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PART 2

SIGNS



STATE OF CALIFORNIA
BUSINESS, TRANSPORTATION AND HOUSING AGENCY
DEPARTMENT OF TRANSPORTATION

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CHAPTER 2A. GENERAL

Section 2A.03 Standardization of Application

The following is added to this section:

Guidance:

After a sign has been erected, observations should be made to determine if the desired effect on traffic has been achieved.

Section 2A.04 Excessive Use of Signs

The following is added to this section:

Support:

Sign information overload occurs when the frequency of signing, complexity of messages or diversity of messages is so great that they cannot be readily assimilated by motorists in time to respond properly and safely to roadway situations. Sign information overload can be avoided by:

- Increasing the spacing between signs so that they can be understood before encountering new messages.
- Minimizing content and using accepted symbols so as to simplify messages.
- Spreading the information so that each element of stand-alone information is presented in a separate sign.
- Using standard sign formats applied in a consistent fashion to enhance motorist recognition.
- Using redundant signing or a combination of signing and pavement messages to offer multiple opportunities for motorists to recognize and respond to the situation.
- Reducing or eliminating less-essential signs.

See ITE's Traffic Control Devices Handbook Chapter 2 for more information on this topic. See Section 1A.11 for information regarding this publication.

Section 2A.05 Classification of Signs

The following is added to this section:

Support:

In California, prior to the adoption of Federal Highway Administration's Manual on Uniform Traffic Control Devices (MUTCD), signs were classified into four categories, the fourth category being Construction signs. In general, Construction signs are Warning, Regulatory or Guide signs. Hence, this categorical classification is deleted for Construction signs in California and as per the MUTCD only the three basic categories are recognized. Construction signs are now included in Part 6.

Section 2A.06 Design of Signs

The following is added to this section:

Support:

Sign design details are contained in the Standard Highway Signs book and Department of Transportation's Traffic Sign Specifications. Signs other than those shown in these publications, the MUTCD or the California Supplement may be required under special conditions. See Section 1A.11 for information regarding these publications.

Section 2A.07 Changeable Message Signs

Standard:

In Paragraph 6 ("Changeable message signs, both ...") first sentence, the phrase "...safety or..." is deleted and in Paragraph 7 ("Examples of safety messages...") the first sentence is deleted. On State highways, safety-related messages shall not be used on changeable message signs.

Section 2A.08 Retroreflectivity and Illumination**Standard:**

Paragraphs 7 (“Light Emitting Diode...”), 8 (“If used, the LEDs...”) and 9 (“A module of...”) are deleted and replaced with the following:

Option:

Light Emitting Diode (LED) units may be used in the border of a STOP or warning sign, except for Changeable Message Signs, to improve the conspicuity of signs.

Standard:

If used, the LEDs shall be red for STOP signs and yellow for warning signs. All LED units shall flash simultaneously at a rate of more than 50 and less than 60 times per minute. The uniformity of the sign design shall be maintained without any decrease in visibility, legibility, or driver comprehension during either daytime or nighttime conditions.

Table 2A-1 Illumination of Sign Elements**Standard:**

The MUTCD Table 2A-1 is deleted and replaced with Table 2A-1 (CA).

Section 2A.11 Sign Colors

The following is added to this section:

Standard:

The colors to be used on standard signs and their specific use on these signs shall be as indicated in the specific Sections of Part 2. The color coordinates and values shall be as described in the Standard Highway Signs book and Department of Transportation’s Traffic Sign Specifications. See Section 1A.11 for information regarding these publications.

Support:

Common uses of sign colors are shown in Table 2A-4 (CA).

Section 2A.12 Dimensions

The following is added to this section:

Standard:

The standard sign dimensions prescribed in the MUTCD, Standard Highway Signs book, this California Supplement and Department of Transportation’s Traffic Sign Specifications shall be used unless engineering judgment determines that other sizes are appropriate. Where engineering judgment determines that sizes smaller than the standard dimensions are appropriate for use, the sign dimensions shall not be less than the minimum dimensions specified in the MUTCD, Standard Highway Signs book, this California Supplement or the Department of Transportation’s Traffic Sign Specifications. See Section 1A.11 for information regarding these publications.

Section 2A.13 Symbols

The following is added to this section:

Support:

Use of symbols to word messages is preferred. However, care needs to be taken so as not to mix the individual symbols.

Standard:

Symbol designs shall in all cases be unmistakably similar to those shown in the MUTCD, Standard Highway Signs book, this California Supplement and Department of Transportation’s Traffic Sign Specifications. See Section 1A.11 for information regarding these publications.

Table 2A-1(CA). Illumination of Sign Elements

Means of Illumination	Sign Element To Be Illuminated
Light behind the sign face	<ul style="list-style-type: none"> • Symbol or word message • Background • Symbol, word message, and background (through a translucent material)
Attached or independently mounted light source designed to direct essentially uniform illumination onto the sign face	<ul style="list-style-type: none"> • Entire sign face
Light emitting diodes (LEDs)	<ul style="list-style-type: none"> • Sign border on STOP sign • Sign border on warning signs
Other devices, or treatments that highlight the sign shape, color, or message: Luminous tubing Fiber optics Incandescent light bulbs Luminescent panels	<ul style="list-style-type: none"> • Symbol or word message • Entire sign face

Section 2A.16 Standardization of Location

Guidance:

In Paragraph 2, first sentence, the phrase “road user shall be spaced” is changed to “road user should be spaced”.

The last Paragraph (“In urban areas...”) is deleted.

The following is added to this section:

Guidance:

The installation of signs, including route shields, on signal standards should be avoided unless they directly affect traffic movements in the intersection.

A minimum spacing of 60 m (200 ft) between guide signs should be maintained on conventional highways.

A minimum spacing of 240 m (800 ft) between guide signs should be maintained on freeways and expressways.

Support:

Figure 2A-1 (CA) shows height and lateral location of signs for typical installations.

Figure 2A-2 Examples of Locations for Some Typical Signs at Intersections

Support:

The MUTCD Figure 2A-2 is deleted and replaced with Figure 2A-2 (CA).

Table 2A-4 (CA). Common Use of Sign Colors

Type of Sign	Legend						Background												
	Black	Green	Red	White	Yellow	Brown	Black	Blue	Brown	Green	Orange	Red	White	Yellow	Flourescent Yellow-Green	Cream	Coral	Teal	Light Blue
Regulatory	X		X	X			X					X	X						
Prohibitive			X	X								X	X						
Permissive		X		X				X					X						
Warning	X													X					
Pedestrian	X													X	X				
Bicycle	X													X	X				
Guide				X					X										
Interstate Route				X				X				X							
Interstate Business Route				X					X										
State Route				X					X										
US Route	X											X							
County Route					X			X											
Forest Route				X					X										
Evacuation Route				X				X											
Scenic Route				X															X
Bicycle Route				X					X										
Historic Route	X								X				X						
Information				X					X										
Milepost				X					X										
Road User Service				X				X											
Recreational				X					X										
Street Name				X					X										
Destination				X					X										
Boundary				X					X										
State Boundary	X				X														X
Place Name				X					X										
Structure Identification	X												X						
Historical Landmark						X									X				
Memorial				X					X										
Call Box				X				X											
Victims Memorial				X				X											
Adopt-A-Highway				X														X	
Temporary Traffic Control	X									X									
School	X													X	X				

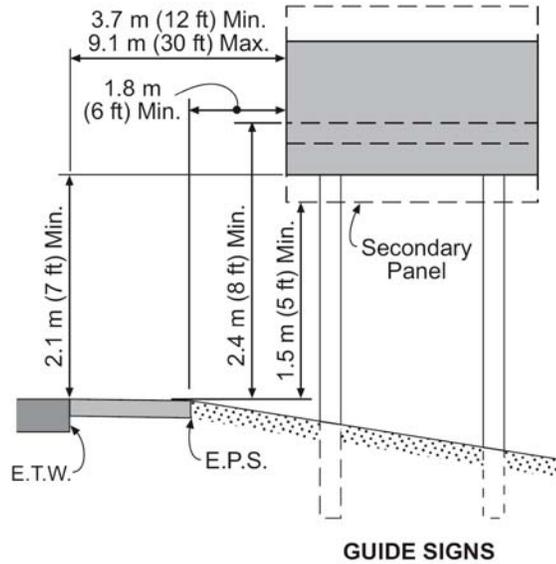
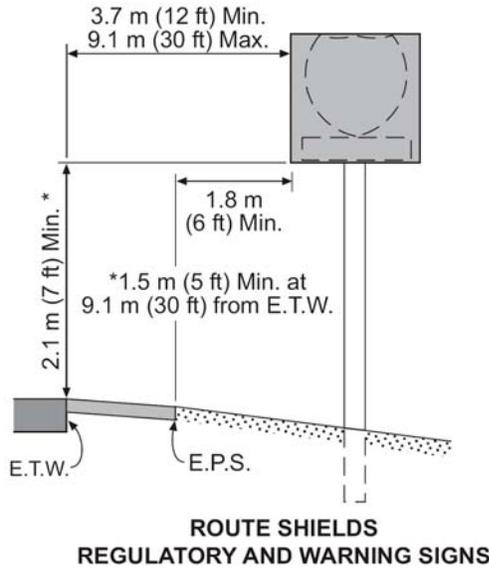
Figure 2A-1(CA). Heights and Lateral Locations of Signs for Typical Installations

NOTES

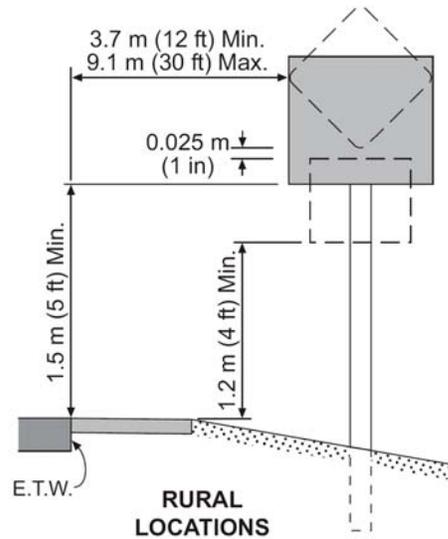
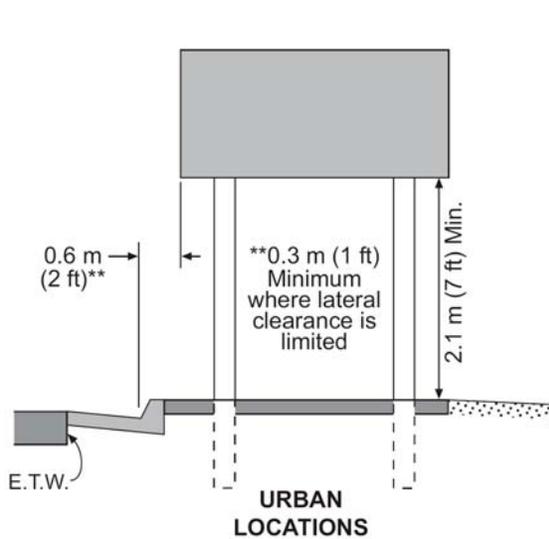
These sign positions are typical and should be considered a standard. When physical conditions require deviation from these typicals, they should be documented. When clear roadside recovery areas are provided, signs shall be placed as far from the traveled way as possible, up to 9.1 m (30 ft). When possible, they shall be placed in protected locations.

Signs in medians shall be placed at midpoint of median, up to a maximum distance of 9.1 m (30 ft) from the edge of the traveled way. When appropriate, signs for opposing directions shall be placed back to back.

E.T.W. = Edge of Traveled Way
E.P.S. = Edge of Paved Shoulder

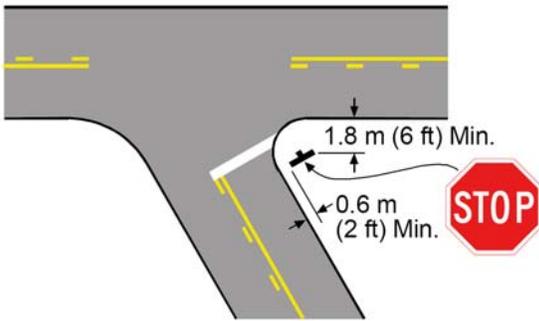


FREEWAY AND EXPRESSWAY LOCATIONS

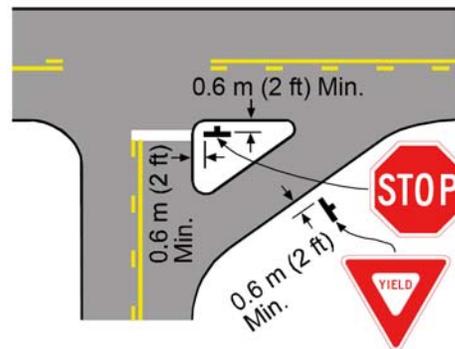


CONVENTIONAL HIGHWAYS AND INTERCHANGE AREAS

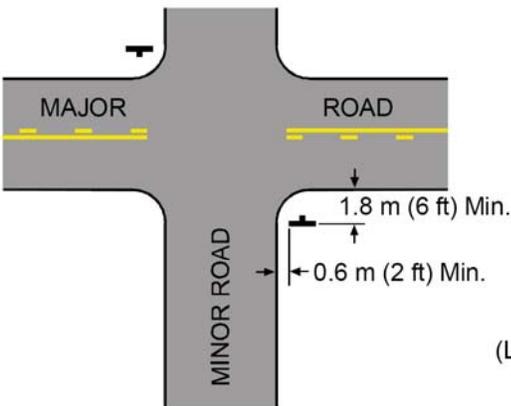
Figure 2A-2 (CA). Typical Locations for Signs at Intersections



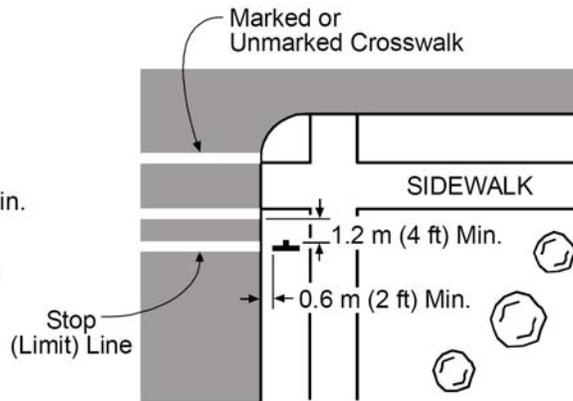
ACUTE ANGLE INTERSECTION



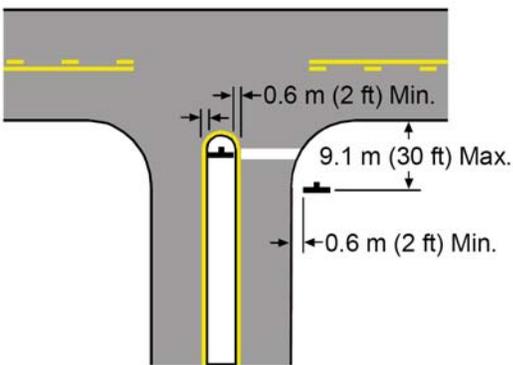
CHANNELIZED INTERSECTION



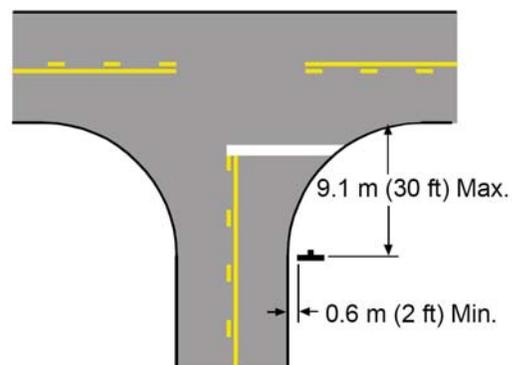
MINOR INTERSECTION



URBAN INTERSECTION



DIVISIONAL ISLAND



WIDE THROAT INTERSECTION

Section 2A.17 Overhead Sign Installations**Option:**

In Paragraph 3, the following is added to the list of conditions:

- N. "Exit Only" lanes and lane drops.
- O. Necessity to have a sign message directly over the lane to which it refers.

The following is added to this section:

Support:

Refer to Department of Transportation's Standard Plans publication for standard application of overhead signs. See Section 1A.11 for information regarding this publication.

Guidance:

Whenever there is a deviation from the standards, a structural analysis should be considered. On State highways, all signs of this type should be referred to the Department of Transportation's Division of Engineering Services, Office of Structure Design Services.

Signs mounted on overcrossing structures should not project above the bridge rail by more than 0.3 m (1 ft).

Option:

Structure mounted signs may be placed parallel with the structures for skews up to 10°. At greater angles of skew, position the sign as close to 10° from the normal as possible.

Standard:

If the skew is so great that this is not practical, separate sign structures shall be used.

Section 2A.18 Mounting Height**Standard:**

In Paragraph 10 ("Overhead mounted signs..."), the phrase "5.2 m (17 ft)" is changed to "5.5 m (18 ft)".

The following is added to this section:

Support:

Exceptions to the mounting heights are the FREEWAY ENTRANCE (CA Code G92) and DO NOT ENTER (R5-1) sign packages which are mounted lower to avoid sight restrictions and be most responsive to headlights.

Guidance:

The FREEWAY ENTRANCE (CA Code G92) and DO NOT ENTER (R5-1) sign packages should be mounted with the bottom of the lower sign 0.6 m (2 ft) above the edge of the pavement. The ONE WAY (R6-1) signs should be mounted 0.46 m (1.5 ft) above the edge of the pavement.

Overhead signs should provide a vertical clearance of not less than 5.5 m (18 ft) over the entire width of the pavement and shoulders, except where a lesser vertical clearance is used for the design of other structures. The vertical clearance to overhead sign structures or supports need not be greater than 0.3 m (1 ft) in excess of the minimum design clearance of other structures.

Option:

In special cases it may be necessary to reduce the clearance still further because of substandard dimensions in tunnels and other major structures such as double-deck bridges.

Support:

Figure 2A-1 (CA) shows height and lateral location of signs for typical installations.

Section 2A.19 Lateral Offset

The following is added to this section:

Support:

Refer to Department of Transportation's Highway Design Manual Section 309.1 for horizontal clearances. See Section 1A.11 for information regarding this publication.

Guidance:

On freeways, expressways, and in interchange areas, and on rural highways where practicable, warning and regulatory signs should be placed a minimum of 3.6 m (12 ft) and a maximum of 9 m (30 ft) from the edge of traveled way.

Standard:

When clear roadside recovery areas are provided, guide signs on overhead sign supports shall be placed as far from the edge of traveled way as is practical, up to a maximum of 9 m (30 ft).

Guidance:

When possible, they should be located in protected areas or placed behind guardrails, crash cushions, barriers, etc.

Standard:

Overhead signs placed in unprotected locations shall be placed on cantilever structures to provide the maximum possible horizontal clearance to the sign support.

Support:

Overcrossing structures can often serve for the support for overhead signs, and may be the only practical location that will provide adequate viewing distance. Use of these structures, as sign supports will minimize the need for sign supports along the roadway. Where overhead crossings are closely spaced and the proximity of other structures does not limit visibility, it is desirable to place signs on the bridges for economy, to reduce fixed objects and to enhance safety.

Guidance:

Where a freeway or an expressway median is 3.6 m (12 ft) or less in width, consideration should be given to spanning both roadways without a center support. Butterfly-type signs or other overhead sign supports should not be erected in neutral areas (gores) or other exposed locations.

Standard:

Guardrail protection shall be provided for overhead sign supports if they are located within the clear recovery area.

In cuts steeper than 1 to 4, where there are no recovery areas, the sign supports shall be placed on the slopes a minimum of 1.2 m (4 ft) vertically from the hinge point. In fill sections, sign supports shall be protected by a minimum of 15 m (50 ft) of guardrail plus the breakaway end anchor. The supports shall be placed over the hinge point approximately 1.2 m (4 ft) from the face of the guard rail.

The median support on overhead sign bridges shall be centered in medians 18 m (60 ft) or less in width and shall be placed 9 m (30 ft) from the edge of the traveled way in wider medians. Unless there are protected locations, sign bridge supports shall not be placed in medians 6.7 m (22 ft) or less in width.

Guidance:

Overhead signs should be placed at least 9 m (30 ft) from light standards.

Section 2A.21 Posts and Mountings

The following is added to this section:

Support:

Refer to Department of Transportation's Highway Design Manual Section 309.1 for horizontal clearances. See Section 1A.11 for information regarding this publication.

Guidance:

In areas where ground mounted sign supports cannot be sufficiently offset from the pavement edge, sign supports of a suitable breakaway or yielding design should be considered.

Standard:

Breakaway or yielding supports shall be used on freeways and expressways unless the sign supports are adequately shielded by guardrail, crash cushions, or similar devices.

Support:

In some cases, especially in urban areas, essential signs can be placed on existing supports used for other purposes, such as traffic signals or street lights, thereby saving expense and minimizing sidewalk obstruction.

Option:

When needed for emphasis to facilitate traffic safety on streets with speed limits of 60 km/h (35 mph) or less, small plastic signs not exceeding 300 mm (12 in) in width may be mounted on channelizers, cones or portable delineators to be placed on lane lines and/or centerlines.

Standard:

When installed, they shall supplement permanently mounted standard signs and shall use standard legends, sign colors and retroreflectivity, but in a smaller, proportional format. If the device is used on lane lines, there shall be an engineering study, which documents the limited potential of the device to be struck due to lane changing.

Section 2A.23 Median Opening Treatments for Divided Highways with Wide Medians

The following is added to this section:

Option:

Additional signs may be placed where the median width is 9 m or more.

Standard directional or wrong way arrow pavement markings may be placed in each approach lane of each roadway in advance of a grade intersection and at other selected locations to indicate the direction of traffic flow.

At locations which are determined to have special need, other standard warning or prohibitive methods and devices may be used as a deterrent to the wrong way movement.

Support:

See Section 2E.50, Wrong-Way Traffic Control at Interchange Ramps.

Section 2A.101 Signs Off the State Right-of-Way**Support:**

CVC 21350 permits the Department of Transportation, with the consent of the local authorities, to place and maintain along city streets and county roads appropriate signs as may be necessary or desirable to direct traffic to State highways.

Guidance:

Where a sign beyond the right-of-way line is required for the proper operation of a State highway, such sign should be placed and maintained at State expense.