

TRAVEL AND ACCESS PLAN

INTRODUCTION

This Travel and Access Plan was developed in compliance with **Mitigation Measure 4.6-3a and APMs REC-7 and TRAN-1** and provides detail specific to the development of access roads, necessary for construction of the rebuilt 650 Transmission Line. The categories, or types of access roads to be constructed and used are described and barriers and signage is also detailed.

PURPOSE

This plan addresses the use of existing roadway and overland travel, and where necessary the development of new roadways. Details should be cross referenced with this plan and the project mapping. Due to the nature of construction over a two year period, work details for cross sections will be presented to USFS 90 days prior to construction in 2016.

ACCESS ROAD BOUNDARIES

To the extent possible, the Contractor is expected to utilize existing roadways. Where new or modified access is required, the Contractor will construct the roads within the limits of permanent ROWs and easements, which vary along the alignment from 40 feet to 65 feet wide. In areas where it is necessary to improve existing or construct new roads outside of the transmission line ROW or easement, allowable work area limits will be established. Allowable use roadways have been mapped and shall be followed.

Prior to the beginning of construction, all approved work areas and access roads will be signed and flagged to ensure that crews stay within the approved boundaries of the project. This flagging and signage is the responsibility of Contractor, in conjunction with the Environmental Monitor. In addition, all sensitive areas will be flagged or fenced to prevent crews, equipment and materials from entering or disturbing those areas. Flagging of natural resources and sensitive areas will be the responsibility of the

Owner's Environmental Monitors and Biologists, but the fencing responsibility will remain with the Contractor. The Owner will provide transmission line structure and offset staking and ROW and easement boundaries.

It will be the Contractor's responsibility to determine and set access road limits based on the project mapping and field conditions. This shall be completed in compliance with the constraints established in this plan. This shall include all the appropriate signage.

A detailed description of the flagging and fencing protocols can be found in the Flagging, Fencing and Signage Plan.

TEMPORARY WORK LIMITS

Temporary work area beyond the final ROW of 40 feet has been established. For 40 foot ROW, the contractor may access 65 feet of disturbance, consisting of 12.5" on either side of the 40' boundary. Any temporary construction area disturbance is to be reclaimed; i.e. original contours re-established, scarified, revegetated, etc.

Where 65' foot ROW is established, there is no allowable additional temporary ROW. As such, the Contractor must work within the 65' boundary.

In some exclusion areas, construction work zone is limited to 20'. Even though existing ROW is 40' in this area (between Pole # 291040 and Pole # 291080), natural resources limit available work area. In this area, the Contractor will be limited to track mounted equipment used only for pole hole augering. Access shall be limited to as few passes as possible with the potential of wood or rubber matting to protect vegetation and minimize impacts. This will be field determined by the Biological Monitor.

ACCESS ROAD CATEGORIES

There will be five primary access road types utilized on this project. These types have been included in the project mapping and are defined as follows:

- **Type A Road** - Existing paved, gravel or dirt road; no improvement necessary.
- **Type B Road** - Existing dirt road; some level of improvement needed.

- **Type C Road** – Overland Travel accessways; moving and vegetation clearing required with minimal if any grading, but some soil management required.
- **Type D Road** - Newly constructed road that is developed by either:
 - **D1** - mowing of brush and groundcover with some top soil management,
 - **D2** - removing of brush and groundcover, salvaging topsoil, and compacting the subsoil as necessary with 5 to 15% roadway gradient and associated grading to balance cut and fill.
 - **D3** – development of roadway with a gradient of greater than 15% (engineered cross section required to be prepared and submitted to USFS on all USFS management land at least 90 days prior to that construction).

LOCATION OF ACCESS ROAD TYPES

As part of the design process for rebuild of the 650 transmission line, a concerted effort was made to determine what type of access road would be used where along the alignment. Elements taken into consideration included the presence of existing roads, their current condition, and their current use; the presence of natural water drainages and wetlands; the existence of sensitive resources; slopes and grade of existing terrain; and the desire to minimize new disturbance to the extent possible while still allowing the safe passage of construction equipment. The result is a system of five total road types that are interspersed along the new alignment that allow for access to all new transmission line structure sites. These roadways are detailed in the project mapping with color coding for reference.

Type A Road - Existing (paved, gravel or dirt) – No Improvement Necessary. There is a substantial system of two track dirt roads and full dirt and paved roadways throughout the proposed project territory. Additionally, there is much existing centerline accessway already installed along existing portions of the 650 line. It is Liberty's first priority to utilize existing roadway and travel ways where possible. As such, the USFS roadway system, along with field identification of the existing roadways has been mapped. These roads were identified for use if at all possible.

Type B Road - Existing (dirt) - To be Improved (less than 15% gradient). For roadways or access that requires modifications or improvements, Contract shall clear vegetation, salvage top soil (i.e. grubbing), and reshape the road bed. All modification and improvements shall be completed using sediment control/runoff BMPs installed per Project SWPPP.

Type C Road – Overland Travel: Where existing roadways can not be used, Contractor and Liberty will utilize overland travel. This process will be utilized when the gradient slope of the roadway is sufficiently low enough to not warrant or require cut and fill grading, and does not require a full roadway prism. Contractor shall crush and/or mow low-lying brush, grasses and ground cover to allow for passage of construction vehicles and to optimize stormwater management. Sediment control/runoff BMPs to be installed per Project SWPPP.

For Road Types A, B and C, the Contractor shall implement all roadway management, modification and construction in compliance with Mitigation Measure 4.6-3a. More specifically, the Contractor shall:

- Fit the terrain, limit the need for excavation, and prevent damage to resources.
- Avoid riparian areas, wetlands, meadows, overly steep slopes and unstable landforms to the extent practicable.
- Use bridges or raised prisms with diffuse drainage to sustain flow patterns.
- Set crossing bottoms at natural channel bed and wet meadow surfaces.
- Reduce hydrologic connectivity of the road segment and limit connectivity to water crossings (*see below for signage and barrier requirements to assist in this avoidance measure*)
- Incorporate stormwater and erosion controls and properly spaced cross drains to disperse flows (*See SWPPP for all stormwater prevention BMPs*)
- Install stable ditch configurations and include energy dissipaters at culvert outlets
- Brush, groundcover, etc. to be bladed and windrowed on uphill slopes along length of roadways. At end of construction, this native material (bio-mulch) will be pulled back down and used as groundcover where needed.

- Salvage topsoil. To extent possible, topsoil will be placed upslope/uphill of all work areas, and will be spread across newly disturbed ground when construction is complete.
- Roll and compact exposed subsoil to the extent required – to accommodate construction vehicle and equipment use anticipated, as well as long-term utility maintenance vehicle use. The limits of compacted subsoil shall not extend beyond established transmission ROW/easement boundaries.
- Construction BMPs are to be placed and utilized as detailed in the Project SWPPP, and as determined in the field by the environmental monitoring inspector(s).
- BMPs to be maintained along roadways that may include rolling dips, waterbars, rock-dissipaters, or other measures sufficient to meet USFS standards.

Type D Road – New Construction – New construction of roadway will be required in areas where no existing path, accessway or existing transmission line route is located and simple overland travel is not sufficient. This type of roadway includes three types of construction. Field determination of these three types will be completed by the contractor prior to construction. These types are defined as follows:

- Low gradient grade with minimal work to establish a dirt roadway. Under this type, Contractor will clear brush as needed and salvage top soil only; roll and compact subsoil; limited to no grading is required. Sediment control/runoff BMPs to be installed per Project SWPPP. **(Type D1 Road)**
- Terrain greater than 5% but less than 15% roadway gradient. Under this type, Contractor will clear brush, salvage top soil, roll and compact subsoil, and complete some grading to balance cuts and fills. Sediment control/runoff BMPs to be installed per Project SWPPP. **(Type D2 Road)**
- Roadway Gradient Slope greater than 15%. Under this type, engineered cross section is required. For all roadway in this case on USFS managed public lands, Contractor will prepare a design in conformance with the USFS design requirements below. Final design of the roadway cross section will be

submitted to USFS no later than 90 calendar days prior to construction of the roadway. **(Type D3 Road)**

For Road Types D, the Contractor shall implement all roadway management, modification and construction in compliance with Mitigation Measure 4.6-3a. More specifically, the Contractor shall implement the following in their cross section design, in addition to the specific requirements for Roadway Types A, B and C:

- Balance cut and fills, consider full bench construction or mechanically stabilized fills on unstable slopes or slopes greater than 60 percent
- Design road surfaces to dissipate intercepted water via outsloping, insloping with drains or crowning with drains
- Designs will also include minimizing road sections with 15 percent or steeper gradients and outsloping and designing an adequate number of cross-drains. A typical 150-foot spacing for grade reversals will apply.
- Locate grade reversals to hydraulically disconnect the road from surface waters.
- Use drainage dips as an exception when reverse grades cannot be achieved.
- Contour road alignments to have an average grade of 7 percent.
- Maximum road grade will equal ½ slope grade when over 7 percent.
- Maximum road alignment length of 150-feet over 7 percent grade.
- Avoid fall line locations.

Specific for the 650 Line Upgrade Project, limited to no Roadway type D3 is anticipated. However, in the event that the gradient is identified as Type D3, an engineered cross section will be designed. It is noted that the construction of Phase 1 has been broken into two years, with the 2015 work being completed between Martis Valley and Northstar Substation. In this section, some Type D 1 and 2 roadway is required but no D3 type is included. Evaluation of the 2016 work will be completed and engineered cross sections will be completed if necessary within the **MM 4.6-3a requirements**.

ACCESS WAY BARRIERS / SIGNS and GATES

It is both the USFS and Liberty Utilities' desire to minimize public motor vehicle access on all improved and new roadway completed under this project. As such, and in

compliance with **APM REC-7**, Contractor will install access way barriers (e.g., gates where system maintenance and administrative access is anticipated, boulders, logs) and signage along any overland travel ways to minimize the possibility of establishing new recreational paths (both motorized and non-motorized). Other methods to manage recreational use, such as applying layers of mulch to prevent motorized route development, providing wayfinding signage to direct non-motorized use, and using restoration plantings to screen temporary access ways that are no longer used (post construction in compliance with the Restoration Plan), can also be employed. Temporary access ways that are no longer used will be permanently blocked with gates as presented on the project mapping and in compliance with the USFS gate guidelines.

The following shall be required to be installed by the Contractor at all trails, paths, and roadway intersections along the construction route of this project:

Temporary Signage: The Contractor shall install appropriate signage at each intersection of path, trail or overland travelway to ensure proper wayfinding direction for non-motorized use. This shall be of temporary nature such as t-post with laminated signs. Additionally, signage stating NO PUBLIC MOTORIZED TRAVEL BEYOND THIS POINT will be installed on a temporary basis at these same points during construction. These temporary signs will be in compliance with the USFS Signage Installation Guide (Appendix B), Work Zone Identification Sign placement and sizing.

Permanent Signage: Following construction, Contractor shall install appropriate permanent signage during the implementation of the project restoration activities. This signage will be in compliance with the USFS Signage Installation Guidelines (Appendix B) and will comply with the orientation angle, placement and size. The permanent signage will state NO PUBLIC MOTORIZED TRAVEL BEYOND THIS POINT. The signage will be completed within compliance of the Travel Management Sign with Route Marker (signage #16) detail as attached.

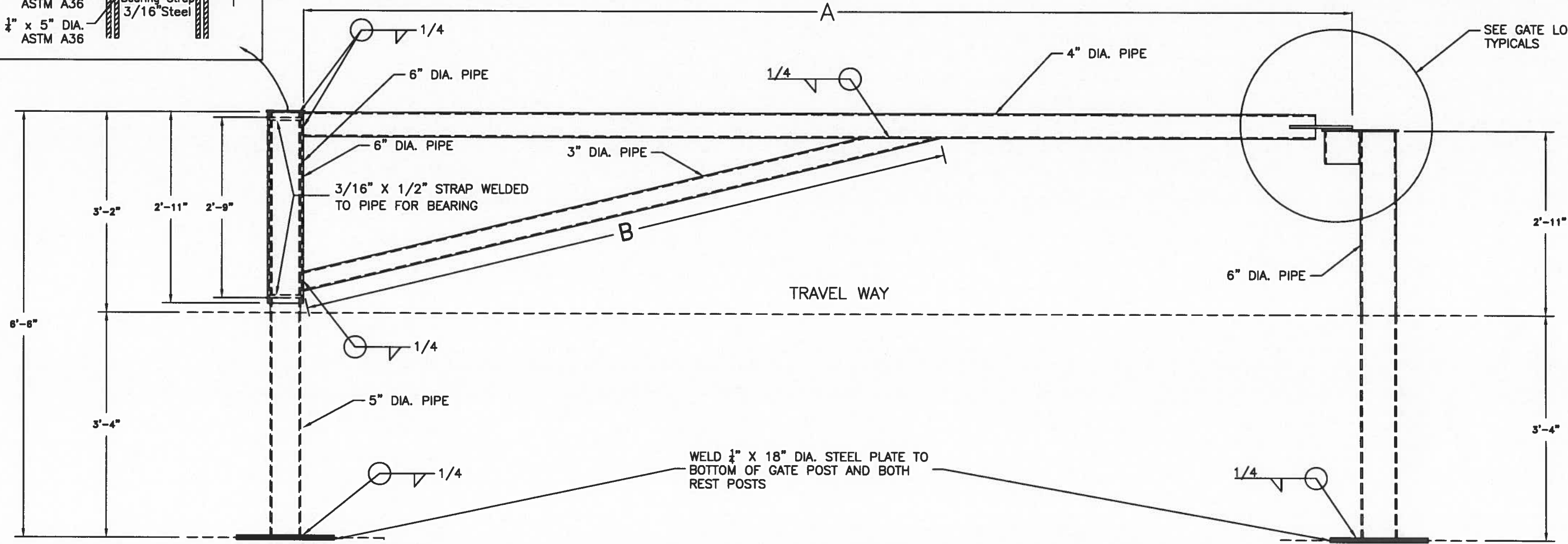
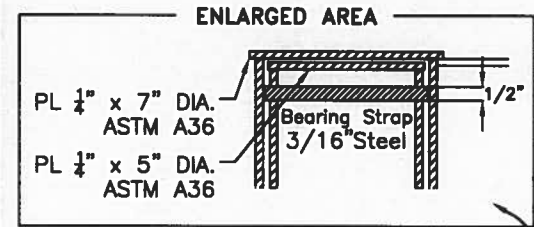
Temporary Barriers: During construction, it will be critical to block public access onto the line route. This will provide precautionary safety as well as minimize public travelway proliferation. To accomplish this, temporary barriers will be required at the intersections of trails and paths, and existing travelways when not in use. These temporary barriers

can include boulders or logs to be moved onto the path to block passageway at the end of a work day. Temporary fencing may also be installed.

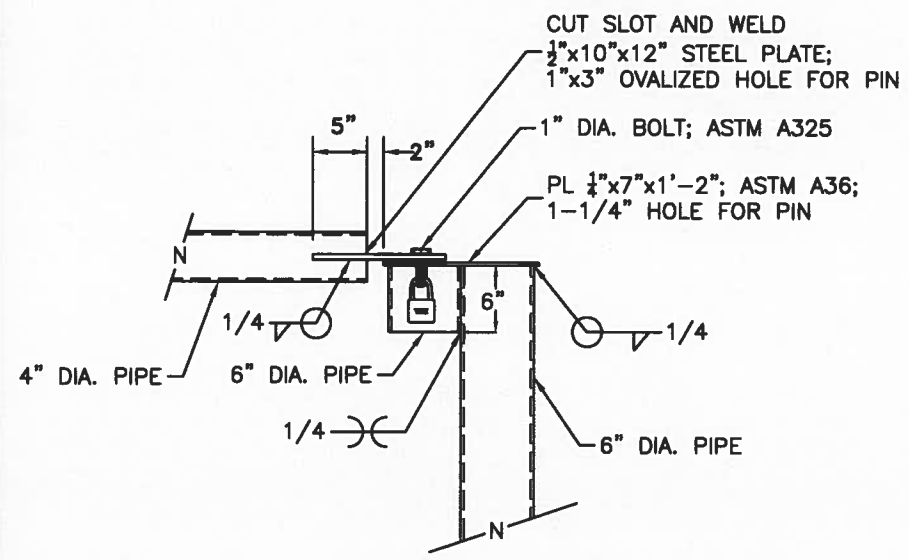
Permanent Barriers: Contractor shall install gates at the designated project map locations at the conclusion of the project, to ensure no future public access. This will be completed in conjunction with the permanent signage. Gates will be installed in accordance with the USFS Gate Drawing (Appendix A) details provided herein.

APPENDIX A
USFS GATE DRAWING

ROAD CLOSURE GATE GATE FABRICATION



SEE GATE LOCK TYPICALS



GATE LOCK TYPICALS

NOTES:

- 1 HINGE POST AND 2 LOCKING POSTS SHALL BE FABRICATED. THE LOCKING POSTS ARE IDENTICAL.
- ALL PIPE SHALL MEET THE REQUIREMENTS OF ASTM A53 GRADE B.
- PIPE SIZES SHOWN ARE FOR STANDARD WEIGHT BLACK IRON PIPE (SCHEDULE 40).
- POWDER COAT ALL STEEL FOREST SERVICE GREEN; FOLLOW MANUFACTURER'S RECOMMENDATIONS; COLOR TO BE APPROVED BY COR.

CONTRACT GATE SIZE	A	B
15'	15'	11'

APPENDIX B
USFS SIGNAGE INSTALLATION GUIDE

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United States
Department of
Agriculture

Forest Service

**Technology &
Development
Program**

7100—Engineering
July 2003
0371-2812-MTDC



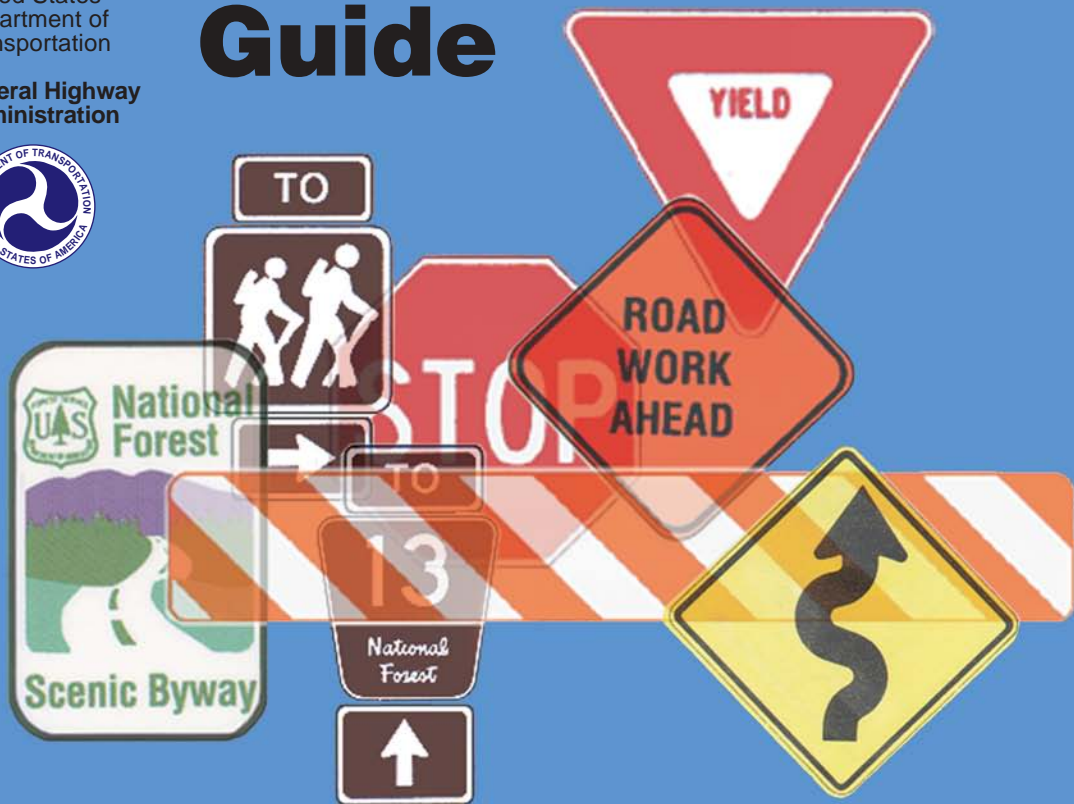
*In cooperation
with*

United States
Department of
Transportation

**Federal Highway
Administration**



Sign Installation Guide



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Thanks to:

Ted J. Cote—MTDC *John Bell—WO*
James Kautz—MTDC *Mike Noland—R-3*
Cathy Satterfield—FHWA *Pete Odegard—R-1*

Library Card

Trent, Andy; Sheehy, Donna. 2003. Sign Installation Guide. Tech. Rep. 0371-2812-MTDC. Missoula, MT: U.S. Department of Agriculture, Forest Service, Missoula Technology and Development Center. 18 p.

Includes 18 color photographs showing the specifications for placing signs along Forest Service roads. Intended to help new employees or volunteers install road signs.

Keywords: road signs, specifications, standards.

Some photographs in this manual have been digitally altered to remove distracting features.

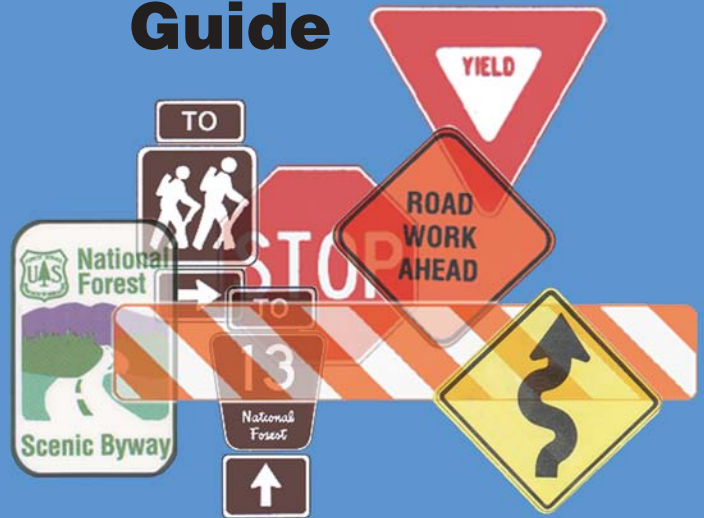
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Sign Installation Guide



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6E62H99—Sign Installation Field Guide

June 2003

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Installation Notes

Proper location, position, and erection of signs is very important. The effectiveness of a sign can be compromised if it is not installed correctly. A sign that is confusing, or one that a driver cannot see in time, is useless. This guide contains information needed to install traffic control signs on National Forest System Roads (NFSR) in accordance with the *Manual of Uniform Traffic Control Devices* (MUTCD) and EM-7100-15, *Sign and Poster Guidelines for the Forest Service*. It provides a quick visual reference to field personnel placing and maintaining the most often used signs and markers. It does not include every type of sign or marker used, but should give contractors, cooperators, volunteers, and Forest Service personnel a clear picture of how signs should be installed.

Before any signs are installed on the ground, this guide assumes that:

- A sign plan has been completed and approved that determines appropriate sign messages and correct locations according to chapter 3, EM-7100-15.
- Engineering judgment has been used in determining the need for and placement of all regulatory and warning signs.
- All traffic control signs meet MUTCD and Forest Service standards.

Uniform positioning of signs is highly desirable. However, because no two roads or situations are exactly alike, standards and guidelines may need to be modified to fit the sign to the road.

This guide should be kept in the glove box of vehicles used by personnel installing signs. A quick check of the guide should ensure far fewer errors in installations. The guide is not intended to serve as a substitute for training, but is intended to help trained personnel charged with installing and maintaining signs.

Refer to *Manual on Uniform Traffic Control Devices* and EM-7100-15, *Sign and Poster Guidelines for the Forest Service*, for complete information.

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Typical Installations

Low-volume rural roads

State and county requirements may vary. Check with local jurisdiction when installing signs on county, State, or Federal roads.

A written agreement must be in place to install signs in other jurisdictions.

Use 7 ft min. (secondary sign 6 ft min.) in:

- Urban areas
- Business, commercial, or residential areas
- Parking or pedestrian movement areas
- Areas with view obstructions

Signs should not obscure each other or be hidden from view by other objects. Avoid locations such as:

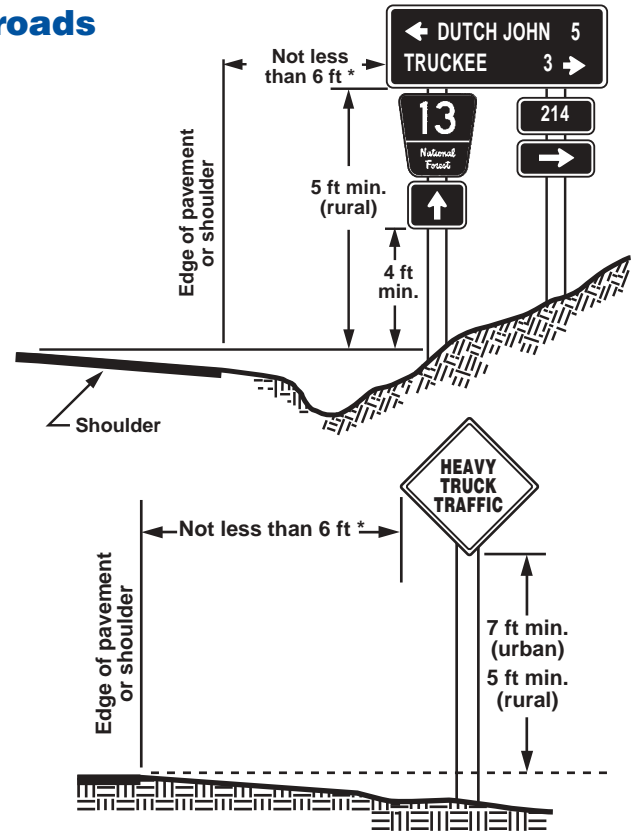
- Dips in the road
- Just beyond the crest of a hill
- Where sign may interfere with normal operation of facility
- Trees and foliage that could cover sign
- Snow removal areas

*On **low-volume roads** (fewer than 400 vehicles per day) a lateral offset of not less than 2 ft from the roadway edge to the roadside edge of a sign may be used where roadside features such as terrain, shrubbery, and/or trees prevent standard lateral placement.

Signs should be erected on separate posts except where one sign supplements another or where route or directional signs must be grouped.

Mount top of sign flush with top of post. A 1-in gap is allowable between multiple (stacked) signs to allow for expansion/contraction.

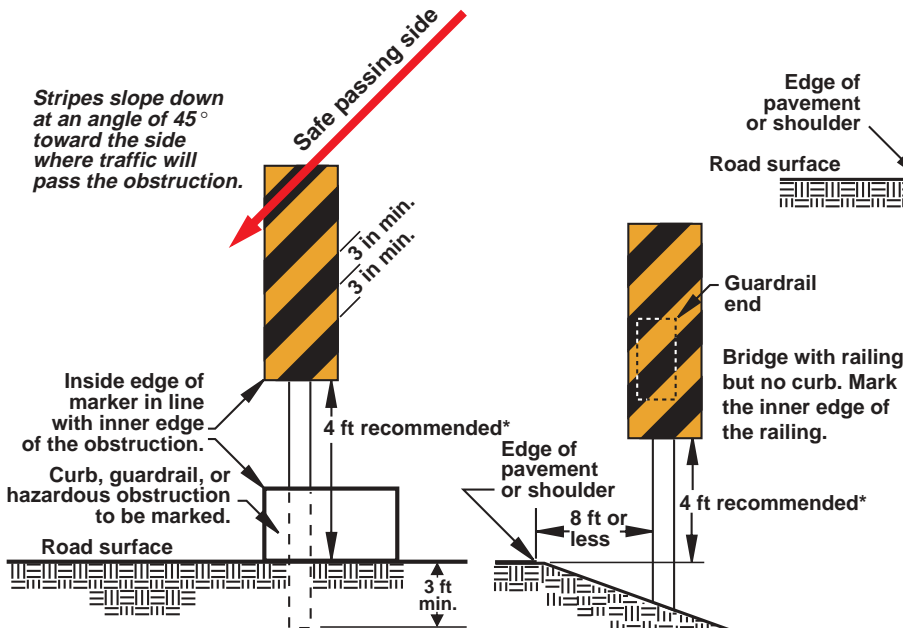
Locate signs on right-hand side of the road unless specific standards require otherwise.



Typical Marker Installations

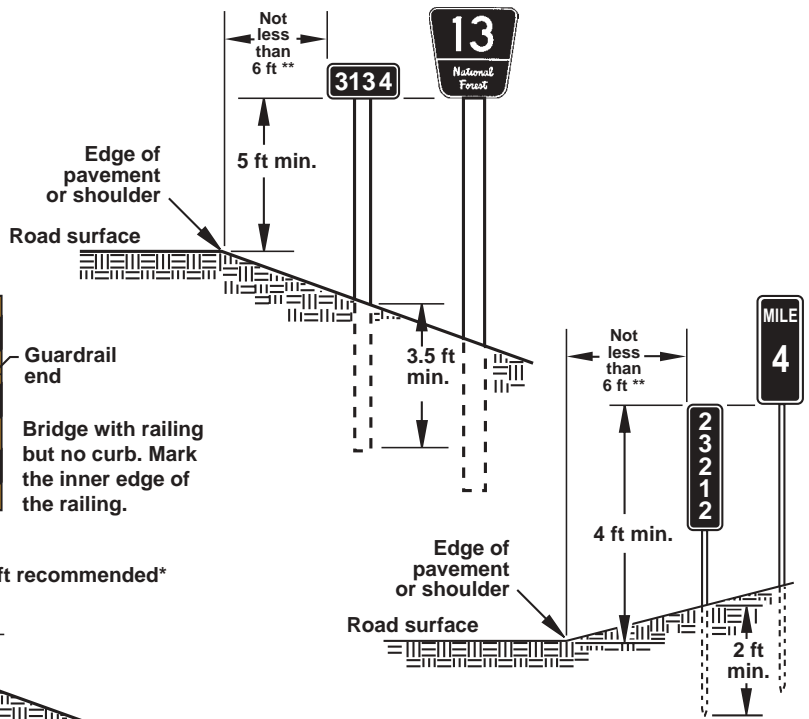
Route Markers

Object Markers



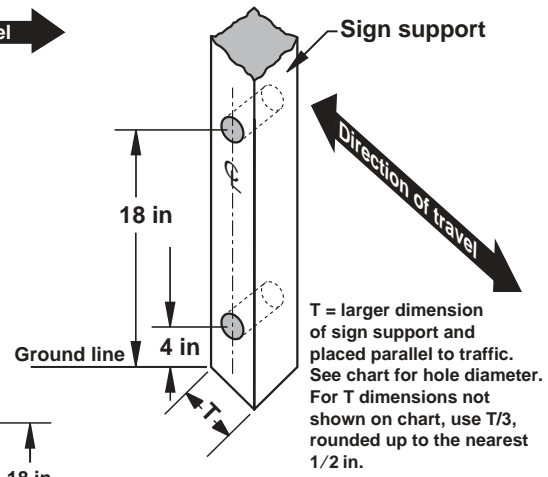
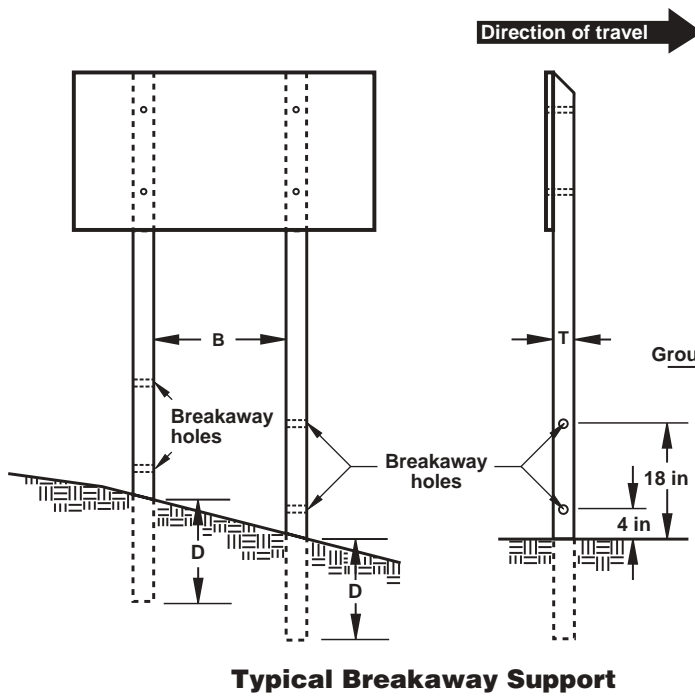
*Vertical mounting height may vary according to need when an object requires a lower or higher mounting height. Mount at least 6 in above road surface.

iv



**Not less than 2 ft for low-volume roads

Wooden Breakaway Sign Support Guidelines



Breakaway design is required for all posts (new and existing) with a cross-sectional area of 24 sq. in or more, whenever the installation is within the traffic runoff area.

Breakaway holes must be perpendicular to direction of vehicle travel. Dimension T is parallel to direction of vehicle travel and is the larger of the dimensions.

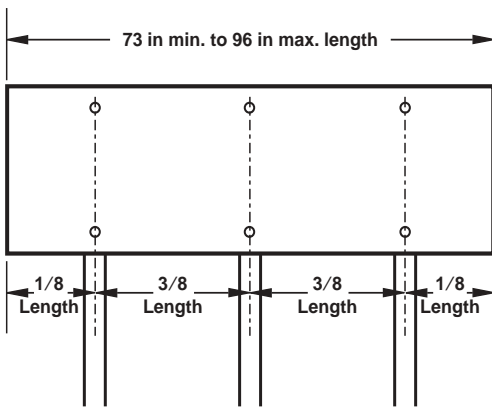
Field drill posts and treat holes with preservative.

Breakaway design post sizes			
Post size (in)	Hole diameter (in)	D minimum depth (ft)	B minimum breakaway distance (ft)
4 by 4	None	3	—
4 by 6 drilled	1.5	4	—
6 by 6 drilled	2	4	7
6 by 8 drilled	3	4	7

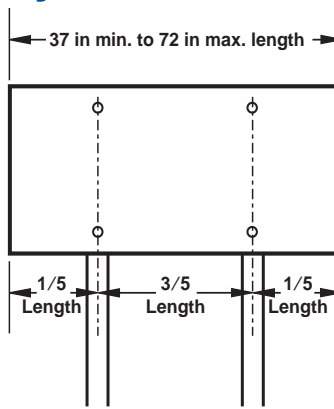


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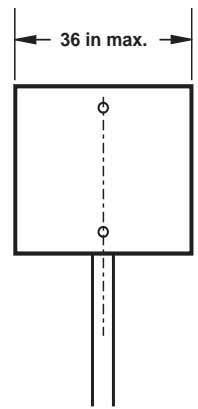
Typical Post Spacing and Size Requirements Nonbreakaway Installations



**Typical Three-Post
Detail**



**Typical Two-Post
Detail**



**Typical Single-Post
Detail**

Spacing applies only for signs that have not been predrilled.

Nonbreakaway signs should be installed outside the clear zone, behind a guardrail or a nontraversable ditch.

Maximum Board Size Relationship

Post Size (in)	Maximum sign area (sq. ft)			
	1 sign	2 signs	3 signs	4 signs
4 by 4	10	20	—	—
4 by 6	15	35	45	—
6 by 6	20	50	75	100

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Advance Sign Placement Distances

Minimum Placement Distances

Regulatory signs—Place at or before the point the prohibition begins.

Signs are to be placed where they provide adequate time for response, considering such things as approach speed, road conditions, etc.

Warning signs—Place in advance of the condition using the following table.

Wet pavement or gravel—24- by 24-in signs

85 percent speed or posted speed (mph)*	1 Condition requires a stop (ft)	2 Condition requires deceleration to advisory speed listed (mph)				Additional distance on downgrade (percent)			
		10	20	30	40	3	6	9	12
		(ft)				(ft)			
20	nsm**	nsm	—	—	—	5	10	20	30
25	nsm	150	—	—	—	8	15	30	45
30	150	200	150	—	—	10	20	45	65
35	200	250	225	—	—	15	35	60	90
40	275	325	300	275	—	20	45	75	120
45	350	400	350	300	—	25	55	95	150
50	425	475	450	375	275	30	70	120	185
55	500	550	525	450	350	35	85	145	225

1 Driver may be required to come to a complete stop (such as at stop signs or pedestrian crossings).

2 Driver will probably be required to decrease speed (such as advisory speed for a curve or intersection).

* For higher speeds, refer to MUTCD.

** nsm = no suggested minimum. At these speeds, sign location depends on physical conditions at the site.

The table shows the minimum distances a warning sign should be placed in advance of a condition. The minimum distance is the stopping distance after the sign can be read.

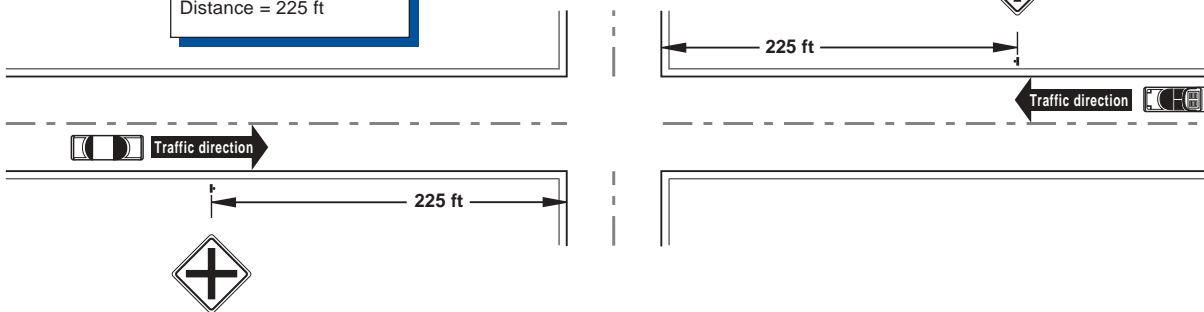
Sign placement distances are based on legibility provided by 24-in signs. If 30- or 36-in signs are used, decrease the placement distances by 50 ft. If 48-in signs are used, decrease the placement distances by 125 ft.

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(Advance Sign Placement Distances continued)

Example:

Approach speed 35 mph
safe turning speed, 15 to
20 mph
Distance = 225 ft



Advance placement distances should have been determined according to the chart on page vii. However, on-the-ground situations do not always fit the given distances for sign placement. Some shifting may be needed when rocks, trees, holes, or other obstructions preclude the use of given distances. Engineering judgment needs to be used to ensure that signs are placed to be visible in time for drivers to react to the sign's message.

Guide signs—Placed at varying locations depending on purpose, need, and speed of traffic. Use the chart on page vii as a guide. MUTCD indicates placing the sign 200 ft before the condition.

Signs requiring different decisions by the driver must be spaced sufficiently far apart for decisions to be made safely. In situations where two or more signs are needed at approximately the same location, the order of priority is:

1. Regulatory
2. Warning
3. Guide

Distances are for level roadways. Increase placement distance on negative grades of 3 percent or greater. Placement distance on upgrades may be reduced by one-half the distance listed for downgrades.

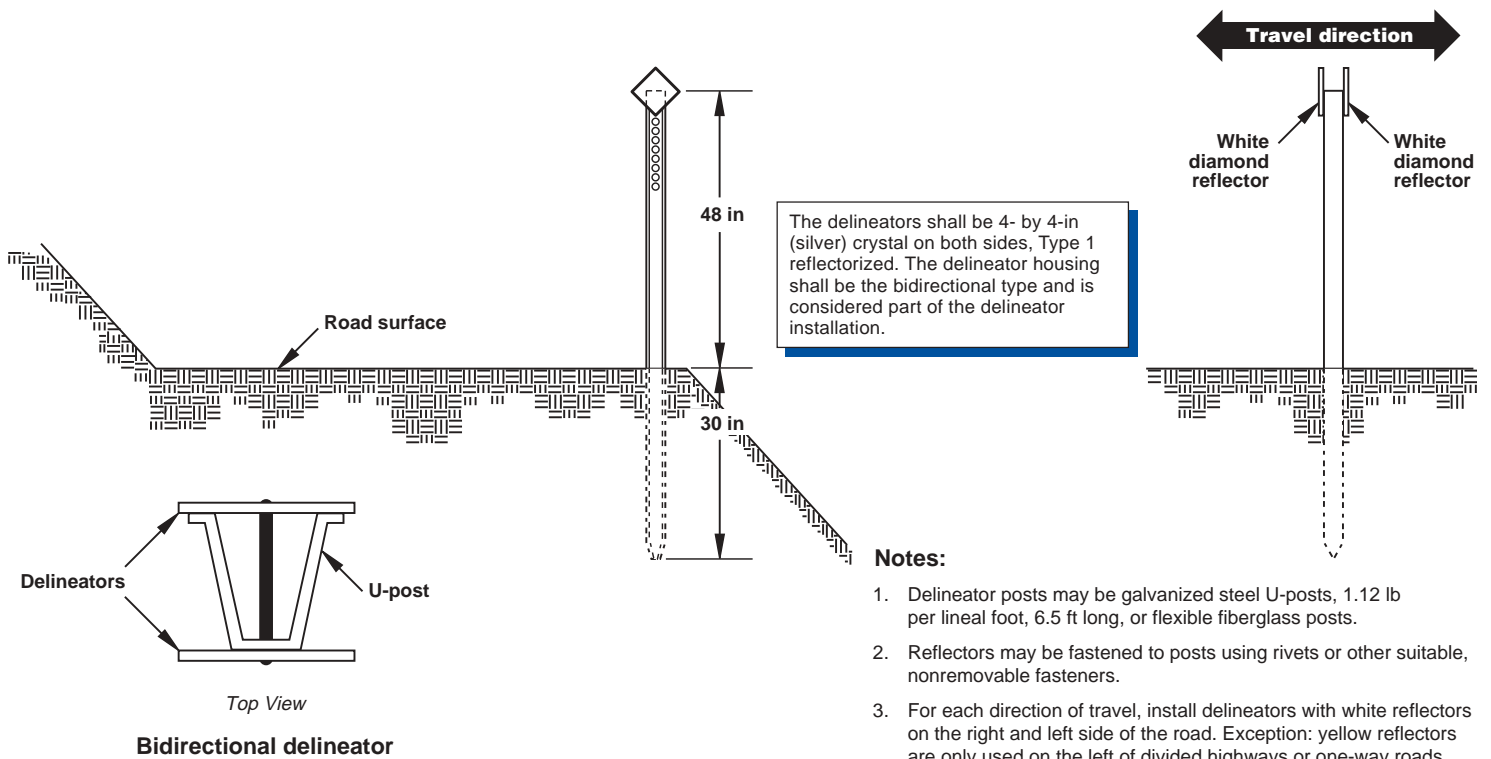
On the Ground

Signs may be shifted left or right to improve their visibility, to avoid obscuring other signs, or to enhance safety of operations.

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Delineator Details



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Orientation Angle



93°



93°

X

Signs for motorized traffic control are mounted at approximately right angles to oncoming traffic. It may be necessary to rotate a reflectorized sign slightly off 90 degrees to avoid specular glare reflection off the sign face directly back into the driver's eyes.

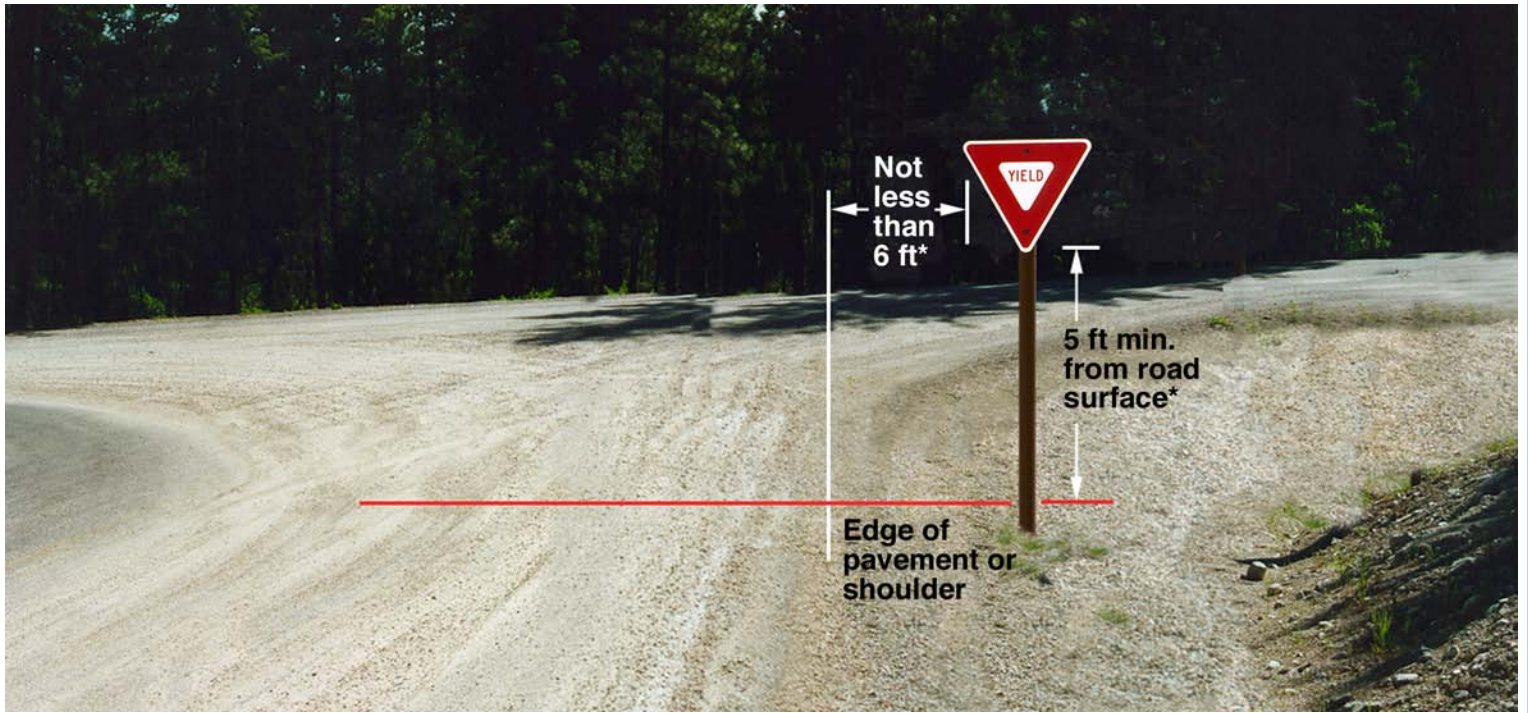
An angle of about 93 degrees to the line of approaching traffic is recommended by the U.S. Department of Transportation, Federal Highway Administration.

On curved alignments, the angle should be determined by the course of approaching traffic and from the point at which the sign is to be read.

On grades, it may be necessary to tilt a sign forward or back from vertical to improve the viewing angle.

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Regulatory Sign



R1-1



R2-1

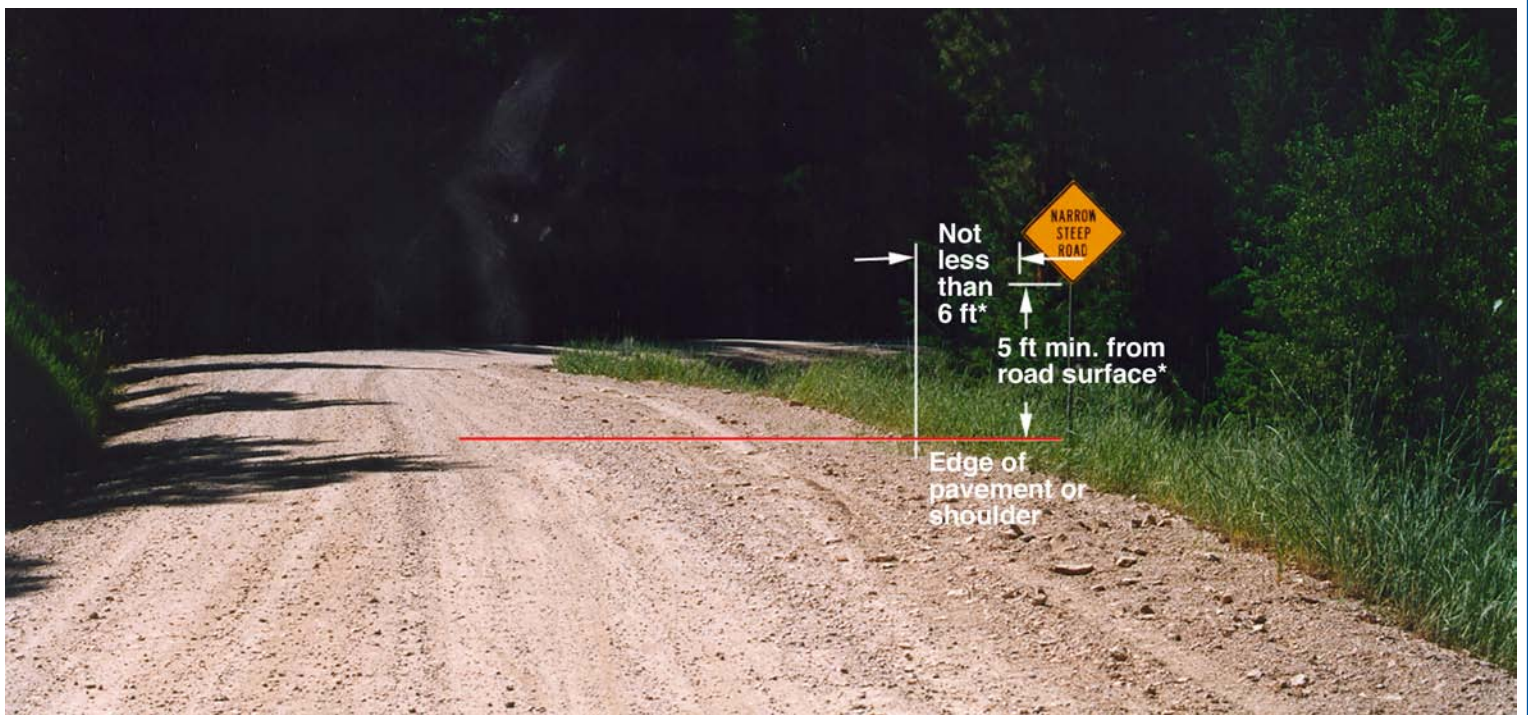


R12-1

* See page iii for placement exceptions.

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Warning Sign
(no supplemental plaques)

* See page iii for placement exceptions.

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Warning Sign With Advisory Speed Plate

Advisory speed plates supplement the warning sign and shall not be used alone.

* See page iii for placement exceptions.

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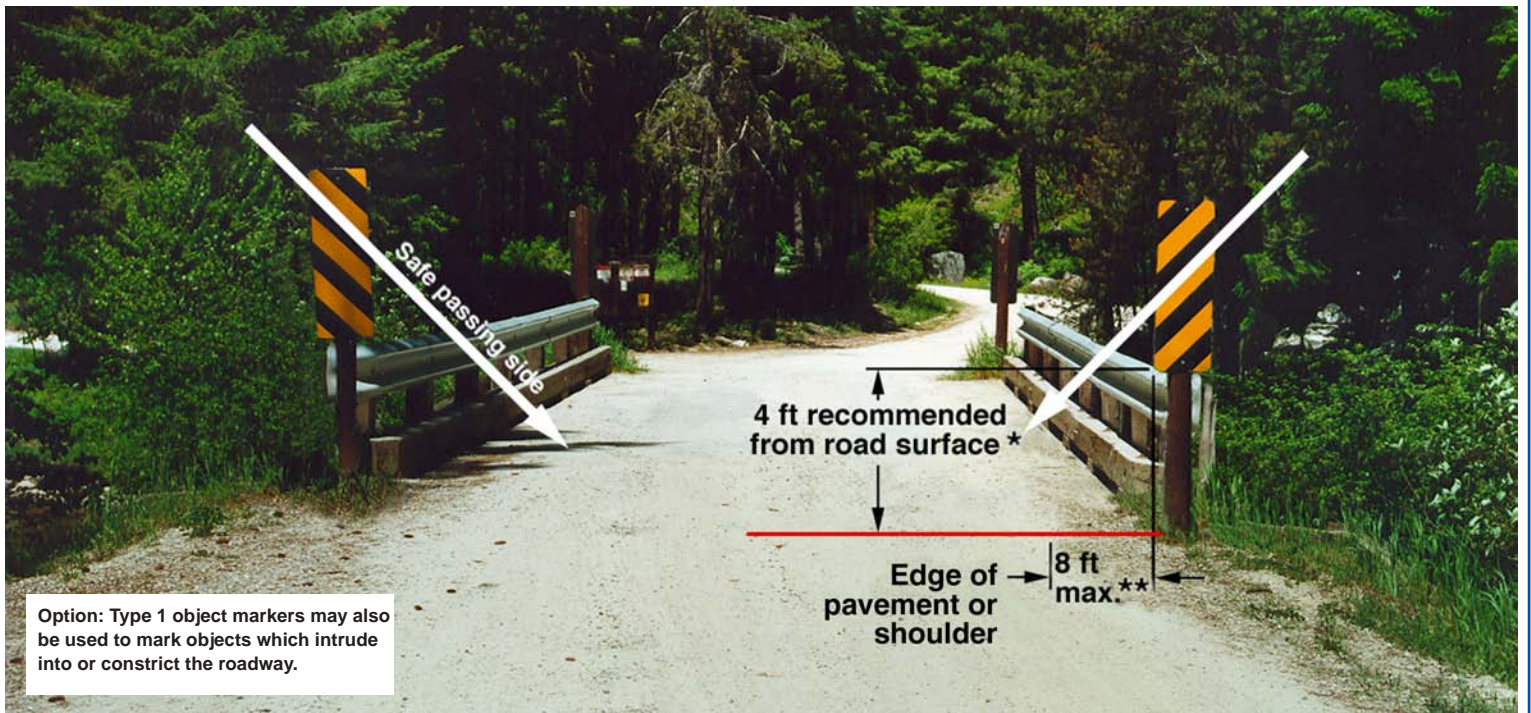


Warning Sign With Advisory Speed Plate and Supplemental Plaque

Advisory speed plates and supplemental plaques are not to be used alone.

* See page iii for placement exceptions.

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Option: Type 1 object markers may also be used to mark objects which intrude into or constrict the roadway.

Type 3 Object Marker (to mark objects which intrude into or constrict the roadway)

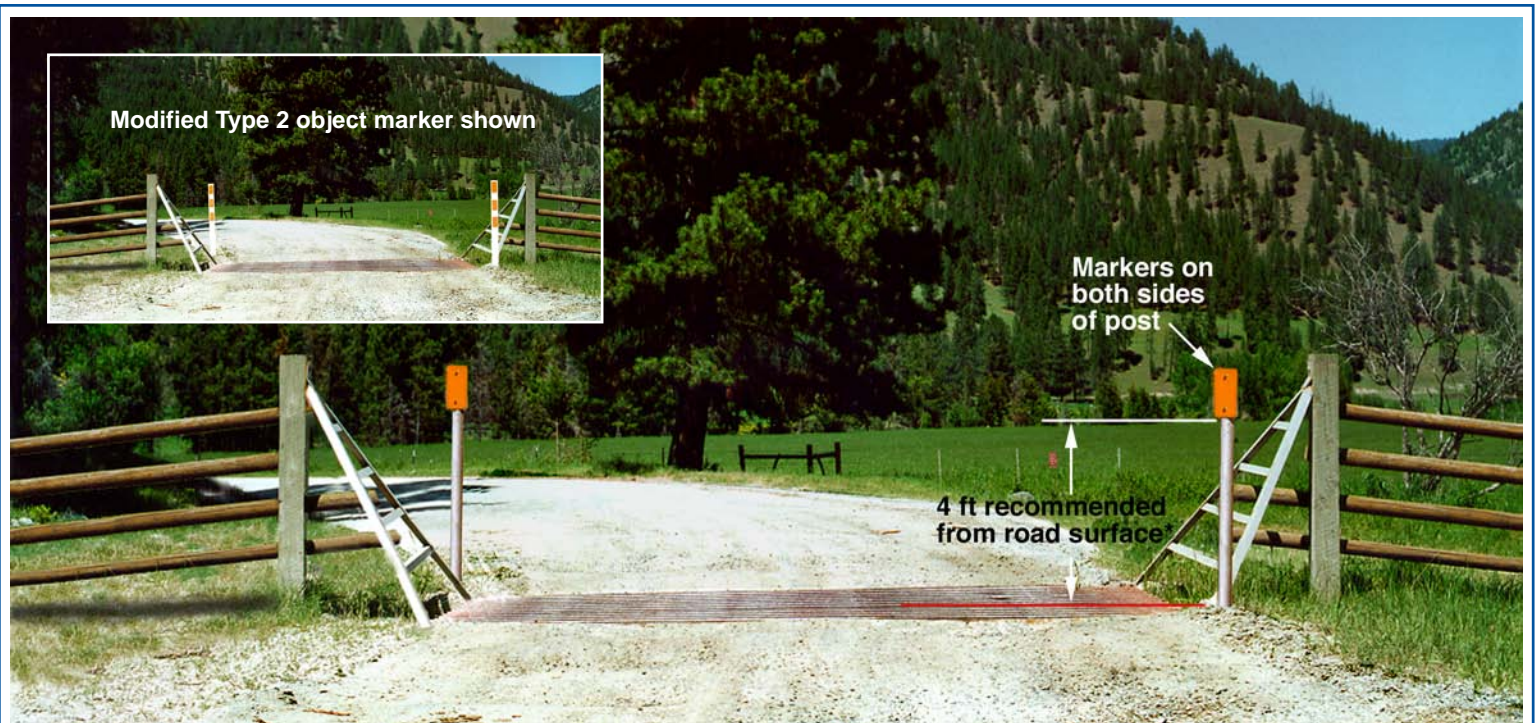
*Vertical mounting height may vary according to need when an object requires a lower or higher mounting. Mount at least 6 in above road surface.

**Do not use Type 3 object marker farther than 8 ft from edge of traveled way or shoulder.

Inside edge of object marker lines up with inside edge of curb or guardrail.

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Page cut line. Do not print.



Typical Cattleguard Signing With Modified Type 2 Object Markers (roadway is not constricted)

**Vertical mounting height may vary according to need when an object requires a lower or higher mounting. Mount at least 6 in above road surface.*

Type 2 object markers are used for objects that are outside the traveled way but close enough to present a hazard.

Inside edge of object marker lines up with inside edge of obstruction.

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Typical Gate Signing With Object Markers (OM) for One-Lane Roads

If motorized or nonmotorized use (such as bicycles) occurs behind a gate, the back side may require signing also. Size of barricade markers depends on approach speeds. Travel management signing: if road use is restricted with

an order, a travel management sign should be mounted on the gate or on a post next to the gate. For seasonal restrictions, the travel management sign should be mounted on a post next to the gate so it is visible when the gate is open.

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Work Zone Identification Sign

Work zones include construction, maintenance, and logging operations.

* See page iii for placement exceptions.

All temporary traffic control devices shall be removed as soon as practical when they are no longer needed. When work is suspended for short periods of time, temporary traffic control devices that are no longer appropriate shall be removed or covered.

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Do not mount on trees or other signs.

For short-term, short-duration, and mobile conditions only. Signs should be constantly maintained for cleanliness, visibility, and correct positioning because they are moved frequently.

Work Zone Sign (temporary support)

Do not locate on sidewalks, bicycle lanes, or areas designated for pedestrian or bicycle traffic.

Signs mounted on portable supports may be placed within the roadway if necessary. Signs may be mounted on or above barricades.

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Page cut line. Do not print.



No Turn



Left Turn



Right Turn



Left/Right Turn

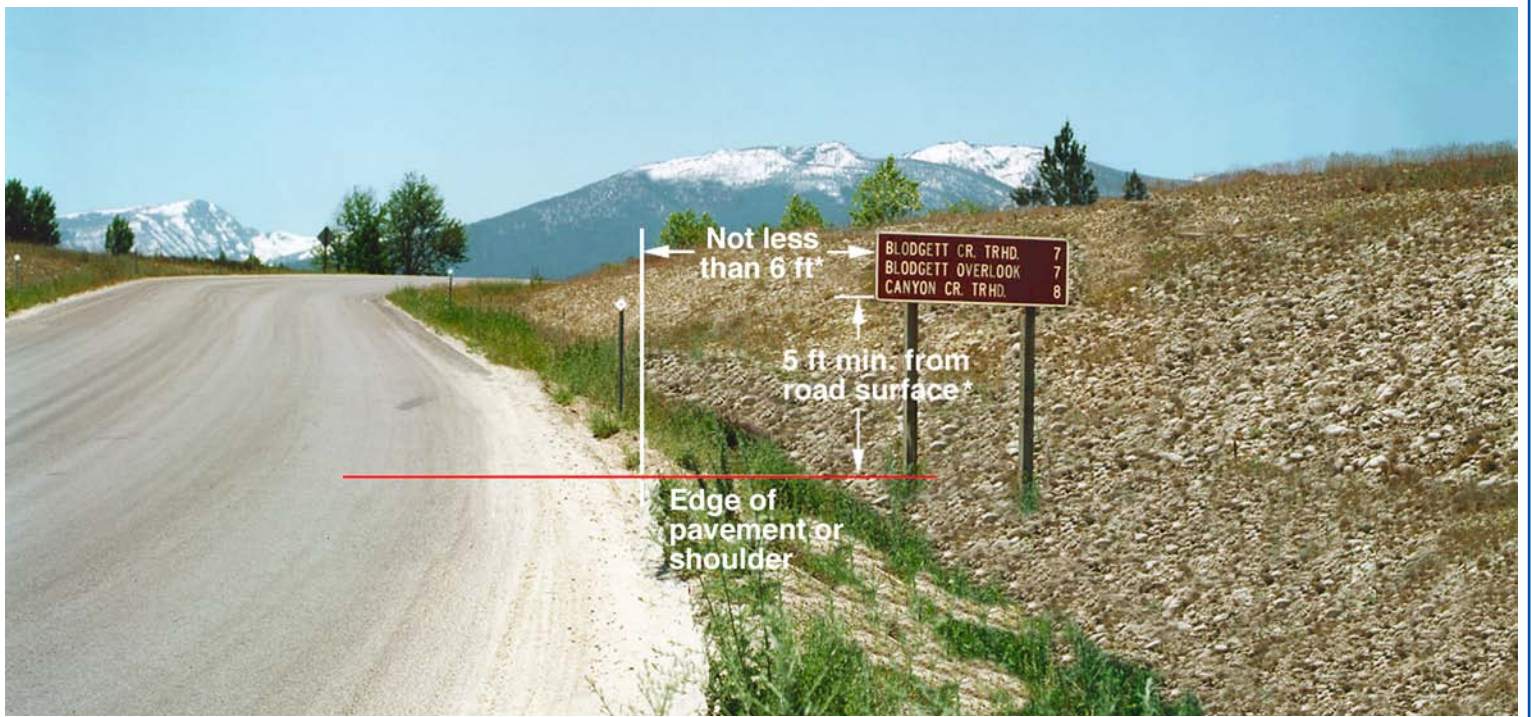
Road Closed Sign

This sign marks roads that have been closed to all motorized and nonmotorized traffic (except authorized vehicles) because of a temporary emergency, construction and maintenance activities, or spring breakup. It is not to be used on a gate or closure for seasonal or long-term road restrictions.

When no turns are intended, stripes should be positioned to slope downward toward the center of the barricade. Barricade stripes should slope downward toward direction which road users must turn.

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Page cut line. Do not print.



Guide Sign

* See page iii for placement exceptions.

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Page cut line. Do not print.



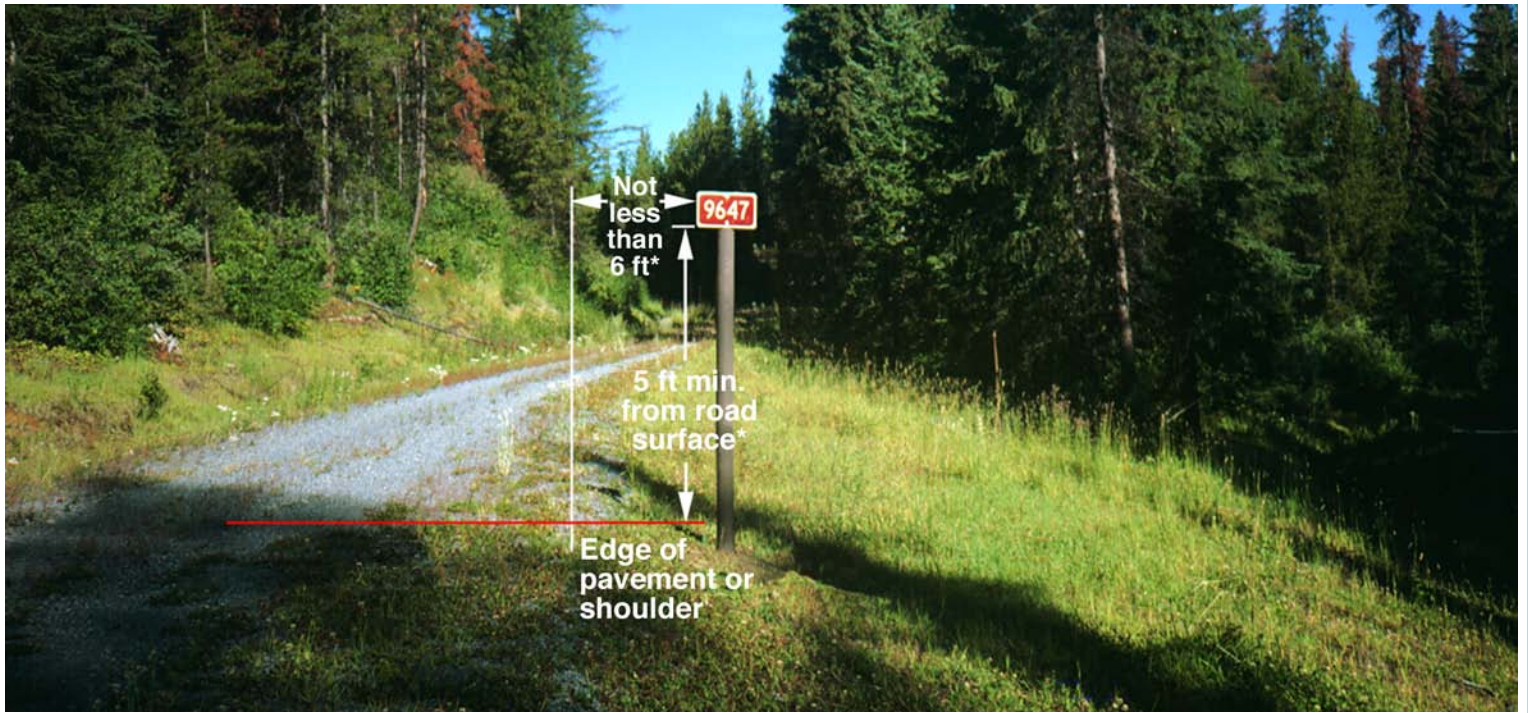
Guide Sign With Route Markers

A 1-in gap is allowable between multiple (stacked) signs to allow for expansion/contraction.

* See page iii for placement exceptions.

Page cut line. Do not print.

Page cut line. Do not print.



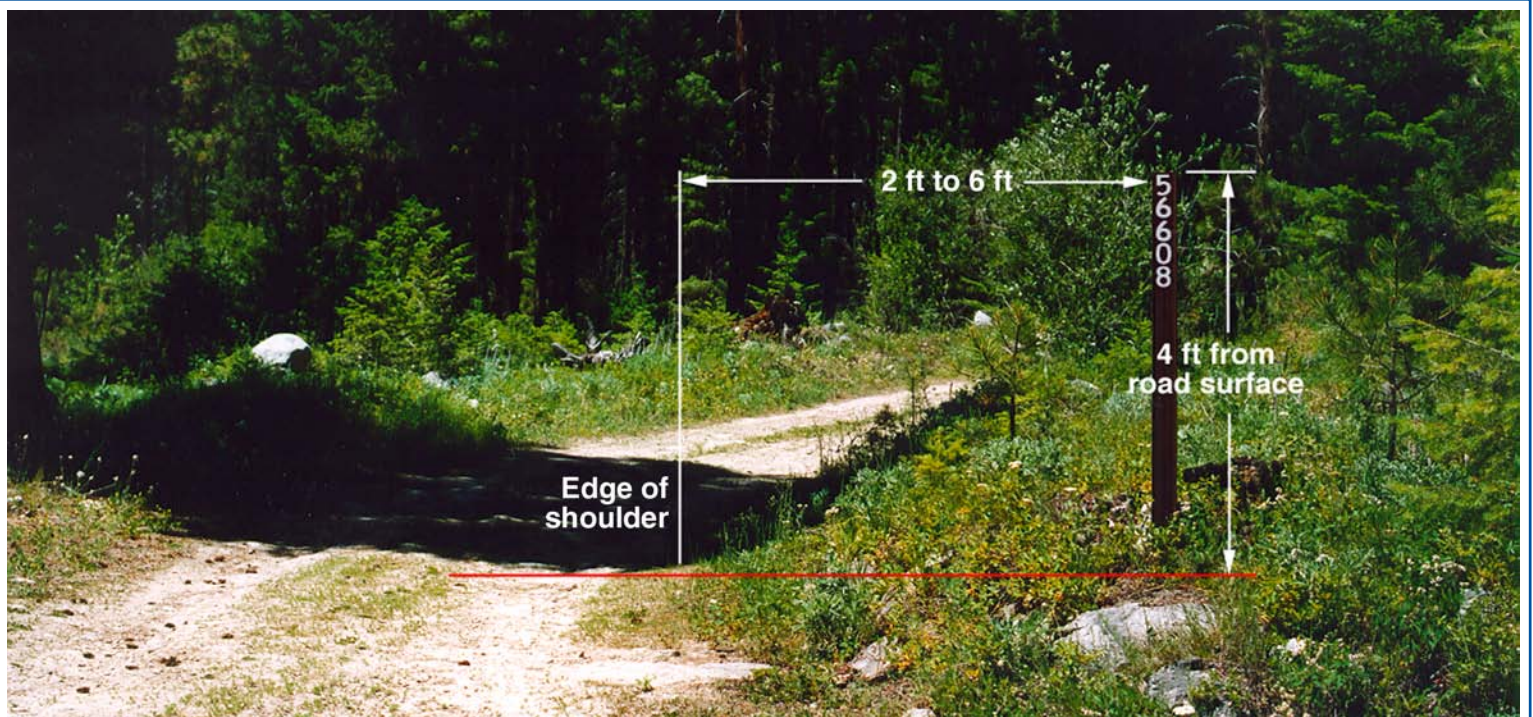
Horizontal or Distinctive Route Marker

On steep slope installations, minimum 2-ft distance is preferred to minimize pole height. Install 50 ft to 100 ft from road junction.

* See page iii for placement exceptions.

Page cut line. Do not print.

Page cut line. Do not print.



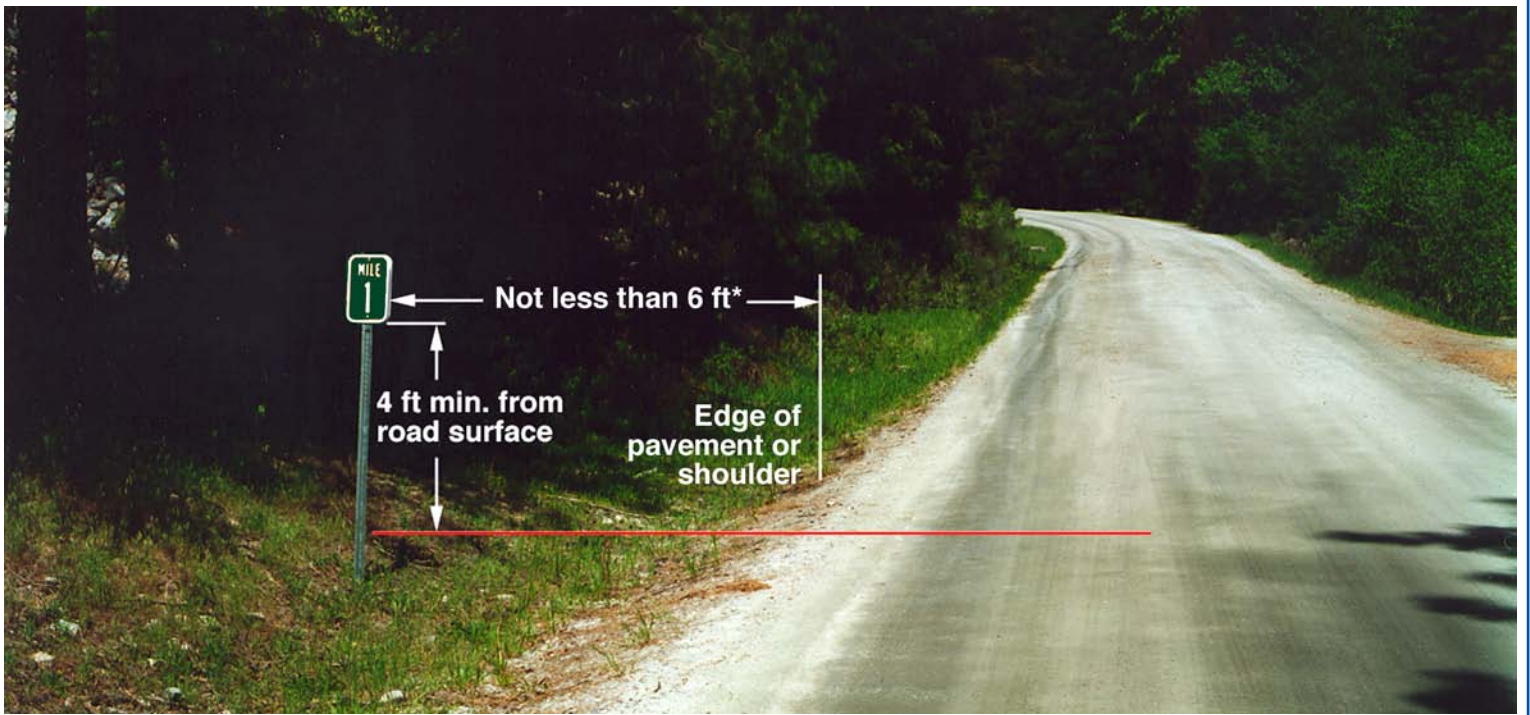
Vertical Route Marker (for maintenance level 1 and 2 roads)

Option: Use delineator post and mount wood or aluminum sign panel.



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Page cut line. Do not print.

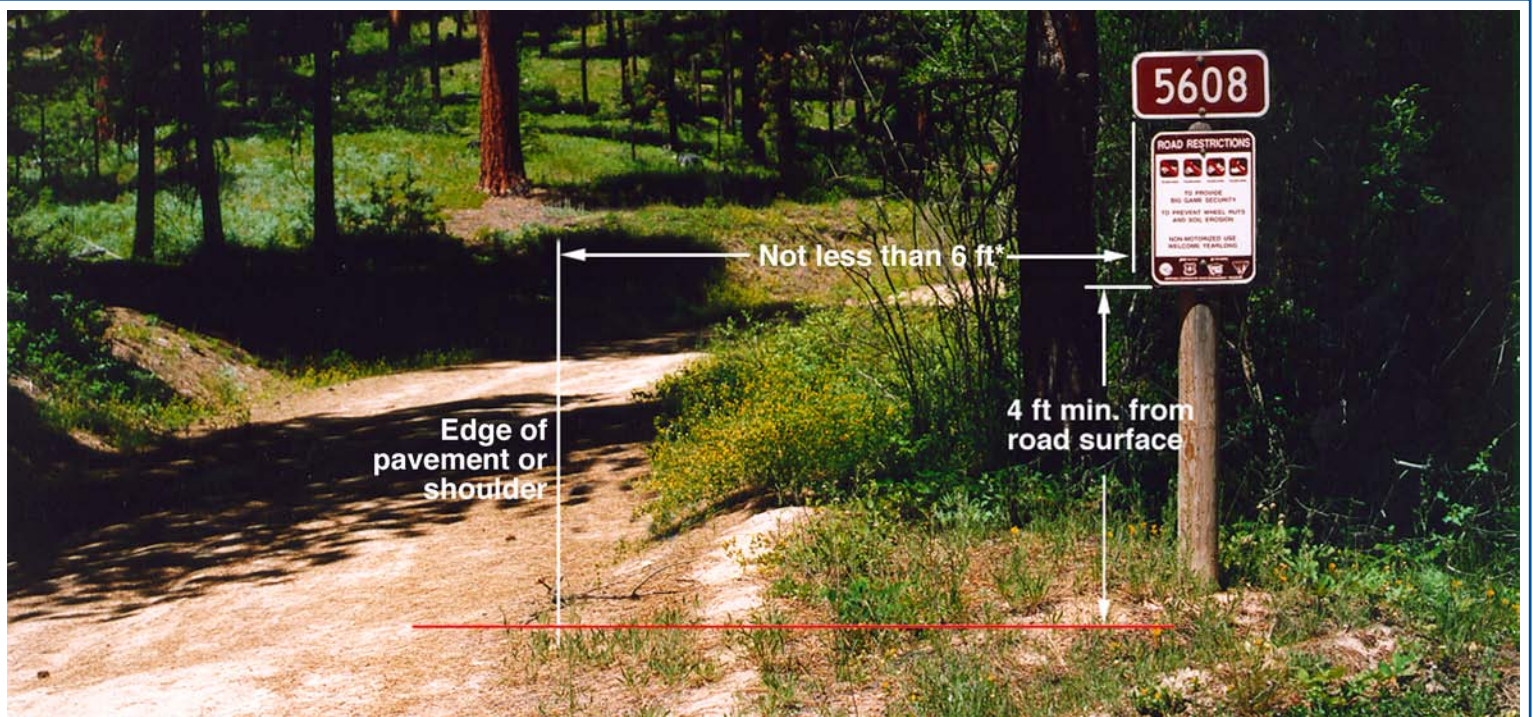


Milepost Marker

* See page iii for placement exceptions.

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Page cut line. Do not print.

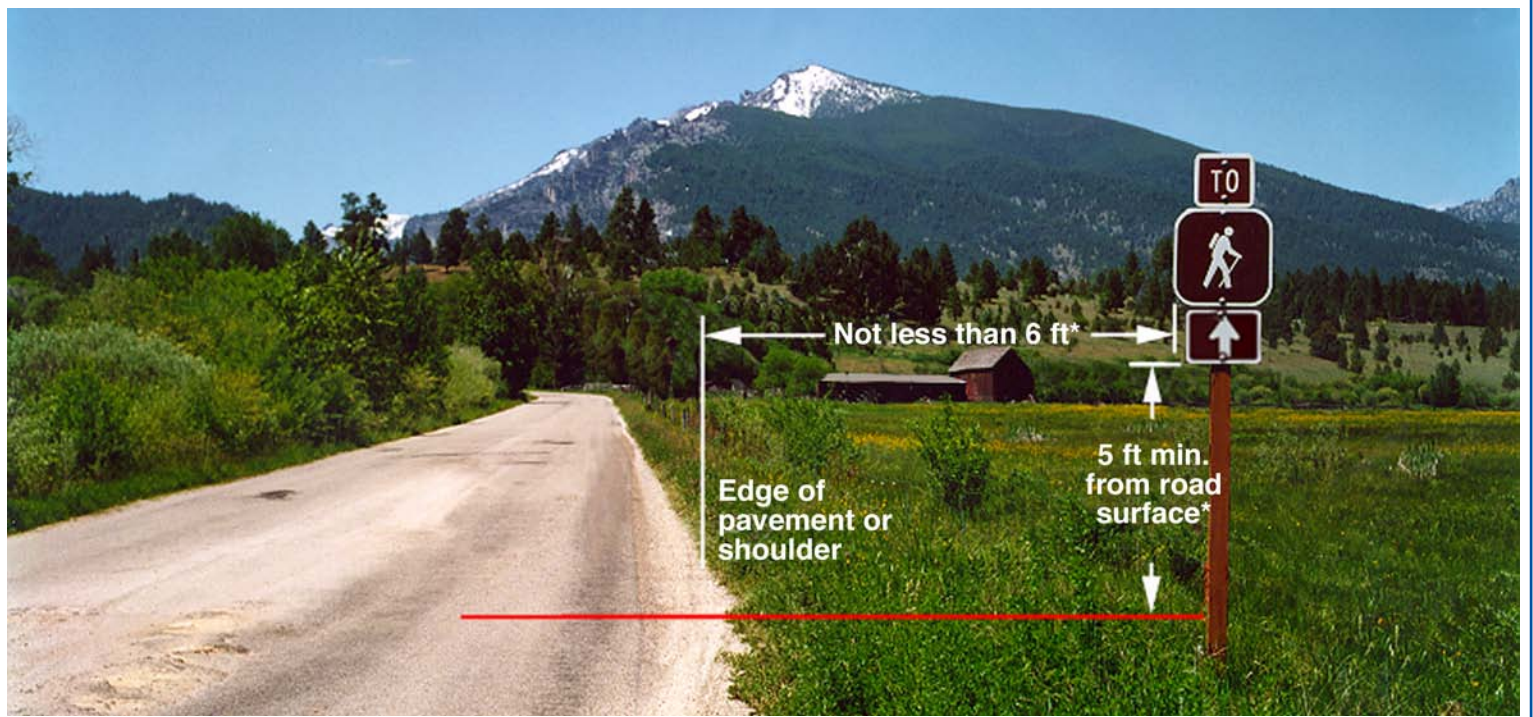


Travel Management Sign With Route Marker

If restrictions are noted on a travel management sign, an order must be written under 36 CFR 261.

* See page iii for placement exceptions.

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Trailblazer Assembly

A 1-in gap is allowable between multiple (stacked) signs to allow for expansion/contraction. Background colors on each assembly should be the same.

* See page iii for placement exceptions.



Federal Recreation Symbol Assembly

A 1-in gap is allowable between multiple (stacked) signs to allow for expansion/contraction. Generally, no more than four symbols should be mounted on a single sign assembly.

* See page iii for placement exceptions.

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Page 19
Blank
Rear Cover

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APPENDIX C
NEW ROADWAY CROSS SECTION VIEWS

0-5% FLAT CROSS SLOPE

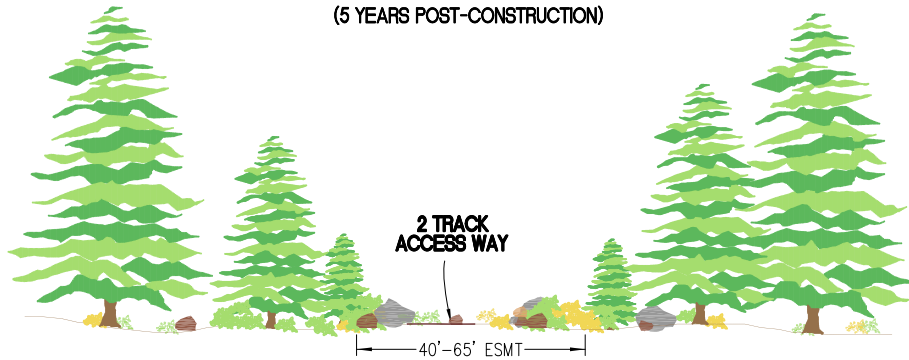
EXISTING CONDITION



PROJECT CONSTRUCTION CONDITION



FUTURE CONDITION
(5 YEARS POST-CONSTRUCTION)

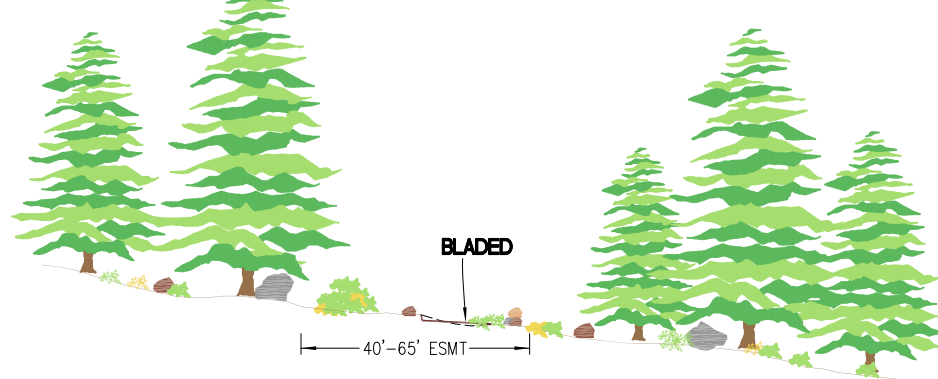


5-15% MODERATE CROSS SLOPE

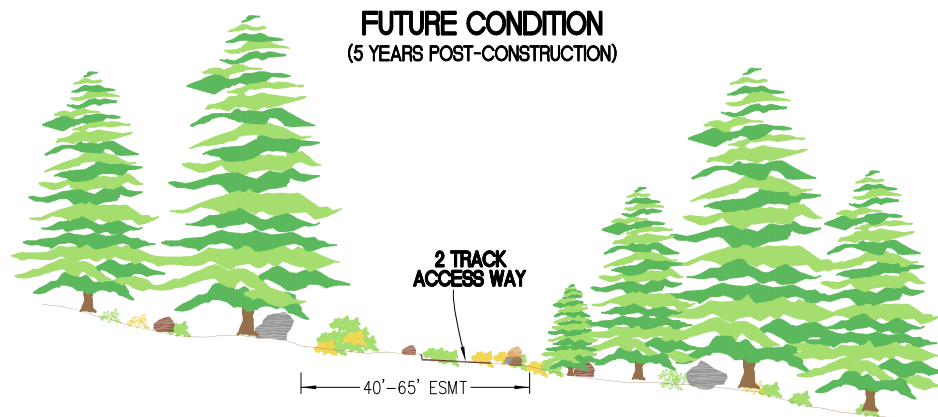
EXISTING CONDITION



PROJECT CONSTRUCTION CONDITION



FUTURE CONDITION
(5 YEARS POST-CONSTRUCTION)

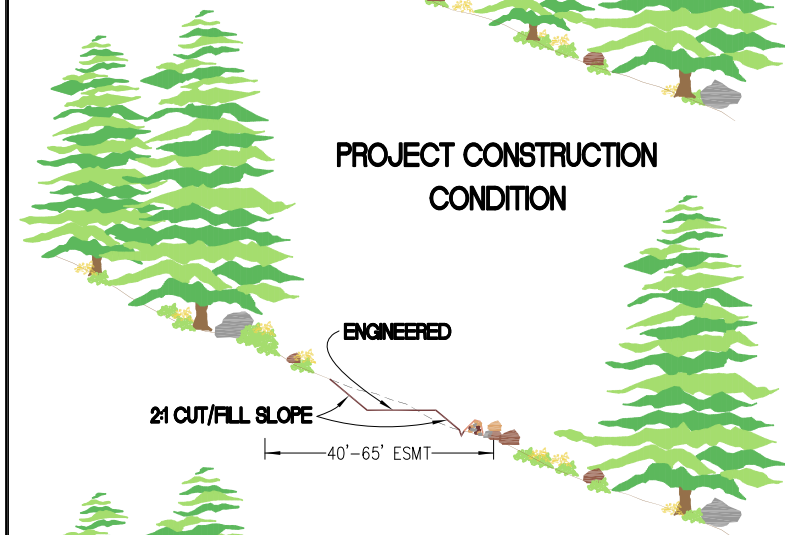


15%+ STEEP CROSS SLOPE

EXISTING CONDITION



PROJECT CONSTRUCTION
CONDITION



FUTURE CONDITION
(5 YEARS POST-CONSTRUCTION)

