

## **Known Errors in California MUTCD 2012**

[http://www.dot.ca.gov/hq/traffops/signtech/mutcdsupp/ca\\_mutcd2012.htm](http://www.dot.ca.gov/hq/traffops/signtech/mutcdsupp/ca_mutcd2012.htm)

The following pages contain errors to date that have been identified since the release of California MUTCD 2012 edition on January 13, 2012. California Department of Transportation (Caltrans) intends to correct these errors in the next official revision of the manual, whenever it occurs. These known errors are solely provided for the information of the California MUTCD 2012 users and does not constitute an official change to the California MUTCD 2012 at this time.

The more user friendly format of showing errors on the actual page images rather than generating a text based list has been chosen for this purpose. This format also allows practitioners, at their discretion, to print the individual pages of known errors and add or replace them in the hard copy version.

As known errors come to the attention of California MUTCD Editor, upon verification of the error, this document will be updated. If you are aware of an error, please send it to:

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Please be aware that FHWA has issued a list of known errors in the National MUTCD 2009 edition upon which the California MUTCD 2012 edition is based. Some practitioners may find this information useful as those errors of the National MUTCD 2009 are reflected in California MUTCD 2012 edition. Caltrans does not plan to correct these errors but prefers to wait for FHWA to correct these errors via a future rulemaking action. FHWA's list of known errors is available at the weblink: [http://mutcd.fhwa.dot.gov/kno\\_2009r1r2.htm](http://mutcd.fhwa.dot.gov/kno_2009r1r2.htm)

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**Standard:**

10 **Directional signs on freeways and expressways shall be installed with a minimum height of 7 feet, measured vertically from the bottom of the sign to the elevation of the near edge of the pavement. All route signs, warning signs, and regulatory signs on freeways and expressways shall be installed with a minimum height of 7 feet, measured vertically from the bottom of the sign to the elevation of the near edge of the pavement. If a secondary sign is mounted below another sign on a freeway or expressway, the major sign shall be installed with a minimum height of 8 feet and the secondary sign shall be installed with a minimum height of 5 feet, measured vertically from the bottom of the sign to the elevation of the near edge of the pavement.**

11 **Where large signs having an area exceeding 50 square feet are installed on multiple breakaway posts, the clearance from the ground to the bottom of the sign shall be at least 7 feet.**

**Option:**

12 A route sign assembly consisting of a route sign and auxiliary signs (see Section ~~2D.31~~ 2D.12) may be treated as a single sign for the purposes of this Section.

13 The mounting height may be adjusted when supports are located near the edge of the right-of-way on a steep backslope in order to avoid the sometimes less desirable alternative of placing the sign closer to the roadway.

**Standard:**

14 **Overhead signs shall provide a vertical clearance of not less than 17 feet to the sign, light fixture, or sign bridge over the entire width of the pavement and shoulders except where the structure on which the overhead signs are to be mounted or other structures along the roadway near the sign structure have a lesser vertical clearance.**

14a The bottom of the overhead sign truss frame located over a roadway shall be at least 18 feet and 6 inches on State highways. Refer to Department of Transportation's Standard Plans publication. See Section 1A.11 for information regarding this publication.

**Option:**

15 If the vertical clearance of other structures along the roadway near the sign structure is less than 16 feet, the vertical clearance to an overhead sign structure or support may be as low as 1 foot higher than the vertical clearance of the other structures in order to improve the visibility of the overhead signs.

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

**Support:**

17 Figure 2A-2 illustrates some examples of the mounting height requirements contained in this Section.

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

**Guidance:**

19 *The FREEWAY ENTRANCE (G92(CA)) and DO NOT ENTER (R5-1) sign packages should be mounted with the bottom of the lower sign 2 feet above the edge of the pavement. The ONE WAY (R6-1) signs should be mounted 1.5 foot above the edge of the pavement.*

20 *Overhead signs should provide a vertical clearance of not less than 18 feet 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 1 foot in excess of the minimum design clearance of other structures.*

**Option:**

21 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:**

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

**Section 2A.19 Lateral Offset**

**Standard:**

01 **For overhead sign supports, the minimum lateral offset from the edge of the shoulder (or if no shoulder exists, from the edge of the pavement) to the near edge of overhead sign supports (cantilever or sign**

Figure 2A-2 (CA). Examples of Heights and Lateral Locations of Sign Installations

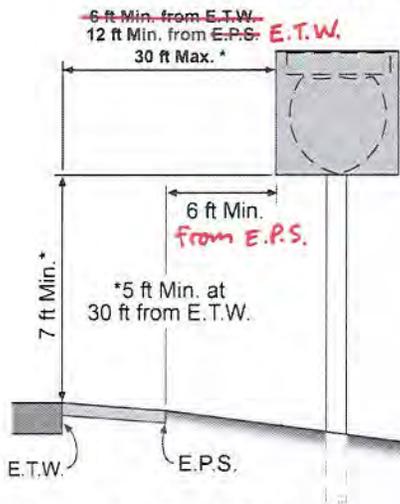
**NOTES:**

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 30 ft. When possible, they should be placed in protected locations.

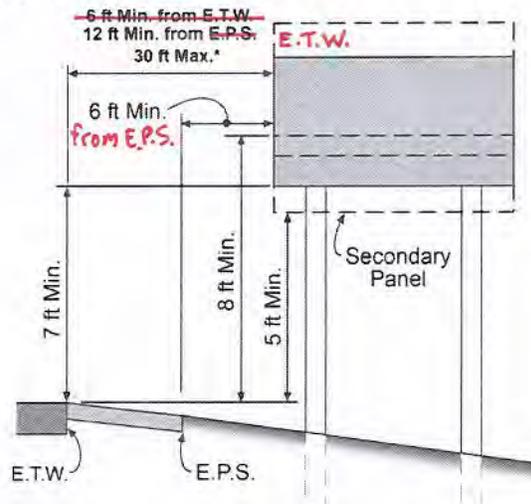
Signs in medians shall be placed at midpoint of median, and should not be closer than 6 ft from the edge of a paved shoulder, or if none, 12 ft from the edge of the traveled way. When appropriate, signs for opposing directions shall be placed back to back.

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

**FREEWAY AND EXPRESSWAY LOCATIONS**

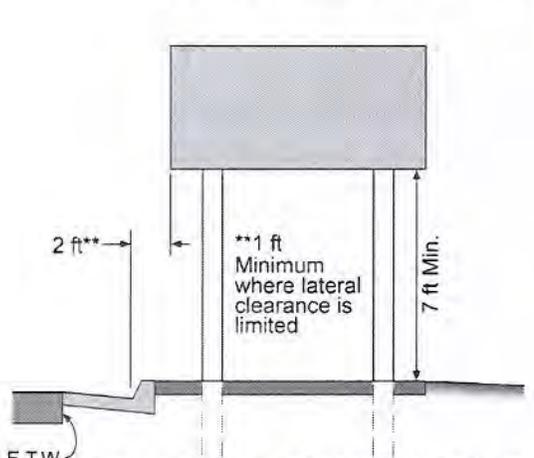


**ROUTE SHIELDS  
 REGULATORY AND WARNING SIGNS**

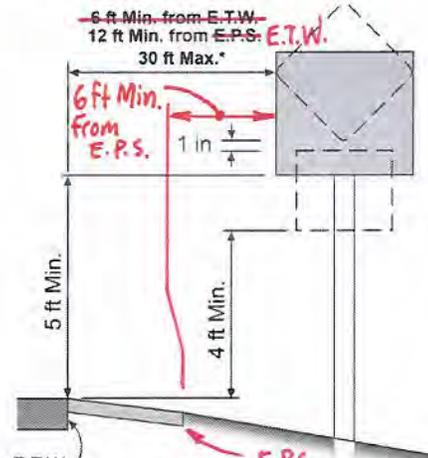


**GUIDE SIGNS**

**CONVENTIONAL HIGHWAYS AND INTERCHANGE AREAS**



**Urban Locations and Rural Locations  
 with Sidewalk**



**RURAL  
 LOCATIONS**

Guidance:

13 At least one set of R5-1 and R5-1a signs should be visible from each decision point on each likely wrong-way approach.

Support:

14 See section 2E.53 for wrong-way traffic control at interchange ramps and Figures 2B-12(CA) and 3B-14(CA) for examples of signs and lane reduction markings.

Guidance:

15 On multilane roadways, a minimum size of 36 x 36 inch should be used for the DO NOT ENTER (R5-1) sign.

16 At intersections where the left-turn lane treatment results in channelized offset left-turn lanes (e.g., a parallel or tapered left-turn lane between two medians), the size of the DO NOT ENTER (R5-1) sign or WRONG WAY (R5-1a) sign, if used, should be of the next higher roadway classification, if feasible, as shown in Table 2B-1, to reduce the potential for wrong-way maneuvers by drivers turning left from a stop-controlled, intersecting minor roadway.

17 Hence, per this offset left-turn lanes scenario, if the type of roadway is a conventional road, the R5-1 sign size used, if feasible, should be from the expressway column as 36 x 36 inch, not the 30 x 30 inch size in the conventional road (single lane) column.

Support:

18 Ramp terminal signing serves two important functions:

1. A link in the guidance system for traffic moving from the conventional roadway to the freeway.
2. Information to prevent a driver from getting into a wrong-way driving situation.

19 Freeway Entrance package is a vertical arrangement of FREEWAY ENTRANCE (G92(CA)) sign, route shield, cardinal direction, and arrow signs on a single post in which the G92(CA) sign is on top and the arrow is on the bottom.

20 Do Not Enter package is a DO NOT ENTER (R5-1) sign with a WRONG WAY (R5-1a) sign directly beneath it on a single post.

D13-3

Guidance:

21 Ramp terminal signs should be placed within the area normally illuminated by automobile headlights. Ambient lighting in the vicinity of the signs should also be considered.

22 In order to be most responsive to headlights, the Do Not Enter and Freeway Entrance packages should be mounted with the bottom of the lower sign 2 feet above the edge of the pavement. The ONE WAY (R6-1) signs should be mounted at 1.5 feet above the edge of pavement.

Support:

23 This will generally ensure that these arrows are low enough that they will not be a sight restriction to the right-way traffic.

Standard:

24 Standard mounting height for all other signs in the ramp terminal area shall remain at 5 feet.

Option:

25 In locations subject to deep snow, sign heights may be adjusted in accordance with engineering judgment.

Guidance:

26 If installed, the pedestrian prohibition (R5-10a and R5-10c) signs should be placed far enough up the ramp to avoid conflict with signs near the terminal.

Support:

27 The sign locations shown in Figure 2B-18(CA) are approximate.

Guidance:

28 All ramp terminals should be reviewed under both day and night conditions by experienced signing personnel to determine exact locations.

Standard:

29 At least two large painted pavement arrows shall be placed and maintained in the center of each lane of each exit ramp. At least one Type I arrow, not less than 18 feet in length, shall be positioned in the center of each freeway entrance ramp. Refer to Section 3B.20.

On-Ramp Terminal Signing

Support:

30 Lead-in signing directing motorists to on-ramps is important. Care should be taken to ensure that arrows on direction signs couldn't be interpreted as pointing into inappropriate roadways, especially off-ramp terminals.

**Section 2B.46 Parking, Standing, and Stopping Signs (R7 and R8 Series)**

Support:

01 Signs governing the parking, stopping, and standing of vehicles cover a wide variety of regulations, and only general guidance can be provided here. The word "standing" when used on the R7 and R8 series of signs refers to the practice of a driver keeping the vehicle in a stationary position while continuing to occupy the vehicle. CVC Section 463 defines "parking", which involves the standing of a vehicle, whether occupied or not. However, the temporary loading or unloading of merchandise or passengers is not considered parking. CVC Section 587 defines "stopping", which involves the cessation of vehicle movement. Typical examples of parking, stopping, and standing loading signs and plaques (see are shown in Figures 2B-24, 2B-24(CA) and 2B-25.) are as follows:

1. ~~NO PARKING ANY TIME (R7-1);~~
2. ~~NO PARKING X:XX AM TO X:XX PM (R7-2, R7-2a);~~ — "undelete"
3. ~~NO PARKING EXCEPT SUNDAYS AND HOLIDAYS (R7-3);~~
4. ~~NO STANDING ANY TIME (R7-4);~~
5. ~~XX HOUR PARKING X:XX AM — X:XX PM (R7-5);~~
6. ~~NO PARKING LOADING ZONE (R7-6);~~
7. ~~NO PARKING BUS STOP (R7-7, R7-107, R7-107a);~~
8. ~~RESERVED PARKING for persons with disabilities (R7-8);~~
9. ~~VAN ACCESSIBLE (R7-8P);~~
10. Pay Station (R7-20);
11. ~~Pay Parking (R7-21, R7-21a, R7-22);~~
12. ~~Parking Permitted X:XX AM TO X:XX PM (R7-23);~~
13. ~~Parking Permitted XX HOUR(S) XX AM — XX PM (R7-23a);~~
14. ~~XX HR PARKING X:XX AM TO X:XX PM (R7-108);~~
15. ~~NO PARKING ANYTIME/XX HOUR PARKING X:XX AM — X:XX PM (R7-200, R7-200a);~~
16. ~~TOW AWAY ZONE (R7-201P, R7-201aP);~~
17. ~~THIS SIDE OF SIGN (R7-202P);~~
18. EMERGENCY SNOW ROUTE NO PARKING IF OVER XX INCHES (R7-203);
19. ~~NO PARKING ON PAVEMENT (R8-1);~~
20. ~~NO PARKING EXCEPT ON SHOULDER (R8-2);~~
21. ~~No Parking (R8-3, R8-3a);~~
22. ~~EXCEPT SUNDAYS AND HOLIDAYS (R8-3bP);~~
23. ~~ON PAVEMENT (R8-3eP);~~
24. ~~ON BRIDGE (R8-3dP);~~
25. ~~ON TRACKS (R8-3eP);~~
26. ~~EXCEPT ON SHOULDER (R8-3fP);~~
27. ~~LOADING ZONE (R8-3gP);~~
28. ~~X:XX AM TO X:XX PM (R8-3hP);~~
29. EMERGENCY PARKING ONLY (R8-4);
30. ~~NO STOPPING ON PAVEMENT (R8-5);~~
31. ~~NO STOPPING EXCEPT ON SHOULDER (R8-6);~~ and
32. EMERGENCY STOPPING ONLY (R8-7).

02 Refer to CVC 21112 through 22658 regarding the authorities for the various parking, stopping and loading signs.

**Parking Regulations**

Option:

- 03 Parking on freeway which have full control of access and no crossing at grade may be prohibited under CVC 21960.
- 04 Parking on other State highways may be restricted or prohibited under CVC 22505 and 22506.

Support:

05 The Department of Transportation's District Director is authorized to issue orders prohibiting or restricting the parking of vehicles on State highways. The District Director is also authorized to approve ordinances or resolutions of local authorities prohibiting or restricting parking on State highways.

06 The delegation of maintenance activities to local authorities is usually exercised under the authority of Streets and Highways Code Section 130. Under a proposal to delegate maintenance and parking regulation authority under CVC Section

**Section 2B.48 Placement of Parking, Stopping, and Standing Signs**

*Guidance:*

- 01 *When signs with arrows are used to indicate the extent of the restricted zones, the signs should be set at an angle of not less than 30 degrees or more than 45 degrees with the line of traffic flow in order to be visible to approaching traffic.*
- 02 *Spacing of signs should be based on legibility (see Section 2A.13) and sign orientation (see Section 2A.20).*
- 03 *If the zone is unusually long, signs showing a double arrow should be used at intermediate points within the zone.*

**Standard:**

- 04 **If the signs are mounted at an angle of 90 degrees to the curb line, two signs shall be mounted back to back at the transition point between two parking zones, each with an appended THIS SIDE OF SIGN (R7-202P) supplemental plaque.**

*Guidance:*

- 05 *If the signs are mounted at an angle of 90 degrees to the curb line, signs without any arrows or appended plaques should be used at intermediate points within a parking zone, facing in the direction of approaching traffic. Otherwise the standards of placement should be the same as for signs using directional arrows.*

**Section 2B.49 Emergency Restriction Signs (R8-4, R8-7, R8-8)**

*Option:*

- 01 The EMERGENCY PARKING ONLY (R8-4) sign (see Figure 2B-25) or the EMERGENCY STOPPING ONLY (R8-7) sign (see Figure 2B-25) may be used to discourage or prohibit shoulder parking, particularly where scenic or other attractions create a tendency for road users to stop temporarily.

*Guidance:*

- 02 *The DO NOT STOP ON TRACKS (R8-8) sign (see Figure 8B-1) may should be used to discourage or prohibit parking or stopping on railroad or light rail transit tracks (see Section 8B.09).*

**Standard:**

- 03 **Emergency Restriction signs shall be rectangular and shall have a red or black legend and border on a white background.**
- 04 **The EMERGENCY PARKING ONLY (R8-4) sign shall be used at the beginning of freeways below the BEGIN FREEWAY (R57(CA)) sign. Refer to CVC 21960.**
- 05 **The BEGIN FREEWAY (R57(CA)) sign (see Figure 2B-255(CA)) shall be used to mark the beginning of a section of freeway on which parking is prohibited.**

*Support:*

- 06 Position the R57(CA) sign above the EMERGENCY PARKING ONLY (R8-4) sign. Refer to CVC 21960.

**Standard:**

- 07 **The END FREEWAY (R58(CA)) sign (see Figure 2B-256(CA)) shall be used to mark the end of a freeway.**

2B-25(CA)

**Section 2B.50 WALK ON LEFT FACING TRAFFIC and No Hitchhiking Signs (R9-1, R9-4, R9-4a)**

*Option:*

- 01 The WALK ON LEFT FACING TRAFFIC (R9-1) sign (see Figure 2B-26) may be used on highways where no sidewalks are provided.

**Standard:**

- 02 **If used, the WALK ON LEFT FACING TRAFFIC sign shall be installed on the right-hand side of the road where pedestrians walk on the pavement or shoulder in the absence of pedestrian pathways or sidewalks.**

*Option:*

- 03 The No Hitchhiking (R9-4) sign (see Figure 2B-26) may be used to prohibit standing in or adjacent to the roadway for the purpose of soliciting a ride. The R9-4a word message sign (see Figure 2B-26) may be used as an alternate to the R9-4 symbol sign.

3f to R10-3i educational signs that provide the name of the street to be crossed may be used instead of the R10-3b to R10-3e educational signs.

Support

06a Pedestrian pushbuttons are used to actuate pedestrian signal timing, to activate accessible pedestrian signals or both. See Section 4E.09 regarding the application of accessible pedestrian signals and detectors.

Standard

06b The bottom panels of signs R10-3b through R10-3i shall be eliminated where the pedestrian signal timing is non-actuated and the pedestrian push button is used solely to activate accessible pedestrian signals.

07 The R10-24 or R10-26 sign (see Section 9B.11) may be used where a pushbutton detector has been installed exclusively to actuate a green phase for bicyclists.

08 The R10-25 sign (see Figure 2B-26) may be used where a pushbutton detector has been installed for pedestrians to activate In-Roadway Warning Lights (see Chapter 4N) or flashing beacons that have been added to the pedestrian warning signs.

Support:

09 Section 4E.08 contains information regarding the application of the R10-32P plaque.

Standard:

10 The PUSH BUTTON FOR PEDESTRIAN WARNING LIGHTS – CROSS WITH CAUTION (R62E(CA)) sign (see Figure 2B-26(CA)) shall be mounted immediately above or incorporated in the pedestrian push button unit where In Roadway Warning Lights are installed and a pedestrian actuated system is used.

**Section 2B.53 Traffic Signal Signs (R10-5 through R10-30)**

Option:

01 To supplement traffic signal control, Traffic Signal signs R10-5 through R10-30 may be used to regulate road users.

02 Traffic Signal signs (see Figure 2B-27) may be installed at certain locations to clarify signal control. Among the legends that may be used for this purpose are LEFT ON GREEN ARROW ONLY (R10-5), STOP HERE ON RED (R10-6 or R10-6a) for observance of stop lines, DO NOT BLOCK INTERSECTION (R10-7) for avoidance of traffic obstructions, USE LANE(S) WITH GREEN ARROW (R10-8) for obedience to lane-use control signals (see Chapter 4M), LEFT TURN YIELD ON GREEN (symbolic circular green) (R10-12), and LEFT TURN YIELD ON FLASHING RED ARROW AFTER STOP (R10-27).

Support:

02a Refer to CVC 22526 for the DO NOT BLOCK INTERSECTION (R10-7) sign.

Option:

02b Where practical, an additional LEFT TURN YIELD ON GREEN (symbolic green ball) (R10-12) sign ((i.e., in addition to the R10-12 sign adjacent to the signal face) along with an AT SIGNAL (R73-9(CA)) supplemental plaque may be used on the approach to the signalized intersection.

Guidance:

02c If used, the location of this additional R10-12 sign should be in the raised median at the beginning of the left-turn lane, or be based upon Table 2C-4, or as per engineering judgment.

03 If used, the LEFT ON GREEN ARROW ONLY (R10-5) sign, the LEFT TURN YIELD ON GREEN (symbolic circular green) (R10-12) sign, or the ~~LEFT TURN YIELD ON FLASHING RED ARROW AFTER STOP (R10-27) sign~~ should be located adjacent to the left-turn signal face.

*(See Figure 2B-27(CA))*

Option:

04 If needed for additional emphasis, an additional LEFT TURN YIELD ON GREEN (symbolic circular green) (R10-12) sign with an AT SIGNAL (R10-31P) supplemental plaque (see Figure 2B-27) may be installed in advance of the intersection.

04a The LEFT TURN ON GREEN ARROW ONLY – NO U TURN (SR39A(CA)) sign (see Figure 2B-27(CA)) may be used at signalized intersections with separate left turn phases to inform traffic that left turns can only be made on a green arrow in accordance with CVC 21454 and "U" turns are prohibited.

04b The LEFT OR U TURN ON GREEN ARROW ONLY (SR39A(U)(CA)) sign (see Figure 2B-27(CA)) may be used at signalized intersections with separate left turn phases to inform traffic that left turns and "U" turns can only be made on a green arrow in accordance with CVC 21454.

Figure 2B-3. Speed Limit and Photo Enforcement Signs and Plaques

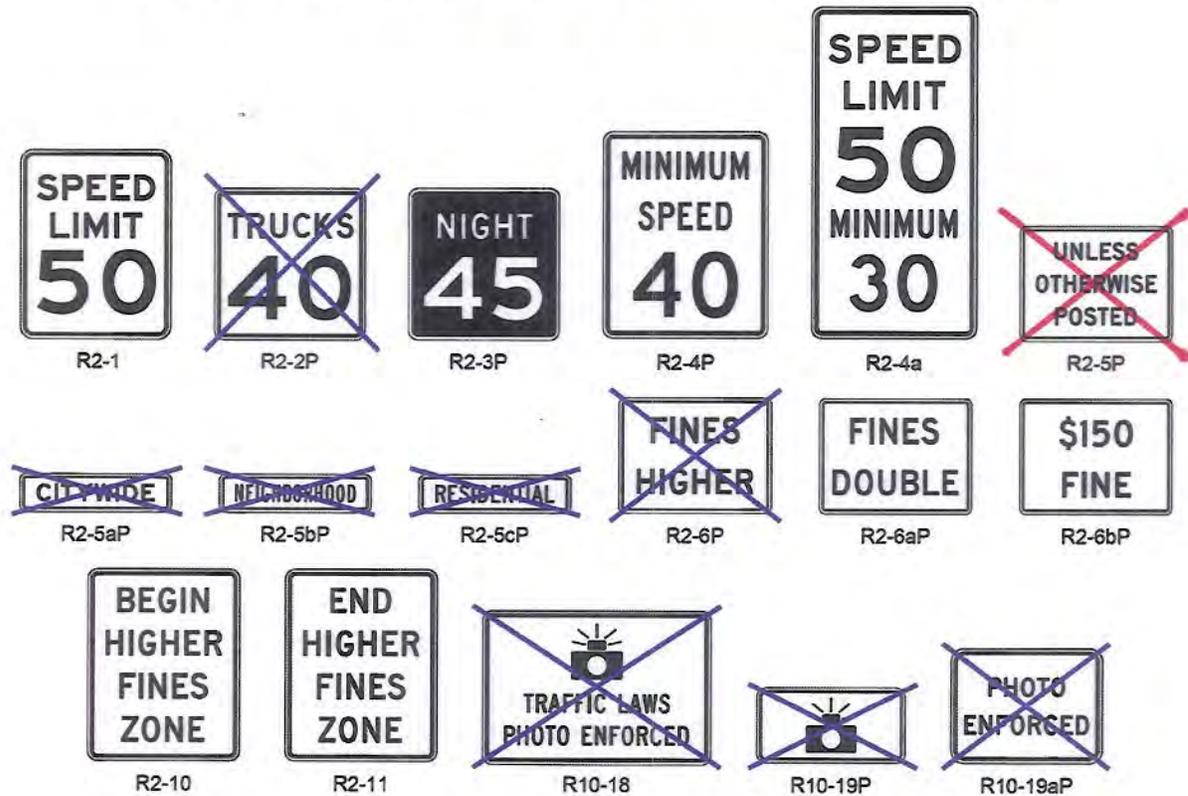


Figure 2B-4 (CA). Movement Prohibition and Lane Control Signs and Plaques

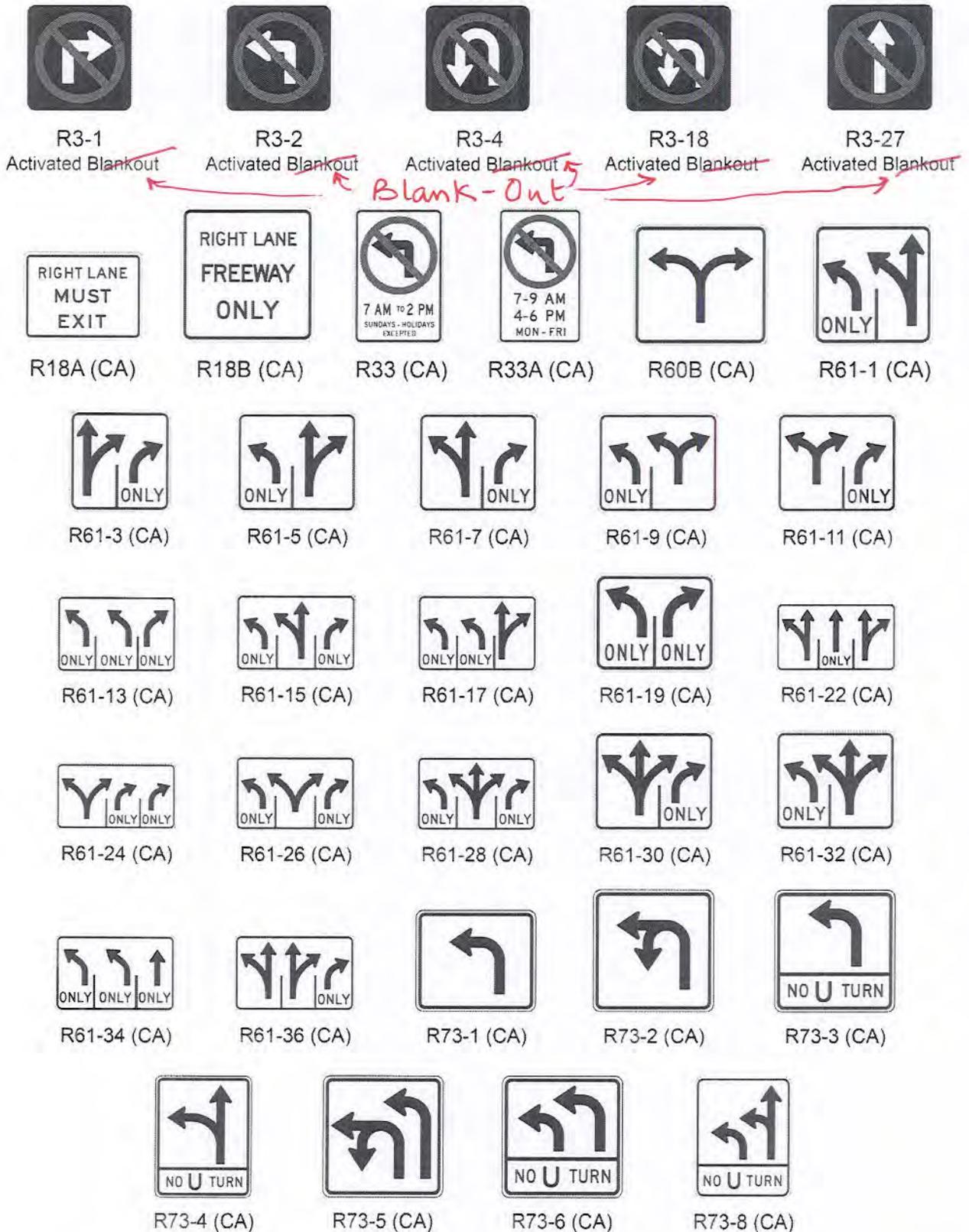


Figure 2B-11 (CA). Selective Exclusion Signs

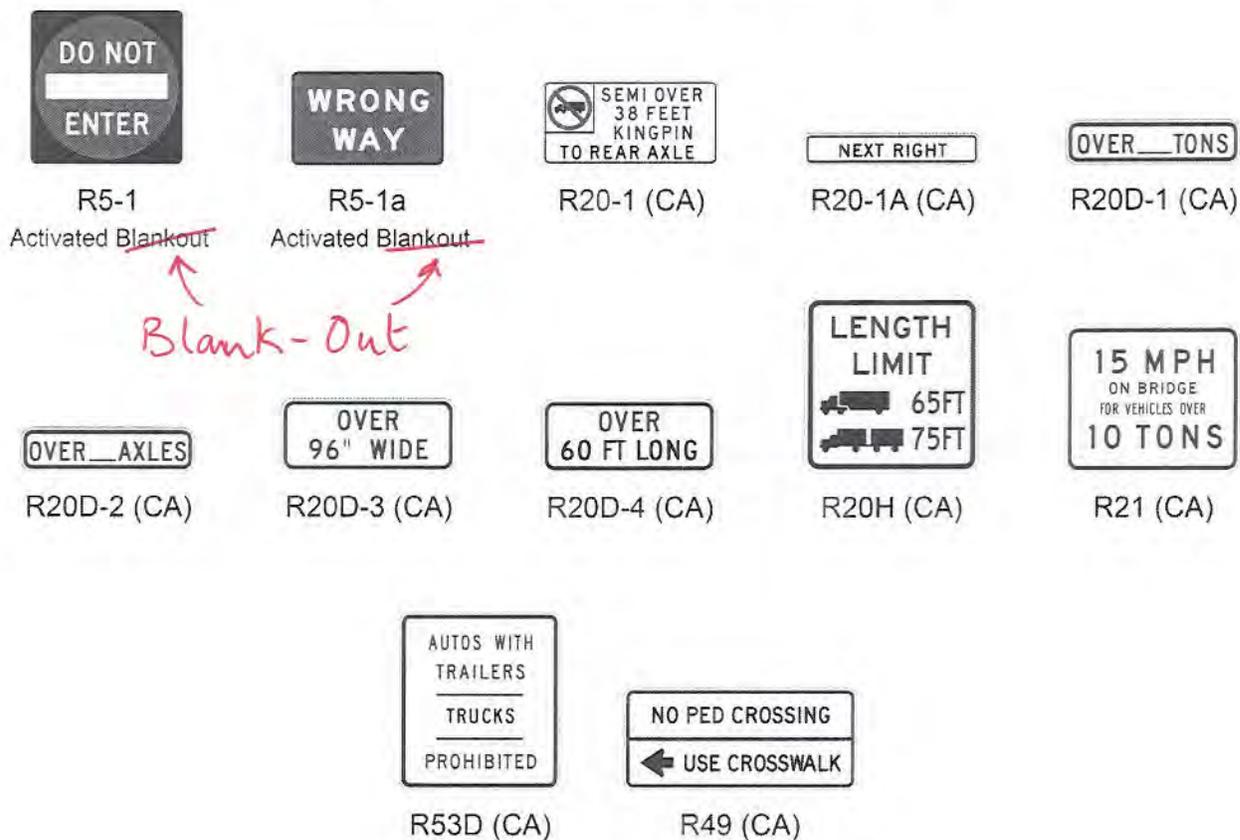
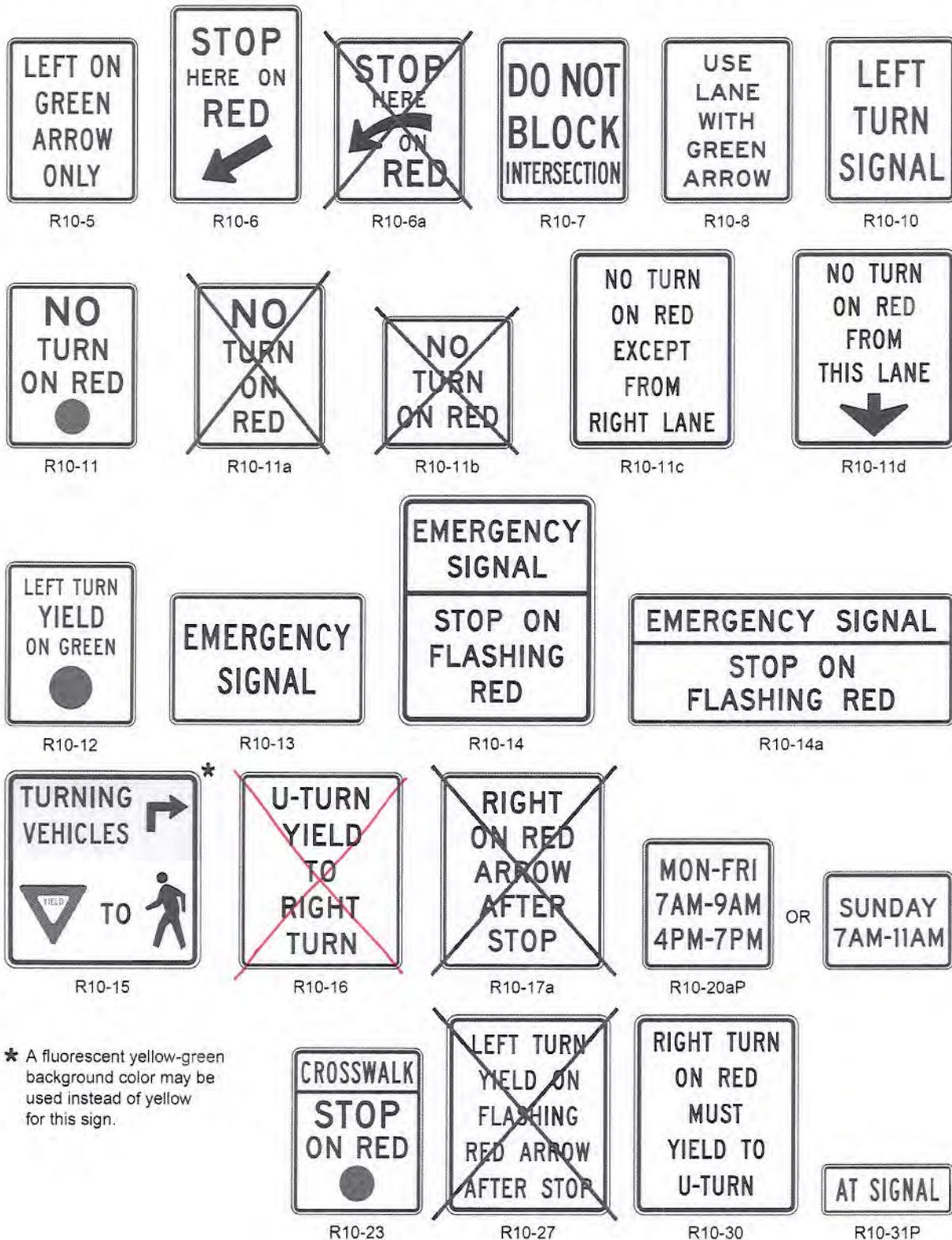


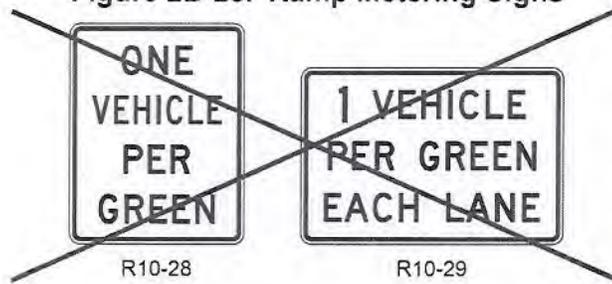
Figure 2B-27. Traffic Signal Signs and Plaques



**Figure 2B-27 (CA). Traffic Signal Signs and Plaques**



**Figure 2B-28. Ramp Metering Signs**



**Figure 2B-28 (CA). Ramp Metering Signs**

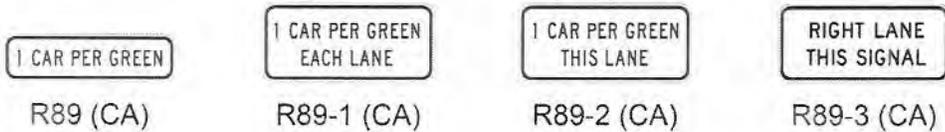


Table 2B-1. Regulatory Sign and Plaque Sizes (Sheet 3 of 4)

Sign or Plaque	Sign Designation	Section	Conventional Road		Expressway	Freeway	Minimum	Oversized
			Single Lane	Multi-Lane				
Emergency Snow Route	R7-203	2B.46	18 x 24	18 x 24	—	—	—	24 x 30
<del>No Parking on Pavement</del>	<del>R8-1</del>	<del>2B.46</del>	<del>24 x 30</del>	<del>24 x 30</del>	<del>36 x 48</del>	<del>48 x 60</del>	—	<del>36 x 48</del>
<del>No Parking Except on Shoulder</del>	<del>R8-2</del>	<del>2B.46</del>	<del>24 x 30</del>	<del>24 x 30</del>	<del>36 x 48</del>	<del>48 x 60</del>	—	<del>36 x 48</del>
<del>No Parking (symbol)</del>	<del>R8-3</del>	<del>2B.46</del>	<del>24 x 24*</del>	<del>30 x 30</del>	<del>36 x 36</del>	<del>48 x 48</del>	<del>12 x 12*</del>	<del>36 x 36</del>
<del>No Parking</del>	<del>R8-3a</del>	<del>2B.46</del>	<del>24 x 30</del>	<del>24 x 30</del>	<del>36 x 36</del>	<del>48 x 48</del>	<del>18 x 24</del>	<del>36 x 36</del>
<del>Except Sundays and Holidays (plaque)</del>	<del>R8-3bP</del>	<del>2B.46</del>	<del>24 x 18</del>	<del>24 x 18</del>	—	—	<del>12 x 9</del>	<del>30 x 24</del>
<del>On Pavement (plaque)</del>	<del>R8-3cP</del>	<del>2B.46</del>	<del>24 x 18</del>	<del>24 x 18</del>	—	—	<del>12 x 9</del>	<del>30 x 24</del>
<del>On Bridge (plaque)</del>	<del>R8-3dP</del>	<del>2B.46</del>	<del>24 x 18</del>	<del>24 x 18</del>	—	—	<del>12 x 9</del>	<del>30 x 24</del>
<del>On Trunk (plaque)</del>	<del>R8-3eP</del>	<del>2B.46</del>	<del>12 x 9</del>	<del>12 x 9</del>	—	—	—	<del>30 x 24</del>
<del>Except on Shoulder (plaque)</del>	<del>R8-3fP</del>	<del>2B.46</del>	<del>24 x 18</del>	<del>24 x 18</del>	—	—	<del>12 x 9</del>	<del>30 x 24</del>
<del>Loading Zone (plaque)</del>	<del>R8-3gP</del>	<del>2B.46</del>	<del>24 x 18</del>	<del>24 x 18</del>	—	—	<del>12 x 9</del>	<del>30 x 24</del>
<del>Times of Day (plaque)</del>	<del>R8-3hP</del>	<del>2B.46</del>	<del>24 x 18</del>	<del>24 x 18</del>	—	—	<del>12 x 9</del>	<del>30 x 24</del>
Emergency Parking Only	R8-4	2B.49	30 x 24	30 x 24	30 x 24	48 x 36	—	48 x 36
<del>No Stopping on Pavement</del>	<del>R8-5</del>	<del>2B.46</del>	<del>24 x 30</del>	<del>24 x 30</del>	<del>36 x 48</del>	<del>48 x 60</del>	—	<del>36 x 48</del>
<del>No Stopping Except on Shoulder</del>	<del>R8-6</del>	<del>2B.46</del>	<del>24 x 30</del>	<del>24 x 30</del>	<del>36 x 48</del>	<del>48 x 60</del>	—	<del>36 x 48</del>
Emergency Stopping Only	R8-7	2B.49	30 x 24	30 x 24	48 x 36	48 x 36	—	48 x 36
Walk on Left Facing Traffic	R9-1	2B.50	18 x 24	18 x 24	—	—	—	—
Cross Only at Crosswalks	R9-2	2B.51	12 x 18	12 x 18	—	—	—	—
No Pedestrian Crossing (symbol)	R9-3	2B.51	18 x 18	18 x 18	24 x 24	30 x 30	—	30 x 30
No Pedestrian Crossing	R9-3a	2B.51	12 x 18	12 x 18	—	—	—	—
Use Crosswalk (plaque)	R9-3bP	2B.51	18 x 12	18 x 12	—	—	—	—
No Hitchhiking (symbol)	R9-4	2B.50	18 x 18	18 x 18	—	—	—	24 x 24
No Hitchhiking	R9-4a	2B.50	18 x 24	18 x 24	—	—	12 x 18	—
No Skaters	R9-13	2B.39	18 x 18	18 x 18	24 x 24	30 x 30	—	30 x 30
No Equestrians	R9-14	2B.39	18 x 18	18 x 18	24 x 24	30 x 30	—	30 x 30
Cross Only On Green	R10-1	2B.52	12 x 18	12 x 18	—	—	—	—
Pedestrian Signs and Plaques	R10-2, 3, 3b, 3c, 3d, 4	2B.52	9 x 12	9 x 12	—	—	—	—
Pedestrian Signs	R10-3a, 3e, 3f, 3g, 3h, 3i, 4a	2B.52	9 x 15	9 x 15	—	—	—	—
Left on Green Arrow Only	R10-5	2B.53	30 x 36	30 x 36	48 x 60	—	24 x 30	48 x 60
Stop Here on Red	R10-6	2B.53	24 x 36	24 x 36	—	—	—	36 x 48
<del>Stop Here on Red</del>	<del>R10-6a</del>	<del>2B.53</del>	<del>24 x 30</del>	<del>24 x 30</del>	—	—	—	<del>36 x 42</del>
Do Not Block Intersection	R10-7	2B.53	24 x 30	24 x 30	—	—	—	—
Use Lane with Green Arrow	R10-8	2B.53	36 x 42	36 x 42	36 x 42	—	—	60 x 72
Left (Right) Turn Signal	R10-10	2B.53	30 x 36	30 x 36	—	—	—	—
<del>No Turn on Red</del>	<del>R10-11</del>	<del>2B.54</del>	<del>24 x 30*</del>	<del>36 x 48</del>	—	—	—	<del>36 x 48</del>
<del>No Turn on Red</del>	<del>R10-11a</del>	<del>2B.54</del>	<del>30 x 36*</del>	<del>36 x 48</del>	—	—	—	—
<del>No Turn on Red</del>	<del>R10-11b</del>	<del>2B.54</del>	<del>36 x 36</del>	<del>36 x 36</del>	—	—	—	—
No Turn on Red Except From Right Lane	R10-11c	2B.54	30 x 42	30 x 42	—	—	—	—
No Turn on Red From This Lane	R10-11d	2B.54	30 x 42	30 x 42	—	—	—	—
Left Turn Yield on Green	R10-12	2B.53	30 x 36	30 x 36	—	—	—	—
Emergency Signal	R10-13	2B.53	42 x 30	42 x 30	—	—	—	—
Emergency Signal - Stop on Flashing Red	R10-14	2B.53	36 x 42	36 x 42	—	—	—	—
Emergency Signal - Stop on Flashing Red (overhead)	R10-14a	2B.53	60 x 24	60 x 24	—	—	—	—
Turning Vehicles Yield to Peds	R10-15	2B.53	30 x 30	30 x 30	—	—	—	—
<del>U Turn Yield to Right Turn</del>	<del>R10-16</del>	<del>2B.53</del>	<del>30 x 36</del>	<del>30 x 36</del>	—	—	—	—
<del>Right on Red Arrow After Stop</del>	<del>R10-17a</del>	<del>2B.54</del>	<del>36 x 48</del>	<del>36 x 48</del>	—	—	—	—
<del>Traffic Laws Photo Enforced</del>	<del>R10-18</del>	<del>2B.55</del>	<del>36 x 24</del>	<del>36 x 24</del>	<del>48 x 30</del>	<del>54 x 36</del>	—	<del>54 x 36</del>
<del>Photo Enforced (symbol plaque)</del>	<del>R10-19P</del>	<del>2B.55</del>	<del>24 x 12</del>	<del>24 x 12</del>	<del>36 x 18</del>	<del>48 x 24</del>	—	<del>48 x 24</del>
<del>Photo Enforced (plaque)</del>	<del>R10-19aP</del>	<del>2B.55</del>	<del>24 x 18</del>	<del>24 x 18</del>	<del>36 x 30</del>	<del>48 x 36</del>	—	<del>48 x 36</del>
MON—FRI (and times) (3 lines) (plaque)	R10-20aP	2B.53	24 x 24	24 x 24	—	—	—	—

**CHAPTER 2C. WARNING SIGNS AND OBJECT MARKERS**

**Section 2C.01 Function of Warning Signs**

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.

**Section 2C.02 Application of Warning Signs**

Standard:

01 **The use of warning signs shall be based on an engineering study or on engineering judgment.**

Guidance:

02 *The use of warning signs should be kept to a minimum as the unnecessary use of warning signs tends to breed disrespect for all signs. In situations where the condition or activity is seasonal or temporary, the warning sign should be removed or covered when the condition or activity does not exist.*

Option:

03 Consistent with the provisions of Chapter 2L, changeable message signs may be used to display a warning message.

04 Consistent with the provisions of Chapter 4L, a Warning Beacon may be used in combination with a standard warning sign.

Support:

05 The categories of warning signs are shown in Table 2C-1.

06 Warning signs provided in this Manual cover most of the conditions that are likely to be encountered.

Additional warning signs for low-volume roads (as defined in Section 5A.01), temporary traffic control zones, school areas, grade crossings, and bicycle facilities are discussed in Parts 5 through 10, respectively.

07 Section 1A.09 contains information regarding the assistance that is available to jurisdictions that do not have engineers on their staffs who are trained and/or experienced in traffic control devices.

**Section 2C.03 Design of Warning Signs**

Standard:

01 **Except as provided in Paragraph 2 or unless specifically designated otherwise, all warning signs shall be diamond-shaped (square with one diagonal vertical) with a black legend and border on a yellow background. Warning signs shall be designed in accordance with the sizes, shapes, colors, and legends contained in the "Standard Highway Signs and Markings" book and Department of Transportation's California Sign Specifications (see Section 1A.11).**

Option:

02 A warning sign that is larger than the size shown in the Oversized column in Table 2C-2 and 2C-2(CA) for that particular sign may be diamond-shaped or may be rectangular or square in shape.

03 Except for symbols on warning signs, minor modifications may be made to the design provided that the essential appearance characteristics are met. Modifications may be made to the symbols shown on combined horizontal alignment/intersection signs (see Section 2C.11) and intersection warning signs (see Section 2C.46) in order to approximate the geometric configuration of the intersecting roadway (by *state Department of*

04 Word message warning signs other than those provided in this Manual may be developed and installed by State and local highway agencies. See Section 2A.06.

04a Warning signs may be supplemented with a yellow flashing beacon.

05 Warning signs regarding conditions associated with pedestrians, bicyclists, and playgrounds may have a black legend and border on a yellow or fluorescent yellow-green background.

*Transportation*

**Section 2C.17 Truck Escape Ramp Signs (W7-4 Series)**

*Guidance:*

01 *Where applicable, truck escape (or runaway truck) ramp advance warning signs (see Figure 2C-4) should be located approximately 1 mile, and 1/2 mile in advance of the grade, and of the ramp. A sign also should be placed at the gore. A RUNAWAY VEHICLES ONLY (R4-10) sign (see Section 2B.35) should be installed near the ramp entrance to discourage other road users from entering the ramp. ~~No Parking (R8-3) signs should be placed near the ramp entrance.~~ NO STOPPING ANYTIME (R26A(S)(CA)) signs should be placed to keep motorists from stopping in the path of runaway trucks.*

**Standard:**

02 **When truck escape ramps are installed, at least one of the W7-4 series signs shall be used.**

**Option:**

03 A SAND (W7-4dP), GRAVEL (W7-4eP), or PAVED (W7-4fP) supplemental plaque (see Figure 2C-4) may be used to describe the ramp surface. State and local highway agencies Department of Transportation (see Section 2A.06) may develop appropriate word message signs for the specific situation.

**Standard:**

04 **The DEEP GRAVEL (W30B(CA)) sign (see Figure 2C-4(CA)) shall be placed on all truck escape ramps.**

*Guidance:*

05 *The W30B(CA) sign should be placed near the outside edge of the paved ramp prior to the beginning of the gravel bed. See Figure 3D-103(CA) for Runaway Truck Ramp sign and marking details.*

06 *The RIGHT (LEFT) EXIT (W30C(CA)) sign (see Figure 2C-4(CA)) should be used to indicate a right or left exit to a truck escape ramp.*

**Support:**

07 Erect the W30C(CA) sign below and on the same post with the first W7-4 sign.

3F-103 (CA)

**Section 2C.18 HILL BLOCKS VIEW Sign (W7-6)**

**Option:**

01 A HILL BLOCKS VIEW (W7-6) sign (see Figure 2C-4) may be used in advance of a crest vertical curve to advise road users to reduce speed as they approach and traverse the hill as only limited stopping sight distance is available.

*Guidance:*

02 *When a HILL BLOCKS VIEW sign is used, it should be supplemented by an Advisory Speed (W13-1P) plaque indicating the recommended speed for traveling over the hillcrest based on available stopping sight distance.*

**Section 2C.19 ROAD NARROWS Sign (W5-1)**

*Guidance:*

01 *Except as provided in Paragraph 2, a ROAD NARROWS (W5-1) sign (see Figure 2C-5) should be used in advance of a transition on two-lane roads where the pavement width is reduced abruptly to a width such that vehicles traveling in opposite directions cannot simultaneously travel through the narrow portion of the roadway without reducing speed.*

**Option:**

02 The ROAD NARROWS (W5-1) sign may be omitted on low-volume local streets that have speed limits of 30 mph or less.

03 Additional emphasis may be provided by the use of object markers and delineators (see Sections 2B.63 2C.63 through 2B.65 2C.65 and Chapter 3F). The Advisory Speed (W13-1P) plaque (see Section 2C.08) may be used to indicate the recommended speed.

04 The Downward Arrow (SW44(CA)) sign (see Figure 2C-5(CA)) may be used where object markers (see Sections 2C.63 and 2C.65) may be ineffective, with the downward arrow either left or right, to mark obstructions in the roadway where traffic is permitted to pass on one side only.

be mounted below the W8-21 sign to inform road users of the length of roadway that frequently experiences strong wind gusts.

04 The FOG AREA (W8-22) sign (see Figure 2C-6) may be used to warn road users that foggy conditions frequently reduce visibility along a section of highway. A NEXT XX MILES (W7-3a) supplemental plaque may be mounted below the W8-22 sign to inform road users of the length of roadway that frequently experiences foggy conditions.

**Section 2C.36 Advance Traffic Control Signs (W3-1, W3-2, W3-3, W3-4)**

**Standard:**

01 **The Advance Traffic Control symbol signs (see Figure 2C-6) include the Stop Ahead (W3-1), Yield Ahead (W3-2), and Signal Ahead (W3-3) signs. These signs shall be installed on an approach to a primary traffic control device that is not visible for a sufficient distance to permit the road user to respond to the device (see Table 2C-4). The visibility criteria for a traffic control signal shall be based on having a continuous view of at least two signal faces for the distance specified in Table 4D-2.**

**Support:**

02 Figure 2A-4 shows the typical placement of an Advance Traffic Control sign.

03 Permanent obstructions causing the limited visibility might include roadway alignment or structures. Intermittent obstructions might include foliage or parked vehicles.

**Guidance:**

04 *Where intermittent obstructions occur, engineering judgment should determine the treatment to be implemented.*

**Option:**

05 An Advance Traffic Control sign may be used for additional emphasis of the primary traffic control device, even when the visibility distance to the device is satisfactory.

06 An advance street name plaque (see Section 2C.58) may be installed above or below an Advance Traffic Control sign.

07 A warning beacon may be used with an Advance Traffic Control sign.

07a A BE PREPARED TO STOP (W3-4) sign (see Figure 2C-6) may be used in advance of a traffic control device that could require motorists to stop, such as a traffic control signal or a STOP sign.

08 ~~A BE PREPARED TO STOP (W3-4) sign (see Figure 2C-6)~~ WATCH FOR STOPPED VEHICLES (SW60(CA)) sign (see Figure 2C-6(CA)) may be used to warn motorists of stopped traffic ~~caused by a traffic control signal~~ or such as in advance of a section of roadway that regularly experiences traffic congestion.

**Standard:**

09 **When a BE PREPARED TO STOP sign is used in advance of a traffic control signal, it shall be used in addition to a Signal Ahead sign and shall be placed downstream from the Signal Ahead (W3-3) sign.**

**Option:**

10 The BE PREPARED TO STOP (W3-4) sign or WATCH FOR STOPPED VEHICLES (SW60(CA)) sign may be supplemented with a warning beacon (see Section 4L.03).

**Guidance:**

11 *When the warning beacon is interconnected with a traffic control signal or queue detection system, the BE PREPARED TO STOP sign should be supplemented with a WHEN FLASHING (W16-13P) plaque (see Figure 2C-12).*

**Support:**

12 Section 2C.40 contains information regarding the use of a NO MERGE AREA (W4-5P) supplemental plaque in conjunction with a Yield Ahead sign.

**Standard:**

13 **WHEN FLASHING (W16-13p) plaque shall not be used to supplement the BE PREPARED TO STOP (W3-4) sign or WATCH FOR STOPPED VEHICLES (SW60(CA)) sign.**

**Support:**

14 Studies indicate that W16-13p is generally not effective as a warning device for motorists approaching signalized intersections. The non-use of WHEN FLASHING (W16-13p) plaque also addresses the situation when a warning beacon is inoperative for any reason.

~~14 A supplemental WHEN FLASHING (W16-13P) plaque (see Figure 2C-12) may be used with any Vehicular Traffic Warning sign that is supplemented with a Warning Beacon to indicate specific periods when the condition or activity is present or is likely to be present.~~

Standard:

15 **WHEN FLASHING (W16-13P) plaque shall not be used to supplement any Vehicular Traffic Warning sign.**

Support:

16 Studies indicate that W16-13P is generally not effective as a warning devices for motorists approaching signalized intersections. The non-use of WHEN FLASHING (W16-13P) plaque also addresses the situation when a warning beacon is inoperative for any reason.

Option:

17 The Snowmobile (W11-6) and Golf Cart (W11-11) signs may be used to alert road users to locations where unexpected entries into the roadway by snowmobiles or golf carts might occur, such as at snowmobile or golf cart crossings. Refer to CVC 38025. Also refer to CVC 21115.1.

18 The W11-11 sign may also be used in combination with the SHARE THE ROAD (W16-1) sign at locations where a local agency permits the sharing of the roadway with slower moving golf carts. Refer to CVC 21115.

19 The OFF HIGHWAY VEHICLES (SW47(CA)) sign (see Figure 2C-10(CA)) may be used in advance of a segment of highway that permits the use of regular vehicular traffic and also the driving of off highway motor vehicles on that portion of the highway.

Guidance:

20 *A Next Distance (W7-3a) plaque should supplement this sign.*

Option:

21 The WATCH FOR SNOW REMOVAL EQUIPMENT (SW58(CA)) sign (see Figure 2C-10(CA)) may be used on highways leading to snow areas.

Guidance:

22 *The SW58(CA) sign should be covered or removed during the summer season.*

Support:

23 The SW58(CA) sign is normally placed at lower elevations where the first snow is usually encountered.

**Section 2C.50 Non-Vehicular Warning Signs (W11-2, W11-3, W11-4, W11-6, W11-7, W11-9, and W11-16 through W11-22)**

Option:

01 Non-Vehicular Warning (W11-2, W11-3, W11-4, W11-6, W11-7, W11-9, and W11-16 through W11-22) signs (see Figure 2C-11) may be used to alert road users in advance of locations where unexpected entries into the roadway might occur or where shared use of the roadway by pedestrians, animals, or equestrians might occur.

Support:

02 These conflicts might be relatively confined, or might occur randomly over a segment of roadway.

Guidance:

03 *If used in advance of a pedestrian, snowmobile, or equestrian crossing, the W11-2, W11-6, W11-7, and W11-9 signs should be supplemented with plaques (see Section 2C.55) with the legend AHEAD or XX FEET to inform road users that they are approaching a point where crossing activity might occur.*

Standard:

04 **If a post-mounted W11-2, W11-6, W11-7, or W11-9 sign is placed at the location of the crossing point where pedestrians, snowmobilers, or equestrians might be crossing the roadway, a diagonal downward pointing arrow (W16-7P) plaque (see Figure 2C-12) shall be mounted below the sign. If the W11-2, W11-6, W11-7, or W11-9 sign is mounted overhead, the W16-7P plaque shall not be used.**

Option:

05 A Pedestrian Crossing (W11-2) sign may be placed overhead or may be post-mounted with a diagonal downward pointing arrow (W16-7P) plaque at the crosswalk location where Yield Here To (Stop Here For) Pedestrians signs (see Section 2B.11) have been installed in advance of the crosswalk.

**Standard:**

06 **If a W11-2 sign has been post-mounted at the crosswalk location where a Yield Here To (Stop Here For) Pedestrians sign is used on the approach, the Yield Here To (Stop Here For) Pedestrians sign shall not be placed on the same post as or block the road user's view of the W11-2 sign.**

**Option:**

07 An advance Pedestrian Crossing (W11-2) sign with an AHEAD or a distance supplemental plaque may be used in conjunction with a Yield Here To (Stop Here For) Pedestrians sign on the approach to the same crosswalk.

08 The crossing location identified by a W11-2, W11-6, W11-7, or W11-9 sign may be defined with crosswalk markings (see Section 3B.18).

09 The W11-2 and W11-9 signs and their related supplemental plaques may have a fluorescent yellow-green background with a black legend and border.

**Support:**

09a Refer to CVC 21364 and 21365 for the Cattle (W11-4) sign.

09b Refer to CVC 21805 for the Equestrian (W11-7) sign.

**Guidance:**

09c *The Deer Crossing (W11-3) sign should be used only after confirmation from a Department of Fish and Game warden having jurisdiction in the area that a substantial problem exists.*

**Option:**

09d The Migrating Bears (SW59(CA)) sign (see Figure 2C-11(CA)) may be used in advance of an area known to be inhabited by bear and there have been reported instances where bears are crossing the roadway.

**Guidance:**

09e *If used, the NEXT XX MILES supplemental plaque should be placed at approximately 5 mile intervals, or when intersecting major traffic generators.*

**Option:**

09f The DEAF CHILDREN NEAR (SW38(CA)) sign (see Figure 2C-11(CA)) may be used on city streets or county roads to indicate that a deaf child is near. Refer to CVC 21351.7.

**Guidance:**

09g *The SENIOR CITIZEN FACILITY (SW50(CA)) sign (see Figure 2C-11(CA)) should not be used alone.*

**Option:**

09h The SW50(CA) sign may be used in combination, above the Speed Limit (R2-1 (25,20 or 15)) sign on any street or road, other than a State highway, with a speed limit greater than 25 mph that is adjacent to a senior citizen facility. Refer to CVC 22352 and 22358.4.

**Guidance:**

10 *When a fluorescent yellow-green background is used, a systematic approach featuring one background color within a zone or area should be used. The mixing of standard yellow and fluorescent yellow-green backgrounds within a selected site area should be avoided.*

**Option:**

11 A Warning Beacon (see Section 4L.03) may be used with any Non-Vehicular Warning sign to indicate specific periods when the condition or activity is present or is likely to be present, or to provide enhanced sign conspicuity.

~~12 A supplemental WHEN FLASHING (W16-13P) plaque (see Figure 2C-12) may be used with any Non-Vehicular Warning sign that is supplemented with a Warning Beacon to indicate specific periods when the condition or activity is present or is likely to be present.~~

**Standard:**

13 **WHEN FLASHING (W16-13p) plaque shall not be used to supplement any Non-Vehicular Warning sign.**

**Support:**

14 Studies indicate that W16-13p is generally not effective as a warning devices for motorists approaching signalized intersections. The non-use of WHEN FLASHING (W16-13p) plaque also addresses the situation when a warning beacon is inoperative for any reason.

width or may be mounted higher, such that the vertical clearance to the bottom of the sign, light fixture, or structural support, whichever is lowest, is not less than 14 feet above any portion of the pavement and shoulders.

**Standard:**

**15 Where lateral clearance is limited, Preferential Lane regulatory signs that are post-mounted on a median barrier and that are wider than 72 inches shall be mounted with a vertical clearance that complies with the provisions of Section 2A.18 for overhead mounting.**

*Guidance:*

*16 On conventional roadways, Preferential Lane regulatory sign spacing should be determined by engineering judgment based on speed, block length, distances from adjacent intersections, and other site-specific considerations.*

*Support:*

*17 Sections 2G.04 and 2G.05 contain provisions regarding the placement of Preferential Lane regulatory signs on freeways and expressways.*

**Standard:**

**18 The signs illustrated in Figure 2G-1 and Figure 2G-1(CA) that incorporate the diamond symbol shall be used exclusively with preferential lanes for high-occupancy vehicles to indicate the particular occupancy requirement and time restrictions applying to that lane. The signs illustrated in Figure 2G-1 that do not have a diamond symbol shall be used with preferential lanes that are not HOV lanes, but are designated for use by other types of vehicles (such as bus and/or taxi use).**

*Option:*

*19 Agencies may select from either the HOV abbreviation or the diamond symbol, or use both, to reference the HOV lane designation.*

**Standard:**

**20 When the diamond symbol (or HOV abbreviation) is used without text on the post-mounted Preferential Lane (R3-10 series, R3-11 series, and R3-12 series, R93-2(CA), and SR50-2(CA)) regulatory signs, it shall be centered on the top line of the sign. When the diamond symbol (or HOV abbreviation) is used with associated text on the post-mounted Preferential Lane (R3-10 series, R3-11 series, and R3-12 series, ~~R82-1(CA), R84-2(CA),~~ R86(CA) series, R88(CA), and R91(CA) series) regulatory signs, it shall appear to the left of the associated text. When the diamond symbol is used on the overhead Preferential Lane (R3-13, R3-13a, R3-14, and R3-14a, and R87(CA) series) regulatory signs, it shall appear in the top left quadrant. The diamond symbol for the R3-15, R3-15a, R3-15b, and R3-15c, and SR50-1(CA) signs shall appear on the left side of the sign. The diamond symbol shall not be used on the bus, taxi, or bicycle Preferential Lane signs.**

**21 Vehicle Occupancy Definition, Periods of Operation, and Preferential Lane Advance regulatory signs for HOV lanes shall display the minimum allowable vehicle occupancy requirement established for each HOV lane, displayed immediately after the word message HOV or the diamond symbol.**

*Support:*

*22 The agencies that own and operate HOV lanes have the authority and responsibility to determine how they are operated and the minimum occupancy requirements. Information about federal requirements for certain types of vehicles not meeting the minimum occupancy requirement to be eligible to use HOV lanes that receive Federal-aid program funding and about requirements associated with proposed significant changes to the operation of an existing HOV lane and certain vehicles are contained in the "Federal-Aid Highway Program Guidance on High Occupancy Vehicle (HOV) Lanes" (see Section 1A.11).*

**Standard:**

**23 The provisions of Sections 2G.03 through 2G.07 regarding regulatory signs for Preferential lanes shall apply to managed lanes operated at all times or at certain times by varying vehicle occupancy requirements (HOV) or by using vehicle type restrictions as a congestion management strategy. Such managed lanes shall use changeable message signs or changeable message elements within static signs to display the appropriate regulatory sign messages only when they are in effect.**

**24 When certain types of vehicles (such as trucks) are prohibited from using a managed lane or when a managed lane is restricted to use by only certain types of vehicles during certain operational strategies, regulatory signs or regulatory panels within the appropriate guide signs that include changeable message elements shall be used to display the open/closed status of the managed lane for such vehicle types.**

07 The design of Pull-Through signs when used in conjunction with an Egress Direction sign at an intermediate egress from the preferential lanes to the general-purpose lanes shall be distinguished from those applicable to general-purpose lanes by inclusion of an upper section with the applicable black legend on a white background, such as HOV LANE. For preferential lanes that incorporate a vehicle occupancy requirement, the white diamond symbol on a black background shall be displayed at the left-hand edge of this upper section.

**Section 2G.14 Guide Signs for Direct Entrances to Preferential Lanes from Another Highway**

**Standard:**

01 For direct access ramps to preferential lanes from a transit facility (such as a park - ride lot or a transit station or terminal) that is accessible from surface streets, advance guide signs shall be provided along the adjoining surface streets to direct traffic into and through the transit facility to the preferential lane (see ~~Figure 2G-13~~).

01a The HOV Advance Lane Assignment (G20-9(CA)) sign (see Figure 2G-6(CA)) shall be used on a multilane cross street approaching a direct access ramp to an HOV lane to direct traffic into the proper lane to access the ramp.

01b The HOV LANE ENTRANCE (G92-1(CA)) sign (see Figure 2G-6(CA)) shall be used at the entrance to a direct access ramp to an HOV lane. The G92-1(CA) sign is similar to the FREEWAY ENTRANCE (~~G92-1(CA)~~) sign and shall be installed similarly. Refer to Section 2A18 and 2B.41.

D13-3

**Support:**

02 Figure ~~2G-14~~ 2G-13 provides examples of recommended uses and layouts of signs for HOV lanes for direct access ramps, park - ride lots, and access from surface streets.

**Section 2G.15 Guide Signs for Direct Exits from Preferential Lanes to Another Highway**

**Standard:**

01 For contiguous preferential lanes on the left-hand side of the roadway, Advance Guide signs, Exit Direction signs, and Exit Gore signs (see Figure 2G-14 and Figure 2G-14(CA)) specifically applicable to the preferential lanes shall be used for exits to direct access ramps, such as HOV lane ramps (see Figure ~~2G-15~~ 2G-15(CA)) or ramps to park - ride facilities.

02 The design of Advance Guide, Exit Direction, and Pull-Through signs for direct exits from preferential lanes shall be distinguished from those applicable to general-purpose lanes by inclusion of an upper section with the applicable black legend on a white background, such as HOV LANE (for Pull-Through signs) or HOV EXIT (for Advance Guide and Exit Direction signs). For preferential lanes that incorporate a vehicle occupancy requirement, the white diamond symbol on a black background shall be displayed at the left-hand edge of this upper section (see Figures ~~2G-15~~ 2G-15(CA) and 2G-16).

02a The HOV Supplemental Destination (G86-15(CA)) and HOV Advance Guide (G83-6(CA)) signs shall be used for Advance Guide signs for exits to direct access ramps from an HOV lane.

02b The HOV Exit Direction (G85-12(CA)) sign shall be used as the Exit Direction sign for exits to direct access ramps from an HOV lane.

**Option:**

02c If an auxiliary lane is not used in advance of the direct access ramp, the G83-6(CA) sign and the W61C(CA) panel on the G85-12(CA) sign may be eliminated.

**Standard:**

02d The HOV Exit with Arrow (E8-4) sign shall be used as the Exit Gore sign for exits to direct access ramps from an HOV lane.

**Guidance:**

02e The arrow on the E8-4 sign should be aligned to approximately the angle of departure and should be positioned to avoid confusion that the exit may serve general purpose traffic.

03 Advance Guide ~~and Exit Direction~~ signs for exits to direct access ramps from a preferential lane should be mounted overhead. A Pull-Through sign should be used with the Exit Direction sign at exits to direct access ramps.

**Standard:**

03a Exit Direction signs for exits to direct access ramps from a preferential lane shall be mounted overhead.

**Standard:**

04 Except as provided in Section 8B.28, stop lines shall not be used at locations where drivers are required to yield in compliance with a YIELD (R1-2) sign or a Yield Here To Pedestrians (R1-5 or R1-5a) sign or at locations on uncontrolled approaches where drivers are required by State law to yield to pedestrians.

05 Yield lines shall not be used at locations where drivers are required to stop in compliance with a STOP (R1-1) sign, ~~a Stop Here For Pedestrians (R1-5b or R1-5e) sign~~, a traffic control signal, or some other traffic control device.

06 Stop lines shall consist of solid white lines extending across approach lanes to indicate the point at which the stop is intended or required to be made.

07 Yield lines (see Figure ~~3B-16~~ 3B-16(CA)) shall consist of a row of solid white isosceles triangles pointing toward approaching vehicles extending across approach lanes to indicate the point at which the yield is intended or required to be made.

**Guidance:**

08 Stop lines should be 12 to 24 inches wide.

09 The individual triangles comprising the yield line should have a base of ~~12 to~~ 24 inches wide and a height equal to 1.5 times the base. The space between the triangles should be ~~3 to~~ 12 inches.

10 If used, stop and yield lines should be placed a minimum of 4 feet in advance of the nearest crosswalk line at controlled intersections, except for yield lines at roundabouts as provided for in Section 3C.04 and at midblock crosswalks. In the absence of a marked crosswalk, the stop line or yield line should be placed at the desired stopping or yielding point, but should not be placed more than 30 feet or less than 4 feet from the nearest edge of the intersecting traveled way.

11 Stop lines at midblock signalized locations should be placed at least 40 feet in advance of the nearest signal indication (see Section 4D.14).

12 If ~~yield or stop lines~~ are used at a crosswalk that crosses an uncontrolled multi-lane approach, the yield lines ~~or stop lines~~ should be placed 20 to 50 feet in advance of the nearest crosswalk line, and parking should be prohibited in the area between the yield or stop line and the crosswalk (see Figure 3B-17).

**Standard:**

13 If yield (~~stop~~) lines are used at a crosswalk that crosses an uncontrolled multi-lane approach, Yield Here To (~~Stop Here For~~) Pedestrians (R1-5 series) signs (see Section 2B.11) shall be used.

**Guidance:**

14 Yield (~~stop~~) lines and Yield Here To (~~Stop Here For~~) Pedestrians signs should not be used in advance of crosswalks that cross an approach to or departure from a roundabout.

**Support:**

15 When drivers yield or stop too close to crosswalks that cross uncontrolled multi-lane approaches, they place pedestrians at risk by blocking other drivers' views of pedestrians and by blocking pedestrians' views of vehicles approaching in the other lanes.

**Option:**

16 Stop and yield lines may be staggered longitudinally on a lane-by-lane basis (see Drawing D of Figure 3B-13).

**Support:**

17 Staggered stop lines and staggered yield lines can improve the driver's view of pedestrians, provide better sight distance for turning vehicles, and increase the turning radius for left-turning vehicles.

18 Section 8B.28 contains information regarding the use of stop lines and yield lines at grade crossings.

**Support:**

19 As defined in CVC 377, a "limit line" is a solid white line not less than 12 inch nor more than 24 inch wide, extending across a roadway or any portion thereof to indicate the point at which traffic is required to stop in compliance with legal requirements.

**Standard:**

20 For all purposes, limit line(s) as defined per CVC 377 shall mean stop line(s).

21 A limit line shall be placed in conjunction with STOP (R1-1) signs on paved approaches, except where marked crosswalk exists.

**Guidance:**

22 If a sidewalk exists, the limit line should be placed in advance of an unmarked crosswalk area.

Figure 3F-105 (CA). Examples of Median Barrier Delineation

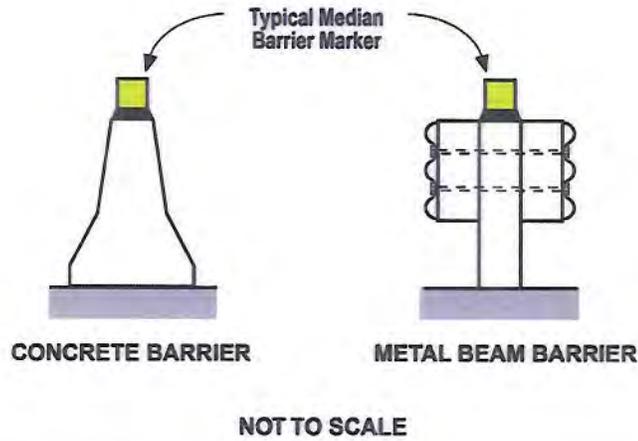


Table 3F-1. Approximate Spacing for Delineators on Horizontal Curves

Radius (R) of Curve	Approximate Spacing (S) on Curve
50 feet	20 feet
115 feet	25 feet
180 feet	35 feet
250 feet	40 feet
300 feet	<del>50 feet</del> 40 feet
400 feet	<del>55 feet</del> 40 feet
500 feet	<del>65 feet</del> 40 feet
600 feet	<del>70 feet</del> 40 feet
700 feet	75 feet
800 feet	80 feet
900 feet	85 feet
1,000 feet	90 feet

TEXT NEEDS TO BE IN BLUE COLOR AND ARIAL NARROW FONT

- Notes:
1. Spacing for specific radii may be interpolated from table.
  2. The minimum spacing should be 20 feet.
  3. The spacing on curves should not exceed 300 feet.
  4. In advance of or beyond a curve, and proceeding away from the end of the curve, the spacing of the first delineator is 2S, the second 3S, and the third 6S, but not to exceed 300 feet.
  5. S refers to the delineator spacing for specific radii computed from the formula  $S=3\sqrt{R-50}$ .
  6. The distances for S shown in the table above were rounded to the nearest 5 feet.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 4 of 5)

**WARRANT 6 - Coordinated Signal System** SATISFIED YES  NO   
(All Parts Must Be Satisfied)

MINIMUM REQUIREMENTS	DISTANCE TO NEAREST SIGNAL	
≥ 1000 ft	N _____ ft, S _____ ft, E _____ ft, W _____ ft	Yes <input type="checkbox"/> No <input type="checkbox"/>
On a one-way street or a street that has traffic predominantly in one direction, the adjacent traffic control signals are so far apart that they do not provide the necessary degree of vehicular platooning.		Yes <input type="checkbox"/> No <input type="checkbox"/>
OR, On a two-way street, adjacent traffic control signals do not provide the necessary degree of platooning and the proposed and adjacent traffic control signals will collectively provide a progressive operation.		

**WARRANT 7 - Crash Experience Warrant** SATISFIED YES  NO   
(All Parts Must Be Satisfied)

Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency.		Yes <input type="checkbox"/> No <input type="checkbox"/>
REQUIREMENTS	Number of crashes reported within a 12 month period susceptible to correction by a traffic signal, and involving injury or damage exceeding the requirements for a reportable crash.	Yes <input type="checkbox"/> No <input type="checkbox"/>
5 OR MORE		
REQUIREMENTS	CONDITIONS	✓
ONE CONDITION SATISFIED 80%	Warrant 1, Condition A - Minimum Vehicular Volume	
	OR, Warrant 1, Condition B - Interruption of Continuous Traffic	Yes <input type="checkbox"/> No <input type="checkbox"/>
	OR, Warrant 4, Pedestrian Volume Condition Ped Vol ≥ 152 for any hour - 80% of figures OR, Ped Vol ≥ 80 for any 4 hours 4c-5 than 4c-8	

**WARRANT 8 - Roadway Network** SATISFIED YES  NO   
(All Parts Must Be Satisfied)

MINIMUM VOLUME REQUIREMENTS	ENTERING VOLUMES - ALL APPROACHES	✓	FULFILLED
1000 Veh/Hr	During Typical Weekday Peak Hour _____ Veh/Hr and has 5-year projected traffic volumes that meet one or more of Warrants 1, 2, and 3 during an average weekday.		Yes <input type="checkbox"/> No <input type="checkbox"/>
	OR During Each of Any 5 Hrs. of a Sat. or Sun _____ Veh/Hr		
CHARACTERISTICS OF MAJOR ROUTES		MAJOR ROUTE A	MAJOR ROUTE B
Hwy. System Serving as Principal Network for Through Traffic			
Rural or Suburban Highway Outside Of, Entering, or Traversing a City			
Appears as Major Route on an Official Plan			
Any Major Route Characteristics Met, Both Streets			Yes <input type="checkbox"/> No <input type="checkbox"/>

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

*(see Fig. 5C-2(CA))*

*Guidance:*

*03 The ONE LANE BRIDGE FOR TRUCKS AND BUSES (SR27-1(CA)) sign should be used at the approaches to a bridge that is determined to be too narrow to allow trucks or buses in opposing directions to be on the bridge at the same time.*

**Section 5C.07 Hill Sign (W7-1)**

**Option:**

01 An engineering study of vehicles and road characteristics, such as percent grade and length of grade, may be conducted to determine hill signing requirements.

**Section 5C.08 PAVEMENT ENDS Sign (W8-3)**

**Option:**

01 A PAVEMENT ENDS (W8-3) sign (see Figure 5C-2) may be used to warn road users where a paved surface changes to a gravel or earth road surface.

**Section 5C.09 Vehicular Traffic Warning and Non-Vehicular Warning Signs (W11 Series and W8-6)**

*Guidance:*

*01 Vehicular Traffic Warning signs (see Figure 5C-2) should be used to alert road users to locations where frequent unexpected entries into the roadway by trucks, bicyclists, farm vehicles, fire trucks, and other vehicles might occur. Such signs should be used only at locations where the road user's sight distance is restricted or the condition, activity, or entering traffic would be unexpected.*

**Option:**

02 Non-Vehicular Warning signs (see Figure 5C-2) may be used to alert road users in advance of locations where unexpected entries into the roadway or shared use by pedestrians, large animals, or other crossing activities might occur.

03 A W7-3aP, W16-2P, or W16-9P supplemental plaque (see Figure 5C-2), with the legend NEXT XX MILES, XX FEET, or AHEAD may be installed below a Vehicular Traffic Warning or Non-Vehicular Warning sign (see Sections 2C.49 and 2C.50) to inform road users that they are approaching a portion of the roadway or a point where crossing activity might occur.

**Standard:**

04 **When a Non-Vehicular Warning sign is placed at the location of the crossing point, a diagonal downward pointing arrow (W16-7P) plaque (see Figure 5C-2) shall be mounted below the sign.**

*Guidance:*

*05 If the activity is seasonal or temporary, the sign should be removed or covered when the condition or activity does not exist.*

**Section 5C.10 Advisory Speed Plaque (W13-1P)**

**Option:**

01 An Advisory Speed (W13-1P) plaque (see Figure 5C-1) may be mounted below a warning sign when the condition requires a reduced speed.

**Section 5C.11 DEAD END or NO OUTLET Signs (W14-1, W14-1a, W14-2, W14-2a)**

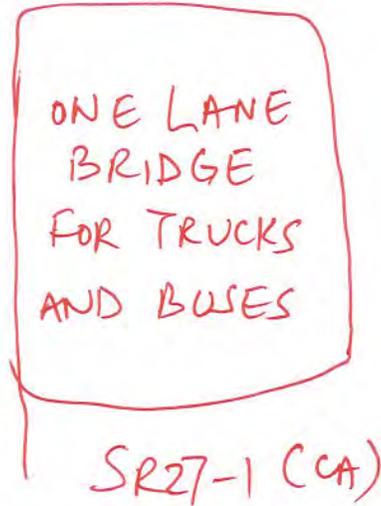
**Option:**

01 The DEAD END (W14-1) and NO OUTLET (W14-2) signs (see Figure 5C-2) and the DEAD END (W14-1a) and NO OUTLET (W14-2a) signs (see Figure 5C-2) may be used to warn road users of a road that has no outlet or that terminates in a dead end or cul-de-sac.

*Guidance:*

*02 If used, these signs should be placed at a location that gives drivers of large commercial or recreational vehicles an opportunity to select a different route or turn around.*

Fig 5c-2(CA) Other Warning Signs . . .



13 A reduction of more than 10 mph in the speed limit should be used only when required by restrictive features in the TTC zone. Where restrictive features justify a speed reduction of more than 10 mph, additional driver notification should be provided. The speed limit should be stepped down in advance of the location requiring the lowest speed, and additional TTC warning devices should be used.

14 Reduced speed zoning (lowering the regulatory speed limit) should be avoided as much as practical because drivers will reduce their speeds only if they clearly perceive a need to do so.

**Standard:**

14a **The justification for the reduced speed limit shall be documented in writing, in satisfaction of the Engineering and Traffic Survey (E&TS) requirement. Refer to CVC 627 for E&TS.**

**Support:**

15 Research has demonstrated that large reductions in the speed limit, such as a 30 mph reduction, increase speed variance and the potential for crashes. Smaller reductions in the speed limit of up to 10 mph cause smaller changes in speed variance and lessen the potential for increased crashes. A reduction in the regulatory speed limit of only up to 10 mph from the normal speed limit has been shown to be more effective.

**Support:**

16 See Section 2B.13 for permanent Speed Limit and Speed Zone signs.

17 See Section 6F.12 for Road Work/Speed Zone (C17(CA)) sign, WORK ZONE (G20-5aP) plaque and END WORK ZONE SPEED LIMIT (R2-12) sign.

**Construction Speed Zones:**

18 Construction speed zones are established on roads under construction where reduced speed is necessary to limit the risk of an accident to workers and the traveling public during all hours of the day and night. Refer to CVC Section 21367. Protection of workers during working hours is provided for under CVC Section 22362.

**Guidance:**

19 *Construction speed zones should be avoided if traffic can be controlled by other means. Speed restrictions should be imposed on the public only when necessary for worker or public safety.*

**Standard:**

20 **Where traffic obstructions exist only during the hours of construction, the speed zone signs shall be covered during non-working hours.**

**Support:**

21 CVC 22362 applies to "When Workers are Present" condition and signs need to be covered or removed when no work is in progress. As per CVC 21367, agency can "...regulate the movement of traffic...whenever the traffic would endanger the safety of workers or the work would interfere with or endanger the movement of traffic through the area." If obstructions would be present throughout the project duration the signs would not need to be covered or removed. This would also apply to situations where the construction work changes the highway configuration, curvature or elevation, making it necessary to post reduced speed limits.

**Guidance:**

22 *The traveled way should be signed and delineated to communicate physical conditions to the motorists such as curvature, narrow roadways, detours, rough roads, dips or humps, etc.*

**Option:**

23 The Advisory Speed (W13-1) plaque may be used in combination with various warning type signs to decrease speed at a particular location.

**Guidance:**

24 *To preserve the effectiveness of the W13-1 plaque, it should not be used unless the condition to which it applies is immediate and will be experienced by all motorists.*

**Option:**

25 Reduced speed limits in construction zones may be established by an engineering analysis, which may include a traffic and engineering survey.

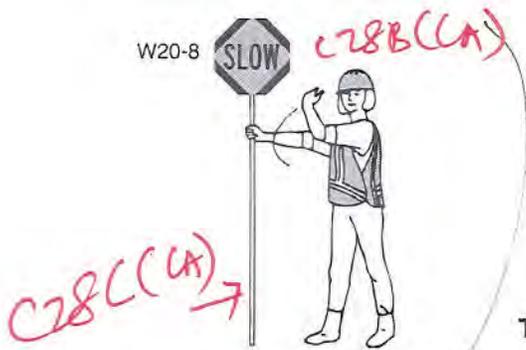
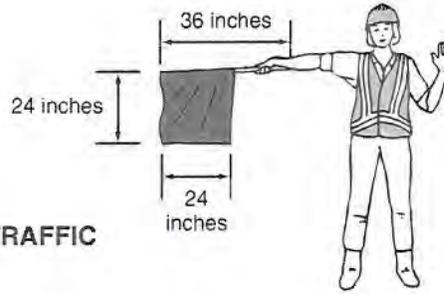
**Guidance:**

26 *Construction zone speed limits should be reduced in sequential stages and where overall reduction of 15 mph or more is required. The first stage of the sequence should be a reduction of 10 mph and the final stage reduction should be 10 mph or 5 mph, as necessary.*

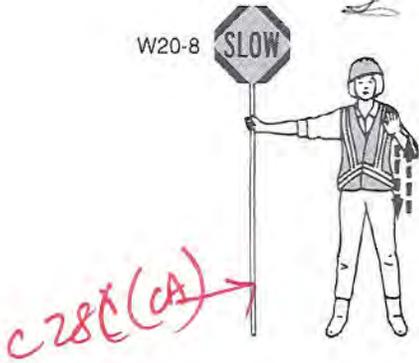
Figure 6E-3. Use of Hand-Signaling Devices by Flaggers

PREFERRED METHOD  
STOP/SLOW Paddle

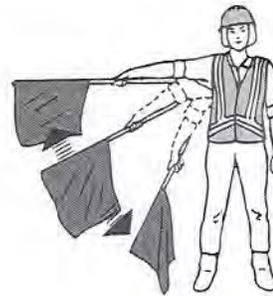
EMERGENCY SITUATIONS ONLY  
Red Flag



TO LET  
TRAFFIC PROCEED



TO ALERT AND  
SLOW TRAFFIC



*Guidance:*

02 *An arrow board in the arrow or chevron mode should be used to advise approaching traffic of a lane closure along major multi-lane roadways in situations involving heavy traffic volumes, high speeds, and/or limited sight distances, or at other locations and under other conditions where road users are less likely to expect such lane closures.*

03 *If used, an arrow board should be used in combination with appropriate signs, channelizing devices, or other TTC devices.*

04 *An arrow board should be placed on the shoulder of the roadway or, if practical, farther from the traveled lane. It should be delineated with retroreflective TTC devices. When an arrow board is not being used, it should be removed; if not removed, it should be shielded; or if the previous two options are not feasible, it should be delineated with retroreflective TTC devices.*

**Standard:**

05 **Arrow boards shall meet the minimum size, legibility distance, number of elements, and other specifications shown in Figure 6F-6.**

**Support:**

06 Type A arrow boards are appropriate for use on low-speed urban streets. Type B or II arrow boards are appropriate for intermediate-speed facilities and for maintenance or mobile operations on high-speed roadways. Type C or I arrow boards are intended to be used on high-speed, high-volume motor vehicle traffic control projects. Type D arrow boards are intended for use on vehicles authorized by the State or local agency.

**Standard:**

07 **Type A, B or II, and C or I arrow boards shall have solid rectangular appearances. A Type D arrow board shall conform to the shape of the arrow.**

08 **All arrow boards shall be finished in non-reflective black. The arrow board shall be mounted on a vehicle, a trailer, or other suitable support.**

*Guidance:*

09 *The minimum mounting height, measured vertically from the bottom of the board to the roadway below it or to the elevation of the near edge of the roadway, of an arrow board should be 7 feet, except on vehicle-mounted arrow boards, which should be as high as practical.*

10 *A vehicle-mounted arrow board should be provided with remote controls.*

**Standard:**

11 **Arrow board elements shall be capable of at least a 50 percent dimming from full brilliance. The dimmed mode shall be used for nighttime operation of arrow boards.**

*Guidance:*

12 *Full brilliance should be used for daytime operation of arrow boards.*

**Standard:**

13 **The arrow board shall have suitable elements capable of the various operating modes. The color presented by the elements shall be yellow.**

*Guidance:*

14 *If an arrow board consisting of a bulb matrix is used, the elements should be recess-mounted or equipped with an upper hood of not less than 180 degrees.*

**Standard:**

15 **The minimum element on-time shall be 50 percent for the flashing mode, with equal intervals of 25 percent for each sequential phase. The flashing rate shall be not less than 25 or more than 40 flashes per minute.**

16 **An arrow board shall have the following three mode selections:**

- A. A Flashing Arrow, Sequential Arrow, or Sequential Chevron mode;
- B. A flashing Double Arrow mode; and
- C. A flashing Caution or Alternating Diamond mode.

17 **An arrow board in the arrow or chevron mode shall be used only for stationary or moving lane closures on multi-lane roadways.**

18 **For shoulder work, blocking the shoulder, for roadside work near the shoulder, or for temporarily closing one lane on a two-lane, two-way roadway, an arrow board shall be used only in the caution mode.**

*Guidance:*

- 06 *Transverse rumble strips should be placed transverse to vehicular traffic movement. They should not adversely affect overall pavement skid resistance under wet or dry conditions.*
- 07 *In urban areas, even though a closer spacing might be warranted, transverse rumble strips should be designed in a manner that does not promote unnecessary braking or erratic steering maneuvers by road users.*
- 08 *Transverse rumble strips should not be placed on sharp horizontal or vertical curves.*
- 09 *Rumble strips should not be placed through pedestrian crossings ~~or on bicycle routes.~~*
- 10 *Transverse rumble strips should not be placed on roadways used by bicyclists unless a minimum clear path of 4 feet is provided at each edge of the roadway or on each paved shoulder as described in AASHTO's "Guide to the Development of Bicycle Facilities" (see Section 1A.11).*
- 11 *Longitudinal rumble strips should not be placed on the shoulder of a roadway that is used by bicyclists unless a minimum clear path of 4 feet is also provided on the shoulder.*

**Section 6F.88 Screens**

**Support:**

01 Screens are used to block the road users' view of activities that can be distracting. Screens might improve safety and motor vehicle traffic flow where volumes approach the roadway capacity because they discourage gawking and reduce headlight glare from oncoming motor vehicle traffic.

*Guidance:*

02 *Screens should not be mounted where they could adversely restrict road user visibility and sight distance and adversely affect the reasonably safe operation of vehicles.*

**Option:**

- 03 Screens may be mounted on the top of temporary traffic barriers that separate two-way motor vehicle traffic.
- 03a Temporary traffic screen may be mounted on top of temporary traffic barriers, when barriers are used in transition and crossover areas for glare-control on high-volume roadways.

*Guidance:*

- 03b *If used, temporary traffic screen panels should be contiguous without gaps, minimum 32 inch in height, and orange or red-orange in color.*
- 04 *Design of screens should be in accordance with Chapter 9 of AASHTO's "Roadside Design Guide" (see Section 1A.11).*

**Section 6F.101(CA) LOOSE GRAVEL Sign (W8-7)**

*Guidance:*

01 *The LOOSE GRAVEL (W8-7) sign should be used on chip seal jobs or other areas to warn motorists that there is loose gravel on the roadway.*

**Standard:**

02 **When used, the W8-7 sign shall be placed at the beginning of work and at maximum 2000 feet intervals.**

**Option:**

- 03 When warning is intended to be directed primarily to motorcyclists, use of the W8-7 sign with motorcycle plaque (W8-15P) may be considered.
- 04 The Advisory Speed (W13-1) <sup>P</sup> plaque may be used in combination with the W8-7 sign to indicate the need to decrease speed at a particular location.

*Guidance:*

05 *The advisory speed should be reasonable or prudent, considering weather, visibility, traffic, surface condition and width of the roadway.*

**Standard:**

06 **On State highways for seal coat projects, the W13-1 (35) <sup>P</sup> plaque shall supplement the W8-7 sign during placing and/or brooming of screenings.**

**Section 6F.102(CA) NARROW LANE(S) Sign (C12(CA))**

Option:

01 The NARROW LANE(S) (C12(CA)) sign may be used, when appropriate, to warn the approaching motorist of a narrow lane condition.

Guidance:

02 *When used, the C12(CA) sign should be used in conjunction with an Advisory Speed (W13-1) plaque. See Section 2C.08.*

P  
X

**Section 6F.103(CA) OPEN TRENCH Sign (C27(CA))**

Standard:

01 The OPEN TRENCH (C27(CA)) sign shall be used in advance of open trenches in/or adjacent to roadway.

02 The edge of the traveled way shall be defined by edge line delineation consisting of appropriate markers or striping. Edge line delineation shall be white when located on the right of traffic and yellow when located on the left of traffic.

Guidance:

03 Trenches in excess of 0.15 feet in depth but not exceeding 0.25 feet in depth that are less than 8 feet from the edge of traveled way should be identified by LOW SHOULDER (W8-9) signs on Type II barricades set in the trench adjacent to the edge of pavement at intervals not to exceed every 2,000 feet.

Option:

04 Portable delineators may be placed at intervals not to exceed 100 feet in lieu of edge line delineation.

Standard:

05 Trenches in excess of 0.25 feet in depth that are less than 8 feet from the edge of traveled way shall be identified by C27(CA) and NO SHOULDER (C31A(CA)) signs on Type II or Type III barricades alternately set in the trench at intervals not to exceed every 2,000 feet.

Guidance:

06 Channelizers (CA) or delineators should be placed 2 feet to 6 feet outside of the edge line at 100 feet intervals.

07 Trenches in excess of 0.25 feet in depth but not exceeding 2.5 feet in depth that are 8 feet to 15 feet from the edge of traveled way should be identified by C27(CA) signs on Type II or Type III barricades set in the trench at intervals not to exceed every 2,000 feet. Delineators should be placed at 200 feet intervals within 2 feet from the edge of the trench and at 100 feet intervals for edge conditions exceeding 0.5 feet in depth.

08 Trenches in excess of 0.5 feet in depth but not exceeding 2.5 feet in depth that are more than 15 feet from the edge of traveled way at locations where a recovery area was available prior to construction should be identified by placing delineators at 200 feet intervals within 2 feet from the edge of the trench and by placing C27(CA) signs in the trench at intervals not to exceed every 2,000 feet.

Standard:

09 Signing for trenches in excess of 2.5 feet in depth shall be based upon engineering judgment or studies (as noted in Section 1A.09) to ensure proper visibility of barricades and signing.

**Section 6F.104(CA) Moving Lane Closure Signs (W23-1 and SC10(CA), SC11(CA), SC13(CA), SC15(CA))**

Standard:

01 On State highways, the following signs shall be used as shown in the Department of Transportation's Standard Plans T15, T16 and T17 for moving lane closures. See Section 1A.11 for information regarding this publication.

A. LANE CLOSED AHEAD or ROAD WORK AHEAD (SC10(CA)).

B. LANE CLOSED (SC11(CA)).

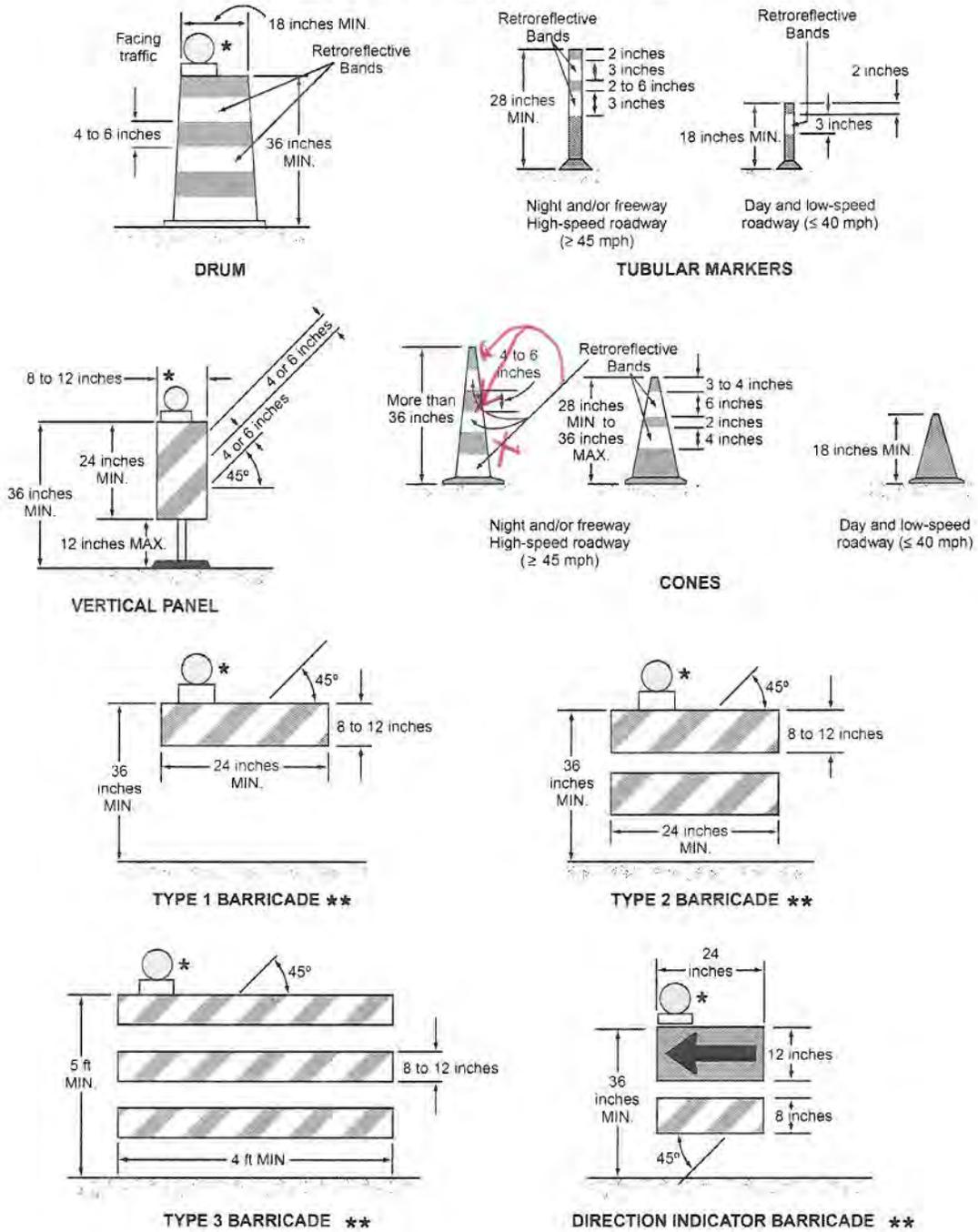
C. SLOW TRAFFIC AHEAD (W23-1).

D. DO NOT PASS (SC13(CA)).

E. CAUTION (SC15(CA)).

02 The Moving Lane Closure signs shall have a black legend on either a white or an orange background.

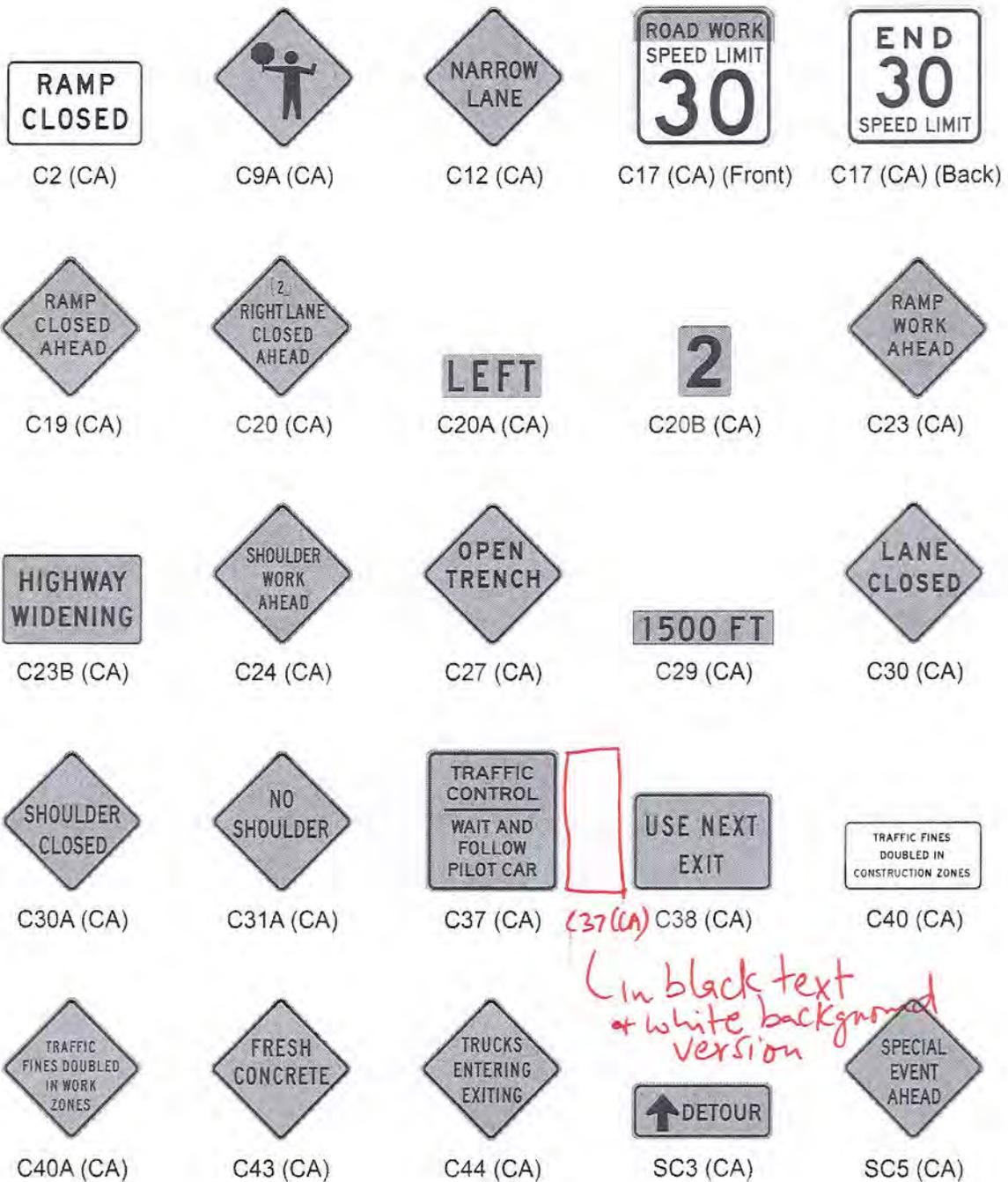
Figure 6F-7. Channelizing Devices



\* Warning lights (optional)

\*\* Rail stripe widths shall be 6 inches, except that 4-inch wide stripes may be used if rail lengths are less than 36 inches. The sides of barricades facing traffic shall have retroreflective rail faces.

Figure 6F-101 (CA). California Temporary Traffic Control Signs  
(Sheet 1 of 2)



**Notes for Figure 6H-4 6H-4(CA) —Typical Application 4  
Short Duration or Mobile Operation on a Shoulder**

*Guidance:*

1. *In those situations where multiple work locations within a limited distance make it practical to place stationary signs, the distance between the advance warning sign and the work should not exceed 5 miles.*
2. *In those situations where the distance between the advance signs and the work is 2 miles to 5 miles, a Supplemental Distance plaque should be used with the ~~ROAD WORK AHEAD~~ SHOULDER WORK (W21-5) sign.*

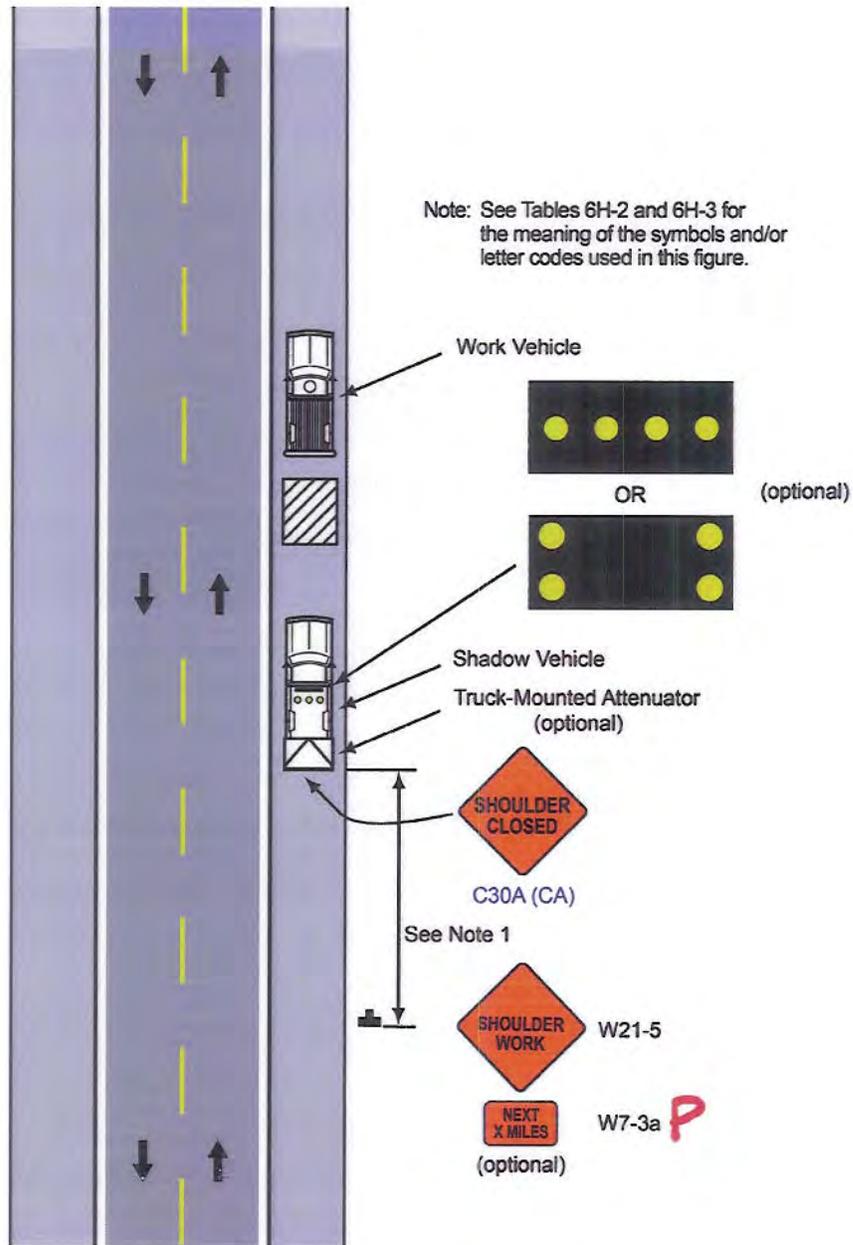
**Option:**

3. The ~~ROAD WORK NEXT XX MILES~~ sign may be used instead of the ~~ROAD WORK AHEAD~~ sign Next Distance (W7-3a) plaque may be used with the SHOULDER WORK (W21-5) sign if the work locations occur over a distance of more than 2 miles.
4. Stationary warning signs may be omitted for short duration or mobile operations if the work vehicle displays high-intensity rotating, flashing, oscillating, or strobe lights.
5. Vehicle hazard warning signals may be used to supplement high-intensity rotating, flashing, oscillating, or strobe lights.

**Standard:**

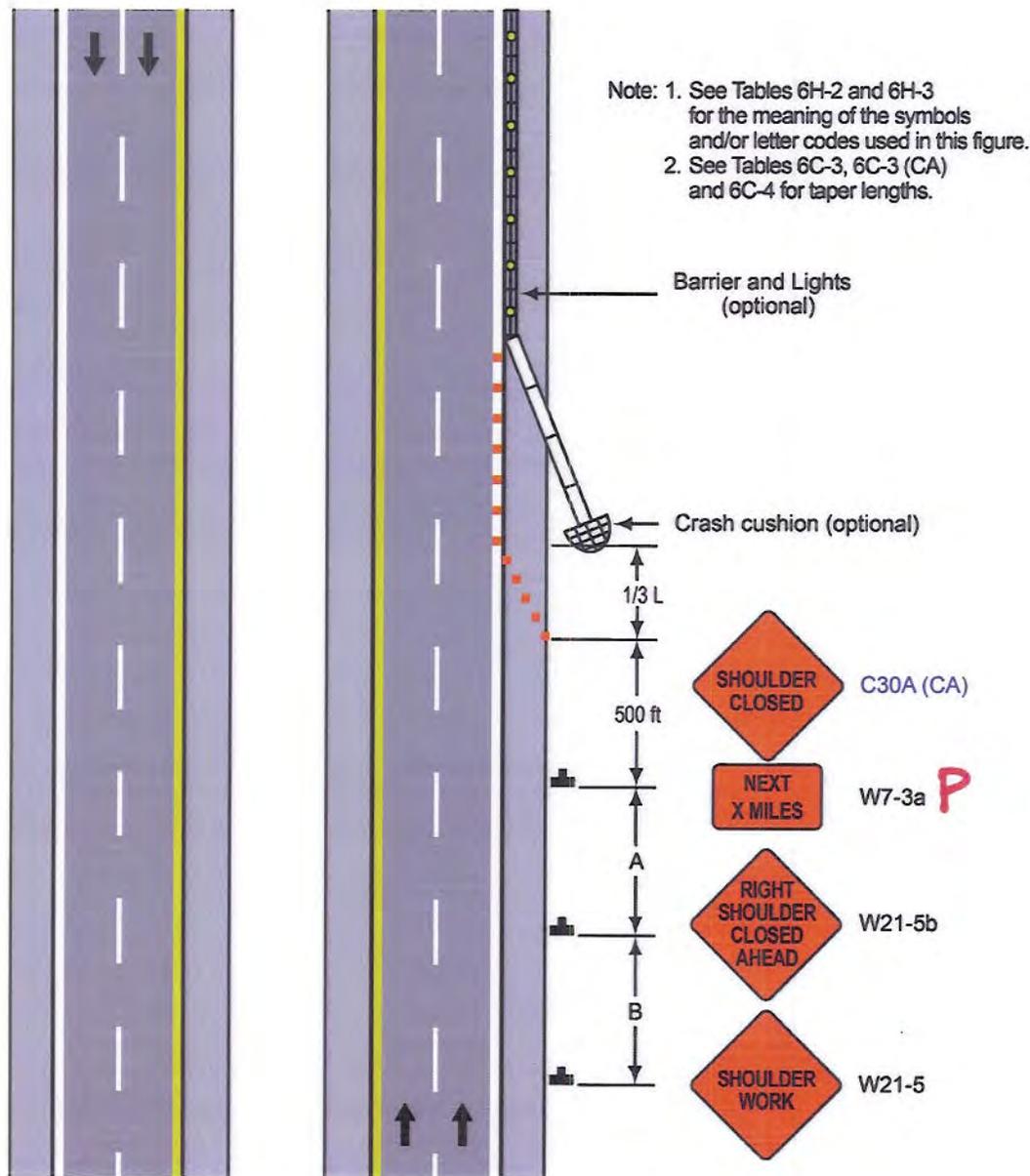
6. **Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.**
7. **If an arrow board is used for an operation on the shoulder, the caution mode shall be used.**
8. **Vehicle-mounted signs shall be mounted in a manner such that they are not obscured by equipment or supplies. Sign legends on vehicle-mounted signs shall be covered or turned from view when work is not in progress.**

Figure 6H-4 (CA). Short-Duration or Mobile Operation on Shoulder (TA-4)



Typical Application 4

Figure 6H-5 (CA). Shoulder Closure on Freeway (TA-5)



Typical Application 5

Figure 6H-10 (CA). Lane Closure on Two-Lane Road Using Flaggers (TA-10)

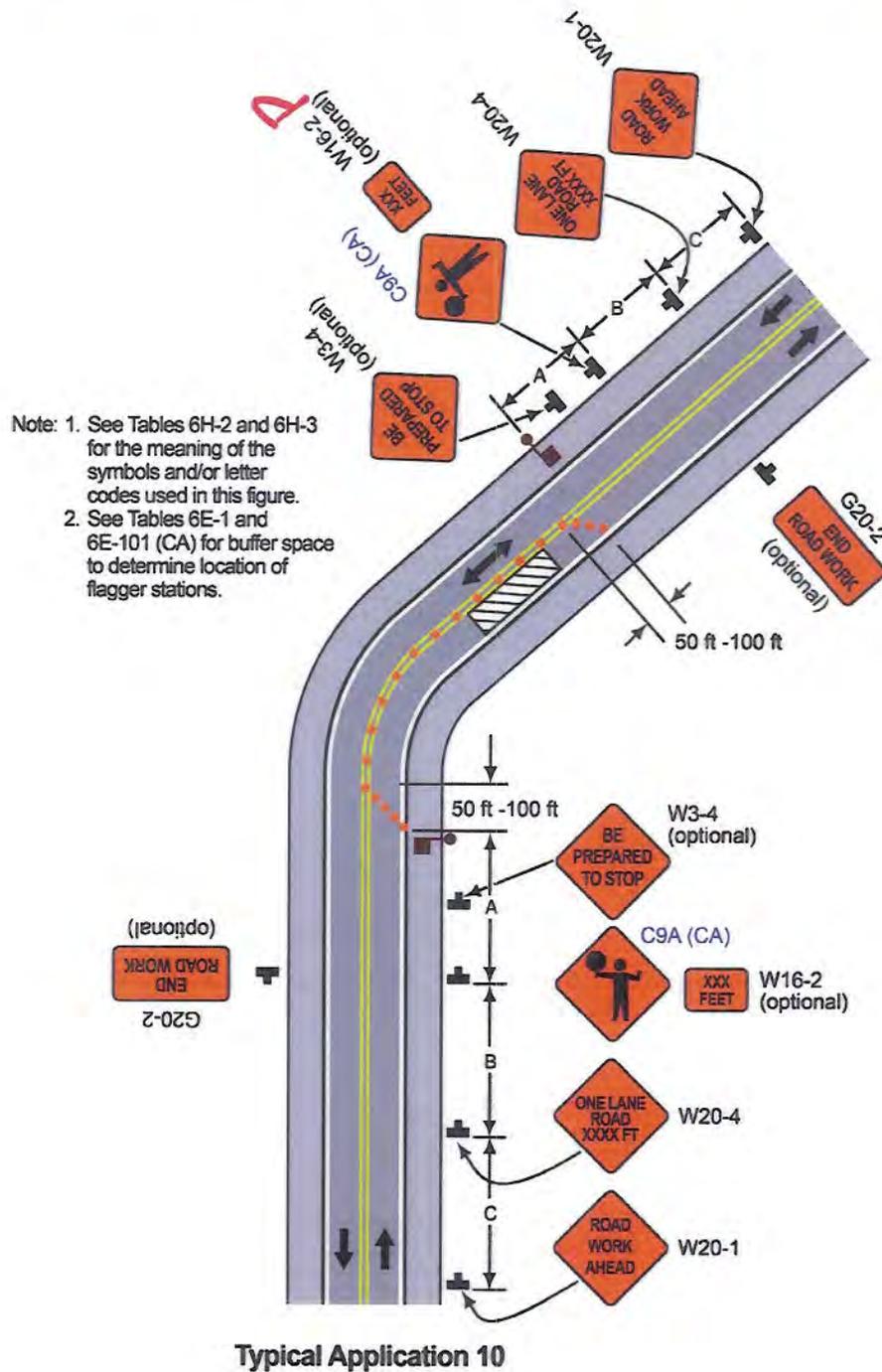


Figure 6H-15. Work in Center of Road with Low Traffic Volumes (TA-15)

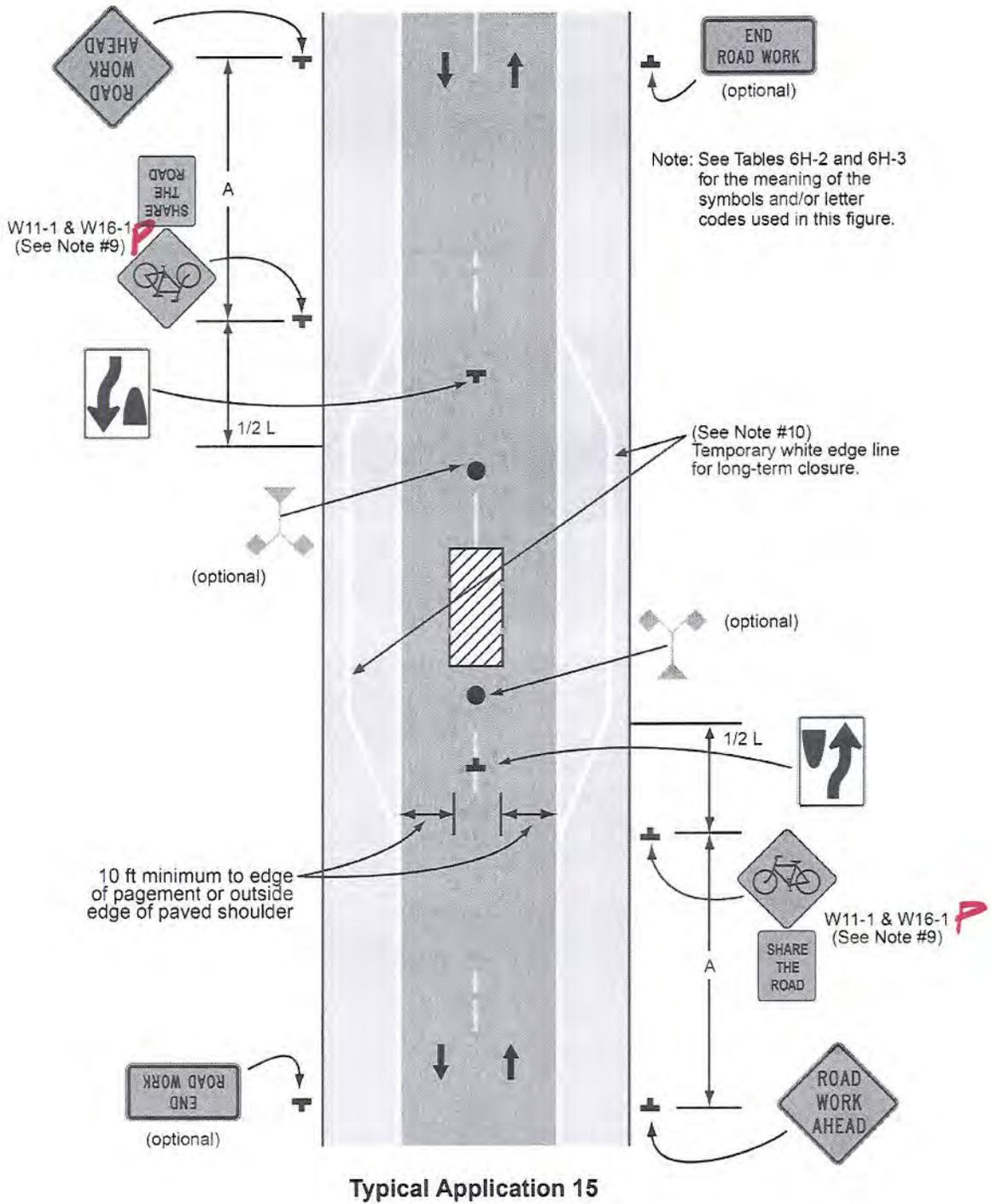


Figure 6H-25A (CA). Multiple Lane Closures at an Intersection (TA-25A(CA))

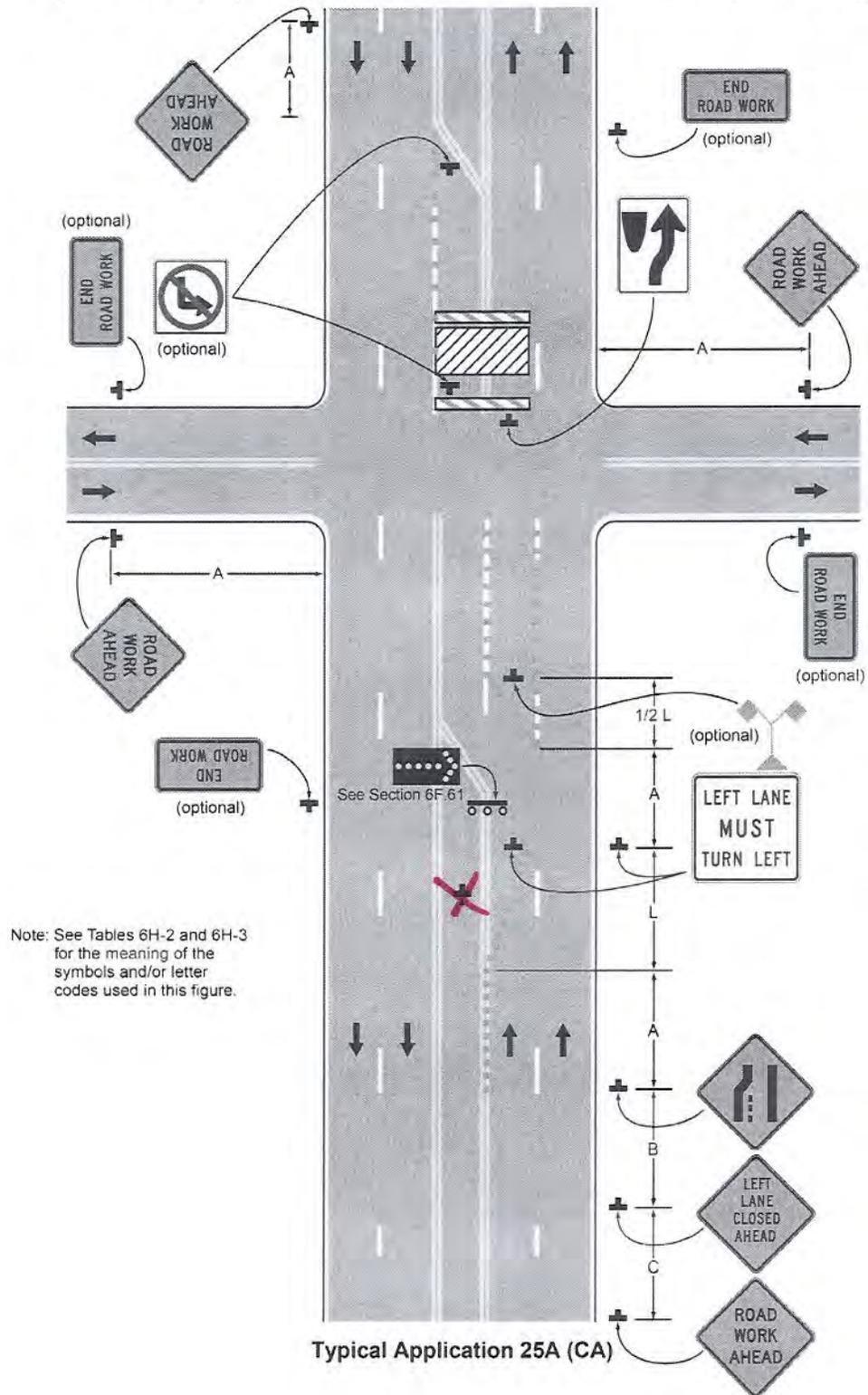
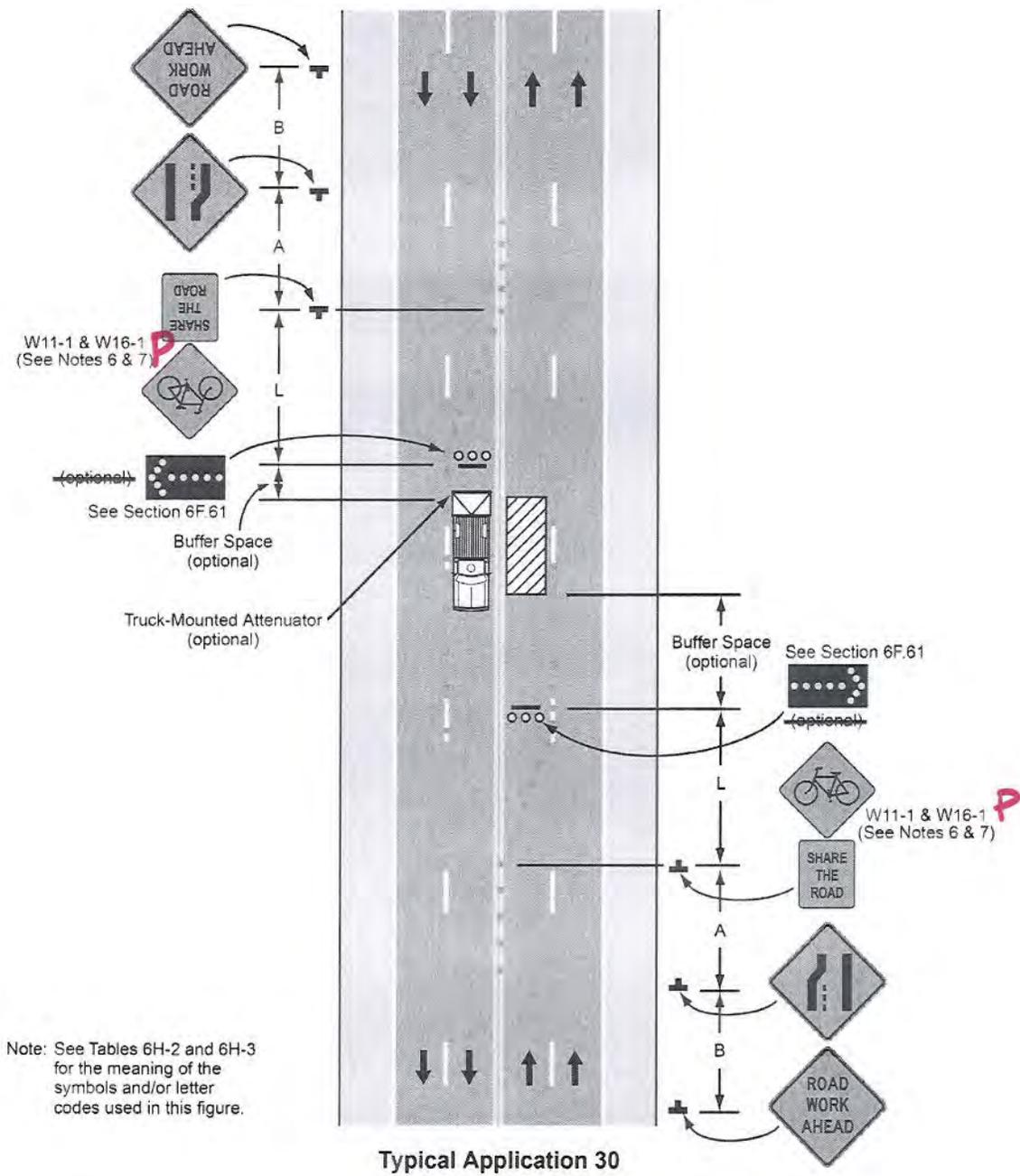


Figure 6H-30. Interior Lane Closure on Multi-lane Street (TA-30)



**Notes for Figure 6H-31 —Typical Application 31  
Lane Closure on a Street with Uneven Directional Volumes**

**Standard:**

1. The illustrated information shall be used only when the vehicular traffic volume indicates that two lanes of vehicular traffic shall be maintained in the direction of travel for which one lane is closed.

**Option:**

2. The procedure may be used during a peak period of vehicular traffic and then changed to provide two lanes in the other direction for the other peak.

**Guidance:**

3. For high speeds, a LEFT LANE CLOSED XX FT sign should be added for vehicular traffic approaching the lane closure, as shown in Figure 6H-32-6H-32(CA).
4. Conflicting pavement markings should be removed for long-term projects. For short-term and intermediate-term projects where this is not practical, the channelizing devices in the area where the pavement markings conflict should be placed at a maximum spacing of  $1/2 S$  feet where  $S$  is the speed in mph. Temporary markings should be installed where needed. The spacing of channelizing devices should not exceed the maximum distances shown in Table 6F-101(CA). Refer to Section 6F.63 for spacing of channelizing devices.
5. If the lane shift has curves with recommended speeds of 30 mph or less, Reverse Turn signs should be used.
6. Where the shifted section is long, a Reverse Curve sign should be used to show the initial shift and a second sign should be used to show the return to the normal alignment.
7. If the tangent distance along the temporary diversion is less than 600 feet, the Double Reverse Curve sign should be used at the location of the first Two Lane Reverse Curve sign. The second Two Lane Reverse Curve sign should be omitted. Use the Reverse Curve (W1-4) signs for both locations instead of the Double Reverse Curve or Two Lane Reverse Curve signs.

**Standard:**

8. ~~The number of lanes illustrated on the Reverse Curve or Double Reverse Curve signs shall be the same as the number of through lanes available to road users, and the direction of the reverse curves shall be appropriately illustrated.~~ Curve warning signs with multiple arrows shall not be used in California. Only W1-3, W1-4 and W24-1 signs shall be used.

**Option:**

9. A longitudinal buffer space may be used in the activity area to separate opposing vehicular traffic.
10. Where two or more lanes are being shifted, a W1-4 (or W1-3) sign with an ALL LANES (W24-1cP) plaque (see Figure 6F-4) may be used instead of a sign that illustrates the number of lanes. ~~Use Reverse Curve (W1-4) sign instead of ALL LANES THRU Plaque.~~
11. Where more than three lanes are being shifted, the Reverse Curve (or Turn) sign may be rectangular.
12. A work vehicle or a shadow vehicle may be equipped with a truck-mounted attenuator.

Figure 6H-32 (CA). Half Road Closure on a Multilane, High-Speed Highway (TA-32)

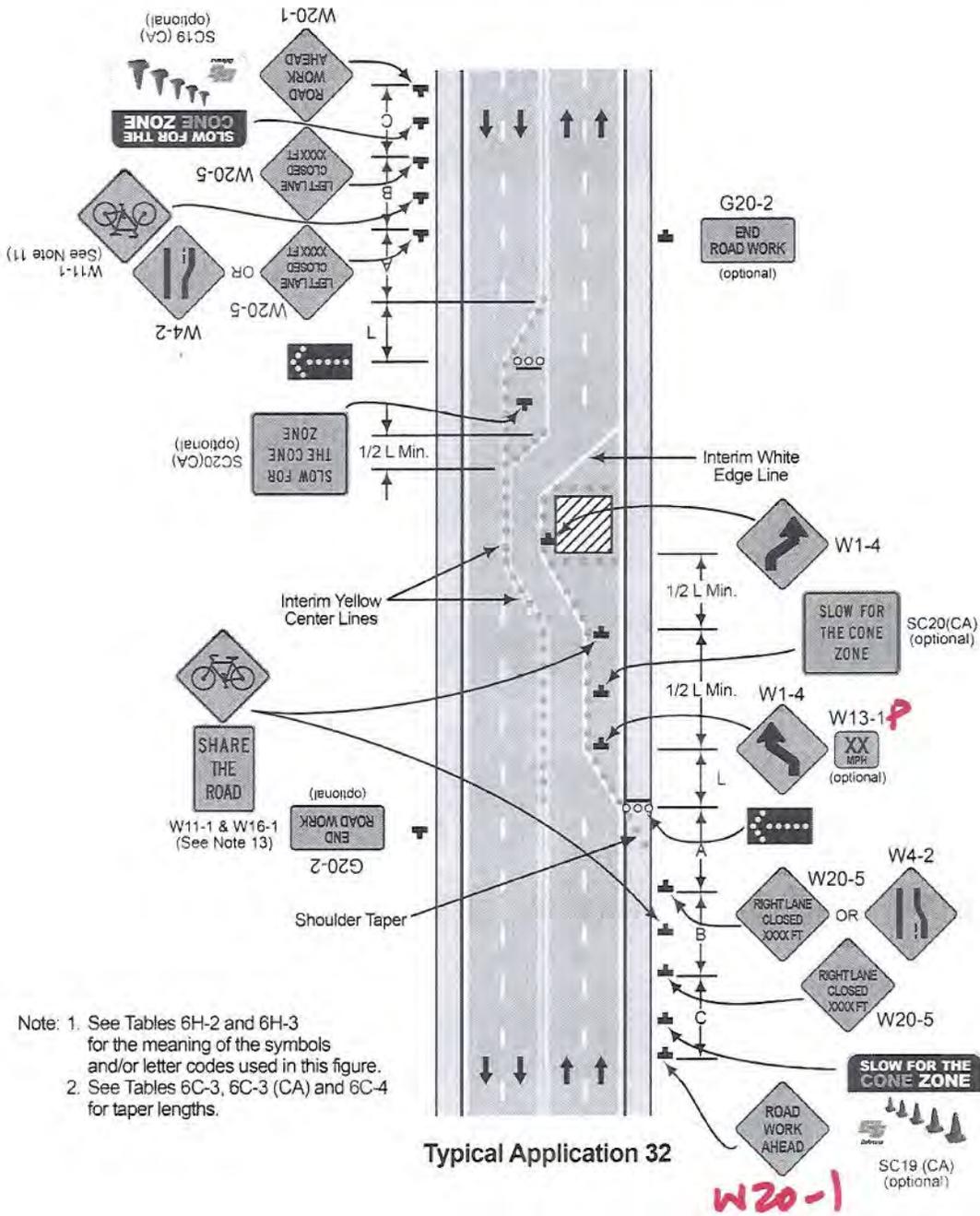


Figure 6H-36 (CA). Lane Shift on Freeway (TA-36)

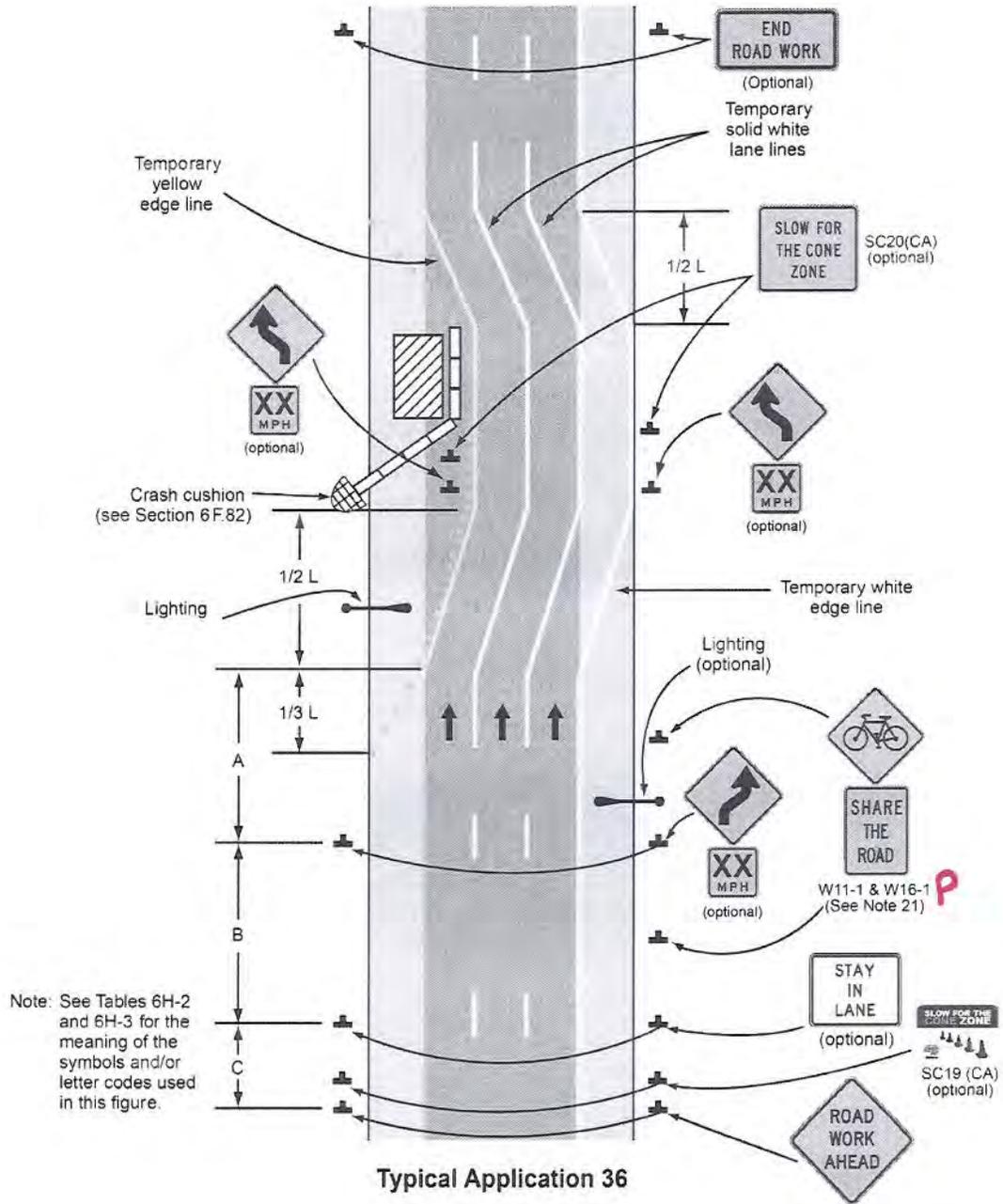
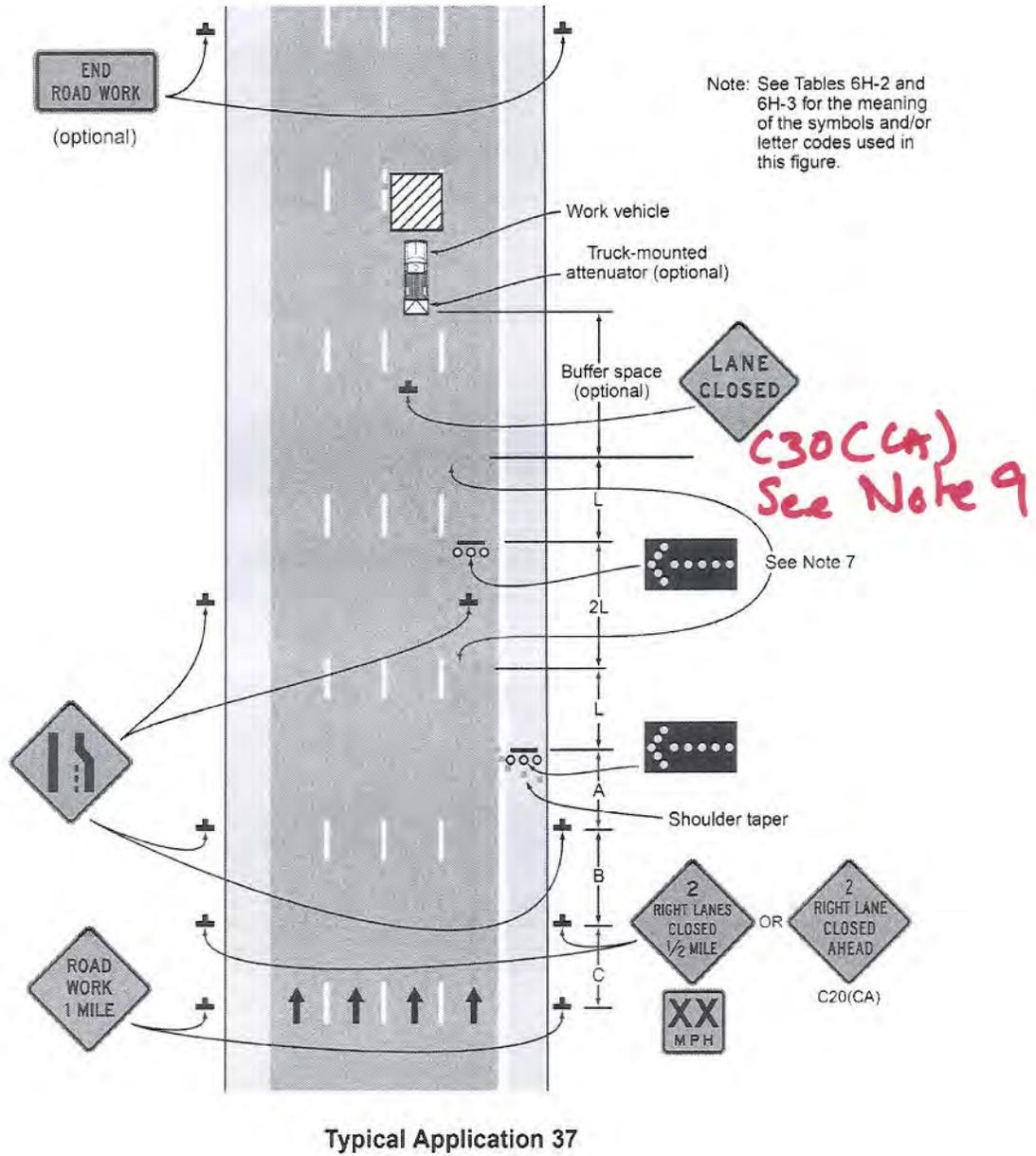
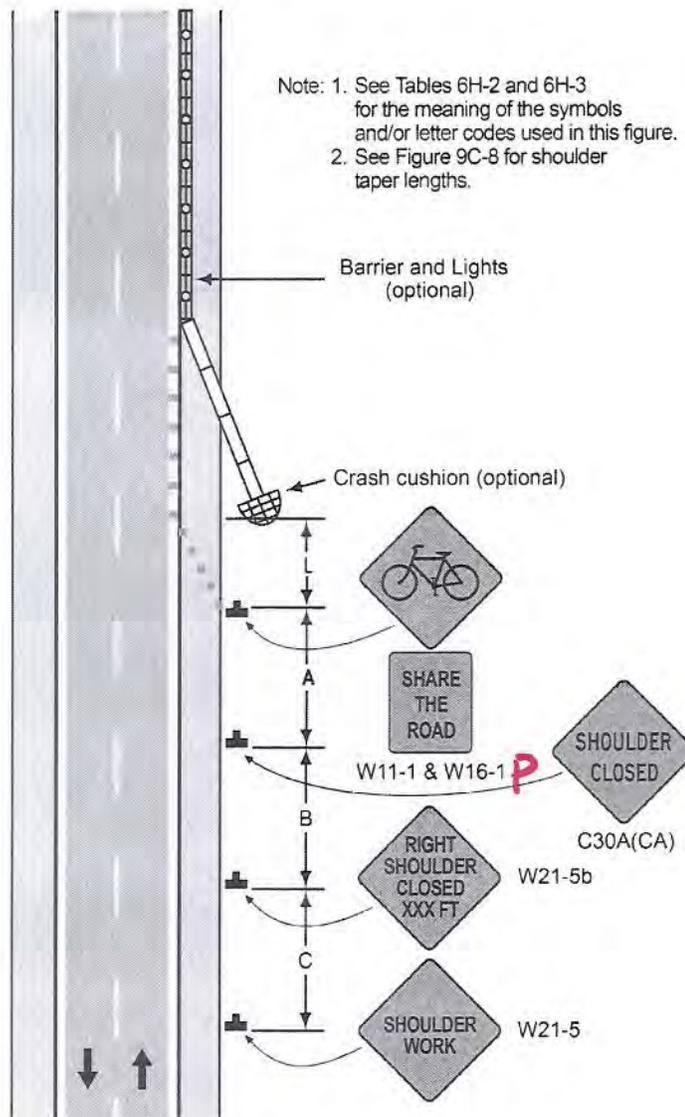


Figure 6H-37. Double Lane Closure on a Freeway (TA-37)

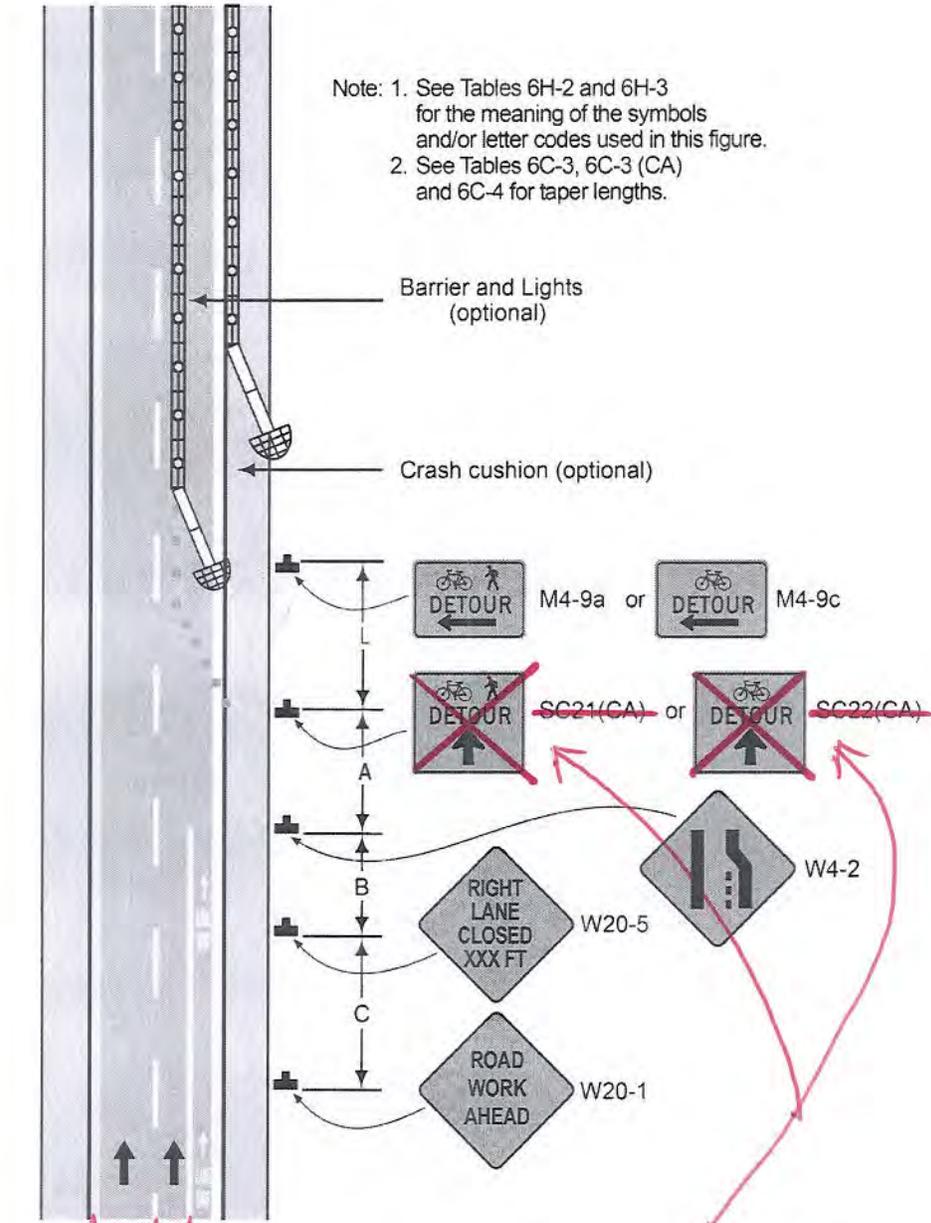


**Figure 6H-101 (CA). Shoulder Closure on Urban (Low Speed) locations to accommodate bicyclists (TA-101 (CA))**



Typical Application 101 (CA)

Figure 6H-102 (CA). Lane Closure on Freeway, Expressway, Rural and Urban (High Speed) locations to accommodate bicyclists (TA-102 (CA))



Typical Application 102 (CA)

LANE WIDTHS NEED TO BE SAME

Use M4-9a or M4-9c sign without the arrow and the appropriate M6 series Directional Arrow auxiliary sign below it.

Figure 6H-104 (CA). Right Lane and Bike Lane Closure on Far Side of Intersection (TA-104 (CA))

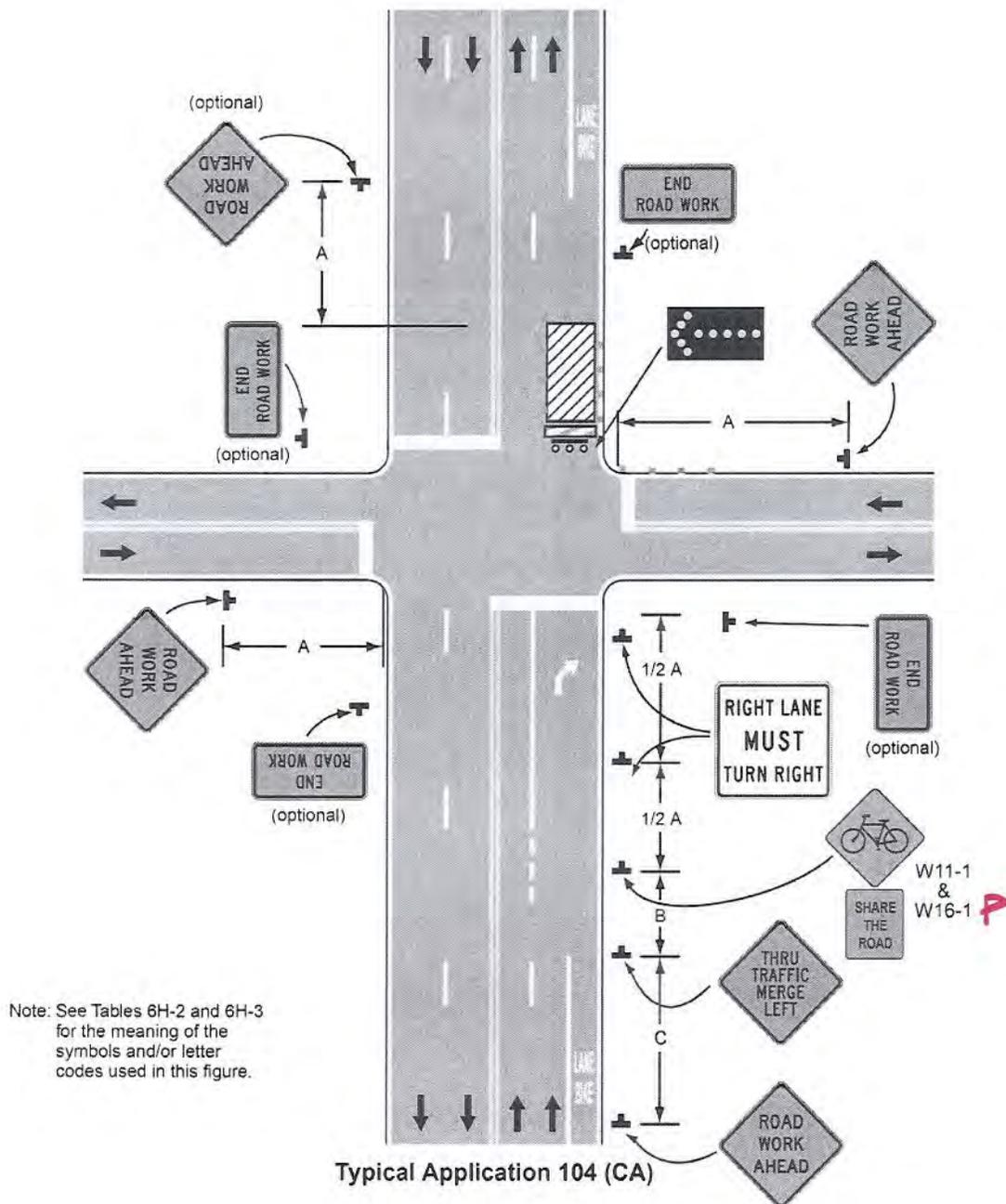


Figure 7B-5(CA). Example of Signing for a School Zone with a School Speed Limit and a School Crossing

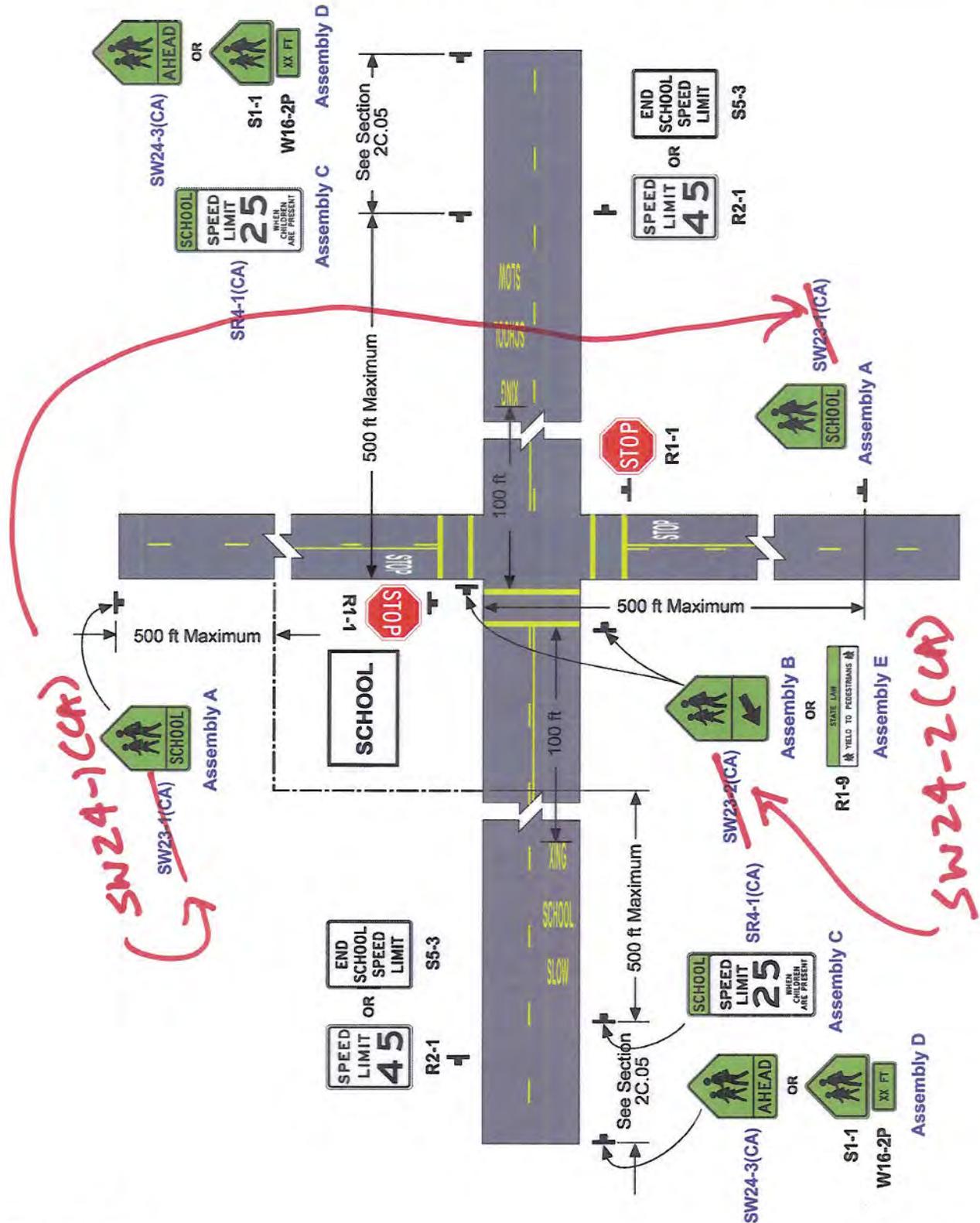


Figure 7B-102 (CA). Example of Signing for Traffic Control in School Areas with Flashing Yellow Beacons

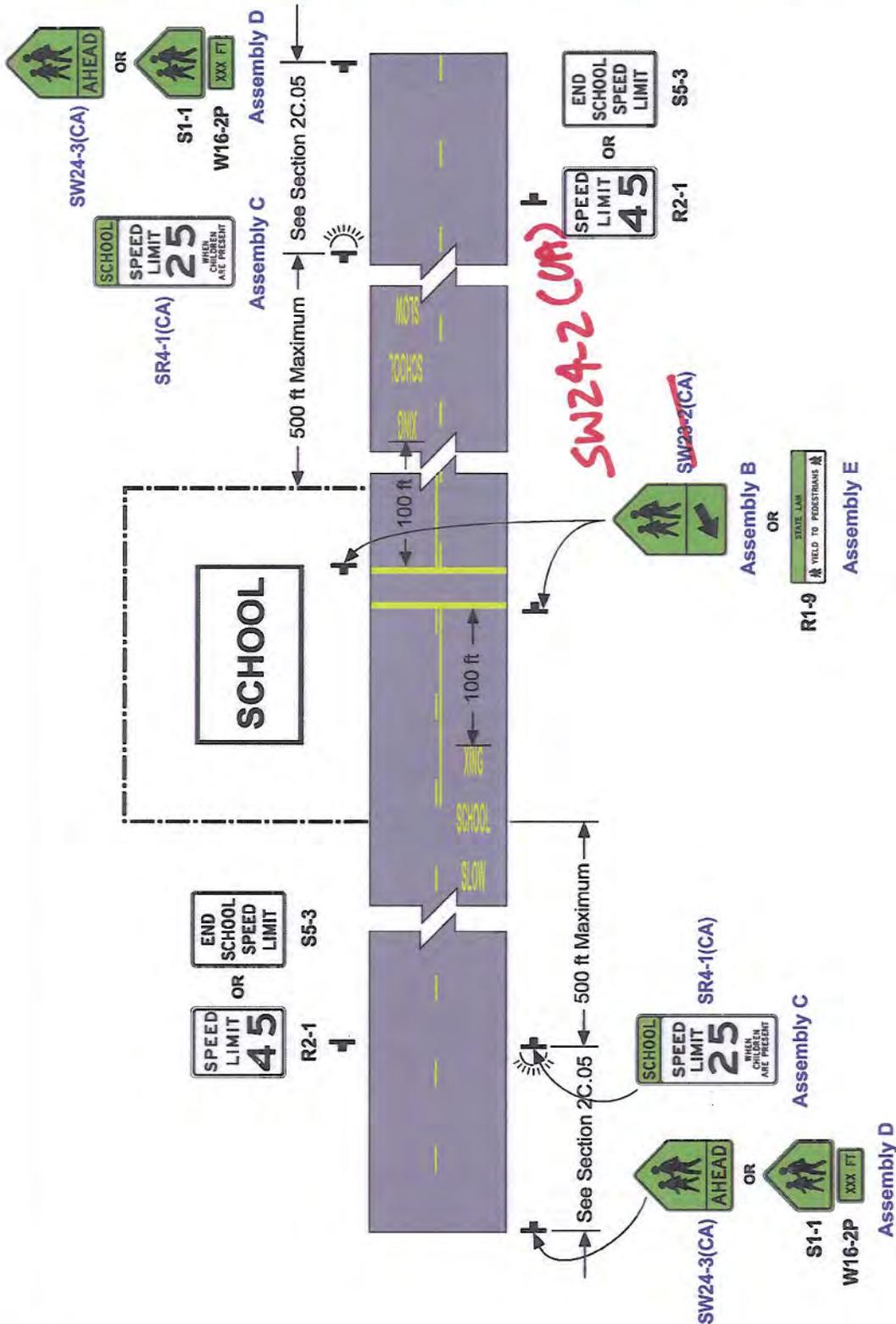
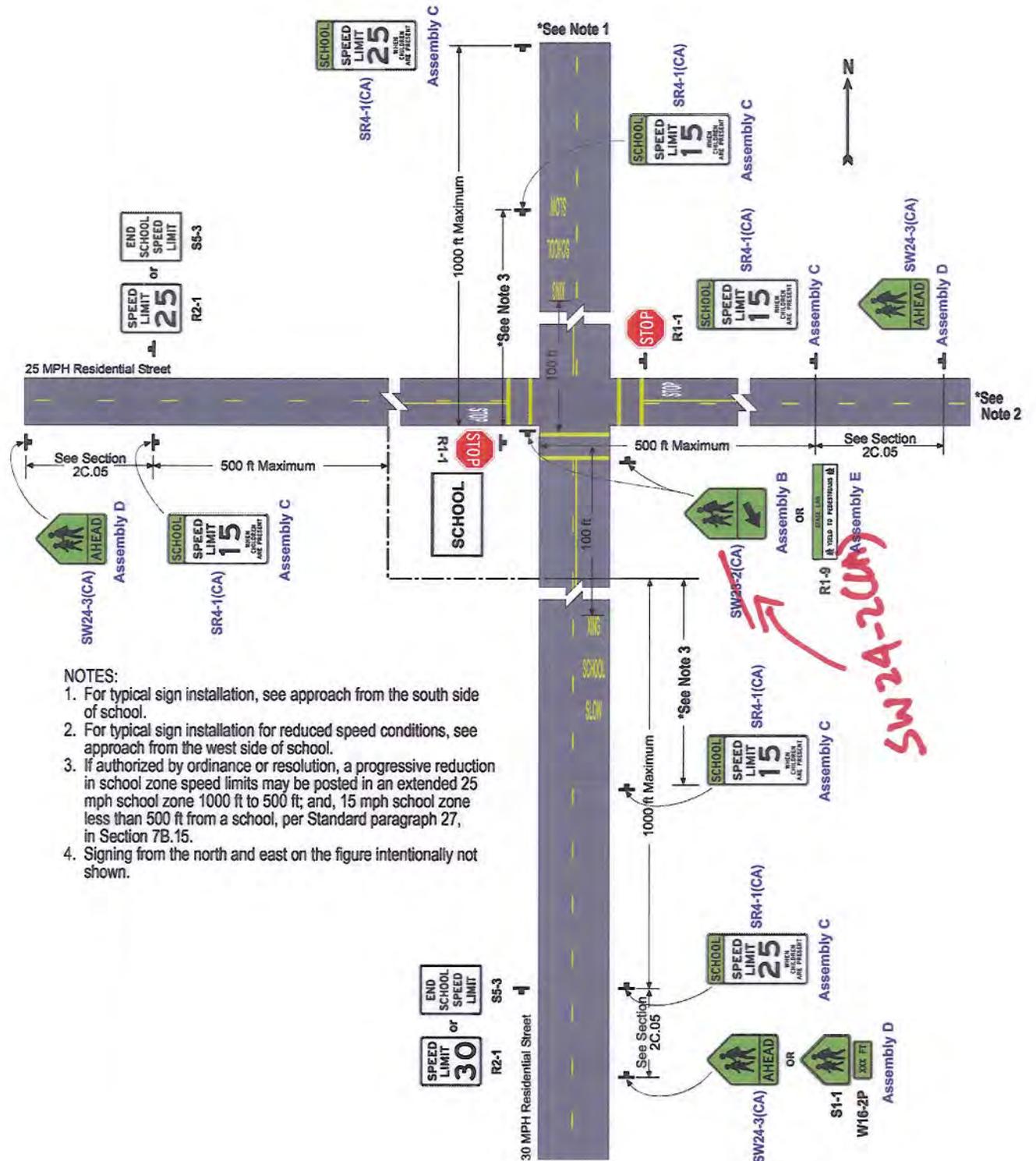


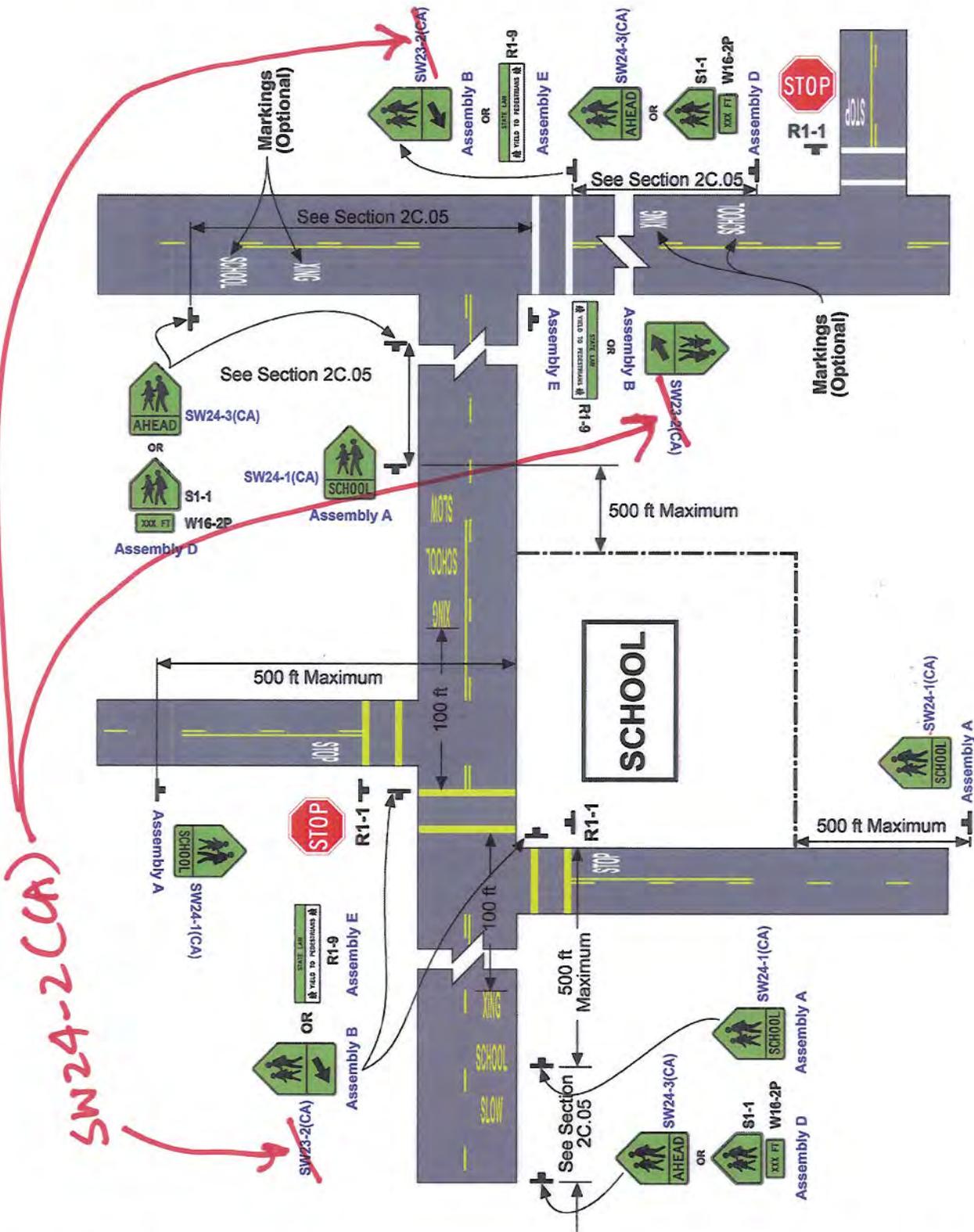
Figure 7B-103(CA). Example of Signing for School Area Traffic Control with Extended and/or Reduced School Zone Speed Limits



NOTES:

1. For typical sign installation, see approach from the south side of school.
2. For typical sign installation for reduced speed conditions, see approach from the west side of school.
3. If authorized by ordinance or resolution, a progressive reduction in school zone speed limits may be posted in an extended 25 mph school zone 1000 ft to 500 ft; and, 15 mph school zone less than 500 ft from a school, per Standard paragraph 27, in Section 7B.15.
4. Signing from the north and east on the figure intentionally not shown.

Figure 7B-104(CA). Example of Signing for School Crosswalk Warning Assembly



Option:

16 The Bike Lane Intersection (Detail 39A) line as shown in Figure 9C-101(CA) may be used to extend the bike lane to or through an intersection.

**Bicycle Lane Markings on Class II Bikeways (Bike Lane)**

Guidance:

17 *Bicycle lane markings on Class II Bikeways (Bike Lane) should be placed a constant distance from the marked lane line or centerline, as appropriate. Bike lanes with parking permitted (11 to 13 feet between the bike lane line and the curb) should not be directed toward the curb at intersections or localized areas where parking is prohibited. Such a practice prevents bicyclists from following a straight course. Where transitions from one type of bike lane to another are necessary, smooth tapers should be provided.*

Support:

18 Class II Bikeways (Bike Lane) require standard signing and pavement markings as shown in Figure 9C-102(CA). This figure also depicts the proper method of striping bike lanes through intersections. Bike lane lines are not typically extended through intersections.

Guidance:

19 *Where right turns are not permitted, the solid bike lane stripe should extend to the edge of the intersection, and begin again on the far side. Where there is no right turn only lane and right turns are permitted, the solid stripe should terminate 100 feet to 200 feet prior to the intersection.*

Option:

20 A dashed line, as shown in Figure 9C-102(CA), may be carried to, or near, the intersection. Where city blocks are short (less than 400 feet), the length of dashed stripe may be 100 feet.

Guidance:

21 *Where blocks are longer or vehicle speeds are high (greater than 35 mph), the length of dashed stripe should be increased to 200 feet.*

Standard:

22 **Raised barriers (e.g., raised traffic bars and asphalt concrete dikes) or raised pavement markers shall not be used to delineate bike lanes on Class II Bikeways (Bike Lane).**

Support:

23 Raised barriers prevent motorists from merging into bike lanes before making right turns, as required by the CVC, and restrict the movement of bicyclists desiring to enter or exit bike lanes.

24 They also impede routine maintenance. Raised pavement markers increase the difficulty for bicyclists when entering or exiting bike lanes, and discourage motorists from merging into bike lanes before making right turns.

Option:

25 Physical barriers may be used to convert a Class II Bikeway (Bike Lane) to Class I Bikeway (Bike Path).

**Bicycle Lane Treatment at Right Turn Only Lanes**

Guidance:

26 *A dashed line across the right-turn-only lane should not be used on extremely long lanes, or where there are double right-turn-only lanes. For these types of intersections, all striping should be dropped to permit judgment by the bicyclists to prevail.*

Option:

27 A Bicycle Crossing (W11-1) sign may be used to warn motorists of the potential for bicyclists crossing their path. See Section 9B.17.

28 When a bike lane approaches a ramp intersection that intersects the local facility at or close to 90° (typical of a compact or spread diamond configuration), then Figures 9C-4, 9C-4(CA) and 9C-5 may be the appropriate method of getting bike lanes through the interchange.

Guidance:

29 *However, when a bike lane approaches one or more ramp intersections that intersect the local facility at various angles other than 90° (typically high-speed, skewed ramps), Figure 9C-103(CA) should be used.*

**Bicycle Lane Treatment through Interchanges**

Support:

30 Markings for a bike lane through a typical interchange are shown in Figure 9C-103(CA).

*Guidance:*

~~31 The 6 inch bike lane stripe should be dropped 100 feet prior to the ramp intersection as shown in Figure 9C-103(CA) to allow for adequate weaving distance.~~

Option:

32 Figure 9C-103(CA) may also be used where the preferred designation is a Class III Bikeway (Bike Route), with the Bike Lane (R81(CA)) signs being replaced with Bike Route (D11-1) signs and the bike lane delineation eliminated. A 4 inch stripe may be used to delineate the shoulder through out the bike route designation.

**Standard:**

33 **Signing and striping as shown in Figure 9C-103(CA) shall be repeated at additional onramps within the interchange.**

*Guidance:*

34 *Where the onramps intersect at the local road at or near 90°, the striping should be per Figure 9C-4(CA).*

**Standard:**

35 **The shoulder width shall not be reduced through the interchange area. The minimum shoulder width shall match the approach roadway shoulder width, but not less than 4 feet, or 5 feet if a gutter exists. If the shoulder width is not available, the designated bike lane shall end at the previous local road intersection.**

**Bicycle Lane Treatment Where Vehicle Parking is Prohibited/Permitted**

Support:

36 Markings for a bike lane where vehicle parking is prohibited or permitted are shown in Figure 9C-102(CA).

**Standard:**

37 **Where motorist right turns are permitted, the solid bike lane shall either be dropped entirely, or dashed (Refer Bike Intersection lane, Detail 39A, shown in Figure 9C-101(CA)) beginning at a point between 100 feet and 200 feet in advance of the intersection.**

Option:

38 In areas where parking stalls are not necessary (because parking is light), a 4 inch solid white stripe may be painted to fully delineate the bike lane. This may be advisable where there is concern that motorists may misconstrue the bike lane to be a traffic lane.

**BIKE LANE Pavement Markings**

**Standard:**

39 **The BIKE LANE pavement markings shall be placed on the far side of each intersection.**

Option:

40 The BIKE LANE pavement markings may also be placed at other locations as desired.

Support:

41 Examples of BIKE LANE pavement markings are shown in various figures in this chapter.

Option:

42 Optional word, arrow and symbol markings with details as shown in Figure 9C-3 may be used.

**Section 9C.05 Bicycle Detector Symbol**

Option:

01 A symbol (see Figure 9C-7) may be placed on the pavement indicating the optimum position for a bicyclist to actuate the signal.

02 An R10-22 sign (see Section 9B.13 and Figure 9B-2) may be installed to supplement the pavement marking.

Support:

03 Section 4D.105(CA) and Figure 4D-111(CA) contain information on bicycle detectors and their locations.

**Section 9C.06 Pavement Markings for Obstructions**

*Guidance:*

01 *In roadway situations where it is not practical to eliminate a drain grate or other roadway obstruction that is inappropriate for bicycle travel, white markings applied as shown in Figure 9C-8 should be used to guide bicyclists around the condition.*