

## 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 vehicle operator and may call for reduction of speed or a maneuver in the interest of his own safety and that of other vehicle operators 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 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

Warning signs specified herein cover most conditions that are likely to be met. Special warning signs for highway construction and maintenance operations, school areas, railroad grade crossings and bicycle facilities are dealt with in Parts VI through IX of this Manual. 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.

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.

### 2C-2 Design of Warning Signs

Generally, all warning signs in this Part shall be diamond-shaped (square with one diagonal vertical) with black legend and border on a

yellow background. There are specific exceptions to this rule, some of which are noted in the following sections. The allowance of these exceptions shall not be construed as permitting 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. Sign sizes for various type facilities can be found in Standard Highway Signs.\*

To carry proper emphasis among large signs for other purposes, all warning signs on expressways should be not less than 36 × 36 inches.

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

For use of educational plaques with symbol signs see section 2A-13.

### 2C-3 Placement of Warning Signs

Warning signs shall be erected in accordance with the general requirements for sign position as described in Section 2A-21 to 29.

Since warning signs are primarily for the benefit of the driver who is unacquainted with the road, it is very important that care be given to the placement of such signs. Warning signs should provide adequate time for the driver to perceive, identify, decide, and perform any necessary maneuver. This total time to perceive and complete a reaction to a sign is the sum of the times necessary for Perception, Identification/understanding, Emotion/decisionmaking, and Volition/execution of decision, and is here referred to as the PIEV time. The PIEV time can vary from about 3 seconds for general warning signs to 10 seconds for high driver judgment condition warning signs. Table II-1 lists suggested minimum sign placement distances that may be used for three conditions:

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\* Available from GPO, see page ii.

TABLE II-1—A Guide For Advance Warning Sign Placement Distance<sup>1</sup>

Posted or 85 percentile speed MPH	Condition A high judgment needed <sup>2</sup> (10 secs. PIEV)	General warning signs <sup>3</sup>						
		Condition B—Stop condition	Condition C—Deceleration condition to listed advisory speed—MPH (or desired speed at condition)					
			0	10	20	30	40	50
20	<sup>4</sup> 175	( <sup>4</sup> )	( <sup>4</sup> )					
25	250	( <sup>4</sup> )	<sup>5</sup> 100					
30	325	<sup>5</sup> 100	150	<sup>5</sup> 100				
35	400	150	200	175				
40	475	225	275	250	<sup>5</sup> 175			
45	550	300	350	300	250			
50	625	375	425	400	325	<sup>5</sup> 225		
55	700	450	500	475	400	300		
60	775	550	575	550	500	400	<sup>5</sup> 300	

Typical Signs for the Listed Conditions in Table II-1; Condition A—Merge, Right Lane Ends, etc.; Condition B—Cross Road, Stop Ahead, Signal Ahead, Ped-Xing, etc.; Condition C—Turn, Curve, Divided Road, Hill, Dip, etc.

<sup>1</sup> Distances shown are for level roadways. Corrections should be made for grades. If 48-inch signs are used, the legibility distance may be increased to 200 feet. This would allow reducing the above distance by 75 feet.

<sup>2</sup> In urban areas, a supplementary plate underneath the warning sign should be used specifying the distance to the condition if there is an in-between intersection which might confuse the motorist.

<sup>3</sup> Distance provides for 3-second PIEV, 125 feet Sign Legibility Distance, Braking Distance for Condition B and Comfortable Braking Distance for condition C as indicated in *A Policy on Geometric Design of Highways and Streets*, 1984, AASHTO, Figure II-13.

<sup>4</sup> No suggested minimum distance provided. At these speeds, sign location depends on physical conditions at site.

<sup>5</sup> Feet

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Condition A—a higher driver judgment condition which requires the driver to use extra time in making and executing a decision because of a complex driving situation; i.e., lane changing, passing, or merging. Condition B—a condition in which the driver will likely be required to stop; and Condition C—a condition in which the driver will likely be required to decelerate to a specific speed. The table is provided as an aid for determining warning sign location. The values contained in the table are for guidance purposes and should be applied with engineering judgment. The placement of temporary warning signs used at highway construction and maintenance sites is covered in Part VI of this Manual and the suggested minimum sign placement distances given in Table II-1 may not apply to that group of signs.

Other miscellaneous warning signs that advise of potential hazards not related to a specific location may be installed in the most appropriate locations since they are not covered in Table II-1. These include DEER CROSSING and SOFT SHOULDER signs. Minimum spacing between warning signs with different messages normally should be based on the PIEV times for driver comprehension and reaction.

The effectiveness of the placement of any warning sign should be tested periodically under both day and night conditions. Figure 2-5 (page 2A-17) shows typical installations of standard warning signs.

#### 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

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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-35).



W1-1R  
30" x 30"



W1-2R  
30" x 30"

#### 2C-5 Curve Sign (W1-2)

The Curve sign (W1-2R or 2L) may be used where engineering investigations of roadway, geometric, and operating conditions show the recommended speed on the curve to be greater than 30 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-35).

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#### 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 for 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.

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W1-3R  
30" x 30"



W1-4R  
30" x 30"

For additional protection the Advisory Speed plate (sec. 2C-35) may be used.

### 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-35) may be used.

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

The Winding Road sign is intended for use where there are three or more 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.

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If the Winding Road sign is used it shall be erected in advance of the first curve. Where the three or more turns or curves extend over a roadway length of 1 mile or more, the supplemental plaque (W7-3a, NEXT X MILES) may be installed below the W1-5 sign.

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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-35).

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W1-5R  
30" x 30"

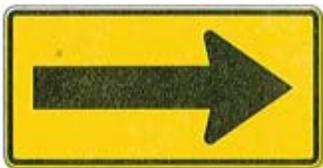
### 2C-9 Large Arrow Sign (W1-6, W1-7)

The Large Arrow sign shall be a horizontal rectangle with a standard size of 48 x 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.

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

The Large Arrow sign, when used, 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.



W1-6  
48" x 24"



W1-7  
48" x 24"

#### 2C-10 Chevron Alignment Sign (W1-8)

The Chevron Alignment sign shall be a vertical rectangle with a minimum size of 12 inches by 18 inches. It shall have a yellow background with chevron symbol in black. The size of sign used will be determined by an engineering investigation.

A Chevron Alignment sign may be used as an alternate or supplement to standard delineators and to the Large Arrow sign. The Chevron Alignment sign is intended to be used to give notice of a sharp change of alignment with the direction of travel. Chevron Alignment sign is intended to provide additional emphasis and guidance for vehicle operators as to changes in horizontal alignment of the roadway.

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W1-8  
18" x 24"

Chevron Alignment signs, when used, are erected on the outside of a curve, sharp turn, or on the far side of an intersection, in line with and at right angles to approaching traffic. Spacing of the signs should be such that the motorists always have two in view, until the change in alignment eliminates the need for the signs. To be effective, Chevron Alignment signs should be visible for at least 500 feet; trial runs by day and night may be desirable to determine final positioning.

#### 2C-11 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 signing (secs. 2D-14, 2D-29) or advance route turn assembly signs (sec. 2D-30) 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-12 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-11).

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-13 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 signing or Advance 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 place a double-headed Large Arrow sign at the head of the T, directly in line with approaching traffic (sec. 2C-9).



W2-4  
30" x 30"



W2-5  
30" x 30"

#### 2C-14 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 channelized by traffic islands, nor where Junction signing 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-15 Stop Ahead Sign (W3-1)

A STOP AHEAD sign is intended for use on an approach to a STOP sign that is not visible for a 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 x 30 inches.

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

The word message STOP AHEAD sign (W3-1) may be used as an alternate to the symbol sign (W3-1a).



W3-1a  
36" x 36"



W3-2a  
36" x 36"



W3-3  
36" x 36"

## 2C-16 Yield Ahead Sign (W3-2)

A YIELD AHEAD sign is intended for use on an approach to a YIELD sign that is not visible for a 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 x 30 inches.

The word message YIELD AHEAD sign (W3-2) may be used as an alternate to the symbol sign (W3-2a).

## 2C-17 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 distance specified in section 4B-12. The word message SIGNAL AHEAD may be used as an alternate.

## 2C-18 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 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 where two roadways converge and merging movements are not required.

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-19).



W4-1  
30" x 30"



W4-3  
36" x 36"

### 2C-18.1 Added Lane Sign (W4-3)

An Added Lane sign is intended for use in advance of a point where two roadways converge and merging movements are not required. This sign should be erected in advance of the point of convergence and should be visible from both roadways; otherwise, a sign should be placed on each roadway on the side of the roadway on which the other roadway converges.

## 2C-19 Lane Reduction Transition Signs (W4-2) (W9-1) (W9-2)

A Lane Reduction Transition sign (W4-2) is intended for use to warn of the reduction in the number of traffic lanes in the direction of travel on a multilane highway. 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). When used, this sign shall be placed in advance of the 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  
36" x 36"



W9-2  
36" x 36"

## 2C-20 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 delineators and object markers.



W5-1  
36" x 36"

## 2C-21 Narrow Bridge Sign (W5-2)

A Narrow Bridge sign (W5-2, W5-2a) is intended for use in advance of a bridge or culvert having a clear two-way roadway width of 16 to 18 feet or any bridge or culvert having a roadway clearance less than the width of the approach pavement. Additional protection should be provided by the use of object markers, delineators, and pavement markings. Bridges or culverts having less than a 20-foot span and the above width also will be treated as narrow bridges and signed and delineated accordingly.



W5-2  
30" x 30"



W5-2a  
30" x 30"

## 2C-22 One Lane Bridge Sign (W5-3)

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

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 should be provided by the use of object markers, delineators and pavement markings.



W5-3  
36" x 36"

### 2C-23 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.



W6-1  
36" x 36"



W6-2  
36" x 36"

### 2C-24 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-25) 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.

### 2C-25 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. The word message TWO WAY TRAFFIC may be used as an alternate legend.



W6-3  
30" x 30"

## 2C-26 Hill Sign (W7-1 to 4)

The Hill sign (W7-1) is intended for use in advance of a downgrade where the length, percent of grade, horizontal curvature, or other physical features require special precautions on the part of drivers. When the percent grade is shown within the Hill sign (W7-1b) the message X% shall be placed below the inclined ramp/truck symbol. The word message HILL (W7-1a) may be used as an alternate legend.

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W7-1  
30" x 30"



W7-1b  
30" x 30"

The Hill (W7-1) and Grade (W7-3) signs should be used in advance of downgrades for the following conditions:

- 5% grade and more than 3,000 feet long
- 6% grade and more than 2,000 feet long
- 7% grade and more than 1,000 feet long
- 8% grade and more than 750 feet long
- 9% grade and more than 500 feet long

These signs should also be installed for steeper grades or where accident experience and field observations indicate a need.

The supplemental plaques (W7-2 series, W7-3 series) or other appropriate legends and larger signs should be used for emphasis or where special hill characteristics exist. On longer grades, the use of the mileage plaque (W7-3a or W7-3b) at periodic intervals of approximately 1 mile spacing should be considered.



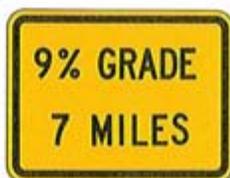
W7-2b  
24" x 18"



W7-3  
24" x 18"



W7-3a  
24" x 18"



W7-3b  
24" x 18"

Runaway truck ramps are desirable for the safe deceleration and stopping of runaway vehicles on long, steep downgrades where installation is practical. When such ramps are installed, the associated signing (W7-4, W7-4a) shall be black on yellow with the message "Runaway Truck Ramp." A supplemental panel may be used with the words "Sand," "Gravel," or "Paved" to describe the ramp surface. These advance warning signs should be located in advance of the gore approximately one mile, one-half mile, and then one at the gore. A regulatory sign near the entrance should be used containing the message "Runaway Vehicles Only" to discourage other motorists from entering the ramp. No Parking signs may be placed as required near the ramp entrance.



W7-4  
78" x 48"



W7-4a  
78" x 60"

Some hills have potentially hazardous conditions such as a stop condition, railroad grade crossing, sharp curvature or a community that may not be readily apparent to an unfamiliar driver. A truck turnout at the hill crest and a special trucker information diagrammatic sign may be necessary for these situations.

#### 2C-27 Bump and Dip Signs (W8-1, W8-2)

These signs are intended for use to give warning of a sharp rise or 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 these signs with an Advisory Speed plate (sec. 2C-35).

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"

#### 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. The word message PAVEMENT ENDS may be used as an alternate.



W8-3a  
36" x 36"



W8-3  
30" x 30"

## 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"



W8-5  
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.

## 2C-31 Advance Crossing Signs (W11 Series)

Advance Crossing signs should be used to alert vehicle operators to unexpected entries into the roadway by pedestrians, trucks, bicyclists, animals, and other potential conflicts. These crossings may be relatively confined, or may occur randomly over a substantial distance of roadway.

Where such crossings are confined to a single location, the Advance Crossing sign may be supplemented with an auxiliary distance sign specifying the distance to the crossing, or the crossing point may be identified by a Crossing sign (sec. 2C-32). Where such crossings occur randomly, an auxiliary distance sign specifying the length of highway section upon which the potential hazard exists may be used. If the section of roadway where the potential hazard exists is quite long, additional signs may be located at intervals, with appropriate adjustments in such legends.

If an unexpected hazard is seasonal or temporary, Advance Crossing signs shall be removed or covered when the hazardous condition terminates.



W11-1  
30" x 30"



W11A-2  
30" x 30"



W11-3  
30" x 30"



W11-4  
30" x 30"



W11-5  
30" x 30"

### 2C-32 Crossing Signs (W11A Series)

Crossing signs may be used to supplement Advance Crossing signs as a means of assisting the vehicle operator in defining the specific point of crossing. Such signs should be used only at locations that are unusually hazardous or at locations not readily apparent. When used, the Crossing sign should be located immediately adjacent to the crossing location. Crossing signs are normally limited to nonmotorized crossings, such as pedestrians, bicyclists, and cattle. These signs are distinguished from Advance Crossing signs (W11 Series) by the addition of crossing lines on the symbol plate.

If an unexpected hazard is seasonal or temporary, Crossing signs shall be removed or covered when the hazardous condition terminates.

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

### 2C-33 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. Traffic separated by this sign may either rejoin the through roadway or change

directions to another destination. It shall have a standard, and minimum, size of 24 × 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 all traffic must keep to the right of the island or other obstruction, the Keep Right regulatory sign (sec. 2B-25) should be used.



W12-1  
24" x 24"



W12-2  
36" x 36"

#### 2C-34 Low Clearance Sign (W12-2)

The Low Clearance sign is intended for use to warn vehicle operators 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.

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-35 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 × 18

inches. Advisory Speed plates used with 36-inch and larger warning signs shall be 24 × 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 and normally below the standard warning sign (fig. 2-1, page 2A-9).

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"

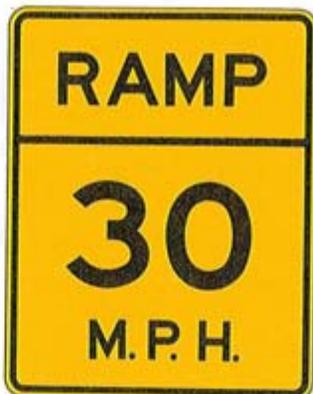
#### 2C-36 Advisory Exit Speed Signs (W13-2, W13-3)

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.

The sign should be posted along the deceleration lane or along the ramp so that it is visible in time for the driver to make a safe slowing and exiting maneuver. 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-37 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-38 No Passing Zone Sign (W14-3)

Because of the demonstrated target value given by this sign in critical passing maneuvers, the NO PASSING ZONE sign should be used on two-lane roads to warn of the beginning of no-passing zones identified by either conventional pavement markings or DO NOT PASS signs or both. When used, it shall be erected on the left side of the roadway at the beginning of the no-passing zones.



W14-3  
36" x 48" x 48"

#### 2C-39 Limited Sight Distance Sign (W14-4)

The LIMITED SIGHT DISTANCE sign, with supplemental Advisory Speed plate (W13-1), is designed for use on vertical curves which do not have adequate safe stopping sight distance available. This type signing is not to be a substitute for sound engineering judgment (based on safety considerations or known problem locations) that would warrant improving the sight distance by an engineering solution.



W14-4  
30" x 30"

#### 2C-40 Playground Sign (W15-1)

The W15-1 Playground Sign may be used only in advance of a designated children's play area to warn of the potential high concentration of

young children in that area. This sign is not intended to regulate the speed of vehicles but to warn motorists of a potential hazardous condition that may call for a reduction in speed.



**W15-1**  
**36" x 36"**

#### **2C-41 Other Warning Signs**

Warning signs other than those specified above may be required under special conditions. Such signs should conform with the general specifications for shape, color, and placement of warning signs (sec. 2C-1 to 2C-3).

Special warning signs for highway construction and maintenance operations, school areas, railroad grade crossings, and bicycle facilities can be found in Parts VI through IX of this Manual.