

Regulatory and Warning Sign Installation Toolkit

Provided to you by:



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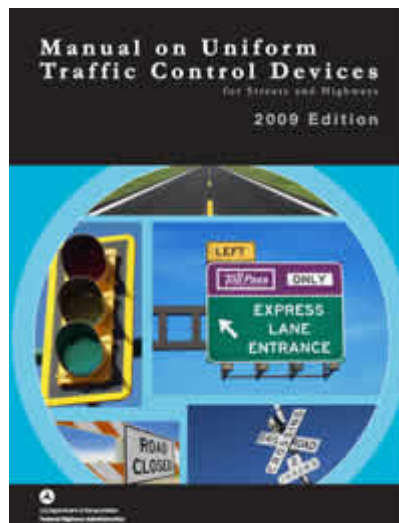
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Proper location, position and erection of signs are very important. The effectiveness of a sign can be compromised if it is not installed correctly. A sign that is confusing or one that a driver cannot see in time is useless. This toolkit contains information from the *2009 Manual on Uniform Traffic Control Devices (MUTCD)*, *The Standard Highway Signs Manual, English Version (2004 Edition)* and the *Sign Installation Guide (2003 Edition)*. This toolkit assumes all traffic control signs meet MUTCD standards. Uniform positioning 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.

More information and details regarding regulatory and warning signs can be found in the *MUTCD, 2009 Edition*, Chapters 2A, 2B and 2C. For information on other sign types regarding installation, guidelines and standards not listed in this toolkit, see *MUTCD, 2009 Edition*, Chapters 2D-2N.

All signs must conform to the *MUTCD*. Not all signs a sign company sells is a standard sign. Some sign companies sell non-standard signs (such as “Children At Play” signs).



The complete *Manual on Uniform Traffic Control Devices, 2009 Edition*, can be found at: http://mutcd.fhwa.dot.gov/pdfs/2009/pdf_index.htm.

Mounting Height

Mounting height is measured from the road surface to the bottom of the sign.

Primary Sign

Use a minimum of 5 feet in:

- Rural areas

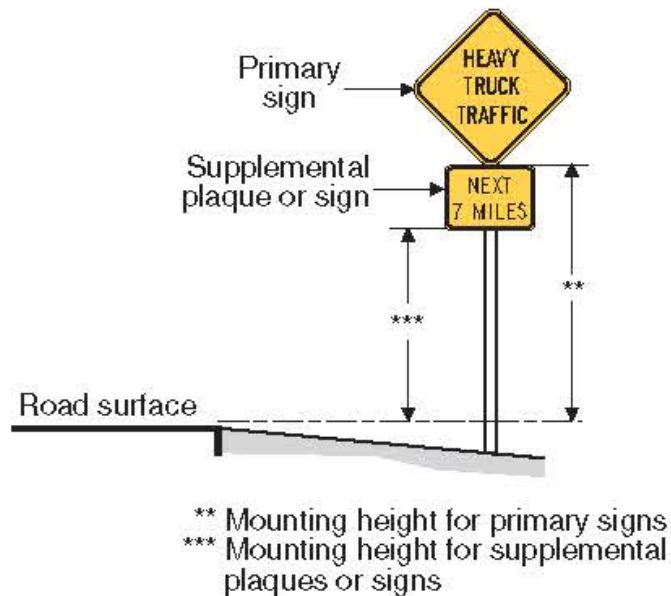
Use a minimum of 7 feet in:

- Areas with parking or pedestrians
- Urban, business, commercial, or residential areas
- Areas where the view of the sign may be obstructed

Supplemental plaque or sign

Supplemental plaques or signs may be 1 foot lower than the minimum mounting height for the primary sign. Note: supplemental signs are not always required. Please refer to the *MUTCD, 2009 Edition*, Section 2A for more information.

Allow a 1-inch gap between stacked signs so they can expand and contract.



Sign Installation Guide, 2010 Edition, Page 3

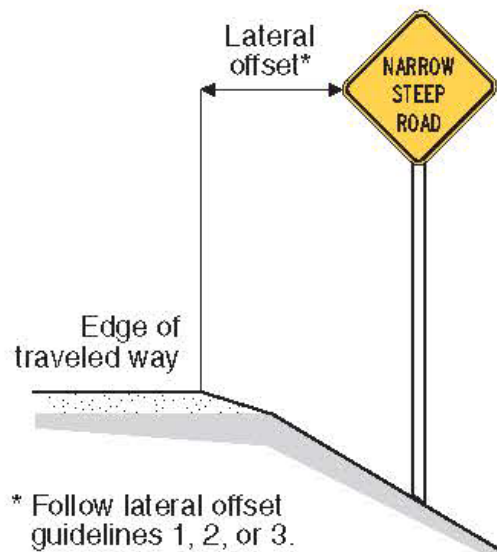
For further details and information, see Section 2A.18, MUTCD, 2009 Edition, Page 42

Lateral Offset

Lateral offset is the distance from the edge of the traveled way to the nearest edge of the sign—not the distance to the sign post.

1. On conventional roads, use:
 - a) A minimum of 12 feet from the edge of the traveled way.
 - b) Where the shoulder is wider than 6 feet, a minimum of 6 feet from the edge of the shoulder.
 - c) No less than 2 feet where it is impractical to follow a or b.
2. On roads where signs are placed behind barriers such as curbs or guardrails, use:
 - a) A minimum of 2 feet from the roadside edge of the barrier.
3. On low-volume roads (fewer than 400 vehicles per day) with no shoulders, use:
 - a) A minimum of 12 feet where terrain and vegetation permit.
 - b) A minimum of 2 feet where terrain or vegetation make it impractical to follow.

If a sign is installed within the clear zone, a breakaway sign post shall be used. Additional information regarding breakaway posts can be found on page 4 of the Sign Installation Guide, 2010 Edition. The clear zone is the area that ideally would be clear of obstacles that might be a hazard to a vehicle that left the road. The width of the clear area depends on traffic volume, vehicle speed, and the terrain.



Sign Installation Guide, 2010 Edition, Page 3

Sign Dimensions

There are general guidelines to follow in the design of highway signs in order to conform to basic standards. Many of these guidelines are mentioned in various sections of the *Manual on Uniform Traffic Control Devices (MUTCD)*, while others are derived from accepted practice in sign design and layout. Highway signs with standardized designs conforming to the general guidelines are shown in Tables 2B-1 & 2C-2 with different standard sizes depending on the type of highway or facility where the sign is intended to be used.¹ For instance, on the table below, a stop sign on a single lane conventional road would be 30 x 30.

Message variability controls overall sign dimensions. Whenever practicable, the overall dimensions of the sign plates should be in multiples of 6 inches (150 mm).¹

The use of a smaller than “nominal” size for the various four types of roadway signs may sometimes be justified. For instance, a sign mounted over a particular roadway lane to which it applies may have to be limited in width to the lane width. In some cases, vertical clearances may limit the vertical dimension of the sign. On the other hand, a larger than “nominal” sign may be desirable where greater legibility or emphasis is needed. When a variation in the “standard” size is necessary, a reduced or enlarged (as the case may be) letter height, interline, and edge spacing may be used but should be as nearly comparable to standards as possible.¹

Regulatory Signs

Table 2B-1. Regulatory Sign and Plaque Sizes, *MUTCD, 2009 Edition*.

This is just a partial table taken from the MUTCD, for full table, see pages 46-50.

Sign or Plaque	Sign Designation	Section	Conventional Road		Expressway	Freeway	Minimum	Oversized
			Single Lane	Multi-Lane				
Stop	R1-1	2B.05	30 X 30*	36x36	36x 36	—	30 X 30*	48x 48
Yield	R1-2	28.08	36x36x36*	48x48x48	48x48x48	60x60x60	30x30x30*	—
To Oncoming Traffic (plaque)	R1-2aP	2B.10	24x 18	24 X 18	36x 30	48x 36	24x 18	—
All Way (plaque)	R1-3P	28.05	18x 6	18x 6	—	—	—	30x 12
Yield Here to Peds	R1-5	2B.11	—	36x36	—	—	—	36x 36
Yield Here to Pedestrians	R1-5a	28.11	—	36 x48	—	—	—	36x 48
Stop Here for Peds	R1-5b	2B.11	—	36x 36	—	—	—	36x 36
Stop Here for Pedestrians	R1-5c	28.11	—	36x 48	—	—	—	36x 48
In-Street Ped Crossing	R1-6,6a	2B.12	12x 36	12x 36	—	—	—	—
Overhead Ped Crossing	R1-9,9a	28.12	90x 24	90x 24	—	—	—	—
Except Right Turn (plaque)	R1-10P	2B.05	24x 18	24x 18	—	—	—	—
Speed Limit	R2-1	28.13	24 X 30*	30x 36	36x 48	48x60	18 X 24*	30x 36

Section 2B.03 Size of Regulatory Signs (2009 MUTCD)

Standard:

- 06 A minimum size of 36 x 36 inches shall be used for STOP signs that face multi-lane approaches
- 07 Where side roads intersect a multi-lane street or highway that has a speed limit of 45 mph or higher, the minimum size of the STOP signs facing the side road approaches, even if the side road only has one approach lane, shall be 36 x 36 inches.
- 08 Where side roads intersect a multi-lane street or highway that has a speed limit of 40 MPH or lower, the minimum size of the STOP signs facing the side road approaches shall be as shown in the Single Lane or Multi-lane columns of Table 2B-1 based on the number of approach lanes on the side street approach.

¹ *Standard Highway Signs, English Version, 2004 Edition, Design Guidelines.*

Sign Dimensions (cont.)

Warning Signs

Table 2C-2. Warning Sign and Plaque Sizes, MUTCD, 2009 Edition.

This is just a partial table taken from the MUTCD, for full table, see pages 105-107.

Sign or Plaque	Sign Designation	Section	Conventional Road		Expressway	Freeway	Minimum	Oversized
			Single Lane	Multi-Lane				
Horizontal Alignment	W1-1,2,3,4,5	2C.07	30 x 30*	36x 36	36x36	36x36	—	48x48
Combination Horizontal Alignment/Advisory Speed	W1-1a,2a	2C.10	36x 36	36x 36	48 x48	48x48	—	48x48
One-Direction Large Arrow	W1-6	2C.12	48x 24	48x 24	60x30	60x30	—	60x30
Two-Direction Large Arrow	W1-7	2C.47	48x 24	48x 24	—	—	—	60x30
Chevron Alignment	W1-8	2C.09	18x 24	18x 24	30x36	36x48	—	24x30
Combination Horizontal Alignment/Intersection	W1-10,10a,10b,10c,10d,10e	2C.11	36x 36	36x 36	36 x36	48x48	—	—
Hairpin Curve	W1-11	2C.07	30x 30	30x 30	36x36	48x48	—	48x 48
Truck Rollover	W1-13	2C.13	36x 36	36x 36	36x36	48x 48	—	36x 36
270-degree Loop	W1-15	2C.07	30x 30	30x 30	36x36	48x 48	—	48x 48
Intersection Warning	W2-1,2,3,4,5,6,7,8	2C.46	30x 30	30x 30	36x36	—	24x 24	48x 48
Advanced Traffic Control	W3-1,2,3	2C.36	30x 30	30x 30	48x48	48x 48	30x 30	—
Be Prepared to Stop	W3-4	2C.36	36x 36	36x 36	48x48	48x 48	30 x30	—
Reduced Speed Limit Ahead	W3-5	2C.38	36x 36	36x 36	48x48	48x 48	—	—
XX MPH Speed Zone Ahead	W3-5a	2C.38	36x 36	36x 36	48x48	48x 48	—	—
Draw Bridge	W3-6	2C.39	36x 36	36x 36	48x48	—	—	60x 60
Ramp Meter Ahead	W3-7	2C.37	36x 36	36x 36	—	—	—	—
Ramp Metered When Flashing	W3-8	2C.37	36x 36	36x 36	—	—	—	—
Merge	W4-1	2C.40	36x 36	36x 36	48x48	48x 48	30 x 30*	—
Lane Ends	W4-2	2C.42	36x36	36x 36	48x 48	48x 48	30 x 30*	—

Section 2C.04 Size Warning Signs (2009 MUTCD)

Standard:

01 Except as provided in Section 2A.11, the sizes for warning signs shall be as shown in Table 2C-2.

03 ...the minimum size for all diamond-shaped warning signs facing traffic on a multi-lane conventional road where the posted speed limit is higher than 35 mph shall be 36 x 36 inches.

Examples of Regulatory Sign Installations

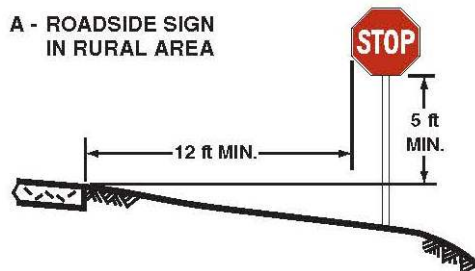


Section 2B.01 Application of Regulatory Signs (2009 MUTCD)

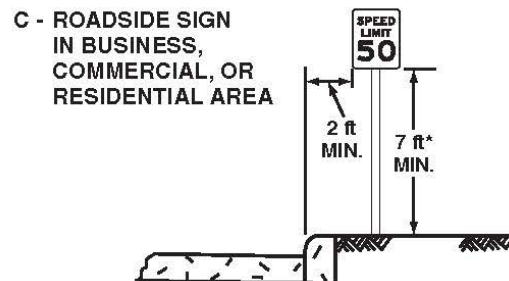
Standard:

- 01 Regulatory signs shall be used to inform road users of selected traffic laws or regulations and indicate the applicability of the legal requirements.
- 02 Regulatory signs shall be installed at or near where the regulations apply. The signs shall clearly indicate the requirements imposed by the regulations and shall be designed and installed to provide adequate visibility and legibility in order to obtain compliance.

Placement of regulatory signs in rural areas. (Figure 2A-2, MUTCD, 2009 Edition, Page 38)



Placement of regulatory signs in business, commercial or residential areas (urban). (Figure 2A-2, MUTCD, 2009 Edition, Page 38)



*Where parking or pedestrian movements are likely to occur

Examples of Warning Sign Installations

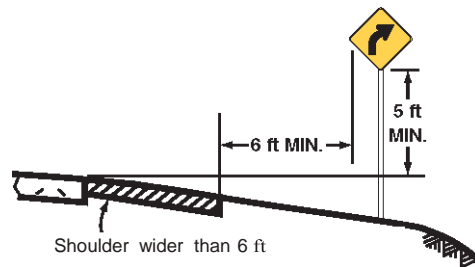


Section 2C.01 Function of Warning Signs (2009 MUTCD)

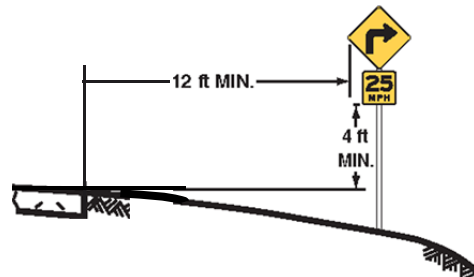
Support:

- 01 Warning signs call attention to unexpected conditions on or adjacent to a highway, street, or private roads open to public travel and to situations that might not be readily apparent to road users. Warning signs alert road users to conditions that might call for a reduction of speed or an action in the interest of safety and efficient traffic operations.

Placement of warning signs in rural areas: (Figure 2A-2, MUTCD, 2009 Edition, Page 38)



Placement of Warning Sign with Advisory Speed Plaque in Rural Area
(Figure 2A-2, MUTCD, 2009 Edition, Page 38)



Helpful Websites

Manual on Uniform Traffic Control Devices (MUTCD), 2009 Edition
http://mutcd.fhwa.dot.gov/pdfs/2009/pdf_index.htm

Standard Highway Signs and Markings Book (SHSM), 2004 Edition
http://mutcd.fhwa.dot.gov/ser-shs_millennium.htm

Guidelines for Traffic Control in Work Zones
http://kyt2.evasiv.com/assets/files/uploads/wztcguide_all_final_05072008.pdf

Sign Installation Guide, 2010 Edition
<http://www.fs.fed.us/eng/pubs/pdfpubs/pdf10712812/pdf10712812dpi300.pdf>

Traffic Operations Guidance Manual, Commonwealth of Kentucky Transportation Cabinet, 2005 Edition
http://transportation.ky.gov/organizational_resources/policy%20manuals%20library/traffic%20operations.pdf

