohibited street. A TRUCK ROUTE (R14-1 series) sign shall be installed on the right, 500 feet or one-half block (whichever is less) in advance of the intersection where commercial vehicles must turn to avoid entering a restricted section of roadway. A supplemental R5-2 sign may be necessary on the left side of the restricted roadway. The R14-1 series signs should also be used in the same manner as trail markers to guide the trucker along the truck route unless other signing gives sufficient direction.

The NO MOTOR VEHICLES (R5-3) sign should be installed at the beginning of the restricted section, on all Bicycle Paths, Equestrian Paths, or Pedestrian Walkways, and at such intervals throughout the restricted section as may be necessary to obtain compliance with the restriction.

The VEHICLES WITH LUGS PROHIBITED (R5-5) sign shall be used in areas where pavement damage has occurred or is likely to occur due to vehicles with lugs traversing the pavement. Install it on the right where a vehicle with lugs can leave the roadway before arriving at the paved roadway.

The STUDDERED TIRES PROHIBITED (R5-5A) sign shall be installed on the right in conspicuous locations at major entrances to an area where a law, Commissioner's order (AS 28.38.155), or local ordinance prohibits the use of studded tires.

The NO STUDDERED TIRES MAY 1 TO SEPT. 15 (APRIL 15 TO SEPT. 30) (R12-7) sign may be installed on all highways in conspicuous locations in conformance with Alaska Statutes, Alaska Administrative Code, or Commissioner's Order. Use "MAY 1 to SEPT. 15" north of 60°N latitude and "APRIL 15 TO SEPT. 30" south of 60°N latitude, as per AS 28.35.155.

2B-31 Urban Parking and Stopping Signs (R7 and R7S Series)

NO PARKING series (R7-101 to R7-103 and R7-105 to R7-107) signs are used to prohibit parking where temporary stopping to load and unload passengers is permitted. Use where shoulders are provided but where parked vehicles are undesirable due to high volume and/or high-speed traffic, space restrictions, or geometric conditions. Time restrictions should be avoided where possible because of enforcement difficulties.

NO STOPPING series (R7S-101 to R7S-104) signs are used where momentary stopping is not permitted because of space, traffic, or capacity limitations. NO STOPPING (R7S series) signs shall not be used in combination with NO PARKING (R7 series) signs in the same zone. They should be used only where the full roadway is required for moving traffic and where there is no shoulder area for stopping outside the traffic stream. NO STOPPING (R7S series) signs may be used with time restrictions or the NO STOPPING OR STANDING (R7S-104) signs may be used to reinforce the message.

2B-37 Traffic Signal Signs (R10-1 to R10-14)

R10-13 signs [(left-turn arrow) ONLY YIELD ON (symbolic green ball)] should be installed on signal mastarms at intersections with exclusive left turn lanes and protected-permitted left turn phasing. R10-12 signs [LEFT TURN MUST YIELD ON GREEN (symbolic green ball)] may be installed on signal mastarms at intersections with shared left turn lanes and protected-permitted phasing.

A supplemental post-mounted R10-12 Sign [LEFT TURN MUST YIELD ON GREEN (symbolic green ball)] may be installed adjacent to or above the far left signal display at intersections with protected-permitted phasing.

The RIGHT TURN PERMITTED WITHOUT STOPPING (R10-14) sign may be used at an intersection to permit a free turning movement. This sign shall not be used in conjunction with or mounted on a STOP sign. It shall be located on a separate post to the right of the right turn lane where the STOP sign would normally be placed to control traffic. This sign shall not be installed on any state highway before the completion of an engineering study and approval by the Regional Traffic Engineer.

2B-39.1 End Maintenance Sign (R11-5)

The NO ROAD MAINTENANCE AFTER NOV. 14 (variable date) (R11-5) sign should be installed at the location where year-round maintenance ends. This sign may be installed on a Type III barricade in addition to being post-mounted on the right side of the roadway with the appropriate advance warning signs such as END MAINTENANCE 1000 FT. (W14-2C) sign. An additional sign may be placed on the left where the roadway exceeds 40 feet in width. In locations where the R11-5 signs are not permanently installed, signs shall be posted at least one month before the effective date.

2B-41 Weight Limit Signs (R12-1 to R12-6)

Roadways, bridges, and other structures should be posted with signs R12-1 to R12-5B indicating the maximum safe sustainable loading to which they may be subjected if that loading is less than the maximum load allowed without a permit. On state highways, these postings should be approved by the Chief Bridge Engineer of the Alaska Department of Transportation and Public Facilities.

Temporary restriction signs reading LEGAL LIMIT 75% (variable %) OF MAX. AXLE LOAD (R12-6) shall be posted on state highways during spring breakup or at any time when roadway conditions require restriction of weights. These signs shall be posted in conspicuous locations when so ordered by the Regional Director of Operations after suitable public notice. These signs need not be posted on all the affected routes when the restrictions apply to an area. An AXLE WEIGHT LIMIT 5 TONS (variable weight) (R12-2) sign may be mounted under an R12-6 sign.

2B-42 Weigh Station Sign (R13-1)

Delete the last paragraph in the MUTCD and insert the following:

The standard color of the ALL TRUCKS/COMMERCIAL VEHICLES/NEXT RIGHT (R13-1) sign shall be black on white.

2B-42.1 Portable Weigh Station and Traffic Survey Signs

These signs are intended to be temporary signs installed at portable weigh stations and for traffic surveys. The TRUCKS AND PICKUPS USE RIGHT LANE (R16-6) sign, FLAGGER AHEAD (CW20-7F) sign or a FLAGGER AHEAD Symbol (CW20-7) sign, and the TRUCKS AND PICK-UPS STOP 500 FT. (R16-5) sign shall be installed and a Flagger posted in sequence towards the entrance to the portable weigh station.

The TRAFFIC SURVEY (CW21-8) sign and a FLAGGER AHEAD (CW20-7F) sign or a FLAGGER AHEAD Symbol (CW20-7) sign shall be installed and a Flagger posted in sequence approaching the traffic survey pulloff area.

2B-44.1 \$1000 Fine For Littering Sign (R16-8)

Alaska Statutes, Section AS 46.06.100, state "The penalties for littering shall be posted along the public highways of the State, at visitor centers, at entrances to State Parks and recreational areas, at public beaches, and other publicly-owned areas that the Commissioner of Environmental Conservation determines necessary to accomplish the purposes of this chapter. The state agency or municipality responsible for litter removal from a public place shall post the notice required for this section."

The \$1000 FINE FOR LITTERING (R16-8) sign shall also be posted near the State boundary on each primary and secondary highway. The sign should be located so as not to detract from any other sign.

2B-44.2 No Shooting Signs (R16-2, R16-3)

The NO SHOOTING FROM ROADWAY (R16-2) sign or NO SHOOTING WITHIN 1/4 MILE OF THE ROADWAY (R16-3) sign may be posted adjacent to the roadway where shooting on or near the roadway is a proven problem or is likely to occur.

2B-44.3 Chains Required Signs (R12-8 to R12-11)

Signs requiring the use of chains shall not be used except where required by conditions and ordered by the Commissioner. Ice or snow conditions must be such that chains are necessary to prevent traffic congestion and accidents. Signs may not be installed until the Commissioner or the Commissioner's designated representative certifies by means of an order (similar to a speed zone order) that the use of the roadway by vehicles without chains is not permitted.

The CHAINS REQUIRED AHEAD (R12-8) sign may be installed in advance of a location where chains may be installed and the location where they must be used. It should be located at a distance in advance of the installation point as indicated in Table II-1, using the posted speed as the approach speed and "Stop" as the speed at the installation point. Greater distances may be advisable where ice and snow conditions on the roadway require longer stopping distances. The CHAINS REQUIRED ON ALL VEHICLES (R12-9) sign shall be installed where chains are required before a vehicle may proceed.

The INSTALL CHAINS HERE (Arrow) (R12-10) sign may be used to indicate a location such as a wide shoulder, pullout, rest area, or other parking area where a motorist may pull off the road to turn around or to install chains.

Install an END CHAIN AREA (R12-11) sign at the end of the designated roadway section.

2B-44.4 Customs Station Sign (R13-2)

Install the ALL VEHICLES STOP AT CUSTOMS (R13-2) sign between a D8-6 and a D8-8 sign (see Section 2D-45.1 of this [Alaska Supplement](#)). The R13-2 sign should be in place only at such times as the Customs Station is in operation. It should be removed or shielded at all other times. It should be installed 4000 feet in advance of the Customs Station or at the beginning of the deceleration lane, whichever distance is greater.

2B-44.6 Delay of 5 Vehicles Illegal Must Use Turnouts Sign (R16-7)

Intended for use on two lane, rural state highways at locations determined by the Regional Traffic Engineer to alert drivers of slow moving vehicles to use turnouts to prevent delays in areas where passing is difficult. (See 13AAC 02.050)

2B-44.7 Safety Belt Use Required Sign (R16-20)

Intended for use near major state entry points to instruct and inform visitors of Alaska's mandatory safety belt law, and at other points as necessary to remind and encourage residents.

C. WARNING SIGNS

2C-2 Design of Warning Signs

At the end of the last sentence in the third paragraph, substitute Alaska Sign Design Specifications for "Standard Highway Signs."

2C-3 Placement of Warning Signs

On all multi-lane one-way roadways, signs should be mounted on the left as well as on the right.

2C-4 through 2C-8 Turn and Curve Signs (W1-Series)

Delete the last sentence of Sections 2C-4 through 2C-7. In Section 2C-8 third paragraph, delete the remainder of the sentence following "sec. 3D-4." Add the following sentence to 2C-4 through 2C-8.

All W1-series Turn and Curve signs shall be accompanied by an Advisory Speed Plate (W13-1) (see Section 2C-35) when the safe speed on the curve is 8 or more mph below the posted speed limit. Determine the safe speed as follows:

Existing curves: Use ball-bank indicator readings from trial speed runs and Table 2C-5 of this Alaska Supplement.

Curves on design projects: Use the following formula or Figure 2C-4 on the following page:

$$V = 3.87\sqrt{R(S + F)} \quad V = 293.09\sqrt{(S + F)/(D)}$$

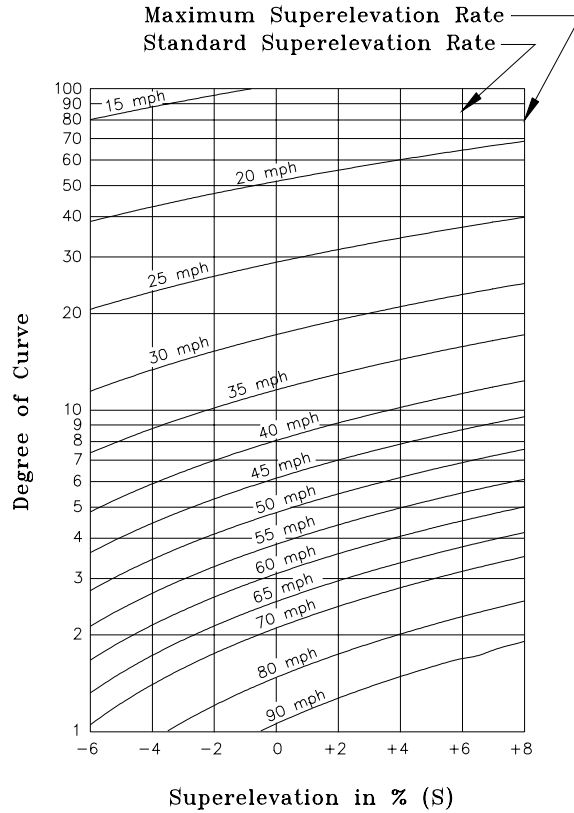
Where:

- V = safe speed in miles per hour
- R = radius of curve in feet
- S = super elevation rate in feet per foot
- F = the friction factor which varies for different speeds as indicated in the table accompanying Figure 2C-4
- D = degree of curve

**Table 2C-5
Safe Speed and Ball Bank Readings**

Safe Speed (mph)	Reading (degrees)
0-20	15.0
25-30	12.5
35-60	10.0

- The posted advisory speed should be the closest 5-mph increment to the speed determined using the Ball Bank method or Figure 2C-4 on the following page.



<p>S = Superelevation F = Friction Factor V = Speed in Miles per Hour D = Degree of Curve</p>
$S + F = \frac{DV^2}{85,900}$

FRICTION FACTOR (F)			
V	F	V	F
15	0.270	50	0.140
20	0.240	55	0.135
25	0.210	60	0.130
30	0.180	65	0.125
35	0.165	70	0.120
40	0.150	80	0.110
45	0.145	90	0.100

Figure 2C-4
Safe Speed on Horizontal Curves

2C-8.1 Horseshoe Curve Sign (W1-9)

Use to indicate a change in horizontal alignment generally in excess of ninety (90) degrees up to one hundred eighty (180) degrees, or when the roadway connecting two curves in the same direction is insufficient to allow independent posting of each curve on a tangent section.

2C-8.2 Returning Curve Sign (W1-10)

Use to indicate changes in horizontal alignment generally in excess of one hundred eighty (180) degrees subject to the same restrictions and installation limitations as provided for the HORSESHOE CURVE (W1-9) sign.

2C-20 Road Narrows Sign (W5-1)

The ROAD NARROWS (W5-1) sign shall not be used to indicate a change in width of shoulders.

2C-20.1 Shoulder Narrows Sign (W5-1a)

The SHOULDER NARROWS (W5-1a) sign is intended for use to indicate a reduction in shoulder width.

2C-25.1 Multiple Lane Signs (W6-4 Series)

MULTIPLE LANE series (W6-4) signs are intended for use on two-way roadways that have no median or divider but have two through lanes in one direction and one lane in the other direction. When installed facing the two-lane approach, they may be accompanied by an auxiliary plaque with the legend "1 LANE OPPOSING." They should be posted near the beginning of the condition and repeated as necessary. At least one sign on each side of intersections should be installed.

2C-34 Low Clearance Signs (W12-2 Series)

LOW CLEARANCE series (W12-2) signs are located on the structure and in advance of the restriction to indicate the clear height from the surface of the traveled way. The UP AND DOWN ARROW (W12-2 Symbol) sign shall be installed in advance of a clearance restriction of 14'-6" or less at a distance as indicated in Section 2C-3 of the MUTCD, using "Condition A." If the clearance is less than 13'-6" an additional W12-2 sign with a "X" MILE AHEAD (W12-2B) distance plate mounted on the same post below the W12-2 shall be installed. The W12-2 sign should be located an appropriate distance in advance of the last intersection where an alternate route may be

taken, using "Stop" as the speed at the condition of concern. Additional signs should be installed beyond this intersection to identify the roadway with the clearance restriction. The distance indicated on the "X" MILE AHEAD (W12-2B) distance plate should be the mileage (to the closest ¼ mile) between the sign and the clearance restriction.

A rectangular clearance (W12-2C) sign may be located over the point of restriction where the clearance is greater than 14'-6" and less than 16'-6". A SINGLE DOWN ARROW (W12-2A Symbol) sign should be located over the point of restriction where the clearance is 14'-6" or less.

2C-34.1 Load Limit Warning Sign (W12-4)

The LOAD LIMIT warning (W12-4) sign shall be used to indicate the presence of a bridge with a restricted load-carrying capacity as determined by an engineering investigation. Use only in conjunction with a W12-2B distance accessory plate indicating the distance from the sign to the condition of concern. The W12-4 sign may be used only if suitable WEIGHT LIMIT (R12) signs are installed at the condition of concern. The W12-4 sign shall be installed as indicated in Section 2C-3 of the MUTCD, using "Condition A," in advance of an intersection where a driver may make a decision to take an alternate route or where a large tractor/semitrailer can turn off the highway.

2C-35 Advisory Speed Plate (W13-1)

The ADVISORY SPEED PLATE (W13-1) sign shall only be installed in conjunction with another appropriate warning sign to indicate the safe speed that may be used to traverse the condition indicated on the primary sign. It shall be installed on the same post directly below the primary warning sign. The speed indicated should be the maximum safe speed estimated for travel through the area of concern under normal, dry-roadway conditions. See Section 2C-4 of this [Alaska Supplement](#) for safe speed on curves. In non-curve situations, the indicated speed will depend on engineering judgment. In order to prevent driver contempt, care should be taken to avoid posting advisory speeds too low.

2C-35.1 Advisory Distance Plates (W13-1A, W7-3A and W12-2B)

The Advisory Distance Plate, NEXT “X” MILES (W13-1A) sign shall only be installed in conjunction with roadway condition signs: WINDING ROAD (W1-5), BUMPS (W8-1A), DIPS (W8-2A), SOFT SHOULDER (W8-4A), etc., where traffic, geometric, surface, materials, and other characteristics are similar throughout the indicated roadway section. This sign is not a substitute warning of any abrupt change of the roadway character. When used, it shall be installed on the same post directly below the primary warning sign. See Sections 2C-26 in the MUTCD and 2C-34 of this Alaska Supplement for use of advisory distance plates to warn of steep hills and bridges with low clearance.

2C-36 Advisory Exit Speed Signs (W13-2, W13-3)

The safe speed at the condition of concern for the W13-2 and W13-3 signs is determined as indicated in Section 2C-35 of this Alaska Supplement.

2C-37.1 End Signs (W14-2A) (W14-2B) (W14-2C)

The END (W14-2A) sign is intended for use in the head-on position at the end of a public road. The END-OF-ROAD (OM-4) marker shall always be mounted below the W14-2A sign.

The END ROAD 1000 FT. (W14-2B) sign shall be installed approximately 1000 feet in advance of the END (W14-2A) sign. In special situations where the distance is substantially less than 1000 feet, the distance on the sign shall be modified accordingly. In other situations, a second W14-2B sign with the appropriate distance may be installed between the initial W14-2B sign and the W14-2A sign.

Use the END MAINTENANCE 1500 FT. (Variable Distance) (W14-2C) sign in conjunction with the NO ROAD MAINTENANCE (R11-5) sign or STATE MAINTENANCE ENDS (M8-2) sign to warn of the approach of a road section which will temporarily not be maintained. Install 500 to 1500 feet in advance of the R11-5 sign with the appropriate distance figure in the legend, as indicated by conditions.

2C-40.1 Slide Area Signs (W16-1, W16-2)

The SLIDE AREA (W16-1) sign shall be installed an appropriate distance in advance of the beginning of a known slide area using Section 2C-3 of the MUTCD

and “Stop” as the speed at the condition of concern. A slide area is defined as any section of roadway where rocks, snow (avalanches), or other natural debris may be expected to encroach on the roadway and create a condition that requires caution on the part of the motorist. The END SLIDE AREA (W16-2) sign shall be installed on the right in the vicinity of the end of a slide area only where W16-1 signs have been installed at the beginning of the slide area. The SLIDE series signs shall be removed if the slide condition ceases to exist. In some areas, this may require periodic installation and removal of the signs.

2C-40.2 Icy Sign (W16-3)

The ICY (W16-3) sign is intended for use to alert the motorist driving at normal speeds on ice-free pavement of an isolated condition that is not readily apparent. It shall not be used to define a general, overall road condition. ICY signs shall be removed or covered if icy conditions cease to exist for a period in excess of 48 hours.

2C-40.3 Flooded Sign (W16-4)

A FLOODED (W16-4) sign shall be installed on the right an appropriate distance in advance of a flooded section of road using Section 2C-3 of the MUTCD and “Stop” as the speed at the condition of concern. For the purpose of such postings, a road is considered flooded when the depth of water flowing across the road requires a motorist to make more than an 8 mph reduction in speed from the 85th percentile approach speed. Due to the emergency nature of most flooded conditions, the above speeds may be estimated rather than calculated. FLOODED signs shall be removed or covered if the flooded condition ceases to exist for a period in excess of 48 hours.

2C-40.3.1 Avalanche Area Signs (W16-5, W16-6)

The AVALANCHE AREA (W16-5) sign shall be erected on the right, an appropriate distance in advance of the avalanche area using Section 2C-3 of the MUTCD and “Stop” as the speed at the condition of concern. An avalanche area is defined as any section of road where major snowslides (avalanches) may be expected to encroach within the roadway creating a caution condition for motorists. The W16-5 sign shall always be followed by a W16-6 sign, and neither sign shall be left in place after the avalanche danger has abated. This will probably require annual placement of these signs.

The AVALANCHE AREA ENDS (W16-6) sign shall be erected on the right, at the end of an avalanche area posted with W16-5 signs.

2C-40.4 Wind Area Sign (W16-7)

Install a WIND AREA (W16-7) sign to indicate the location of places where winds regularly reach velocities that substantially affect the driving task. WIND AREA signs should be removed during those seasons of the year when high winds are unlikely.

2C-40.5 Rocks Sign (W16-8)

The ROCKS (W16-8) sign should only be installed in advance of rock cut areas where falling rocks or rocks on the road may be encountered by motorists. These signs should not be overused.

2C-40.6 End Freeway ½ Mile Sign (W16-10)

Install an END FREEWAY ½ MILE (W16-10) sign to indicate the end of a multilane, divided roadway facility with full access control and no at-grade intersections. Install on the right and left approximately one-half mile in advance of the first access where through traffic may encounter cross-traffic and a definite change in the facility is obvious (entering two-lane facility or city street section). It should not ordinarily be used at transitions from freeways to expressways (multilane divided roadway with access control and at-grade intersections).

2C-40.7 Road Closed Ahead (W14-5A) and Bridge Closed Ahead (W14-5B)

The ROAD CLOSED AHEAD (W14-5A) and BRIDGE CLOSED AHEAD (W14-5B) signs shall be installed using Section 2C-3 of the MUTCD and “Stop” as the speed at the condition of concern, in advance of an intersection where a driver may divert to an alternate route. Additional signs should be installed beyond this intersection to identify the roadway with the closure. The ADVISORY DISTANCE PLATE (W12-2B) shall be used in conjunction with the W14-5A or W14-5B sign.

2C-40.9 Aircraft Sign (W16-9)

The AIRCRAFT (W16-9) sign is intended for use in those areas where low-flying aircraft may be encountered, such as roadway passes near the end of an airfield.

2C-40.10 Jetblast Area Signs (W16-12, 16-13)

The JETBLAST AREA (W16-12) sign is intended for use in advance of a section of roadway, using Section 2C-3 of the MUTCD and “Stop” as the speed at the condition of concern, which is subject to high winds and subsequent flying debris from aircraft exhausts. It should be used in conjunction with NO STOPPING OR STANDING (R7S-104) signs that are posted from boundary to boundary of the affected area. The END JETBLAST AREA (W16-13) sign may be used where the limits of exposure are not immediately obvious.

2C-40.10.1 Water Crossing Sign (W16-14)

The WATER CROSSING (W16-14) sign is intended for use to warn of a dip or ford where the roadway is normally underwater. It should not be used where water only occasionally and temporarily crosses the roadway due to heavy local rains or flash floods.

2C-40.11 No Warning Signs Ahead Sign (W16-11)

The NO WARNING SIGNS AHEAD (W16-11) sign may be used on low-volume roads with the following characteristics:

1. Functional classification as an access road
2. AADT of less than 25
3. Soil or gravel surface

The Commissioner shall designate state highways to receive this sign pursuant to a study and recommendation by the Regional Traffic Engineer.

When used, it shall be installed close to the milepoint designated as the beginning of the no warning signs area, and may also be installed at intermediate milepoints along the road or road section if conditions warrant.

The ADVISORY DISTANCE PLATE (W13-1A) shall be used in conjunction with the W16-11 sign.

2C-40.12 Slow Moving Vehicles Sign (W7-6)

The SLOW MOVING VEHICLES (W7-6) sign is intended for use on roadways where there may be vehicles moving substantially slower than the established speed limit.

D. GUIDE SIGNS – CONVENTIONAL ROADS

2D-5 Lettering Style

Delete the paragraph in the MUTCD in its entirety and insert the following:

The standard lettering for conventional highway signs shall be standard uppercase, except for proper names on guide signs indicating destination (D1 and D2 Series), physical features (I-2 to I-3A), and street names (D3-1B to D3-2). These shall consist of lower case letters with an initial uppercase letter. The letter styles shall conform to the Alaska Sign Design Specifications.

2D-6 Size of Lettering

Delete the second to the last paragraph in the MUTCD and substitute the following:

Expressway and freeway destination and distance guide signs shall have legends of the size indicated in Sections 2E-11 and 2F-11 of the MUTCD. On major urban roads without access control, the principal legend on D-Series guide signs shall be 8.0-inch uppercase/6.0 inch lowercase letters. On any road with a speed limit of 45 miles per hour or higher, the principal legend on D-Series guide signs should be 8.0-inch uppercase/6.0 inch lowercase letters. Other D-Series guide signs shall have a minimum principal legend of 6.0-inch uppercase/4.5-inch lowercase letters.

2D-11 Design of Route Markers (M1-1 to 7)

Delete paragraph number “4” in the MUTCD and insert the following:

4. The State of Alaska Route Marker shall be an M1-6 sign as indicated in the Alaska Sign Design Specifications.

2D-33.1 State Maintenance Begins/Ends Signs (M8-1, M8-2)

The STATE MAINTENANCE BEGINS (M8-1) sign may be installed at the point on the roadway where maintenance becomes the responsibility of the Department of Transportation and Public Facilities.

The STATE MAINTENANCE ENDS (M8-2) signs may be installed at the point on the roadway where

maintenance becomes the responsibility of another agency or private party as required by the Regional Directors of Maintenance and Operations, or their designee (see Section 2B-39.1 of this Alaska Supplement).

The M8-1 and M8-2 signs shall be installed on the right at the maintenance area boundary.

2D-33.2 Odometer Check Signs (M9-1 to M9-3)

Where appropriate, a measured distance (third order accuracy) may be established on a generally straight roadway section to check odometer mileage.

2D-35 Destination Signs (D1-1 to D1-3)

In addition to guidance by route markers, it is necessary to direct traffic to communities and other destinations on the route and on other roads intersecting the state route. Destination and mileage signs should only be used where they will provide a significant traffic service.

It is not feasible to place signs along highways listing all possible destinations that may be reached from the highway. Normally, a single community, facility, or other feature readily identifiable from a road map can be used to direct motorists to other less important destinations on the same route. Every effort must be made to correlate mileage and destination signs with features readily identifiable on conventional service station tourist maps.

It should be clearly understood that although the following criteria must be met before a directional sign can be considered, they are not warrants and do not guarantee placement of signs. On state highways, it is the responsibility of the Regional Traffic Engineer to consider other factors such as interference with primary signing and other destinations that now or will in the near future compete for sign space.

1. Signs may direct to the following places, consistent with the foregoing discussion:
 - A. Incorporated cities.
 - B. Unincorporated communities with a post office.
 - C. Major parks or monuments.
 - D. Lakes and mountain passes in areas where there are no other places of greater importance.
 - E. Rivers, valleys, and other geographical points if they identify areas.
 - F. Sports arenas, fairgrounds, theaters, and other public or private attractions that are major driver attractions.
2. Military installations, churches, schools, city parks, public buildings, businesses, subdivisions, clubs, shopping centers, post offices, courthouses, zoos, museums and other places of a local nature normally will not be signed. Signing may be considered for a nonqualifying facility which is the principal destination from the interchange or cross road, and which cannot be identified with a road or community. To qualify, such a facility should be located where there is no qualifying destination signed and motorists could not reasonably be expected to find their destination without signs, even with the aid of a map.
3. Dams, reservoirs, mountain peaks and other geographical features should be signed only when necessary to indicate direction or to identify areas; or if they are the principal destination and a significant one from the interchange or cross road, and cannot be identified with a road name or community.
4. Airports that have regularly scheduled commercial air travel and mail pickup, or airports that are owned and operated by political subdivisions, may be signed from conventional highways and expressways. On freeways, signs will be provided only to those airports which have regularly scheduled air carrier and mail service, or where there is an off-ramp which

serves the airport as either the only or the principal destination. AIRPORT (I-5) signs should generally be used unless there are two or more airports with significant traffic within a municipality.

2D-36 Location of Destination Signs

Delete the first and third paragraphs in the MUTCD and insert the following:

Signing in advance of major intersections on a state-numbered route in rural areas will normally consist of a non-mileage destination (D1-1, D1-2 or D1-3) sign which may be located up to 1200 feet in advance of the intersection, spacing the sign as is appropriate with respect to directional assemblies (see 2D-31) and advance warning signs (Sections 2C-11 through 2C-17). They should be located in advance of the intersections at least the distance indicated in Section 2C-3 of the MUTCD and using “Stop” as the speed at the condition of concern.

A MILEAGE DESTINATION sign (D1-1A, D1-2A, or D1-3A) may be located either on the near-right quadrant of the intersection (adjacent to the R1-1 STOP sign), head-on at the intersection, or 200 feet in advance of it.

A D1 series sign should be followed with a distance sign (D2-1, D2-2 or D2-3) beyond the intersection (see Section 2D-38).

On minor state highways that are not through routes, with an ADT of 500 or less, only the mileage destination sign D1-1a, D1-2a, or D1-3a need be used. Either mileage or non-mileage destination signs may be used as needed on channelized intersections.

2D-39 Street Name Signs (D3 Series)

Delete the first paragraph in the MUTCD and insert the following:

STREET NAME signs should be installed at all intersections with public roads, rural and urban, to identify the cross street and to reduce erratic driver maneuvering due to indecision.

Insert the following after the last paragraph:

ADVANCE STREET NAME (D3-1C and D3-2) signs may be used to provide the motorist with advance warning of an intersecting road and inform

the driver of the road name for direction and orientation purposes. ADVANCE STREET NAME (D3-1C and D3-2) signs should be installed in advance of all intersections on limited or controlled access facilities where no destination signs are in place.

ADVANCE STREET NAME (D3-2) signs should be installed on the right 300 to 600 feet in advance of the intersection on rural roads and limited access facilities, and ½ block in advance of intersections in urban areas.

The ADVANCE STREET NAME sign may be combined with other information on a non-mileage destination (D1-1 and D1-3) sign.

MAJOR STREET NAME (D3-1B) signs shall be used on all expressways and major arterials at urban or suburban signalized intersections to indicate the location and name of roadways. They shall be installed overhead and to the far right-hand side of the intersection on traffic signal poles or mast arms. When mounted on the mast arm, they shall be horizontal.

2D-40 Parking Area Sign (D4-1)

Insert the following at the end of the Section:

The PARKING AREA (D4-1) sign shall not be used on rural routes.

2D-42 Rest Area Signs (D5-1 to D5-5)

Delete the third and fourth sentences in the MUTCD and insert the following:

Use the REST AREA (D5-5A Symbol) sign in conjunction with, and following the guidelines for, D9 series signs (Section 2D-45).

2D-42.1 Tourist Information Signs (I-15 to I-23)

TOURIST INFORMATION CENTER and WELCOME CENTER signs may be installed on highways other than freeways when the applicant complies with 17 AAC 60 and the following criteria are met:

1. There must be a minimum of ten (10) off-street parking spaces provided.

2. The tourist information center shall be located adjacent to the highway.
3. The tourist information center must have information about the surrounding region as well as the area near the center.

The name of the operating agency, community, group, or enterprise shall not appear in the legend of the sign.

Facilities to be designated as tourist information centers must have the approval of the Regional Traffic Engineer before signs are fabricated and installed. The operating agency shall purchase and install the original signs.

2D-42.2 Slow Vehicle Turnout Signs (D-22A and B)

The SLOW VEHICLE TURNOUT (D9-22A) and SLOW VEHICLES USE TURNOUTS NEXT _____ MILES (D9-22B) signs are intended for use to indicate the location of turnouts provided primarily for slow-moving vehicles that impede traffic on two-lane rural highways. These signs shall only be used to indicate turnouts to the right. NO PARKING (R8-3) signs may be installed within the turnout.

2D-43 Scenic Area Sign (D9-100)

Delete the first sentence in the MUTCD and insert the following:

Use the SCENIC VIEW SYMBOL (D9-100) sign following the guidelines for D9 series signs. See Section 2D-45 of the MUTCD.

2D-43.1 Seeker Signs (D7-5)

SEEKER (D7-5) signs may be installed beneath the PARK, RECREATION, and HISTORIC SITE signs. The SEEKER sign should be used to indicate the location of points of major visitor interest which are significant destinations attracting 10 or more vehicles per day.

They may be installed if such a site has a parking area sufficient to store 5 or more vehicles at least 30 feet off the traveled way. The entrances and exits to the area must be such that there is sufficient stopping sight distance.

Locations suitable for the installation of SEEKER signs must be determined following an investigation

to determine the importance of the site as a major destination and the suitability of the facilities at the site.

If the Regional Traffic Engineer is of the opinion that a site qualifies for signing but does not meet the above requirements, a request for exception shall be submitted to the State Traffic Engineer including:

1. Reasons for SEEKER sign placement
2. Nature of the major attraction
3. Physical characteristics of the site for traffic operation
4. Location of the proposed signs
5. Any other justifying information

2D-43.2 Watchable Wildlife Signs (AK- D7-5a)

The WATCHABLE WILDLIFE sign may be used to direct motorists to WATCHABLE WILDLIFE sites identified in Alaska's Watchable Wildlife Book. Selected sites must be accessible to the motoring public and have a safe traffic pullout.

On state highways, the Regional Traffic Engineer must approve identified watchable wildlife sites before they are signed.

Use the WATCHABLE WILDLIFE signs (AK- D7-5a) following the guidelines for D9 series signs. See Section 2D-45 of the MUTCD.

WATCHABLE WILDLIFE signs may be installed on the same post as guide, recreational, general service, and similar signs. They may not be mounted on the same post as regulatory or warning signs.

2D-44.1 Customs Station Signing (D8-6 to D8-8)

CUSTOMS STATION (D8-6 through D8-8) signs shall take precedence over all service and information signing. The following four signs shall be installed in sequence toward the facility on all classes of highways:

1. CUSTOMS 1 MILE (D8-6C)
2. ALL VEHICLES STOP AT CUSTOMS (R13-2)
3. CUSTOMS 1000 FT. OPEN/CLOSED (D8-8)
4. CUSTOMS (Arrow) D8-7R or L

See also Section 2B-44.4 of this [Alaska Supplement](#).

2D-45 General Service Signs (D5-5A, D9 Series)

Insert following the third paragraph:

Due to the sparse settlement of rural Alaska, it may be advantageous to place motorist service signs on expressways and conventional highways. These motorist services include GAS (D9-7) DIESEL (D9-7A), FOOD (D9-8), AND LODGING (D9-9) signs. They may be installed if the applicant complies with 17 AAC 60.

ARROW signs may be installed on conventional highways in advance of the turn to the facility. They should not be mounted in conjunction with other sign types, but if more than one qualifying service exists at a given turn, all such signing should be mounted together.

As with all signs installed within the public right-of-way, service signs are installed solely for the benefit of the motorist and are not considered promotional media for business establishments. Service signs shall be installed only when the particular service is available within one mile of the interchange and meets all of the requirements for that particular service sign.

General Service (D9 series) signs may be installed when the location meets the criteria indicated below. D5 and D9 series signs shall not be intermixed with work-legend service signs.

1. A camping area is typically located adjacent to a lake, creek, or river in an area with scenic, historic, or recreational interest such as a trailhead. It may include a firewood stock, shelters, a developed water supply, and sanitary dump facilities for campers or trailers. It must include a parking area, picnic tables, litter disposal facilities, toilets, and locations where campers may be parked and/or tents erected.
2. A rest area is similar to a camping area except that overnight camping facilities are generally not provided. It must have a parking area, picnic tables, litter disposal facilities, and toilets.
3. A parking area is generally more modest than a rest area and does not include toilets. It may include picnic tables, and must include litter disposal facilities and at least a 1600 square-foot area separate from the highway for vehicles to

park. The typical truck turnout created by widening the roadway is not considered a parking area since it is not separate from the roadway.

4. A scenic viewpoint is a turnout or parking area with a particularly attractive view of an identified feature.
5. A food service facility is a café, snack bar, or restaurant permitted by the Division of Environmental Health, Alaska Department of Environmental Conservation. As a minimum, it must provide hot sandwiches and coffee, a public telephone, and modern sanitation facilities, and be open for business to the public at least 16 hours per day, 7 days a week.
6. Telephones qualify if they are readily accessible to the public for all types of calls 24 hours per day, 7 days per week.
7. Gasoline may be identified if the facility sells both motor oil and gasoline in commercial quantities from pumps licensed by the Department of Transportation and Public Facilities Division of Measurement Standards and CVE, at least 16 hours per day, 7 days a week. The availability of diesel fuel, tires, electrical service, restrooms, an automobile hoist, and qualified service technician shall be considered in the case of competing facilities.
8. Lodging must consist of at least beds and bedding in a permanent, all-weather, heated building equipped with toilet and bathing facilities for at least 10 hours per night throughout the week.
9. A hospital is a permanent medical facility that serves the public with 24-hour emergency medical service and has a licensed physician readily available.
10. An Emergency Medical Service (Star-of-Life Symbol) facility should be staffed by Emergency Medical Technicians certified by the Division of Emergency Services, Alaska Department of Social Services, readily accessible, and manned 24 hours a day. The signed location should be the dispatch point for the EMS, not necessarily the garage for the ambulance.

HOSPITAL (D9-2) signs and EMERGENCY MEDICAL SERVICE (D9-13) symbol signs may be installed within urban areas and should be posted to mark each turn from the adjacent major or through highway to the emergency service entrance to the facility.

CAMPING (D9-3 series) (with D9-12 SANITARY DUMP), REFUSE DISPOSAL SITE (D9-17), and TOURIST INFORMATION (D9-10 AND I-15 TO I-23) signs may be used in urban areas, but should be kept to a minimum.

2D-46 Mileposts (M10 Series)

Delete the last sentence of the first paragraph, the second, third and fourth paragraphs, and the first sentence of the fifth paragraph in the MUTCD. Insert the following:

Because MILEPOSTS are used as permanent location references on Alaskan highways for residences, businesses and topographical features, they are not ordinarily changed when a road segment is reconstructed or realigned, and therefore do not necessarily correspond to actual mileage along a route.

On route relocations, MILEPOSTS should be placed at an equivalent spacing on the relocated section to match the original orientation. MILEPOSTS beyond or in advance of a rebuilt section should not be adjusted to reflect a change in the rebuilt section.

ROUTE MILEMARKERS (M10-2) indicate the milepoints along state routes not previously marked. Numbered miles shall be marked starting at the south or east terminus of the route or at the connection point on a spur route. Where two routes become the same roadway, only the milemarkers for the lower number state route shall be installed. However, when the routes again diverge, the mileage for the higher number state route shall resume as if it had continued through the combined section.

M10 series signs shall be installed on the east side of the roadway on North-South routes and on the north side of the roadway on East-West routes. Install 15 to 30 feet from the edge of the traveled way oriented at 90 degrees to the roadway, with two legends back-to-back.

2D-48 General Information Signs

The ENTERING (LEAVING) ALASKA TIME ZONE CHECK TIME AT CUSTOMS (D12-3A & B) sign shall be placed at a reasonable distance, where possible, between the border and customs station for effect, yet shall not interfere with the sequence of D8-6 through D8-8 signs (see Section 2D-44.1, Alaska Supplement), or other traffic control devices.

2D-70 Fire Hydrant Sign (M12-1)

The FIRE HYDRANT (M12-1) sign is intended for hydrants that are hard to see. It may be installed adjacent to a hydrant. A number sequence as designated by the local fire department may be included on the sign.

J. SIGNING FOR CIVIL DEFENSE

2J-3.1 Tsunami Evacuation Route Sign (AK CD-1A)

Tsunami signs guide people to safe ground when a tidal wave approaches. They may be installed on state highways only after a Regional Traffic Engineer has approved a tsunami evacuation route plan done by the Alaska Division of Emergency Services (ADES). The plan must be done in accordance with the procedure transmitted under cover of a memo from Robert E. Heavilin, ADES Director, to Michael Downing of the DOT&PF on March 16, 1998.

Although smaller signs are acceptable in turnouts and pedestrian walkways, only the 24-inch diameter round TSUNAMI EVACUATION ROUTE AK CD-1A sign is acceptable for posting along state highways. The sign shall be white on blue.

Communities desiring tsunami signs should submit their requests to the ADES.

S. SPECIAL SIGNS

This is a new Section. There is no corresponding Section in the MUTCD.

2S-1 Highway Fatality Memorial Signs

Highway Fatality Memorial Signs memorialize victims of fatal highway accidents. The PLEASE DON'T DRINK AND DRIVE (AK SP1-1) sign is used when a legally drunk driver caused the fatal accident. This sign must be used in conjunction with one of the following:

1. An IN MEMORY OF . . . (AK-SP1-3) plaque, when the deceased was a victim of a drunk driver; OR
2. A SPONSORED BY . . . (AK-SP1-4) plaque, when the deceased was the drunk driver.

The PLEASE DRIVE SAFELY (AK-SP1-2) sign is used in other cases and must be used in conjunction with the AK-SP1-3 plaque.

Month and year of installation shall be clearly marked on the back of each sign and plaque with a long-lasting black paint.

Before installation on state highways, the DOT&PF Regional Office Right-of-Way Chief, or designee, must approve the use of these signs in keeping with the Highway Fatality Memorial Sign Program. Applicants for the signs must pay a fee and comply with program requirements.

These are the only memorials allowed within state highway right-of-way.

Part III. MARKINGS

B. APPLICATIONS OF PAVEMENT AND CURB MARKINGS

3B-4 Application of No-Passing Zone Markings

Delete the fourth paragraph in the MUTCD and insert the following:

Intersections: A one-way no-passing marking may be placed on any approach to an intersection and should be placed on the stopped approaches to prohibit passing during the last five seconds at the posted speed. See Table 3B-4 of this Alaska Supplement.

The minimum length of the no-passing zone for one direction of traffic shall be not less than 500 feet. The minimum gap in successive no passing zones for one direction of traffic shall be not less than ten seconds travel at the 85th percentile, or the posted speed, whichever is higher.

Where placement depends on advance time of travel, Table 3B-4 gives equivalent distances. Distances are rounded to the nearest 5 feet.

**Table 3B-4
Distance Traveled (Feet)**

Speed (MPH)	Time (sec.)	
	5	10
15	110	220
20	145	295
25	185	365
30	220	440
35	255	515
40	295	585
45	330	660
50	365	735
55	405	805
60	440	880
65	480	955
70	515	1030

3B-18 Crosswalks and Crosswalk Lines

Delete the second paragraph in the MUTCD and insert the following:

Where crosswalks are marked on approaches controlled by traffic signals or stop signs, “border” crosswalks should be used. Where crosswalks are marked at other locations, “ladder” crosswalks should be used.

Border crosswalks shall be marked with two 24-inch white lines perpendicular to the road and separated by at least ten feet. See Figure 3-14 (a) in the MUTCD.

Ladder crosswalks shall be marked with a series of 24-inch (minimum) white lines at least ten feet long parallel to the road. The gap between the “rungs” should not be less than the width of the stripe. The rungs should be located out of wheel paths to the extent possible. See Figure 3-14c in the MUTCD.

Insert the following wording at the end of the Section:

1. Marked crosswalks shall be placed at the following locations:
 - A. At officially designated school crossings.
 - B. At intersections controlled by traffic signals where pedestrian phases are used.
2. Marked crosswalks may be placed on stopped intersection approaches where pedestrian crossing is allowed.
3. At other locations, marked crosswalks may be installed at crossings not controlled by traffic signals or stop signs when an engineering study indicates they would be beneficial. The following factors shall be considered in making that judgment:
 - Marked crosswalks at uncontrolled locations should be used only where there is a need to concentrate pedestrian crossing at certain points along the roadway and/or to mark the desired pedestrian crossing path at locations where it is not obvious.
 - Marked crosswalks should not be used as safety improvements at uncontrolled crossings because studies have shown they do not improve safety there.
 - Marked crosswalks should not be installed at uncontrolled crossings where

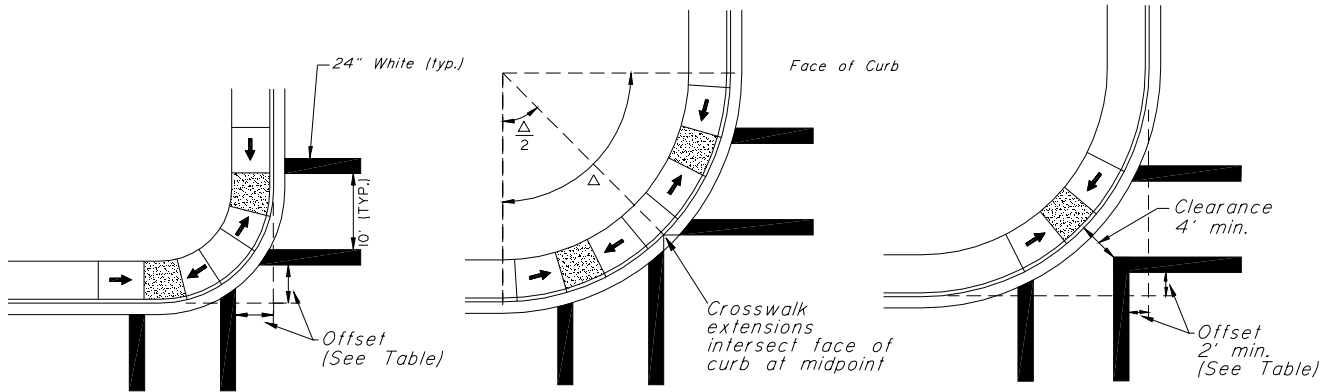
visibility distance of pedestrians or the crosswalk would be less than the “Stopping Sight Distance for Design” given in the latest version of the AASHTO A Policy on Geometric Design of Highways and Streets. Desirably, crosswalks would only be installed where there is sufficient sight distance to allow 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).

- Crosswalks should not be installed at uncontrolled locations where they will encourage pedestrians to divert from nearby signalized or grade-separated pedestrian crossings. It is reasonable to expect pedestrians to walk a block (300 to 600 ft.) out of their way to a better crossing location.
 - In general, marked crosswalks work better and are more likely to be complied with where speeds are low, roads are narrow, and pedestrian volumes are high.
4. At mid-block crossings, parking shall be prohibited for at least 40 feet in advance of the crosswalk and at least 20 feet beyond the crosswalk for each direction of approaching traffic. Prohibiting parking 100 feet in advance and 50 feet beyond the crosswalk is desirable. These provisions do not apply when the curb is extended to near the edge of the parking lane at the crosswalk.
 5. Locate crosswalks at intersections as shown in Figure 3B-18 on the following page.

3B-24 Markings for Climbing and Passing Lanes

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

See Section 2B-24 for pavement marking layout for climbing and passing lanes.



CASE 1
Dual Curb Ramps
Radius $\leq 25'$

CASE 2
Dual Curb Ramps
25' Radius $\leq 50'$

CASE 3
Single Central Curb Ramp
25' Radius $\leq 50'$
(Not Recommended)

CASE 1	
Crosswalk Offset From Face of Curb	
Radius (ft.)	Offset (ft.)
5	5
10	6
15	7
20	8
25	9

CASE 3	
Crosswalk Offset From Face of Curb	
Radius (ft)	Offset (ft)
25	2
30	3
35	5
40	6
45	8
50	9

NOTES:

1. The crosswalk locations shown in Figure 3B-18 assume a 90-degree intersection – adjust as necessary on skewed intersections to ensure that crosswalk landings (for parallel curb ramps) or ramp runs (for perpendicular curb ramps) fall within the inner edges of crosswalk strips. If Case 3 (not recommended) is used, the layout should also be adjusted to provide at least the minimum clearance while maximizing the offset.
2. Although border crosswalks are shown, these details apply to ladder crosswalks also. When used, the outside of 10' wide ladder crosswalks should coincide with the inside of border crosswalks as shown here.
3. If only one crosswalk connects with a curb radius, it should be located as if there were two connecting crosswalks.
4. Case 3, the layout for a single central curb ramp, should be used only when installing two ramps is not feasible. It should not be used for radii under 25 feet.
5. Radius is measured to the face of curb.

Figure 3B-18
Crosswalk Location at Intersections

C. OBJECT MARKINGS

3C-2 Objects in the Roadway

Type 1 Object Markers (OM-1) should be mounted directly below:

1. Each R4-7 sign on the lead end of a median
2. Each W12-1 DOUBLE ARROW sign

They may be mounted directly below each W1-6 and W1-7 ARROW sign.

3C-3 Objects Adjacent to Roadway

Type 3 Object markers should be installed at bridges when any of the following conditions exist:

1. Total road width (shoulders plus traveled way) on the bridge is narrower than the total road width of the approaching roadway.
2. Total two-way road width is less than 18 feet.
3. No guardrail is attached to the bridge end.

Type 3 Object markers may be installed at other bridges.

Object markers should be on the nearest guardrail post to bridge abutments when there is an approach guardrail. When there is no approach guardrail, they should be mounted on the end of the bridge rail or on a separate post.

D. DELINEATION

3D-4 Delineator Application

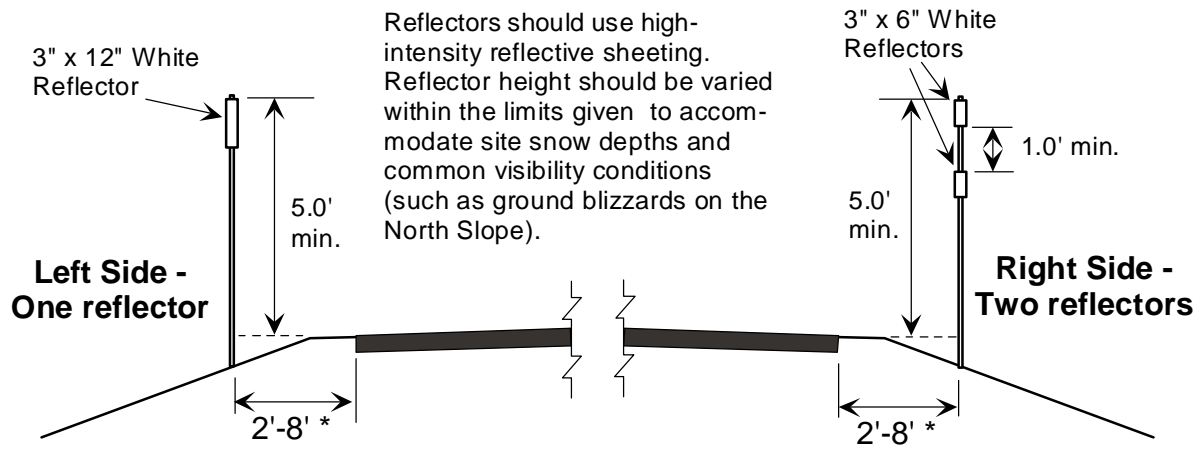
Add the following:

Install delineators in accordance with Table 3D-4 on the following page. Delineators may also be used for applications not covered by the table, including safety emphasis areas. See Section 3D of the MUTCD for additional guidance.

Construct snow pole delineators in accordance with Figure 3D-4.1 and Figure 3D-4.2 on pages 39 and 40 of this Alaska Supplement. Snow poles may be installed in three layout patterns: opposite, one-side, or staggered. The opposite layout, where poles are placed directly across from each other, is most desirable because drivers just drive through the “gate” between the poles in low-visibility conditions. The one-side arrangement has the advantage of being less expensive than the opposite layout (at a given spacing) and of not confusing drivers as to whether they should drive to the left or right of a pole. The staggered arrangement is least desirable because drivers sometimes lose count when they can only see one delineator at a time and forget whether they should drive to the left or right.

**Table 3D-4
Delineator Application**

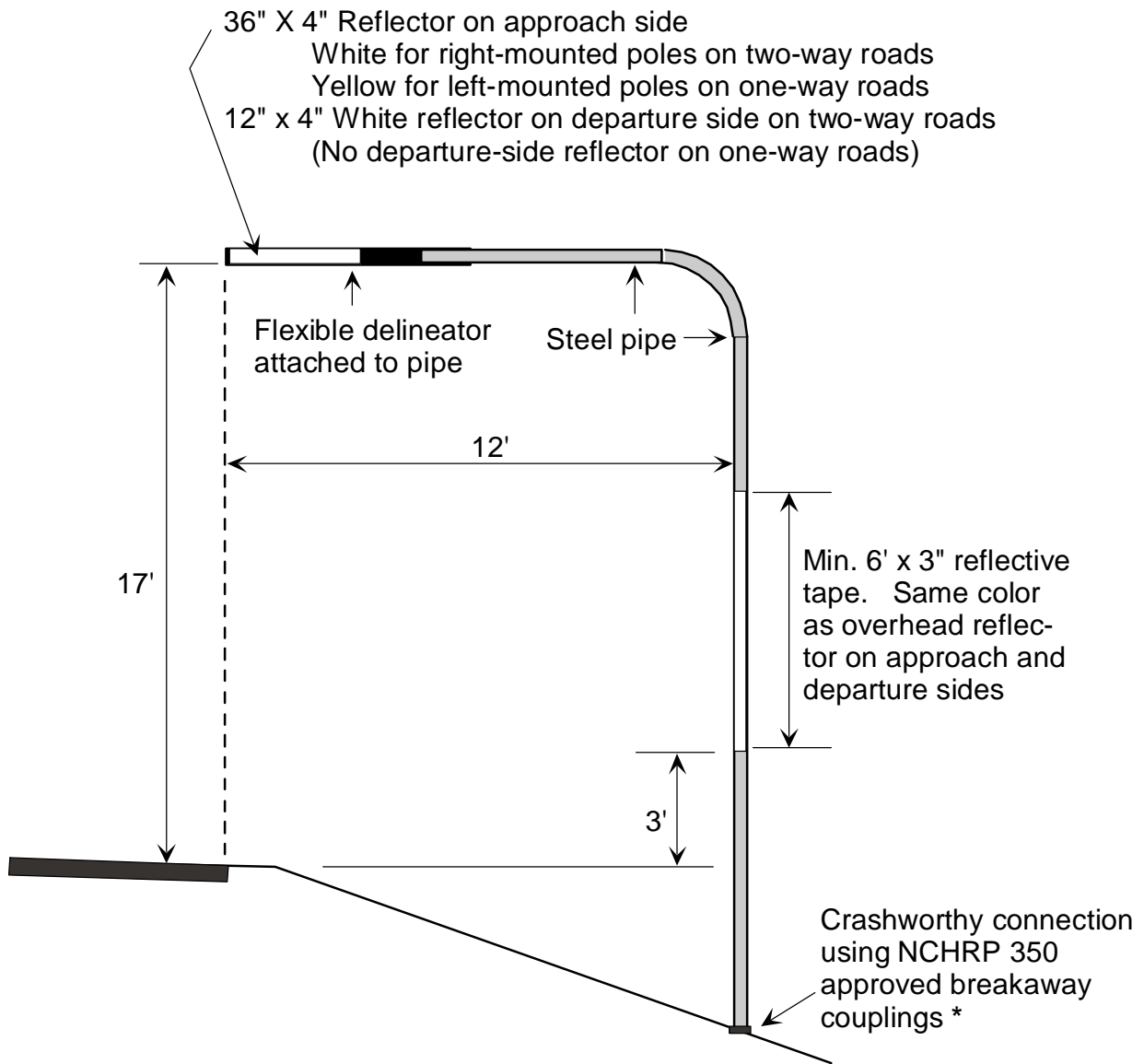
Application	Required/ Optional	Delineator Type	Spacing		Offset	Post Material	Notes
			Tangent	Curves <40 MPH			
Right side of Freeways and Expressways, and one side of interchange ramps	Required except when exempting conditions of MUTCD Section 3D-4 are met	See MUTCD Section 3D-2 and 3D-5	See MUTCD Section 3D-5	See MUTCD Section 3D-5	8'	Crash-worthy support (NCHRP-350)	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 3D-2 and 3D-5 (double height reflector)	See MUTCD Section 3D-5	See MUTCD Section 3D-5	2' – 8'	Crash-worthy support (NCHRP-350)	Delineators provide better guidance to motorists when they are placed close (2') to the edge of the traveled way. However,
Areas with poor winter visibility	Optional	Shoulder snow pole (see drawing)	200' max.	100' max.	2' - 8'	Crash-worthy support (NCHRP-350)	offsets nearer 8' make road maintenance easier. Maintenance workers should be consulted when determining delineator offsets
Areas with poor winter visibility and extremely heavy snow accumulations	Optional	Overhead snow pole (see drawing)	200' max.	100' max.	12'	Steel pipe, concrete fdn, breakaway base	
Guardrail End Terminals (GETs)	Required On state highways	Terminal Marker Posts	On every GET	On every GET	At GET	Round orange plastic tube with 2-3" white reflective strips	



Reflectors should use high-intensity reflective sheeting. Reflector height should be varied within the limits given to accommodate site snow depths and common visibility conditions (such as ground blizzards on the North Slope).

* 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.

**Figure 3D-4.1
Shoulder 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.

Figure 3D-4.2
Overhead Snow Pole

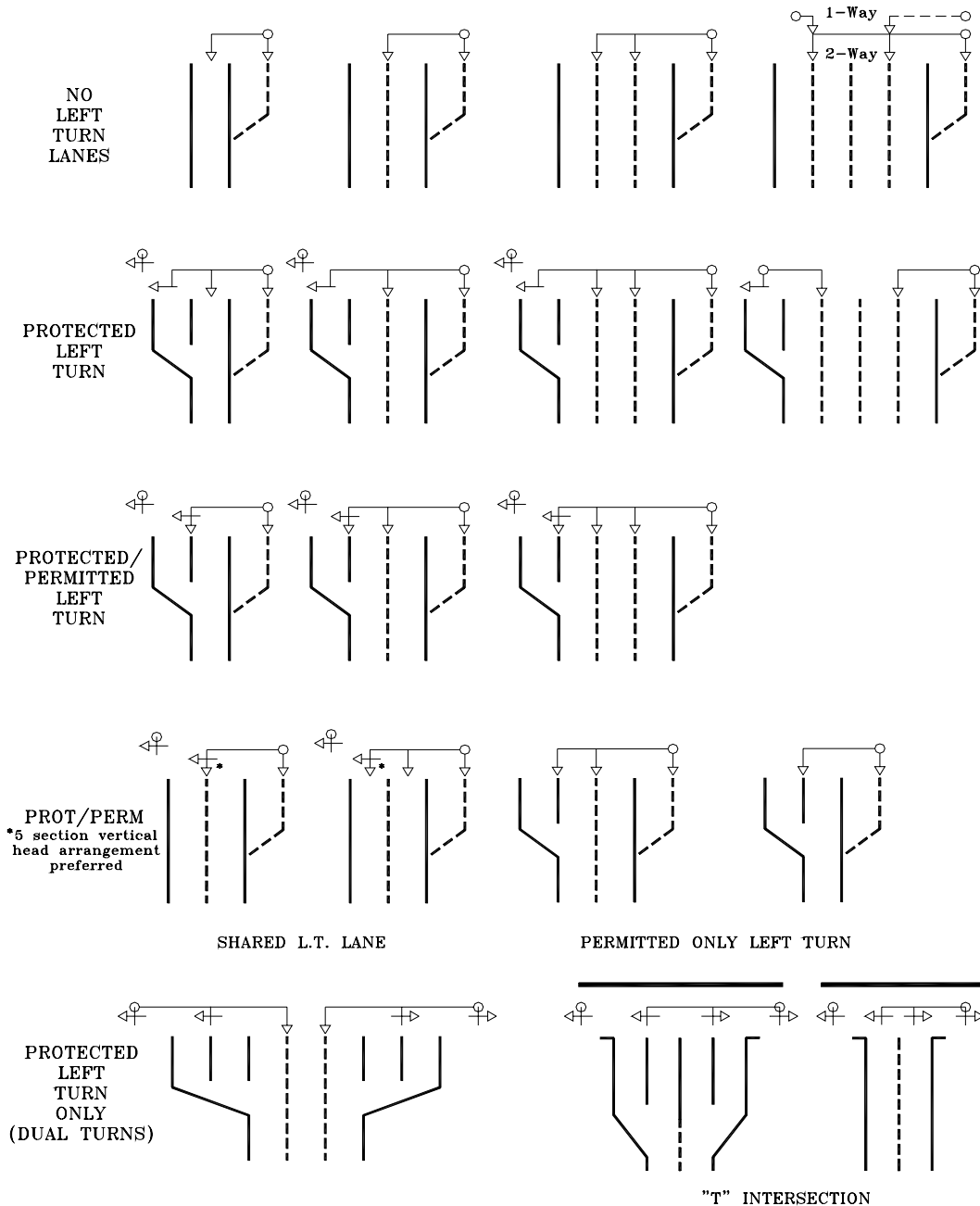
Part IV. SIGNALS

B. TRAFFIC CONTROL SIGNALS

4B-12.1 Number and Location of Signal Faces

Insert the following wording at the end of this Section

Table 4B-12 shows typical signal head locations at various intersections.



NOTE: Near-side heads (not shown) may be needed on wide intersections.

Figure 4B-12
Typical Signal Head Locations

Add "or R10-13" after R10-12" at the end of Section 4B-12.3(c)(4) Protected and Permitted Mode.

Insert the following after Section 4B-12.11.

12. Vehicular signals shall consist of the following minimum configurations for each approaching direction:
 - A. The primary indicator for through traffic at signal-controlled intersections shall be a side-or post-mounted signal face on the far side of the cross street and to the right of traffic approaching the signal (far-right position), except in urban centers where an overhead signal face over through lanes may be substituted.
 - B. The primary through traffic indicator shall be supplemented with no less than the number of through indicators required by Table 4B-12 on the following page. On a one-way street that is three or more lanes wide, an additional post-mounted signal face shall be installed on the far left side of the intersection.
13. The primary indicator for turning traffic at intersections with separate turn phasing shall be a signal face with 12 inch diameter lenses with arrow(s) on the far side of the cross street and placed so as to be in conformance with the following:
 - A. The primary indication for right-turn traffic with exclusive right-turn phasing which overlaps the through-traffic phase shall be a 12" diameter green arrow mounted on the far side below the primary indicator.
 - B. The primary indication for a completely protected left-turn phase shall be:
 1. Located over the prolongation of the center of the lane on a single left-turn lane approach.

2. Located over the prolongation of the separating lane line on a dual left-turn approach.

- C. The primary indication for a protected/protected-permitted left-turn phase shall be:
 1. Located over the prolongation of the lane line separating the turn lane from the adjacent through lane, where an exclusive turn lane is provided.
 2. Where an exclusive turn lane is not provided, the signal head shall either be located over the prolongation of the center of the left-most lane or the prolongation of the lane line separating the left-most two lanes.

14. A supplemental far side left turn indicator should be provided where there is protected or protected-permitted left turn phasing. The indicator shall consist of a 3 section head (all arrows) with protected phasing and a five section vertically arranged head with protected-permitted phasing. Protected-permitted signal faces in these locations may be supplemented with the R10-12 sign adjacent to each signal face.

4B-13 Height of Signal Faces

Delete the first and second paragraphs in the MUTCD and insert the following wording:

1. The bottom of a signal housing suspended over a roadway shall not be less than 17.5 feet nor more than 19 feet above the road surface immediately below the signal.
2. When not over the roadway, the bottom of the signal housing should be 10 feet above the curb, or, if no curb exists, above the sidewalk or adjacent roadway; except ground-mounted median near-side left-turn signals shall be placed no less than 7 feet above the pavement.

**Table 4B-12
Number of Through Overhead Signals**

NUMBER OF THROUGH APPROACH LANES	TYPE OF LEFT TURNING MOVEMENT			
	NONE OR COMPLETELY PROTECTED		PROTECTED/PERMITTED	
	HEADS ^A	SPACING ^B	HEADS	SPACING ^B
1-LANE	1	--	0 ^C	--
2-LANES	1	--	1	12
3-LANES	2	12	2	12
4&5-LANES	2	24	--	--

A. Number of heads centered over the through approach.
 B. Approximate spacing between the overhead signals.
 C. Overhead indication is provided by the protected/permitted signal head.

4B-23 Maintenance of Traffic Control Signals

Delete the last sentence of the next-to-last paragraph in the MUTCD and insert the following:

A signal record shall be kept in each signal cabinet with phasing schematic and wiring diagrams, which shall indicate:

- A. Current signal timing
- B. Date and time of changes or maintenance operations
- C. Initials of person changing timing or performing maintenance
- D. Type of maintenance operation and characteristics of equipment failure or faulty operation evident before repair

4B-24 Signal Head Housing Color

Delete the last paragraph in the MUTCD and insert the following:

All remaining ungalvanized surfaces shall be painted dark olive green.

D. PEDESTRIAN SIGNALS

4D-2 Meaning of Pedestrian Indications

At all locations with a pedestrian signal indication, THE MEANING OF PEDESTRIAN SIGNALS (R9-4) sign or sticker should be installed on each pole, between and immediately above the push buttons. These signs or stickers need not be reflectorized.

4D-7 Pedestrian Intervals and Phases

In the next to last sentence of the second paragraph insert "and pedestrian signal indications" after the word "detector."

E. OTHER HIGHWAY TRAFFIC SIGNALS

4E-1 Hazard Identification Beacon

In the second sentence of the second paragraph, delete “except for SCHOOL SPEED LIMIT SIGNS (Sections 4E-2 and 7B-12.)”

4E-2 Speed Limit Sign Beacon

Delete the last sentence of the Section.

4E-3 Intersection Control Beacon

Intersection beacons may be considered at an intersection if:

1. There have been a total of four or more left turn and/or right-angle accidents in a 12 consecutive month period; or
2. There have been a total of six or more left turn and/or right-angle accidents in a 24 consecutive month period.

When intersection beacons are installed, if the ratio of entering minor street traffic volume to entering major street traffic volume is 0.50 or less, the beacon should display red toward the minor volume and yellow toward the major volume. If the ratio of minor volume to major volume exceeds 0.50, red should be shown and STOP (R1-1) signs installed on all approaches.

Part VI. TRAFFIC CONTROLS FOR STREET AND HIGHWAY CONSTRUCTION, MAINTENANCE, UTILITY AND EMERGENCY OPERATIONS

6F-1. SIGNS

6F-1.Signs.a. (3) Application

DOT&PF Policy and Procedure DPDR 05.05.020 shall be followed when establishing speed limits and zones for DOT&PF construction zones.

6F-1.Signs.a. (7) Double Fine in Work Zone Signs (AK-CR16-100, AK-CR16-101, AK-CR16-102, AK-CR2-100, AK-CW20-100)

The WORK ZONE, BEGIN DOUBLE TRAFFIC FINES (AK-CR16-100), and END DOUBLE TRAFFIC FINES (AK-CR16-101) signs legally establish the beginning and end of double fine zones. See 13 AAC 40.010 and 17 AAC 99.010.

Double fine signs should be posted in designated double fine zones in all road construction, repair, maintenance, or utility work areas except those for 1) mobile operations such as striping, grading, brush cutting, etc., 2) work on low-volume, low-speed roads, 3) pilot car operations that extend the entire length of a project, and 4) work that will last less than 48 hours. On DOT&PF construction projects, the DOT&PF Regional Traffic Engineer shall identify projects to receive double fine signs.

Within the above-described road work areas, road segments where one or more of the following conditions exist are designated double fine zones:

- a. Active work areas (where road workers and/or machines are presently working on or adjacent to a road).
- b. Detours on new temporary roads built for that purpose (this does not include detours on existing streets).
- c. Sections of paved roads where pavement has been removed.
- d. Roads where unmatched asphalt lifts result in a vertical lip between lanes.

Double fine signs shall be used only in designated double fine zones.

Double fine signs shall be removed or covered when work activity ceases for more than two days and conditions b, c, and d above are not met.

Double fine signs shall be confined to the areas where the above conditions exist, with the following exceptions:

1. If the project is two miles or shorter in length, the entire project may be posted for double fines when the above conditions exist on any part of the project.
2. When the above conditions exist at multiple locations separated by less than two miles, the locations and the intervening segments may be posted as a single double fine zone.

“Work zone speed limit signs,” as used here, refer either to 1) AK-CR2-100 “WORK ZONE, SPEED LIMIT XX, DOUBLE FINES” signs or 2) standard R2-1 speed limit signs with AK-CW20-100 “DOUBLE FINES” plates mounted below.

When a double fine zone is longer than two miles, work zone speed limit signs shall be posted at spacings not greater than two miles within the double fine zone.

All existing regulatory speed limit signs within double fine zones shall either be replaced with AK-CR2-100 signs or supplemented with AK-CW20-100 plates.

The speed limit shown on work zone speed limit signs may be either the existing limit before construction or, if a work zone speed limit order has been approved in accordance with DOT&PF Procedure 05.05.020 PDR, a reduced limit.

An AK-CR16-101 sign shall be posted at the end of every double fine zone.

Signs shall be installed at major intersections within the double fine zone to warn entering drivers of double fines. This may be done with an AK-CR16-100 sign with a CW1-7 arrow panel on the side street or with two work zone speed limit signs on the main street on either side of the intersection. Use of AK-CR16-100 signs on side streets eliminates the need for “Road Work Ahead” signs on those streets. If the

speed limit has been reduced, the two work zone speed limit signs are mandatory.

In no case shall double fine signs be used as a reason for diminishing the number of warning signs that would normally be needed.

Over-use of double fine signs will diminish respect for, and effectiveness of, the signs. It will also result in needlessly increased fines for traffic citations. The signs shall not be placed where the warranting conditions do not exist and shall be removed or covered promptly when those conditions cease to exist.

AK-CR16-102 "DOUBLE FINES WHERE POSTED" signs may be posted at Alaska border entry points or at other locations where it is important to notify drivers of Alaska's double fine law.

6F-1(b) Warning Signs (2) Design and Application

All signs described in 6F-1(b) Warning Signs may be used in construction and maintenance operations. Reference to such signs will be designated with the prefix "C," denoting Construction Series, followed by the standard sign code. For example, the construction warning sign for a right-turn is a CW1-1R, which refers to an ADVANCE TURN sign with a construction-orange background.

Placement specifications with respect to distance from objects or conditions indicated in Section 2C-3 of the MUTCD apply to construction and maintenance warning signs.

(20) Uneven Lanes Sign (W8-11) (Formerly 6B-43)

The UNEVEN LANES Construction Symbol Sign should be used in place of the W8-11 sign whenever possible. The UNEVEN LANES Construction Symbol Sign shall be used during resurfacing operations that create a difference in elevation between adjacent lanes greater than two (2) inches. The image may be mirrored to indicate the proper relative elevations of the lanes.

(24) Signal Revision Sign (CW21-9) and Traffic Revision Sign (CW21-10) (Formerly 6B-41)

The SIGNAL REVISION (CW21-9) sign is intended for use to advise of a modification in signal phasing, and the TRAFFIC REVISION (CW21-10) sign is intended for use to advise of a modification in the traffic pattern.

Part VII. TRAFFIC CONTROLS FOR SCHOOL AREAS

A. GENERAL

7A-8 Placement Authority

Add the following:

On state roads, any significant deviation from the traffic control treatments shown in Tables 7A-11 and 7A-12 requires documented justification and approval from the Regional Director. Deviation on non-state roads requires approval from the road authority with jurisdiction.

The urban and rural traffic control matrices presented in Table 7A-11 and Table 7A-12 apply only to roads abutting school property and non-abutting roads at designated school crossings.

Add the following:

7A-11 Rural School Zone Traffic Control Summary

Traffic control treatments for rural school zones are in Table 7A-11.

For this application, "Rural" is defined as a sparsely populated area where the majority of land is not subdivided.

Rural schools have different traffic control than urban schools because there are generally fewer students that walk to school. Students are usually bused or driven because homes are farther away. 20 MPH zones on rural high speed roads where few student pedestrians are seen by drivers would generate disrespect for school speed zones in general, thereby making all school zones less safe.

School districts should develop policies that consider crossing guards where students in grades K-8 (K-4 in particular) are required to cross major streets.

7A-12 Urban School Zone Traffic Control Summary

Traffic control treatments for urban school zones are in Table 7A-12 on the following page.

**Table 7A-11
Rural School Zone Traffic Control**

<i>Rural School Zone Traffic Control</i>		
<i>Road Adjacent to School Property</i>		<i>Road Not Adjacent to School Property Adjacent to School Property</i>
<i>Speed Limit ≤35</i>	<i>Speed Limit ≥40</i>	
<i>Advance School Signs</i>	<i>Advance School Signs (beacon optional)</i>	School Zone traffic control devices should not be placed on roads which do not abut school grounds unless a crossing guard is present at the site. Any exceptions to this rule must be based on a site-specific engineering study

Urban School Zone Traffic Control												
Grade Level (Lowest Grade Taught at School)	Students Required to Cross Road at Grade										Students Not Required to Cross Road At-Grade (Could be grade-separated or just no crossing) Completely Fenced? (4)	
	Traffic Signal at Crossing		No Traffic Signal at Crossing									
			STOP Controlled Crossing	Crossing not STOP-Controlled				Insufficient Gaps (5)				
	Sufficient Gaps (5)			Address by re-routing students, busing students, or one of the following:								
				Crossing Guard (If < 4 lanes)		Grade Separation	Ped. Signal (if warranted) (6)					
	Speed Limit <=25	Speed Limit >25		Speed Limit <=25	Speed Limit >25			Yes	No			
9-12	C	C	C – major streets only	C	C	n/a	n/a	See Students Not Required to Cross Road At-Grade	See Students Required to Cross Road At-Grade/Traffic Signal at Crossing			
5-8	C	CG?	C – major streets only, G?	C	CG?	CG	CG					
K-4	CG?	CG?	C – major streets only, G?	CG?	CG?	CG	CG					

LEGEND	
n/a	Does not apply - Crossing Guards should not be used for high school students
	No School Signs
	Advance School Sign (S1-1) Only
	Advance (S1-1) and Crossing (S2-1) School Signs – Overhead illuminated S2-1 sign optional
	Advance and Crossing School Signs + 20 MPH When Flashing (S5-1) Sign and Flasher – Overhead illuminated S2-1 sign optional
C	Marked Crosswalk – install at nearest intersection, if within 400 feet. If a crosswalk exists within 400 feet, use it as the school crosswalk. Use school crosswalk signs at mid-block crosswalks if within a school zone.
G	Crossing Guard
G?	School districts should develop policies that consider crossing guards at these locations (for crossings of major streets).

**Table 7A-12
Urban School Zone Traffic Control**

The following notes pertain to Table 7A-12

1. "Completely fenced" means fencing that restricts all access from the street-side of the school to the street.
2. See Section 7A-3 of the MUTCD for gap sufficiency determination - when gaps are insufficient for crossing, student re-routing or busing should be the first options considered. Guards or pedestrian signals should be viewed as last resorts.
3. Traffic signals may be installed (but are not mandated) for pedestrians when the Minimum Pedestrian Volume or School Crossing warrants defined in Section 4C of the MUTCD are met. Although these signals may be installed mid-block, every effort should be made to install them at intersections and run them as conventional signals.
4. The "Overhead illuminated signs" referenced in the Legend are flashing internally-illuminated S2-1 school crossing signs hung over the road at or near the crosswalk. If the site has school flashers, the overhead signs shall flash when the school flashers flash. The overhead signs may either flash or be constantly illuminated when the flashers are not flashing or at sites without school flashers.

B. SIGNS

7B-9 School Advance Sign (S1-1)

Delete the last sentence of the first paragraph in the MUTCD (which was added by Revision #6, 6/19/98) and insert the following:

All new school advance signs shall be black on a fluorescent yellow-green background. When these signs are installed, the following additional school advance or school crossing signs shall be changed to black on a fluorescent yellow-green background:

- Those that pertain to the same school
- Those that are simultaneously visible with the newly installed sign(s)

Delete the first sentence of the second paragraph in the MUTCD and insert the following:

Typical school zone sign locations are shown in Figure 7B-9 on the following page.

7B-10 School Crossing Sign (S2-1)

Delete the last sentence of the first paragraph in the MUTCD (which was added by Revision #6, 6/19/98) and insert the following:

All new school crossing signs shall be black on a fluorescent yellow-green background. When these signs are installed, the following additional school advance or school crossing signs shall be changed to black on a fluorescent yellow-green background:

- Those that pertain to the same school
- Those that are simultaneously visible with the newly installed sign(s)

7B-11 School Bus Stop Ahead Sign (S3-1)

Delete the first sentence in the MUTCD and insert the following:

The SCHOOL BUS STOP AHEAD (S3-1) sign is intended for use in advance of locations where stopping sight distance is not available and should be located in accordance with Table II-1, Section 2C-3 of the MUTCD and “stop” as the speed at the condition of concern.

7B-12 School Speed Limit Signs (S4-1, S4-2, S4-3, S4-4)

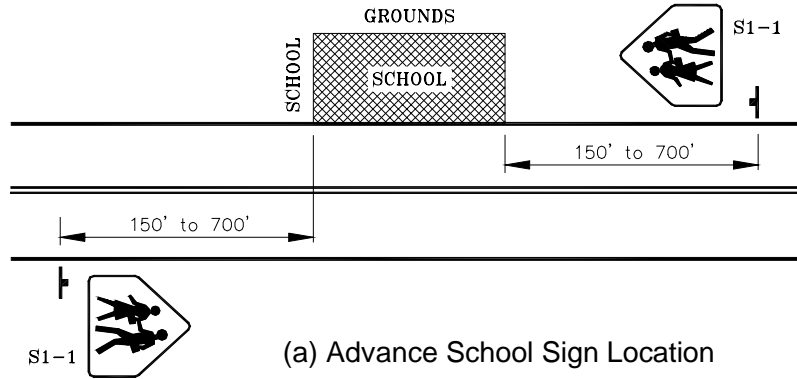
Delete the last sentence of the third paragraph in the MUTCD and insert the following:

The speed limit sign beacon shall only be used with the S5-1 sign, SCHOOL SPEED LIMIT 20 WHEN FLASHING.

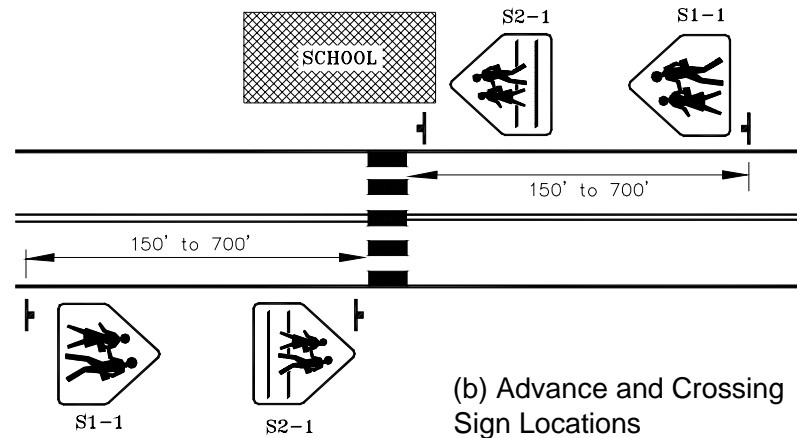
Delete the last paragraph of 7B-12 in the MUTCD and add the following:

The end of an authorized and posted school speed zone shall be marked with either a standard Speed Limit sign and a supplementary S6-1 (End School Zone) or with a stand-alone S5-2 (End School Zone) sign.

See Figure 7B-9 on the following page for location of S5-1 (School Speed Limit) signs.

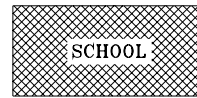


(a) Advance School Sign Location

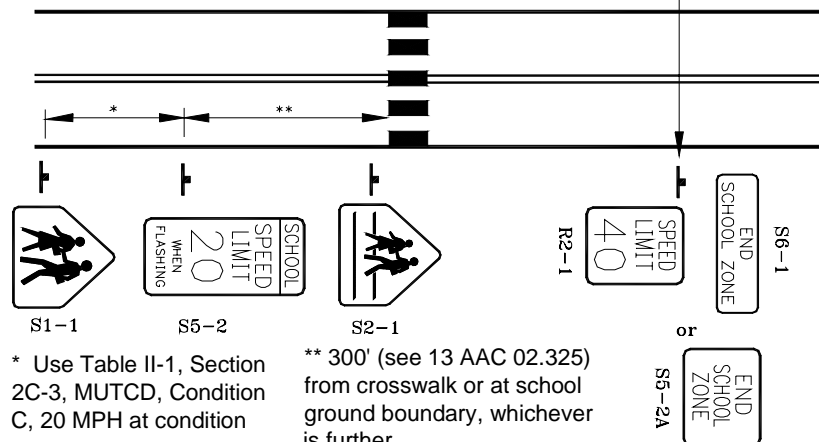


(b) Advance and Crossing Sign Locations

Signs are shown for one direction only. Signs for the other direction mirror those shown.



Locate this sign directly across from the S5-2 for the other direction



* Use Table II-1, Section 2C-3, MUTCD, Condition C, 20 MPH at condition

** 300' (see 13 AAC 02.325) from crosswalk or at school ground boundary, whichever is further.

(c) Advance, Crossing, and 20 MPH When Flashing Sign Location

Figure 7B-9
Advance School Signing

D. SCHOOL AREA TRAFFIC SIGNALS

7D-9 Operation of Pedestrian Signals

In the last sentence, insert "and pedestrian signal indications" after the word "detector."

7D-24 Speed Limit Sign Beacon

Delete the first paragraph in the MUTCD and insert the following:

The SCHOOL SPEED LIMIT 20 WHEN FLASHING (S5-1) sign shall consist of three (3) signal heads with 8-inch diameter yellow lenses. They should be mounted vertically directly above the S5-1 sign. The bottom two beacons shall be illuminated alternately and face the oncoming vehicular traffic. The top flashing beacon shall face the opposite direction to indicate when the signals are in operation.

Delete the last sentence of the last paragraph.

E. CROSSING SUPERVISION

7E-12 Responsibility for Crossing Supervision

School districts are responsible for deciding where to provide crossing guards and for paying them.

Part VIII. TRAFFIC CONTROL SYSTEMS FOR RAILROAD/HIGHWAY GRADE CROSSINGS

A. GENERAL

8A-1 Functions

Add the following wording to Section 8A-1:

Before any improvement is made at a railroad-highway crossing, an engineering study should be undertaken to determine what actions should be taken to enhance safety at the crossing. Actions may include the installation of traffic control systems or other improvements that have a demonstrated capacity to enhance safety and operations at the crossing.

With regard to traffic control systems, the following would apply:

1. As a minimum, crossbucks, advance warning signs, and pavement markings as prescribed in Part VIII of the MUTCD shall be installed.
2. The determination of the type of highway traffic control system, other than the minimum as required in paragraph (1) above, at a particular crossing is a two-step process. The first step is to calculate a hazard index (APV) or hazard level of the crossing in question. The hazard index would be expressed in accidents per year.

The Hazard Index (APV) shall be calculated using the procedures from the Rail-Highway Crossing Resource Allocation Procedure-User's Guide, Second Edition. FHWA-IP-86-11.¹

Using the calculated hazard index and the existing type of highway traffic control system at the crossing, the calculated hazard index shall be compared to threshold values in Table 8A-1 of this Alaska Supplement to determine the type of traffic control system that should be installed.

The second step is to have the crossing evaluated by a diagnostic team as required by the Alaska Policy on Railroad/Highway Crossings.

3. In using the quantitative procedure described in (2), where a diagnostic team recommends the installation of a traffic control system different from that indicated by the threshold values, or recommends another type of crossing improvement, the recommendation of the diagnostic team shall take precedence over the quantitative procedure.

¹ Available through the National Technical Information Service, Springfield Virginia, 22161.

**Table 8A-1
Qualitative Procedure**

EXISTING TRAFFIC CONTROL DEVICE	HAZARD INDEX (Calculated Accident Prediction Value, APV)	RECOMMENDED ACTION FOR IMPROVEMENT
Passive	0.08 to 0.12 ² 0.12 to 0.15 0.15 to 0.23	See note below. Flashing lights. Flashing lights or gates and flashing lights.
	0.23 to 12.4	Gates and flashing lights.
	12.4 to 18.5	Gates and flashing lights or grade separation.
	Greater than 18.5	Grade separation.
Flashing lights	0.12 to 0.18 ² 0.18 to 3.7	See note below. Gates and flashing lights.
	3.7 to 5.6	Gates and flashing lights or grade separation.
	Greater than 5.6	Grade separation.
Gates	1.32 to 1.98 ² Greater than 1.98	See note below. Grade separation.

² When the calculated hazard index falls within this range, the decision may be to do nothing, improve the existing traffic control system, install a different type of traffic control system, or make some other improvement at the crossing.

Other improvements that may be considered for enhancing crossing safety include:

1. Improving sight distance to increase the visibility of the crossing and the train.
2. Closing the crossing.
3. Improving the approach alignment and/or grade of the roadway.
4. Instituting and enforcing railroad and/or highway operating regulations.
5. Improving the crossing surface.
6. Illuminating the crossing.

The improvements shall also be in keeping with the Alaska Policy on Railroad/ Highway Crossings.³

8B-3 Railroad Advance Warning Signs (W10-1, 2, 3, 4)

Delete the next-to-last paragraph in the MUTCD and insert the following:

Placement of the sign shall generally be in accordance with Section 2C-3 of the MUTCD and using Condition A, and Sections 2A-21 to 2A-27. On divided highways and one-way roads, it is desirable to erect an additional sign on the left side of the roadway.

³ Available through the Alaska Railroad Corporation, Pouch 7-2111 (RAR-34), Anchorage, Alaska 99510-7069.

Part IX. TRAFFIC CONTROLS FOR BICYCLE FACILITIES

B. SIGNS

9B-7.1 Walk Bike Across Tracks (R15-4) Sign

The WALK BIKE ACROSS TRACKS (R15-4) sign shall be mounted directly beneath the RAILROAD CROSSBUCK (R15-1) and shall be used in conjunction with the WALK BIKES (Skew Symbol) (W10-5) sign (see Section 9B-18.1), WALK BIKES (W10-5A) sign, and a RAILROAD ADVANCE WARNING (W10-1) sign. It may also have the pavement markings illustrated in Figure 9B-7.1. This series of signs shall be used on all paved roadways in advance of railroad grade crossings that are skewed 15° or more from the perpendicular.

9B-18.1 Walk Bikes (Skew Symbol) Sign (W10-5)

The WALK BIKES (Skew Symbol) (W10-5) sign should be placed 50 feet in advance of skewed railroad crossings.

The WALK BIKES (W10-5A) sign shall always be mounted directly beneath the W10-5 sign.