

The practice, in some localities, of placing the Railroad Crossbuck sign on a pedestal or an island in the center of an undivided roadway is strongly disapproved. A Railroad Advance Warning sign (sec. 2C-31) should be used in advance of the Railroad Crossbuck.



R15-1
48" x 9"
(drilled for 90-degree mounting)



R15-2
9" x 9"
27" x 9"

2B-43 Other Regulatory Signs

Regulatory signs other than those classified and specified in this Manual may be required to aid the enforcement of other laws or regulations.

Typical miscellaneous regulatory signs are KEEP OFF WET PAINT, NO DUMPING ALLOWED, DO NOT THROW LITTER, NO FISHING FROM BRIDGE, and EMERGENCY AND AUTHORIZED VEHICLES ONLY, the uses of which are sufficiently obvious to require no detailed specifications. Care should be taken to avoid the use of special signs whenever a standard sign will serve the purpose.

C. WARNING SIGNS

2C-1 Application of Warning Signs

Warning signs are used when it is deemed necessary to warn traffic of existing or potentially hazardous conditions on or adjacent to a highway or street. Warning signs require caution on the part of the motorist and may call for reduction of speed or a maneuver in the interest of his own safety and that of other motorists and pedestrians. Adequate warnings are of great assistance to the vehicle operator and are valuable in safe-guarding and expediting traffic. The use of warning signs should be kept to a minimum however, because the unnecessary use of them to warn of conditions which are apparent tends to breed disrespect for all signs.

Even on the most modern expressways there may be some conditions to which the driver can be alerted by means of warning signs. These conditions are in varying degrees common to all highways, and existing standards for warning signs are generally applicable to expressways.

Typical locations and hazards that may warrant the use of warning signs are :

1. Changes in horizontal alignment
2. Intersections
3. Advance warning of control devices
4. Converging traffic lanes
5. Narrow roadways
6. Changes in highway design
7. Grades
8. Roadway surface conditions
9. Railroad crossings
10. Entrances and crossings
11. Miscellaneous

The Advisory Speed plate (sec. 2C-36), used only to supplement one of the other standard warning signs, is in a special category as to design and application.

Special warning signs at highway construction and maintenance sites are dealt with in Part VI.

The determination of the sign or signs to be erected shall be on the basis of an engineering study using the following sections as guidelines.

Warning signs specified herein cover most conditions that are likely to be met. If other warnings are needed, the signs shall be of standard shape and color for warning signs, and the legends shall be brief and easily understood.

2C-2 Design of Warning Signs

All warning signs in this Part, with the following exceptions, shall be diamond-shaped (square with one diagonal vertical) with black legend and border on a yellow background.

Large Arrow Sign—horizontal rectangle with black symbol and border on yellow background.

Traffic Signal Ahead Sign—a red, yellow, green and black signal head symbol on a yellow diamond.

Railroad Advance Warning Sign—round with black legend on yellow background.

Advisory Speed plate—square with black legend on a yellow background.

No Passing Zone Sign—pennant shaped with black legend on yellow background.

Certain other exceptions are permitted if the message and location of the sign can justify the variance. This provision shall not be construed as permitting either a general use of rectangular warning signs or deviations from the standard messages where standard messages are applicable.

All warning signs having significance during the hours of darkness shall have a fully reflectorized background or be illuminated.

The standard size for each warning sign prescribed herein is shown with the illustration accompanying the specification. Where conditions of speed, volume, or special hazard require greater visibility or emphasis, larger signs should be used, with symbol or legend enlarged approximately in proportion to outside dimensions.

To carry proper emphasis among large signs for other purposes, all warning signs on expressways should be not less than 48 inches by 48 inches.

To permit the use of standard dies and templates the outside dimensions of warning signs should ordinarily be in multiples of 6 inches. Letter heights should be rounded to the nearest integral inch that will best fit the plate used for legibility and appearance.

2C-3 Placement of Warning Signs

Warning signs shall be erected in accordance with the general requirements for sign position (secs. 2A-21 to 29).

Since warning signs are primarily for the protection of the driver who is unacquainted with the road, it is very important that care be given to their locations. In rural areas, warning signs should normally be placed about 750 feet in advance of the hazard or conditions. On high-speed roads, and particularly on freeways, advance warning distances may have to be as great as 1,500 feet or more. Where speeds are relatively low in urban areas, the advance distance should be only about 250 feet.

The actual advance warning distance will be determined by two factors, the prevailing speed and the prevailing condition. These bear respectively on the time available to the driver to comprehend and react to the message, and the time needed by him to perform any necessary maneuver.

The effectiveness of the placement of any warning sign should be tested periodically under both day and night conditions.

Figure 2-5 shows typical installations of standard warning signs. The placement of temporary warning signs used at highway construction and maintenance sites is covered in Part VI of this Manual.

2C-4 Turn Sign (W1-1)

The Turn sign (W1-1R or 1L) is intended for use where engineering investigations of roadway, geometric, and operating conditions show the recommended speed on a turn to be 30 MPH or less,

and this recommended speed is equal to or less than the speed limit established by law or by regulation for that section of highway. Where a Turn sign is warranted, a Large Arrow sign (sec. 2C-9) may be used on the outside of the turn. Additional protection may be provided by use of the Advisory Speed plate (sec. 2C-36).



W1-1R
30" x 30"



W1-2R
30" x 30"

2C-5 Curve Sign (W1-2)

The Curve sign (W1-2R or 2L) is intended for use where engineering investigations of roadway, geometric, and operating conditions show the recommended speed on the curve to be in the range between 30 and 60 miles per hour and equal to or less than the speed limit established by law or by regulation for that section of highway. Additional protection may be provided by use of the Advisory Speed plate (sec. 2C-36).

2C-6 Reverse Turn Sign (W1-3)

The Reverse Turn sign is intended for use to mark two turns or a curve and a turn in opposite directions as defined in the warrants or Turn and Curve signs (secs. 2C-4 and 5) that are separated by a tangent of less than 600 feet. If the first turn is to the right, a Right Reverse Turn sign (W1-3R) shall be used and if the first turn is to the left, a Left Reverse Turn sign (W1-3L) shall be used.

For additional protection the Advisory Speed plate (sec. 2C-36) may be used.



W1-3R
30" x 30"



W1-4R
30" x 30"

2C-7 Reverse Curve Sign (W1-4)

The Reverse Curve sign is intended for use to mark two curves in opposite directions, as defined in the warrants for curve signs (sec. 2C-5) that are separated by a tangent of less than 600 feet. If the first curve is to the right, a Right Reverse Curve sign (W1-4R) shall be used, and if the first curve is to the left, a Left Reverse Curve sign (W1-4L) shall be used.

For additional protection the Advisory Speed plate (sec. 2C-36) may be used.

2C-8 Winding Road Sign (W1-5)

The Winding Road sign is intended for use where there is a series of turns or curves, as defined in the warrants for Turn and Curve signs (secs. 2C-4 and 5), separated by tangent distances of less than 600 feet. If the first turn or curve is to the right, a Right Winding Road sign (W1-5R) shall be used, and if the first curve or turn is to the left, a Left Winding Road sign (W1-5L) shall be used.

If the Winding Road sign is used it shall be erected in advance of the first curve.

Additional warning may be provided by the installation of road delineation markers (sec. 3D-4) and by use of the Advisory Speed plate (sec. 2C-36). Where there are fewer than five curves in succession, one or more Reverse Turn or Reverse Curve signs should be used in lieu of the Winding Road sign (W1-5).



W1-5R
30" x 30"

2C-9 Large Arrow Sign (W1-6, W1-7)

The Large Arrow sign shall be a horizontal rectangle with a standard size of 48 inches by 24 inches, having a large arrow (W1-6) or a double head arrow (W1-7). It shall have a yellow background with symbol in black for normal application.

A Large Arrow sign is intended to be used to give notice of a sharp change of alignment in the direction of travel. It cannot be justified where there is no change in the direction of travel (ends of medians, center piers, etc.).



W1-6
48" x 24"



W1-7
48" x 24"

The Large Arrow sign shall be erected on the outside of a curve or on the far side of an intersection, in line with, and at right angles to, approaching traffic.

To be effective the Large Arrow sign should be visible for at least 500 feet and trial runs by day and night may be desirable to determine final positioning.

2C-10 Cross Road Sign (W2-1)

The Cross Road sign is intended for use on a through highway to indicate the presence of an obscured crossroad intersection. It is not ordinarily used where Junction signs (secs. 2D-14, 2D-29) or other warning signs are present.

The relative importance of the intersecting roads may be shown by different widths of line in the diagram.

The diagram for a crossroad intersection with a slight offset should indicate that the side roads are not opposite each other. If the crossroad occurs in the vicinity of a curve the symbol may be modified appropriately.



W2-1
30" x 30"

2C-11 Side Road Sign (W2-2, W2-3)

The Side Road sign, showing a side-road symbol, either left or right, and at an angle of either 90 or 45 degrees, is intended for use in advance of a side-road intersection according to the same warrants as set forth for the Cross Road sign (sec. 2C-10).

The relative importance of the intersecting roads may be shown by different widths of line in the diagram. If the side road occurs in the vicinity of a curve the symbol may be modified appropriately.



W2-2
30" x 30"



W2-3
30" x 30"

2C-12 T Symbol Sign (W2-4)

The T symbol sign is intended for use to warn traffic approaching a T-intersection on the road that forms the stem of the T, i.e., where traffic must make a turn either to the right or to the left. The sign should not generally be used on an approach where traffic is required to stop before entering the intersection, nor at a T-intersection that is channelized by traffic islands, nor where Junction signs or Advance Turn Arrows are present.

The relative importance of the intersecting roads may be shown by different widths of line in the diagram.



W2-4
30" x 30"



W2-5
30" x 30"

It may be desirable to place a double-headed Large Arrow sign at the head of the T, directly in line with approaching traffic (sec. 2C-9).

2C-13 Y Symbol Sign (W2-5)

The Y symbol sign is intended for use to warn traffic approaching a Y-intersection on the road that forms the stem of the Y. The sign should not generally be used at a Y-intersection that is channeled by traffic islands, nor where Junction signs or Advanced Turn Arrows are present.

The relative importance of the intersecting roads may be shown by different widths of line in the diagram.

It may be desirable to erect a double-headed Large Arrow sign (sec. 2C-9) at the fork of the Y directly in line with approaching traffic.

2C-14 Stop Ahead Sign (W3-1)

A STOP AHEAD sign is intended for use upon approaching a STOP sign that is not visible for sufficient distance to permit the driver to bring his vehicle to a stop at the STOP sign. Obstruction(s) causing the limited visibility may be permanent or intermittent.

The STOP AHEAD sign shall be a minimum of 30 inches by 30 inches in size.

In some cases, it may be used for emphasis where there is poor observance of the STOP sign.



W3-1
36" x 36"



W3-2
36" x 36"

2C-15 Yield Ahead Sign (W3-2)

A YIELD AHEAD sign is intended for use upon approaching a YIELD sign that is not visible for sufficient distance to permit the

driver to bring his vehicle to a stop at the YIELD sign. Obstruction(s) causing the limited visibility may be permanent or intermittent.

The YIELD AHEAD sign shall be a minimum of 30 inches by 30 inches in size.

2C-16 Signal Ahead Sign (W3-3)

A Signal Ahead sign is intended for use in advance of any signalized location where physical conditions prevent drivers from having a continuous view of at least two signal indications for distances specified in section 4B-12. The word message SIGNAL AHEAD (W3-3a) may be used as an alternate.



W3-3
36" x 36"
24" x 18"



W3-3a
36" x 36"

2C-17 Merge Sign (W4-1)

A Merge sign is intended for use to warn motorists that merging movements may be encountered in advance of a point where two (2) roadways converge and no turning conflict occurs.

The sign should be erected on the side of the major roadway on which merging traffic will be encountered and in such a position as not to obstruct the driver's view of vehicles on the entering roadway. Ordinarily the motorists on the minor or ramp roadway are aware that they may have to merge with other traffic, but an additional sign may be placed on the entering roadway as a reminder. Where two roadways of approximately equal importance converge, a sign should be placed on each roadway.

The Merge sign should not be used in place of a Pavement Width Transition sign where lines of traffic moving on a single roadway

must merge due to a reduction in the actual or usable pavement width (sec. 2C-18).



W4-1
30" x 30"
24" x 18"

2C-18 Pavement Width Transition Signs (W4-2) (W9-1) (W9-2)

A Pavement Width Transition sign (W4-2) is intended for use if advance notice is needed to warn of the reduction in the number of lanes of pavement, as from three lanes to two lanes, or from four lanes to two lanes. It is not justified in advance of the end of an acceleration lane. It may be used through maintenance or construction sites (sec. 6B-22).

On one-way roadways where the width of the median island will permit, two such signs can be placed facing approaching traffic, one on the right side and the other on the median island.

The LANE ENDS MERGE LEFT (RIGHT) sign (W9-2) is intended for use as a supplement to the Pavement Width Transition sign (W4-2).

The RIGHT (LEFT) LANE ENDS sign (W9-1) is intended for use in advance of the Pavement Width Transition sign (W4-2) or the LANE ENDS MERGE LEFT (RIGHT) sign (W9-2) if it is used.



W4-2
36" x 36"



W9-1
30" x 30"



W9-2
36" x 36"

2C-19 Road Narrows Sign (W5-1)

A ROAD NARROWS sign is intended for use in advance of a transition on two-lane roads where the pavement width is reduced abruptly to a width such that two cars cannot pass safely without reducing speed. Additional protection may be provided by the use of reflector markers (sec. 3D-4).

2C-20 Narrow Bridge Sign (W5-2)

A NARROW BRIDGE sign is intended for use in advance of a bridge having a clear two-way roadway width of 16 to 18 feet, inclusive, or any bridge having a roadway clearance less than the width of the approach pavement. Additional protection may be provided by the use of reflector markers (sec. 3D-4).



W5-1
36" x 36"



W5-2
30" x 30"



W5-3
36" x 36"

2C-21 One Lane Bridge Sign (W5-3)

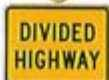
A ONE LANE BRIDGE sign is intended for use on two-way roadways in advance of bridges:

1. Having a clear roadway width of less than 16 feet
2. Having a clear roadway width of less than 18 feet when commercial vehicles constitute a high proportion of the traffic
3. When the alignment is poor on the approach to a structure having a clear roadway width of 18 feet or less.

Additional protection may be provided by the use of reflector markers (sec. 3D-4).

2C-22 Divided Highway (Road) Sign (W6-1)

A Divided Highway sign is intended for use on the approaches to a section of highway (not an intersection or junction) where the opposing flows of traffic are separated by a physical barrier. The word message DIVIDED HIGHWAY (ROAD) may be used as an alternate (W6-1a).



W6-1
36" x 36"
24" x 18"



W6-1a
36" x 36"

2C-23 Divided Highway (Road) Ends Sign (W6-2)

A Divided Highway (Road) Ends sign is intended for use at the end of a section of physically divided highway (not an intersection or junction) as a warning of two-way traffic ahead. The Two-way Traffic sign (sec. 2C-24) can be used to give additional warning and notice just in advance of the transition to the two-way section. The word message DIVIDED HIGHWAY (ROAD) ENDS may be used as an alternate (W6-2a).



W6-2
36" x 36"
24" x 18"



W6-2a
36" x 36"

2C-24 Two-Way Traffic Sign (W6-3)

A Two-Way Traffic sign is intended for use to give warning of a transition from a separated one-way roadway to a two-way roadway. This sign may be used as required at intervals to periodically remind

drivers that they are on a two-way roadway except in no-passing zones. The word message TWO WAY TRAFFIC (W6-3a) may be used as an alternate legend.



W6-3
30" x 30"
24" x 18"



W6-3a
30" x 30"

2C-25 Hill Sign (W7-1, W7-2)

The Hill sign (W7-1) is intended for use in advance of a down-grade where the length, percent of grade, horizontal curvature, or combination thereof, requires special precautions on the part of drivers. The word message HILL (W7-1a) may be used as an alternate legend.



W7-1
30" x 30"
24" x 18"



W7-1a
30" x 30"

Where conditions may require a descent of the grade in intermediate or low gear, the oversize Hill sign, 48 inches by 48 inches

in size, with a secondary message on a supplemental plate **USE SECOND GEAR (W7-2)**, **USE LOW GEAR (W7-2a)**, **TRUCKS USE LOWER GEAR (W7-2b)**, or similar warning, may be used.



W7-2
24" x 18"



W7-2a
24" x 18"



W7-2b
24" x 18"

2C-26 Bump Sign (W8-1)

A **BUMP** sign is intended for use to give warning of a sharp rise in the profile of the road that is sufficiently abrupt to create a hazardous condition, to cause considerable discomfort to passengers, to cause a shifting of the cargo, or to deflect a vehicle from its true course at the normal driving speeds for the road.

It may be desirable at some locations to supplement the **BUMP** sign with an Advisory Speed plate (sec. 2C-36).

2C-27 Dip Sign (W8-2)

A **DIP** sign is intended for use to give warning of a depression in the profile of the road that is sufficiently abrupt to create a hazardous condition to cause considerable discomfort to passengers, to cause a shifting of the cargo, or to deflect a vehicle from its true course at the normal driving speeds for the road.

It may be desirable at some locations to supplement the **DIP** sign with an Advisory Speed plate (sec. 2C-36).

The **DIP** sign shall not be used at a short stretch of depressed alignment that may momentarily hide a vehicle. Such a condition should be treated as a no-passing zone (secs. 3B-3 to 5).



W8-1
30" x 30"



W8-2
30" x 30"



W8-3
30" x 30"

2C-28 Pavement Ends Sign (W8-3)

A PAVEMENT ENDS sign is intended for use to warn where a pavement surface changes from a hard-surfaced pavement to a low-type surface or earth road.

2C-29 Soft Shoulder Sign (W8-4)

The SOFT SHOULDER sign is intended for use to warn of a shoulder condition that presents a hazard to vehicles that may get off the pavement.

One sign shall be placed near the beginning of the soft-shoulder condition, and other signs shall be placed at intervals throughout the length of the road where the condition exists.



W8-4
30" x 30"

2C-30 Slippery When Wet Sign (W8-5)

The Slippery When Wet sign is intended for use to warn of a condition where the highway surface is extraordinarily slippery when wet.

It should be located in advance of the beginning of the slippery section and at appropriate intervals on long sections of such pavement.



W8-5
30" x 30"
24" x 18"



W10-1
36" Diameter

2C-31 Railroad Advance Warning Sign (W10-1)

A Railroad Advance Warning sign shall be used in advance of every railroad crossing, except at a minor spur or siding which is infrequently used and which is guarded by train crews; or in the business districts of large cities where the crossings are fully protected; or where the physical conditions are such that even a partially effective display of the sign is impossible.

On a divided highway it may be desirable to erect a supplemental sign on the left shoulder of the roadway. In residence or business districts, where low speeds are prevalent, the sign may be placed a minimum distance of 100 feet from the crossing. If there is a street intersection within 100 feet an additional sign or signs may be placed to warn traffic approaching the crossing from each intersected street.

Railroad Advance Warning signs are usually off the railroad right-of-way and are properly the responsibility of the public authorities. The application of Railroad Crossbuck signs on the railroad right-of-way is described in section 2B-42.

2C-32 Bicycle Crossing Sign (W11-1)

The Bicycle Crossing sign is intended for use in advance of a point where an officially designated bicycle trail crosses a roadway.



W11-1
30" x 30"
24" x 18"

2C-33 Other Crossing Signs (W11 Series)

Other crossing symbol signs may be justified to warn of unexpected hazard or vehicular traffic. If the unexpected hazard or hazards are seasonal or temporary, the signs should be removed if and when the hazardous conditions are terminated or cease to exist.

In many instances it may be desirable to define the crossing by pavement markings (sec. 3B-15).



**PED
XING**

W11-2
30" x 30"
24" x 18"



**DEER
XING**

W11-3
30" x 30"
24" x 18"



**CATTLE
XING**

W11-4
30" x 30"
24" x 18"



**FARM
MACHINERY**

W11-5
30" x 30"
24" x 18"

2C-34 Double Arrow Sign (W12-1)

The Double Arrow sign showing two arrows pointing downward to right and left is intended for use at loading and refuge islands, traffic islands with curbs and other obstructions in the roadway, where traffic is permitted to pass on either side of the island or obstruction. It shall have a standard, and minimum, size of 24 inches by 24 inches.

The sign should normally be mounted at a height of 7 feet from the pavement to the bottom of the sign. On an island, it should be mounted at the approach end or as close thereto as practicable. It

should be mounted on the face of, or just in front of a pier or other large obstruction, in which case stripe markings on the obstruction (sec. 3C-2) should be discontinued to leave a 3-inch space around the outside of the sign.

Where traffic must keep to the right of the island or other obstruction, the Keep Right regulatory sign (sec. 2B-24) should be used.



W12-1
24" x 24"

2C-35 Low Clearance Sign (W12-2)

The Low Clearance sign is intended for use to warn motorists of clearances less than the maximum vehicle height permitted plus 12 inches. It may be erected on or in advance of the structure. If a sign is placed on the structure, it may be a rectangular shape with the legend (12) FT (6) IN.

The actual clearance is normally shown on the sign to the nearest inch not exceeding the actual clearance. However, in areas that experience changes in temperature causing frost action, an allowance, not exceeding 3 inches, for this condition is recommended.



W12-2
36" x 36"
24" x 18"

Where the clearance is less than the legal limit, a sign to that effect should be placed at the nearest intersecting road or wide point in the road at which a vehicle can detour or turn around.

In the case of an arch or other structure under which the clearance varies greatly, two or more signs should be used as necessary on the structure itself, to give information as to the clearance over the entire roadway.

Clearances should be checked periodically, particularly in areas where resurfacing operations have taken place.

2C-36 Advisory Speed Plate (W13-1)

The advisory speed plate is intended for use to supplement warning signs. The standard size of the Advisory Speed plate shall be 18 inches x 18 inches. Advisory Speed plates used with 36 inch and larger warning signs shall be 24 inches x 24 inches.

The plate shall carry the message (35) MPH in black on a yellow background except for construction and maintenance signs (sec. 6B-34). The speed shown shall be a multiple of 5 miles per hour. The plate may be used in conjunction with any standard yellow warning sign to indicate the maximum recommended speed around a curve or through a hazardous location. It shall not be used in conjunction with any sign other than a warning sign, nor shall it be used alone. When used, it shall be mounted on the same assembly with the standard warning sign, normally below it (fig. 2-1).

Except in emergencies, or at construction or maintenance sites, where the situation calling for an advisory speed is temporary, an Advisory Speed plate shall not be erected until the recommended speed has been determined by accepted traffic engineering procedures. Because changes in surface characteristics, sight distance, etc., may alter the recommended speed, each location should be periodically checked and the speed plate corrected if necessary.



W13-1
18" x 18"
24" x 24"

2C-37 Advisory Exit Speed Signs (W13-2, W13-3)

The Exit Speed or Ramp Speed signs are intended for use where engineering investigations of roadway, geometric or operating conditions show the necessity of advising drivers of the maximum recommended speed on a ramp.

Where additional advisory speed indication is needed on the ramp well beyond the gore, a standard warning sign with an Advisory Speed plate (W13-1) is to be used.



W13-2
48" x 60"



W13-3
48" x 60"

2C-38 Dead End Signs (W14-1, W14-2)

The DEAD END sign (W14-1) and NO OUTLET sign (W14-2) are intended for use to warn of a street or road which has no outlet and which terminates in a dead end or cul-de-sac. The sign shall be posted a sufficient advance distance to permit the vehicle operator to avoid the dead end by turning off, if possible, at the nearest intersecting street.



W14-1
30" x 30"



W14-2
30" x 30"

2C-39 No Passing Zone Sign (W14-3)

The NO PASSING ZONE sign may be used on a two-lane road to warn of the beginning of a no-passing zone identified by conventional pavement markings. When used it shall be erected on the left side of the roadway at the beginning of the no-passing zone and may supplement the DO NOT PASS sign (sec. 2B-20).



W14-3
36" x 48" x 48"

2C-40 Other Warning Signs

Warning signs other than those specified above may be required under special conditions. Special expressway design features may warrant the use of warning signs to meet unusual conditions. Warning signs should conform with the general specifications for shape, color, and placement of warning signs (sec. 2C-3).

The applications of such signs are sufficiently apparent as to require no detailed specifications.

Special warning signs for highway construction and maintenance sites are to be found in Part VI of this Manual.

D. GUIDE SIGNS—CONVENTIONAL ROADS

2D-1 Scope of Conventional Road Guide Sign Standards

Specifications for Conventional Road Guide Signs prescribed herein shall apply to any road or street other than an expressway or freeway.

2D-2 Application

Guide signs are essential to guide the motorist along streets and highways, to inform him of intersecting routes, to direct him to