Acknowledgments

The Federal Highway Administration gratefully acknowledges the valuable assistance that it received from the National Committee on Uniform Traffic Control Devices and its over 200 voluntary members in the development of this Manual.

Caltrans gratefully acknowledges the participation from the following contributors for providing invaluable time, support, guidance and direction in the development of this Manual:

- Federal Highway Administration's California Division
- California Traffic Control Devices Committee (CTCDC) members;
- Staff from various cities and counties in California who participated in CTCDC meetings
- Caltrans headquarters' and districts' staff

Information regarding the California portion (blue text and/or blue border line) of this Manual can be obtained by writing to:

State of California
Department of Transportation,
Chief, Division of Traffic Operations, MS-36
1120 N Street, Sacramento, CA 95814



The California MUTCD is available on the Caltrans Web Page at:
http://www.dot.ca.gov/camutcd

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY EDMUND G. BROWN Jr., Governor

**DEPARTMENT OF TRANSPORTATION**
DIVISION OF TRAFFIC OPERATIONS
P.O. BOX 942873, MS-36
SACRAMENTO, CA 94273-0001
PHONE (916) 654-2352
FAX (916) 653-6080
TTY 711
www.dot.ca.gov

*Serious drought.*
*Help Save Water!*

December 9, 2015

Mr. Hamid Bahadori
Chairman
California Traffic Control Devices Committee
P.O. Box 942874, MS-36
Sacramento, CA 94274-0001

Dear Mr. Bahadori:

Effective December 9, 2015, the California Department of Transportation (Caltrans) has updated the California Manual on Uniform Traffic Control Devices (CA MUTCD) 2014 edition to provide uniform standards and specifications for all official traffic control devices in California. This action was taken pursuant to the provisions of California Vehicle Code Section 21400 and the recommendations of the California Traffic Control Devices Committee (CTCDC).

Caltrans has received a letter from the Federal Highway Administration (FHWA) confirming substantial conformance for the CA MUTCD 2014, Revision 1 edition. The revised CA MUTCD includes the FHWA's Manual on Uniform Traffic Control Devices, policies on traffic control devices issued by Caltrans since November 7, 2014, and other corrections and format changes. The CA MUTCD revision is available on the Internet at <www.dot.ca.gov/camutcd>.

The Division of Traffic Operations is grateful to the CTCDC members for providing invaluable time, support, guidance and direction in the development of the CA MUTCD.

If you have any questions or concerns, please contact Chris Engelmann, CA MUTCD Editor and CTCDC Executive Secretary, at (916) 653-1816, or by email <chris.engelmann@dot.ca.gov>.

Sincerely,

THOMAS P. HALLENBECK, Chief
Division of Traffic Operations

c: Chris Engelmann, CA MUTCD Editor, CTCDC Executive Secretary, Division of Traffic Operations, California Department of Transportation

U.S. Department of Transportation
**Federal Highway Administration**

**California Division**

650 Capitol Mall, Suite 4-100
Sacramento, CA 95814
**(916) 498-5001**
**(916) 498-5008 (FAX)**

**November 25, 2015**

In Reply, Refer To:
HDA-CA

Mr. Malcolm Dougherty
Director
California Department of Transportation
1120 N Street
Sacramento, CA 95814

Attention: Tom Hallenbeck, Division Chief
Division of Traffic Operations

SUBJECT: Substantial Conformance with 2009 MUTCD Revisions 1 and 2

Dear Mr. Dougherty:

This letter is in response to the November 23, 2015 letter from Tom Hallenbeck requesting the Federal Highway Administration (FHWA) to find the 2014 California Manual on Uniform Traffic Control Devices for Streets and Highways (CA MUTCD) in substantial conformance with the National Manual on Uniform Traffic Control Devices for Streets and Highways, 2009 Edition (2009 MUTCD) Revisions 1 and 2.

Per Title 23, Code of Federal Regulations [23 CFR 655.603(b)(1)], FHWA has reviewed the revisions from the 2014 CA MUTCD to the 2014 CA MUTCD Revision 1 and found them to be in substantial conformance with the 2009 MUTCD Revisions 1 and 2.

We look forward to continue working with Caltrans, local agencies, and the California Traffic Control Devices Committee on the CA MUTCD, which results in traffic control devices that enhance the safety of California's roadways. We commend the effort that Caltrans' Office of Traffic Engineering devoted to the manual's revision to achieve substantial conformance.

If you have any questions, please contact Kevin Korth, Traffic Operations Engineer, at (916) 498-5860 or kevin.d.korth@dot.gov.

Sincerely,

For: Vince Mammano
Division Administrator
Federal Highway Administration

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY EDMUND G. BROWN Jr., Governor

**DEPARTMENT OF TRANSPORTATION**
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*Serious drought.*
*Help Save Water!*

November 23, 2015

Mr. Vincent Mammano
Division Administrator
Federal Highway Administration
650 Capitol Mall, Suite 4-100
Sacramento, CA 95814

Dear Mr. Mammano:

The California Department of Transportation (Caltrans) requests that the Federal Highway Administration (FHWA) provide a letter to Caltrans confirming substantial conformance with FHWA's 2009 Manual on Uniform Traffic Control Devices (MUTCD) for the revised 2014 California Manual on Uniform Traffic Control Devices (CA MUTCD), as required by title 23 Code of Federal Regulations, section 655.603(b)(1).

The revised CA MUTCD includes FHWA's MUTCD, policies on traffic control devices issued by Caltrans since November 7, 2014, and other corrections and format changes. The approved revision will be available on the Internet at <www.dot.ca.gov/camutcd> after substantial conformance has been granted by FHWA.

Caltrans would like to acknowledge the efforts of Kevin Korth of your office for working in partnership with Chris Engelmann of Caltrans' Division of Traffic Operations in reviewing the draft revision of the CA MUTCD. An electronic version of the changes has been provided to Mr. Korth.

Please send the requested letter by November 30, 2015, to Chris Engelmann by e-mail at <Chris.Engelmann@dot.ca.gov>. If you have any questions, please contact Mr. Engelmann at (916) 653-1816, or at the above e-mail address.

Sincerely,

T. P. Hallenbeck

THOMAS P. HALLENBECK, Chief
Division of Traffic Operations

c: Chris Engelmann, CA MUTCD Editor, Division of Traffic Operations, California Department of Transportation

## CHAPTER 6F TEMPORARY TRAFFIC CONTROL ZONE DEVICES 1053

**Standard:**

07 **The U.S. Secretary of Transportation, under authority granted by the Highway Safety Act of 1966, decreed that traffic control devices on all public streets and highways ~~open to public travel~~ (and privately owned and maintained roads or commercial establishments, if the particular city or county enacts an ordinance or resolution to this effect), in accordance with 23 U.S.C. 109(d) and 402(a) in each State shall be in substantial conformance with the Standards issued or endorsed by the FHWA.**

Support:

08 The "Uniform Vehicle Code (UVC)" is one of the publications referenced in the MUTCD. The UVC contains a model set of motor vehicle codes and traffic laws for use throughout the United States.

*Guidance:*

09 *The States should adopt Section 15-116 of the UVC, which states that, "No person shall install or maintain in any area of private property used by the public any sign, signal, marking, or other device intended to regulate, warn, or guide traffic unless it conforms with the State manual and specifications adopted under Section 15-104."*

Support:

10 The Standard, Guidance, Option, and Support material described in this edition of the MUTCD provide the transportation professional with the information needed to make appropriate decisions regarding the use of traffic control devices on streets, highways, bikeways. and private roads open to public travel (see definition in Section 1A.13).

11 Throughout this Manual the headings Standard, Guidance, Option, and Support are used to classify the nature of the text that follows. Figures and tables, including the notes contained therein, supplement the text and might constitute a Standard, Guidance, Option, or Support. The user needs to refer to the appropriate text to classify the nature of the figure, table, or note contained therein.

11a The figures shown in the California MUTCD are typical or example applications of the traffic control devices to illustrate their use and manner. Criteria for position, location, and use of traffic control devices in the figures are furnished solely for the purpose of guidance, understanding and information, and are not a legal standard. Engineering judgment must be used to apply these guidelines to the typical or example applications, or adjust them to fit individual field site conditions. The California MUTCD is not intended to be a substitute for engineering knowledge, experience or judgment.

**Standard:**

12 **When used in this Manual, the text headings of Standard, Guidance, Option, and Support shall be as defined in Paragraph 1 of Section 1A.13. For all purposes, regardless of the text heading, any sentence containing the verb shall or MUTCD text edited to the verb shall, shall be considered a Standard. Similarly, any sentence containing the verb should or MUTCD text edited to the verb should, shall be considered Guidance and any sentence containing the verb may or MUTCD text edited to the verb may, shall be considered an Option.**

Support:

13 Throughout this Manual all dimensions and distances are provided in English units. Appendix A2 contains tables for converting each of the English unit numerical values that are used in this Manual to the equivalent Metric (International System of Units) values.

*Guidance:*

14 *If Metric units are to be used in laying out distances or determining sizes of devices, such units should be specified on plan drawings and made known to those responsible for designing, installing, or maintaining traffic control devices.*

14a *In 1993, Caltrans had adopted the International System of Units as the preferred system of weights and measures to comply with federal law. The law was subsequently changed making the use of the Metric System optional. Caltrans made the decision in 2004 to readopt the U.S. Customary (English) system of units and measures as the preferred system. Guidance on the use of the Metric and U.S. Customary Systems of Measurement is available from Caltrans' Division of Design.*

15 *Except when a specific numeral is required or recommended by the text of a Section of this Manual, numerals displayed on the images of devices in the figures that specify quantities such as times, distances, speed limits, and weights should be regarded as examples only. When installing any of these devices, the numerals should be appropriately altered to fit the specific situation.*

Support:

16 The following information will be useful when reference is being made to a specific portion of text in this Manual.

17 There are nine Parts in this Manual and each Part is comprised of one or more Chapters. Each Chapter is comprised of one or more Sections. Parts are given a numerical identification, such as Part 2 – Signs. Chapters are identified by the Part number and a letter, such as Chapter 2B – Regulatory Signs, Barricades, and Gates. Sections are identified by the Chapter number and letter followed by a decimal point and a number, such as Section 2B.03 – Size of Regulatory Signs.

18 Each Section is comprised of one or more paragraphs. The paragraphs are indented and are identified by a number. Paragraphs are counted from the beginning of each Section without regard to the intervening text headings (Standard, Guidance, Option, or Support). Some paragraphs have lettered or numbered items. As an example of how to cite this Manual, the phrase "Not less than 40 feet beyond the stop line" that appears in Section 4D.14 of this Manual would be referenced in writing as "Section 4D.14, P1, A.1," and would be verbally referenced as "Item A.1 of Paragraph 1 of Section 4D.14."

18a The California MUTCD uses a format similar to the MUTCD. It incorporates FHWA's MUTCD in its entirety and explicitly shows which portions thereof are applicable or not applicable in California. The unedited MUTCD text is shown in "Times New Roman" font with black color. Text portions of the MUTCD content that are not applicable in California are shown with a strikethrough and a blue margin line on the right. The California text additions, including new paragraphs, and enhancements are incorporated into the combined document at appropriate locations and shown in an "Arial Narrow" font with blue color and a blue margin line on the right to keep them distinct from the MUTCD content. Changes or additions to text, figures and tables in Revision 1 of the CA MUTCD, effective December 9, 2015, are shown with an orange-color margin line on the left.

18b All MUTCD figures and tables, or portions thereof, which are not applicable in California, are shown with appropriate size blue X cross-outs. The MUTCD figures and tables that have been modified or added to, in the California MUTCD retain the same MUTCD Figure or Table number but include "(CA)" to indicate that it is the California version of the MUTCD Figure or Table. For example:

A. Figure 3B-18(CA) Do Not Block Intersection Markings
B. Table 2H-1(CA) California General Information Sign Sizes

18c For California topics where there is no corresponding section, figure or table in the MUTCD, the California MUTCD gives a number that begins with the number 101 for that section, figure or table and increases in sequence, followed with a "(CA)" to indicate that this is a California created section, figure or table number. For example:

A. Section 4D.105(CA) – Bicycle/Motorcycle Detection
B. Figure 6H-103(CA) – Detour for Bike Lane on Roads with Closure of One Travel Direction
C. Table 4D-102(CA) – Minimum Yellow Change Interval Timing

18d The California MUTCD contents within each chapter (Chapter 2B shown as example below) appear in a consistent order for ease of reference. This sequence is as follows:

A. MUTCD Sections per sequential numbering. For example, Sections 2B.01 through 2B.68.
B. California Sections per sequential numbering. For example, Sections 2B.101(CA) through 2B.111(CA).
C. MUTCD Figures (including edited and deleted) per sequential numbering. For example, Figures 2B-1 through 2B-32.
D. California Figures based upon or modifying MUTCD Figures are placed immediately after the respective MUTCD figure. For example, Figure 2B-12(CA) follows immediately after the deleted MUTCD Figure 2B-12 it replaces. Another example is Figure 2B-10(CA) which immediately follows MUTCD (undeleted) Figure 2B-10 as the California figure supplements the MUTCD Figure, it does not replace it.
E. California Figures that are stand alone and not based upon MUTCD Figures follow in sequence per their numbering. For example, Figures 2B-101(CA) through 2B-106(CA) follow after the end of MUTCD numbered figures.
F. MUTCD and California Tables follow the Figures under similar rules described above for the figures.

## Table I-1. Evolution of the MUTCD

| Year | Name | Month / Year Revised |
|---|---|---|
| 1927 | Manual and Specifications for the Manufacture, Display, and Erection of U.S. Standard Road Markers and Signs (for rural roads) | 4/29, 12/31 |
| 1930 | Manual on Street Traffic Signs, Signals, and Markings (for urban streets) | No revisions |
| 1935 | Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) | 2/39 |
| 1942 | Manual on Uniform Traffic Control Devices for Streets and Highways — War Emergency Edition | No revisions |
| 1948 | Manual on Uniform Traffic Control Devices for Streets and Highways | 9/54 |
| 1961 | Manual on Uniform Traffic Control Devices for Streets and Highways | No revisions |
| 1971 | Manual on Uniform Traffic Control Devices for Streets and Highways | 11/71, 4/72, 3/73, 10/73, 6/74, 6/75, 9/76, 12/77 |
| 1978 | Manual on Uniform Traffic Control Devices for Streets and Highways | 12/79, 12/83, 9/84, 3/86 |
| 1988 | Manual on Uniform Traffic Control Devices for Streets and Highways | 1/90, 3/92, 9/93, 11/94, 12/96, 6/98, 1/00 |
| 2000 | Manual on Uniform Traffic Control Devices for Streets and Highways — Millennium Edition | 7/02 |
| 2003 | Manual on Uniform Traffic Control Devices for Streets and Highways | 11/04, 12/07 |
| 2009 | Manual on Uniform Traffic Control Devices for Streets and Highways | 5/12 |

## Table I-1(CA) Evolution of the California MUTCD

| Year | Name |
|---|---|
| 1955 | Planning Manual of Instructions, Part 8 – Traffic<br>Department of Public Works, Division of Highways |
| 1972 | Traffic Manual<br>Department of Public Works, Division of Highways |
| 1996 | Traffic Manual (Metric Version)<br>Department of Transportation, Division of Traffic Operations |
| 2004 | FHWA's MUTCD 2003 & MUTCD 2003 California Supplement<br>Department of Transportation, Division of Traffic Operations |
| 2006 | California MUTCD<br>Department of Transportation, Division of Traffic Operations |
| 2010 | California MUTCD (including Revisions. 1 and 2 of FHWA's MUTCD 2003)<br>Department of Transportation, Division of Traffic Operations |
| 2012 | California MUTCD (including FHWA's MUTCD 2009)<br>Department of Transportation, Division of Traffic Operations |
| 2014 | California MUTCD (including FHWA's MUTCD 2009 Revisions 1 & 2, as amended for use in California)<br>Department of Transportation, Division of Traffic Operations |
| 2015 | California MUTCD, Revision 1<br>Department of Transportation, Division of Traffic Operations |

## Table I-2. Target Compliance Dates Established by the FHWA

| 2009 MUTCD Section Number(s) | 2009 MUTCD Section Title | Specific Provision | Compliance Date |
|---|---|---|---|
| 2A.08 | Maintaining Minimum Retroreflectivity | Implementation and continued use of an assessment or management method that is designed to maintain regulatory and warning sign retroreflectivity at or above the established minimum levels (see Paragraph 2) | June 13, 2014 ~~2 years from the effective date of this revision of the 2009 MUTCD*~~ |
| ~~2A.19~~ | ~~Lateral Offset~~ | ~~Crashworthiness of sign supports on roads with posted speed limit of 50 mph or higher (see Paragraph 2)~~ | ~~January 17, 2013 (date established in the 2009 MUTCD)~~ |
| 2B.40 | ONE WAY Signs (R6-1, R6-2) | New requirements in the 2009 MUTCD for the number and locations of ONE WAY signs (see Paragraphs 4, 9, and 10) | December 31, 2019 |
| 2C.06 through 2C.14 | Horizontal Alignment Warning Signs | Revised requirements in the 2009 MUTCD regarding the use of various horizontal alignment signs (see Table 2C-5) | December 31, 2019 |
| 2E.31, 2E.33, and 2E.36 | Plaques for Left-Hand Exits | New requirement in the 2009 MUTCD to use E1-5aP and E1-5bP plaques for left-hand exits | December 31, 2014 |
| 4D.26 | Yellow Change and Red Clearance Intervals | New requirement in the 2009 MUTCD that durations of yellow change and red clearance intervals shall be determined using engineering practices (see Paragraphs 3 and 6) | June 13, 2017 ~~5 years from the effective date of this revision of the 2009 MUTCD~~, or when timing adjustments are made to the individual intersection and/or corridor, whichever occurs first |
| 4E.06 | Pedestrian Intervals and Signal Phases | New requirement in the 2009 MUTCD that the pedestrian change interval shall not extend into the red clearance interval and shall be followed by a buffer interval of at least 3 seconds (see Paragraph 4) | June 13, 2017 ~~5 years from the effective date of this revision of the 2009 MUTCD~~, or when timing adjustments are made to the individual intersection and/or corridor, whichever occurs first |
| 6D.03** | Worker Safety Considerations | New requirement in the 2009 MUTCD that all workers within the right-of-way shall wear high-visibility apparel (see Paragraphs 4, 6, and 7) | December 31, 2011 |
| 6E.02** | High-Visibility Safety Apparel | New requirement in the 2009 MUTCD that all flaggers within the right-of-way shall wear high-visibility apparel | December 31, 2011 |
| 7D.04** | Uniform of Adult Crossing Guards | New requirement in the 2009 MUTCD for high-visibility apparel for adult crossing guards | December 31, 2011 |
| 8B.03, 8B.04 | Grade Crossing (Crossbuck) Signs and Supports | Retroreflective strip on Crossbuck sign and support (see Paragraph 7 in Section 8B.03 and Paragraphs 15 and 18 in Section 8B.04) | December 31, 2019 |
| 8B.04 | Crossbuck Assemblies with YIELD or STOP Signs at Passive Grade Crossings | New requirement in the 2009 MUTCD for the use of STOP or YIELD signs with Crossbuck signs at passive grade crossings | December 31, 2019 |

* Types of signs other than regulatory or warning are to be added to an agency's management or assessment method as resources allow.

** MUTCD requirement is a result of a legislative mandate.

Note: All compliance dates that were previously published in Table I-2 of the 2009 MUTCD and that do not appear in this revised table have been eliminated.

## Table I-2(CA). Target Compliance Dates Established by the CTCDC/Caltrans

| 2014 CA MUTCD Section Number(s) | 2014 CA MUTCD Section Title | Specific Provision | Compliance Date |
|---|---|---|---|
| 4D.26 | Yellow Change & Red Clearance Intervals | Signalized intersections equipped with Red Light Cameras shall comply with 2014 CA MUTCD, Section 4D.26 | August 1, 2015 |
| 4D.26 | Yellow Change & Red Clearance Intervals | All signalized intersections shall comply with 2014 CA MUTCD, Section 4D.26 | August 1, 2017 |

Option:

19 A State may submit a request for the use of a device under interim approval for all jurisdictions in that State, as long as the request contains the information listed in Paragraph 18.

Support:

19a Figure 1A-101(CA) shows the process for the use of traffic control devices in California approved as interim approval by FHWA.

*Guidance:*

20 *A local jurisdiction, toll facility operator, or owner of a private road open to public travel (see definition in Section 1A.13) using a traffic control device or application under an interim approval that was granted by FHWA either directly or on a statewide basis based on the State's request should inform the State of the locations of such use.*

21 *A local jurisdiction, toll facility operator, or owner of a private road open to public travel (see definition in Section 1A.13) that is requesting permission to experiment or permission to use a device or application under an interim approval should first check for any State laws and/or directives covering the application of the MUTCD provisions that might exist in their State.*

Option:

22 A device or application installed under an interim approval may remain in place, under the conditions established in the interim approval, until an official rulemaking action has occurred.

Support:

23 A diagram indicating the process for incorporating new traffic control devices into this Manual is shown in Figure 1A-2.

24 For additional information concerning interpretations, experimentation, changes, or interim approvals, visit the MUTCD website at http://mutcd.fhwa.dot.gov.

**Standard:**

25 **Requests shall be made to the FHWA for experimenting with any new traffic control device, its application or manner of use, or a provision not specifically described in the Manual on Uniform Traffic Control Devices.**

Support:

26 In addition to the requirements of the FHWA, experimental traffic control devices are subject to the laws, regulations and policies of the State of California.

**Standard:**

27 **The agency shall request and receive approval from the California Traffic Control Devices Committee and Federal Highway Administration, when needed, prior to installation of experimentation devices on public roadways in California.**

Support:

28 For information contact:

Executive Secretary,
California Traffic Control Devices Committee
http://www.dot.ca.gov/hq/traffops/engineering/ctcdc/index.htm.

29 The California MUTCD contains the official standards and policies of the State of California for the design, application, and placement of traffic control devices.

30 Experimentation is defined as research involving the acts of testing, evaluating, analyzing or discovering the effect of a specific device, principle, supposition, etc., usually carried out in an operational context. Experimentation could also be performed in a laboratory. The request for experimentation is a submission specifically requesting approval to use a non-standard device on public roadways for purposes of gathering verification data.

31 As used herein, the term "device" includes not only signs, signals, and markings, but also their application and manner of use.

*Guidance:*

32 *Requests for experimentation, interpretation, or changes relating to the California edited portion of the California MUTCD should be sent to:*

*Executive Secretary,*
*California Traffic Control Devices Committee – MS36*
*P.O. Box 942874, Sacramento, CA-94274-0001*

Support:

33 The following procedures apply to requests for experimentation:

**Submission of Projects**

34 A request for permission to experiment will be considered only when submitted by the public agency or private toll facility responsible for the operation of the road or street on which the experiment is to take place.

*Guidance:*

35 *Experimentation requests should contain the following information:*

*A. A statement indicating the nature of the problem.*

*B. A description of the proposed change, how it was developed, the manner in which it deviates from the standard, and how it is expected to be an improvement over existing standards.*

*C. Any illustration, photograph, or videos, which would help, explain the experimental device or use of this device.*

*D. Any supporting data as to how the experimental device was developed, if it has been tried, in what ways it was found to be adequate or inadequate, and how was this choice of device or application arrived at.*

Support:

36 Requests for experimentation that are submitted without an explanation of the objective, scope, and duration will be returned to the originator for amplification.

**Procedure for Processing Requests**

A. All requests for experimentation will be reviewed by the Secretary of the California Traffic Control Devices Committee to determine whether other related experimentation has been scheduled, in process, or already completed.

B. The Secretary of the California Traffic Control Devices Committee will list the experimentation proposal on the next Committee agenda for review and approval. The Committee's approval would also include the specific guidelines to be followed for the experimentation.

C. Action by the California Traffic Control Devices Committee on any request for experimental use of a non-conforming device could take several forms:

1. Approval of the device for limited use on an experimental project.
2. Approval of the device for limited use in a formal research project.
3. Disapproval until such time as satisfactory research or other justification is submitted.
4. Disapproval.

D. After action by the California Traffic Control Devices Committee, the Secretary of the California Traffic Control Devices Committee will notify the originating party of it decision. If approved, the originating parties will be requested to submit a status report on the experimental testing at appropriate intervals. When the results of experimentation are completed, a final report will be prepared and forwarded to the Secretary for Committee review.

E. The agency receiving approval for experimentation must agree to faithfully follow the specific guidelines for the experimentation, must forward reports as indicated, and must agree to terminate the experimentation upon notification.

**Specific Guidelines for Experimental Proposal**

*Guidance:*

37 *A specific proposal should be submitted for each request.*

Support:

38 This proposal can be submitted with the initial request or could be a follow-up to specific comments by the California Traffic Control Devices Committee. The proposal, after approval by the Committee, will become an integral part of the approved experimentation.

*Guidance:*

39 *Each proposal should include:*

*A. Scope: A detailed description of the experimentation, locations of installation, and number of experimental projects.*

*B. Work Plan: A description of the proposed plan of study; the variables that are to be measured; the criteria against which the devices is to be evaluated; observations, measures and data which will be collected; whether the experimentation will be carried out in the field or under laboratory conditions; how installations of the experimental device or application will be made; the indication if any adverse effects on safety or traffic operations can be anticipated, together with the means that may be taken to minimize them; and the factors which will be held constant or measured and controlled in order to ensure that the true effects of the device are measured.*

*C. Time Periods: Time periods for experimentation will normally not be less than six months nor more than two years.*

*D. Evaluation Procedures: The California Traffic Control Devices Committee will approve criteria, which will be used to evaluate experimental devices or applications. To permit meaningful comparisons with standard installations, advice from specialists such as human factor experts, statisticians, etc., could be included.*

*E. Reporting: A written status report must be forwarded to the sponsor 45 days prior to each public meeting. A final report must be completed within 90 days of the terminal date of the experimentation and forwarded to the Secretary of the California Traffic Control Devices Committee. Status reports will describe the progress of the work, any particular deviation from the work plan and anticipated time of conclusion. The final report will contain, as a minimum, the basic information on the problem, the preliminary investigations, the proposed solutions, the study procedures, the detailed analysis of the data, the results of the work, a discussion of the results, and whatever conclusions are drawn. If a change in the California MUTCD is proposed, the recommended text (wording) for the California MUTCD should be included.*

*F. Administration: All experimentation proposals will include the agency sponsoring the study, the agency conducting the study, and the name and titles of principal researchers. There must be proof of professional traffic engineering capabilities and other related professional expertise to perform the experimentation and related evaluation processes.*

**Termination of Experimentation**

**Standard:**

40 **The project shall terminate at the end of the approved period unless an extension is granted, and all experimental devices and applications shall be removed unless specific permission is given for continued operation.**

Support:

41 The California Traffic Control Devices Committee could, at any time, terminate approval of experimentation if significant safety hazards are indicated to be directly or indirectly attributable to the experimentation. Approval of any experimentation could also be terminated if no status report is received 45 days prior to each public meeting or no final report is received within 90 days of the terminal date of the experimentation.

**Removal of Experimentation Installations**

**Standard:**

42 **All experimentation installations shall be removed upon termination of the experiment when a decision is made by the California Traffic Control Devices Committee that the device is not warranted.**

Support:

43 Authority and reference cited for removal of experimentation installation is CVC Section 21400.

## Table 1A-101(CA). Status of Interim Approvals Issued By FHWA in California

| No. | Description | Date Issued by FHWA | Date Adopted in CA |
|---|---|---|---|
| IA-1 | Optional use of retroreflective borders on traffic signal backplates | 2/6/04 | 12/7/06 |
| IA-2 | Optional use of wayside horn system (WHS) at highway-rail grade crossings | 8/2/04 | 12/7/06 |
| IA-4R | REVISED Interim Approval for Use of Automated Flagger Assistance Devices | 1/28/05 | 5/9/06 |
| IA-5 | Interim Approval for Use of Clearview Font for Positive Contrast Legends on Guide Signs | 9/2/04 | 12/7/06 |
| IA-8 | Interim Approval for Optional Use of RV Friendly Symbol Sign | 9/6/05 | 12/7/06 |
| IA-9 | Interim Approval to Display More than Six Specific Service Logo Panels for a Type of Service | 9/21/06 | Incorporated in the CA MUTCD 2012 |
| IA-10 | Interim Approval for Optional Use of Flashing Yellow Arrow for Permissive Left | 3/20/06 | 11/3/08 |
| IA-11 | Optional Use of Rectangular Rapid Flashing Beacons | 7/16/08 | 8/10/11 |
| IA-12 | Interim Approval for Optional Use of Traffic Signal Photo Enforced Signs | 11/12/10 | Continue to use SR56(CA) sign spec |
| IA-13 | Interim Approval for Optional Use of an Alternative Electric Vehicle Charging General Service Symbol Sign | 4/1/11 | 8/10/11 |
| IA-14 | Interim Approval for the Optional Use of Green Colored Pavement for Bike Lanes | 4/15/11 | 8/12/11 |
| IA-15 | Interim Approval for the Optional Use of an Alternative Design for the U.S. Bicycle Route (M1-9) Sign | 6/1/12 | 10/27/12 |
| IA-16 | Interim Approval for the Optional Use of Bicycle Signal Faces | 12/24/13 | 11/27/15 |
| IA-17 | Interim Approval for Optional Use of Three-Section Flashing Yellow Arrow Signal Faces | 8/12/14 | Pending CTCDC recommendation |

Notes:

- Visit http://www.dot.ca.gov/hq/traffops/engineering/mutcd/interim.htm for full table including web links and pdf file links.
  Refer to TOPD 13-01 for use on Electric Vehicle Charging Station sign G66-21B(CA)
  http://www.dot.ca.gov/hq/traffops/policy/13-01.pdf

10 **The uniformity of the sign design shall be maintained without any decrease in visibility, legibility, or driver comprehension during either daytime or nighttime conditions.**

Option:

11 For STOP and YIELD signs, LEDs may be placed within the border or within one border width within the background of the sign.

12 For STOP/SLOW paddles (see Section 6E.03) used by flaggers and the STOP paddles (see Section 7D.05) used by adult crossing guards, individual LEDs or groups of LEDs may be used.

Support:

13 Other methods of enhancing the conspicuity of standard signs are described in Section 2A.15.

14 Information regarding the use of retroreflective material on the sign support is contained in Section 2A.21.

## Section 2A.08 Maintaining Minimum Retroreflectivity

Support:

01 Retroreflectivity is one of several factors associated with maintaining nighttime sign visibility (see Section 2A.22).

**Standard:**

02 **Public agencies or officials having jurisdiction shall use an assessment or management method that is designed to maintain sign retroreflectivity at or above the minimum levels in Table 2A-3.**

Support:

03 Compliance with the Standard in Paragraph 2 is achieved by having a method in place and using the method to maintain the minimum levels established in Table 2A-3. Provided that an assessment or management method is being used, an agency or official having jurisdiction would be in compliance with the Standard in Paragraph 2 even if there are some individual signs that do not meet the minimum retroreflectivity levels at a particular point in time.

*Guidance:*

04 *Except for those signs specifically identified in Paragraph 6, one or more of the following assessment or management methods should be used to maintain sign retroreflectivity:*

A. *Visual Nighttime Inspection—The retroreflectivity of an existing sign is assessed by a trained sign inspector conducting a visual inspection from a moving vehicle during nighttime conditions. Signs that are visually identified by the inspector to have retroreflectivity below the minimum levels should be replaced.*
B. *Measured Sign Retroreflectivity—Sign retroreflectivity is measured using a retroreflectometer. Signs with retroreflectivity below the minimum levels should be replaced.*
C. *Expected Sign Life—When signs are installed, the installation date is labeled or recorded so that the age of a sign is known. The age of the sign is compared to the expected sign life. The expected sign life is based on the experience of sign retroreflectivity degradation in a geographic area compared to the minimum levels. Signs older than the expected life should be replaced.*
D. *Blanket Replacement—All signs in an area/corridor, or of a given type, should be replaced at specified intervals. This eliminates the need to assess retroreflectivity or track the life of individual signs. The replacement interval is based on the expected sign life, compared to the minimum levels, for the shortest-life material used on the affected signs.*
E. *Control Signs—Replacement of signs in the field is based on the performance of a sample of control signs. The control signs might be a small sample located in a maintenance yard or a sample of signs in the field. The control signs are monitored to determine the end of retroreflective life for the associated signs. All field signs represented by the control sample should be replaced before the retroreflectivity levels of the control sample reach the minimum levels.*
F. *Other Methods—Other methods developed based on engineering studies can be used.*

Support:

05 Additional information about these methods is contained in the 2007 Edition of FHWA's "Maintaining Traffic Sign Retroreflectivity" (see Section 1A.11).

Option:

06 Highway agencies may exclude the following signs from the retroreflectivity maintenance guidelines described in this Section:

A. Parking, Standing, and Stopping signs (R7 and R8 series)
B. Walking/Hitchhiking/Crossing signs (R9 series, R10-1 through R10-4b)
C. Acknowledgment signs
D. All signs with blue or brown backgrounds
E. Bikeway signs that are intended for exclusive use by bicyclists or pedestrians

## Section 2A.09 Shapes

**Standard:**

01 **Particular shapes, as shown in Table 2A-4, shall be used exclusively for specific signs or series of signs, unless otherwise provided in the text discussion in this Manual for a particular sign or class of signs.**

## Section 2A.10 Sign Colors

**Standard:**

01 **The colors to be used on standard signs and their specific use on these signs shall be as provided in the applicable Sections of this Manual. The color coordinates and values shall be as described in 23 CFR, Part 655, Subpart F, Appendix.**

Support:

02 As a quick reference, common uses of sign colors are shown in Table ~~2A-5~~ 2A-5(CA). Color schemes on specific signs are shown in the illustrations located in each appropriate Chapter.

03 Whenever white is specified in this Manual or in the "Standard Highway Signs and Markings" book (see Section 1A.11) as a color, it is understood to include silver-colored retroreflective coatings or elements that reflect white light.

04 The colors coral and light blue are being reserved for uses that will be determined in the future by the Federal Highway Administration.

05 Information regarding color coding of destinations on guide signs, including community wayfinding signs, is contained in Chapter 2D.

05a The fluorescent version of red, yellow, green or orange colors provide higher conspicuity than the standard colors, especially during twilight.

Option:

06 The approved fluorescent version of the standard red, yellow, green, or orange color may be used as an alternative to the corresponding standard color.

## Section 2A.11 Dimensions

Support:

01 The "Standard Highway Signs and Markings" book (see Section 1A.11) prescribes design details for up to five different sizes depending on the type of traffic facility, including bikeways. Smaller sizes are designed to be used on bikeways and some other off-road applications. Larger sizes are designed for use on freeways and expressways, and can also be used to enhance road user safety and convenience on other facilities, especially on multi-lane divided highways and on undivided highways having five or more lanes of traffic and/or high speeds. The intermediate sizes are designed to be used on other highway types.

**Standard:**

02 **The sign dimensions prescribed in the sign size tables in the various Parts and Chapters in this Manual and in the "Standard Highway Signs and Markings" book (see Section 1A.11) shall be used unless engineering judgment determines that other sizes are appropriate. Except as provided in Paragraph 3, where engineering judgment determines that sizes smaller than the prescribed dimensions are appropriate for use, the sign dimensions shall not be less than the minimum dimensions specified in this Manual. The sizes shown in the Minimum columns that are smaller than the sizes shown in the Conventional Road columns in the various sign size tables in this Manual shall only be used on low-speed roadways, and alleys,**

Support:

12 Letter height is expressed in terms of the height of an upper-case letter. For mixed-case legends (those composed of an initial upper-case letter followed by lower-case letters), the height of the lower-case letters is derived from the specified height of the initial upper-case letter based on a prescribed ratio. Letter heights for mixed-case legends might be expressed in terms of both the upper- and lower-case letters, or in terms of the initial upper-case letter alone. When the height of a lower-case letter is specified or determined from the prescribed ratio, the reference is to the nominal loop height of the letter. The term loop height refers to the portion of a lower-case letter that excludes any ascending or descending stems or tails of the letter, such as with the letters "d" or "q." The nominal loop height is equal to the actual height of a non-rounded lower-case letter whose form does not include ascending or descending stems or tails, such as the letter "x." The rounded portions of a lower-case letter extend slightly above and below the baselines projected from the top and bottom of such a non-rounded letter so that the appearance of a uniform letter height within a word is achieved. The actual loop height of a rounded lower-case letter is slightly greater than the nominal loop height and this additional height is excluded from the expression of the lower-case letter height.

**Standard:**

13 **When a mixed-case legend is used, the height of the lower-case letters shall be 3/4 of the height of the initial upper-case letter.**

14 **The unique letter forms for each of the Standard Alphabet series shall not be stretched, compressed, warped, or otherwise manipulated.**

Support:

15 Section 2D.04 contains information regarding the acceptable methods of modifying the length of a word for a given letter height and series.

## Section 2A.14 Sign Borders

**Standard:**

01 **Unless otherwise provided, each sign illustrated in this Manual shall have a border of the same color as the legend, at or just inside the edge.**

02 **The corners of all sign borders shall be rounded, except for STOP signs.**

*Guidance:*

03 *A dark border on a light background should be set in from the edge, while a light border on a dark background should extend to the edge of the sign. A border for 30-inch signs with a light background should be from 1/2 to 3/4 inch in width, 1/2 inch from the edge. For similar signs with a light border, a width of 1 inch should be used. For other sizes, the border width should be of similar proportions, but should not exceed the stroke-width of the major lettering of the sign. On signs exceeding 72 x 120 inches in size, the border should be 2 inches wide, or on larger signs, 3 inches wide. Except for STOP signs and as otherwise provided in Section 2E.16, the corners of the sign should be rounded to a radius that is concentric with that of the border.*

## Section 2A.15 Enhanced Conspicuity for Standard Signs

Option:

01 Based upon engineering judgment, where the improvement of the conspicuity of a standard regulatory, warning, or guide sign is desired, any of the following methods may be used, as appropriate, to enhance the sign's conspicuity (see Figure 2A-1):

A. Increasing the size of a standard regulatory, warning, or guide sign.
B. Doubling-up of a standard regulatory, warning, or guide sign by adding a second identical sign on the left-hand side of the roadway.
C. Adding a solid yellow or fluorescent yellow rectangular "header panel" above a standard regulatory sign, with the width of the panel corresponding to the width of the standard regulatory sign. A legend of "NOTICE," "STATE LAW," or other appropriate text may be added in black letters within the header panel for a period of time determined by engineering judgment.
D. Adding a NEW plaque (see Section 2C.62) above a new standard regulatory or warning sign, for a period of time determined by engineering judgment, to call attention to the new sign.

E. Adding one or more red or orange flags (cloth or retroreflective sheeting) above a standard regulatory or warning sign, with the flags oriented so as to be at 45 degrees to the vertical.
F. Adding a solid yellow, a solid fluorescent yellow, or a diagonally striped black and yellow (or black and fluorescent yellow) strip of retroreflective sheeting at least 3 inches wide around the perimeter of a standard warning sign. This may be accomplished by affixing the standard warning sign on a background that is 6 inches larger than the size of the standard warning sign.
G. Adding a warning beacon (see Section 4L.03) to a standard regulatory (other than a STOP or a Speed Limit sign), warning, or guide sign.
H. Adding a speed limit sign beacon (see Section 4L.04) to a standard Speed Limit sign.
I. Adding a stop beacon (see Section 4L.05) to a STOP sign.
J. Adding light emitting diode (LED) units within the symbol or legend of a sign or border of a standard regulatory, warning, or guide sign, as provided in Section 2A.07.
K. Adding a strip of retroreflective material to the sign support in compliance with the provisions of Section 2A.21.
L. Using other methods that are specifically allowed for certain signs as described elsewhere in this Manual.
M. For applicable sign types and colors, using a sign with its color in a fluorescent version. See Section 2A.10.

Support:

02 Sign conspicuity improvements can also be achieved by removing non-essential and illegal signs from the right-of-way (see Section 1A.08), and by relocating signs to provide better spacing.

**Standard:**

03 **The NEW plaque (see Section 2C.62) shall not be used alone.**

04 **Strobe lights shall not be used to enhance the conspicuity of highway signs.**

## Section 2A.16 Standardization of Location

Support:

01 Standardization of position cannot always be attained in practice. Examples of heights and lateral locations of signs for typical installations are illustrated in Figure 2A-2, and examples of locations for some typical signs at intersections are illustrated in Figures 2A-3 and 2A-4.

02 Examples of advance signing on an intersection approach are illustrated in Figure 2A-4. Chapters 2B, 2C, and 2D contain provisions regarding the application of regulatory, warning, and guide signs, respectively.

*Guidance:*

03 *Signs requiring separate decisions by the road user ~~shall~~ should be spaced sufficiently far apart for the appropriate decisions to be made.*

**Standard:**

03 **One of the factors considered when determining the appropriate spacing shall be the posted or 85th-percentile speed.**

*Guidance:*

04 *Signs should be located on the right-hand side of the roadway where they are easily recognized and understood by road users. Signs in other locations should be considered only as supplementary to signs in the normal locations, except as otherwise provided in this Manual.*

05 *Signs should be individually installed on separate posts or mountings except where:*

*A. One sign supplements another;*
*B. Route or directional signs are grouped to clarify information to motorists;*
*C. ~~Regulatory~~ Signs that do not conflict with each other are grouped, such as turn prohibition signs posted with one way signs or a parking regulation sign posted with ~~a speed limit~~ another sign; or*
*D. Street name signs are posted with a stop or yield sign.*

06 *Signs should be located so that they:*

*A. Are outside the clear zone unless placed on a breakaway or yielding support (see Section 2A.19),*
*B. Optimize nighttime visibility,*
*C. Minimize the effects of mud splatter and debris,*
*D. Do not obscure each other,*

Support:

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

*Guidance:*

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

**Standard:**

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

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

23 **The median support on overhead sign bridges shall be centered in medians 60 feet or less in width and shall be placed 30 feet from the edge of the traveled way in wider medians. Unless there are protected locations, sign bridge supports shall not be placed in medians 22 feet or less in width.**

*Guidance:*

24 *Overhead signs should be placed at least 30 feet from light standards.*

## Section 2A.20 Orientation

*Guidance:*

01 *Unless otherwise provided in this Manual, signs should be vertically mounted at right angles to the direction of, and facing, the traffic that they are intended to serve.*

02 *Where mirror reflection from the sign face is encountered to such a degree as to reduce legibility, the sign should be turned slightly away from the road. Signs that are placed 30 feet or more from the pavement edge should be turned toward the road. On curved alignments, the angle of placement should be determined by the direction of approaching traffic rather than by the roadway edge at the point where the sign is located.*

Option:

03 On grades, sign faces may be tilted forward or back from the vertical position to improve the viewing angle.

## Section 2A.21 Posts and Mountings

**Standard:**

01 **Sign posts, foundations, and mountings shall be so constructed as to hold signs in a proper and permanent position, and to resist swaying in the wind or displacement by vandalism.**

Support:

02 The latest edition of AASHTO's "Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals" contains additional information regarding posts and mounting (see Page i for AASHTO's address).

Option:

03 Where engineering judgment indicates a need to draw attention to the sign during nighttime conditions, a strip of retroreflective material may be used on regulatory and warning sign supports.

**Standard:**

04 **If a strip of retroreflective material is used on the sign support, it shall be at least 2 inches in width, it shall be placed for the full length of the support from the sign to within 2 feet above the edge of the roadway, and its color shall match the background color of the sign, except that the color of the strip for the YIELD and DO NOT ENTER signs shall be red.**

Support:

05 Refer to Caltrans' Highway Design Manual Section 309.1 for horizontal clearances. See Section 1A.11 for information regarding this publication.

*Guidance:*

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

**Standard:**

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

Support:

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

Option:

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

**Standard:**

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

## Section 2A.22 Maintenance

*Guidance:*

01 *Maintenance activities should consider proper position, cleanliness, legibility, and daytime and nighttime visibility (see Section ~~2A.09~~ 2A.08). Damaged or deteriorated signs, gates, or object markers should be replaced.*

02 *To assure adequate maintenance, a schedule for inspecting (both day and night), cleaning, and replacing signs, gates, and object markers should be established. Employees of highway, law enforcement, and other public agencies whose duties require that they travel on the roadways should be encouraged to report any damaged, deteriorated, missing or obscured signs, gates, or object markers at the first opportunity.*

03 *Steps should be taken to see that weeds, trees, shrubbery, and construction, maintenance, and utility materials and equipment do not obscure the face of any sign or object marker.*

04 *A regular schedule of replacement of lighting elements for illuminated signs should be maintained.*

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

*Guidance:*

01 *Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings should be signed as two separate intersections.*

Option:

02 Additional signs may be placed where the median width is 30 feet or more.

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

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

Support:

05 See Section 2E.53, Wrong-Way Traffic Control at Interchange Ramps.

## Section 2A.101(CA) Signs Off the State Right-of-Way

Support:

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

*Guidance:*

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

15 **When used in conjunction with Reversible Lane Control signs, the Turn Prohibition signs (R3-1 to R3-4, R3-18) shall be mounted overhead and separate from the Reversible Lane Control signs. The Turn Prohibition signs shall be designed and installed in accordance with Section 2B.18.**

*Guidance:*

16 *For additional emphasis, a supplemental plaque stating the distance of the prohibition, such as NEXT 1 MILE, should be added to the Turn Prohibition signs that are used in conjunction with Reversible Lane Control signs.*

17 *If used, overhead signs should be located at intervals not greater than 1/4 mile. The bottom of the overhead Reversible Lane Control signs should not be more than 19 feet above the pavement grade.*

18 *Where more than one sign is used at the termination of a reversible lane, they should be at least 250 feet apart. Longer distances between signs are appropriate for streets with speeds over 35 mph, but the separation should not exceed 1,000 feet.*

19 *Because left-turning vehicles have a significant impact on the safety and efficiency of a reversible lane operation, if an exclusive left-turn lane or two-way left-turn lane cannot be incorporated into the lane-use pattern for a particular peak or off-peak period, consideration should be given to prohibiting left turns and U-turns during that time period.*

## Section 2B.27 Jughandle Signs (R3-23, R3-24, R3-25, and R3-26 Series)

Support:

01 A jughandle turn is a left-turn or U-turn that because of special geometry is made by initially making a right turn. This type of turn can increase the operational efficiency of a roadway by eliminating the need for exclusive left-turn lanes and can increase the operational efficiency of a traffic control signal by eliminating the need for protected left-turn phases. A jughandle turn can also provide an opportunity for trucks and commercial vehicles to make a U-turn where the median and roadway are not of sufficient width to accommodate a traditional U-turn by these vehicles.

02 Figure 2B-8 shows the various signs that can be used for signing jughandle turns. Figure 2B-9 shows examples of regulatory and destination guide signing for various types of jughandle turns.

**Standard:**

03 **On multi-lane roadways, since road users generally anticipate that they need to be in the left-hand lane when approaching a location where they desire to turn left or make a U-turn, an ALL TURNS FROM RIGHT LANE (R3-23) or a U TURN FROM RIGHT LANE (R3-23a) sign (see Figure 2B-9) shall be installed in advance of the location to inform drivers that left turns and/or U-turns will be made from the right-hand lane.**

Option:

04 Where a median of sufficient width is available, supplemental regulatory or guide signs may also be placed on the left-hand side of the roadway.

**Standard:**

05 **An R3-24 series sign with an upward diagonal arrow pointing to the right if the jughandle entrance is designed as an exit ramp (see Drawings A and B of Figure 2B-9) or an R3-25 series sign with a horizontal arrow pointing to the right if the jughandle entrance is designed as an intersection shall be installed on the right-hand side of the roadway at the entrance to the jughandle. The legend on the sign shall be ALL TURNS, U TURN, or U AND LEFT TURNS, as appropriate.**

06 **If the jughandle is designed such that the jughandle entrance is downstream of the location where the turn would normally have been made (see Drawing C of Figure 2B-9), an R3-26 series sign with an arrow pointing straight upward shall be installed on the right-hand side of the roadway at the intersection to inform road users that they need to proceed straight through the intersection in order to make a left turn or U-turn. The legend on the sign shall be U TURN or U AND LEFT TURNS, as appropriate.**

Support:

07 The R3-24, R3-25, and R3-26 series of signs are designed to be mounted below conventional guide signs.

08 Section 2C.14 contains information regarding the use of advisory exit and ramp speed signs for exit ramps.

09 Section 2D.39 contains information regarding the use of guide signs for jughandles.

## Section 2B.28 Do Not Pass Sign (R4-1)

Option:

01 The Do Not Pass (R4-1) sign (see Figure 2B-10) may be used in addition to pavement markings (see Section 3B.02) to emphasize the restriction on passing.

**Standard:**

01a **When used, the Do Not Pass sign ~~may~~ shall be used at the beginning of, and at intervals within, a zone through which sight distance is restricted or where other conditions make overtaking and passing inappropriate.**

Option:

02 If signing is needed on the left-hand side of the roadway for additional emphasis, NO PASSING ZONE (W14-3) signs may be used (see Section 2C.45).

Support:

03 Standards for determining the location and extent of no-passing zone pavement markings are set forth in Section 3B.02.

Support:

04 Typical examples of where the R4-1 sign could be applied are shown in Figures 3B-14(CA) and 3B-106(CA).

Option:

05 The R4-1 sign may be used in conjunction with temporary traffic control signs.

## Section 2B.29 PASS WITH CARE Sign (R4-2)

*Guidance:*

01 *The PASS WITH CARE (R4-2) sign (see Figure 2B-10) should be installed at the downstream end of a no-passing zone if a Do Not Pass sign has been installed at the upstream end of the zone.*

## Section 2B.30 KEEP RIGHT EXCEPT TO PASS Sign (R4-16) and SLOWER TRAFFIC KEEP RIGHT Sign (R4-3)

Option:

01 The KEEP RIGHT EXCEPT TO PASS (R4-16) sign (see Figure 2B-10) may be used on multi-lane roadways to direct drivers to stay in the right-hand lane except when they are passing another vehicle. Refer to CVC 21659.

*Guidance:*

02 *If used, the KEEP RIGHT EXCEPT TO PASS sign should be installed just beyond the beginning of a multi-lane roadway and at selected locations along multi-lane roadways for additional emphasis.*

Option:

03 The SLOWER TRAFFIC KEEP RIGHT (R4-3) sign (see Figure 2B-10) may be used on multi-lane roadways to reduce unnecessary lane changing.

*Guidance:*

04 *If used, the SLOWER TRAFFIC KEEP RIGHT sign should be installed just beyond the beginning of a multi-lane pavement, and at selected locations where there is a tendency on the part of some road users to drive in the left-hand lane (or lanes) below the normal speed of traffic. This sign should not be used on the approach to an interchange or through an interchange area.*

## Section 2B.31 TRUCKS USE RIGHT LANE Sign (R4-5)

*Guidance:*

01 *If an extra lane has been provided for trucks and other slow-moving traffic, a SLOWER TRAFFIC KEEP RIGHT (R4-3) sign (see Figure 2B-10), TRUCKS USE RIGHT LANE (R4-5) sign (see Figure 2B-10), or other appropriate sign should be installed at the beginning of the lane.*

Option:

01a The TRUCKS OK (R70(CA)) sign (see Figure 2B-10(CA) may be used to allow trucks to legally use other than the right lane or lanes, such as in advance of freeway branch connections, lane drop, etc.

Support:

01b Refer to CVC 21655. Erect overhead with the arrow directly over the appropriate lane.

E. No Bicycles (R5-6),
F. NO NON-MOTORIZED TRAFFIC (R5-7),
G. NO MOTOR-DRIVEN CYCLES (R5-8),
H. No Pedestrians (R9-3),
I. No Skaters (R9-13),
J. No Equestrians (R9-14), and
K. ~~No Hazardous Material (R14-3)~~ (see Section 2B.62).

Option:

04 Appropriate combinations or groupings of these legends into a single sign, such as NO PEDESTRIANS BICYCLES MOTOR-DRIVEN CYCLES (R5-10a), or NO PEDESTRIANS OR BICYCLES (R5-10b) may be used.

*Guidance:*

05 *If an exclusion is governed by vehicle weight, a Weight Limit sign (see Section 2B.59) should be used instead of a Selective Exclusion sign.*

06 *If used on a freeway or expressway ramp, the NO PEDESTRIANS OR BICYCLES (R5-10b) sign should be installed in a location where it is clearly visible to any pedestrian or bicyclist attempting to enter the limited access facility from a street intersecting the exit ramp.*

07 *The Selective Exclusion sign should be placed on the right-hand side of the roadway at an appropriate distance from the intersection so as to be clearly visible to all road users turning into the roadway that has the exclusion. The NO PEDESTRIANS (R5-10c) or No Pedestrian Crossing (R9-3) sign (see Section 2B.51) should be installed so as to be clearly visible to pedestrians who are at a location where an alternative route is available.*

Option:

08 The NO PEDESTRIANS (R5-10c) or No Pedestrian Crossing (R9-3) sign may also be used at underpasses or elsewhere where pedestrian facilities are not provided.

09 The NO TRUCKS (R5-2a) word message sign may be used as an alternate to the No Trucks (R5-2) symbol sign.

10 The AUTHORIZED VEHICLES ONLY (R5-11) sign may be used at median openings and other locations to prohibit vehicles from using the median opening or facility unless they have special permission (such as law enforcement vehicles or emergency vehicles) or are performing official business (such as highway agency vehicles).

Support:

11 Refer to CVC 21101 through 21104, 22402 through 22405 and 35650 through 35755 for Truck Exclusion signs.

12 The No Trucks (R5-2) sign is used together with a Truck Exclusion (R20D(CA) Series) plaque (see Figure 2B-11(CA) to specify the maximum width or other restrictions in effect.

*Guidance:*

13 *An alternative route should be evaluated for height, weight and size restrictions. Appropriate signs should be posted along the route to advise motorists of any restrictions.*

Option:

14 Advance signs may be necessary to give trucks an opportunity to turn around and retrace their path or select another route.

**Standard:**

15 **The R5-2 signs shall be placed at each end of the affected portion of a highway section. They shall be placed at a distance of not more than 500 feet from the ends of an affected bridge or structure.**

16 **The Bridge Speed and Weight Limit (R21(CA)) sign (see Figure 2B-11(CA) shall be used to specify the maximum speed permitted on a bridge or structure for vehicles over a specified weight. The R21(CA) sign shall not be erected more than 500 feet in advance of the bridge or structure.**

Option:

17 The R21(CA) sign, when used with the Weight Limit (R12-5) sign, may be placed on the same post.

18 The Truck Length Limit (R20H(CA)) sign may be used at locations where a semi-truck over 65 feet in length and a semi-truck with trailer over 75 feet in length is prohibited.

19 The No Trucks Variable Message (R20-1(CA)) sign (see Figure 2B-11(CA) may be used with an advance guide sign where there is a truck restriction.

**Standard:**

20 **The NEXT RIGHT (R20-1A(CA)) Plaque (see Figure 2B-11(CA) shall be used below the R20-1(CA) sign when no advance guide sign is available.**

Option:

21 The AUTOS WITH TRAILERS - TRUCKS – PROHIBITED (R53D(CA)) sign (see Figure 2B-11(CA) may be used at locations where these vehicles are prohibited from using the roadway.

**Restrictions on Use of Freeways**

Support:

22 CVC Section 21960 authorizes Caltrans and local authorities, with respect to freeways under their respective jurisdictions, to prohibit or restrict the use of freeways by pedestrians, bicycles or other non-motorized traffic or by any person operating a motor-driven cycle or a motorized bicycle.

**Standard:**

23 **Restrictions on use of a freeway shall be by the order of Caltrans, District Director.**

24 **No ordinance or resolution of local authorities shall apply to any State highway until the proposed ordinance or resolution has been presented to, and approved in writing by, Caltrans.**

Support:

25 The District Directors have been delegated the authority to issue orders restricting the use of freeways. They are also authorized to approve orders, ordinances or resolutions of local authorities, which would restrict the use of State highways.

26 It is Caltrans' policy to restrict the use of freeways when a satisfactory alternate route is available.

**Standard:**

27 **The NO PEDESTRIANS BICYCLES MOTOR-DRIVEN CYCLES (R5-10a) sign shall be used on a freeway at or near the beginning of the section of freeway to which the prohibition applies and on the right side of freeway entrance ramps.**

*Guidance:*

28 *Prior to placement of the R5-10a sign on State highways, an order signed by the Caltrans District Director should be on file.*

29 *At the end of freeway sections where both bicycles and pedestrians have been allowed, and on the continuing freeway where such traffic is prohibited, the R5-10a sign should be placed beyond the exit ramp gore.*

Option:

30 The R5-10a sign may be modified by deleting the word BICYCLES at locations where bicycles are permitted on freeway shoulders.

**Standard:**

31 **The NO PEDESTRIANS (R5-10c) sign shall be used at all freeways exit ramps to inform the public that pedestrians are prohibited.**

*Guidance:*

32 *The R5-10c sign should be placed on the left facing pedestrian traffic, which might enter a freeway exit ramp. The sign should be placed up the ramp to avoid conflict with the ramp terminal signs.*

Option:

33 Dual installations may be used where pedestrian problems exist.

Support:

34 See 2E.53 for additional details.

Option:

35 The FREEWAY – ACCESS RIGHTS RESTRICTED ON THIS SECTION OF HIGHWAY (S3-1(CA)) sign may be used to identify a right-of-way fence that has been placed to control access.

B. CROSS ONLY ON (symbolic walk indication) SIGNAL (R10-2);
C. Push Button for Walk Signal (R10-3 series); and
D. Push Button for Green Signal (R10-4 series).

Option:

03 The following signs may be used as an alternate for the R10-3 and R10-4 signs:
A. Push Button to Cross Street Wait for Walk Signal (R10-3a); or
B. Push Button to Cross Street Wait for Green Signal (R10-4a).

04 The name of the street to be crossed may be substituted for the word STREET in the legends on the R10-3a and R10-4a signs.

*Guidance:*

05 *The finger in the pushbutton symbol on the R10-3, R10-3a, R10-4, and R10-4a signs should point in the same direction as the arrow on the sign.*

Option:

06 Where symbol-type pedestrian signal indications are used, an educational sign (R10-3b) may be used instead of the R10-3 sign to improve pedestrian understanding of pedestrian indications at signalized intersections. Where word-type pedestrian signal indications are being retained for the remainder of their useful service life, the legends WALK/ DONT WALK may be substituted for the symbols on the educational sign R10-3b, thus creating educational sign R10-3c. The R10-3d educational sign may be used to inform pedestrians that the pedestrian clearance time is sufficient only for the pedestrian to cross to the median at locations where pedestrians cross in two stages using a median refuge island. The R10-3e educational sign may be used where countdown pedestrian signals have been provided. In order to assist the pedestrian in understanding which pushbutton to push, the R10-3f 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.**

Option:

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 (see Figure 2B-27(CA)) 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.*

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.

05 In situations where traffic control signals are coordinated for progressive timing, the Traffic Signal Speed (I1-1) sign may be used (see Section 2H.03).

**Standard:**

06 **The CROSSWALK STOP ON RED (symbolic circular red) (R10-23) sign (see Figure 2B-27) shall only be used in conjunction with pedestrian hybrid beacons (see Section 4F.02).**

07 **The EMERGENCY SIGNAL (R10-13) sign (see Figure 2B-27) shall be used in conjunction with emergency-vehicle traffic control signals (see Section 4G.02).**

08 **The EMERGENCY SIGNAL—STOP ON FLASHING RED (R10-14 or R10-14a) sign (see Figure 2B-27) shall be used in conjunction with emergency-vehicle hybrid beacons (see Section 4G.04).**

Option:

09 In order to remind drivers who are making turns to yield to pedestrians, a Turning Vehicles Yield to Pedestrians (R10-15) sign (see Figure 2B-27) may be used.

10 ~~A U-TURN YIELD TO RIGHT TURN (R10-16) sign (see Figure 2B-27) may be installed near the left-turn signal face if U-turns are allowed on a protected left-turn movement on an approach from which a right-turn GREEN ARROW signal indication is simultaneously being displayed to drivers making a right turn from the conflicting approach to their left.~~

*Guidance:*

11 *The U-TURN YIELD TO RIGHT TURN (R10-16) sign is deleted as this condition should not be practiced. The actual movement conflict should be eliminated rather than try to correct it with this sign.*

## Section 2B.54 No Turn on Red Signs (R10-11 Series, R10-17a, and R10-30)

**Standard:**

01 **Where a right turn on red (or a left turn on red from a one-way street to a one-way street) is to be prohibited, a symbolic NO TURN ON RED (symbolic circular red) (R10-11) sign (see Figure 2B-27) or No Right Turn on Red (R13A(CA)) or No Left Turn on Red (R13B(CA)) signs (see Figure 2B-27(CA)) ~~a NO TURN ON RED (R10-11a, R10-11b) word message sign (see Figure 2B-27)~~ shall be used.**

Support:

01a Refer to CVC 22101 for the No Turn on Red (R10-11 Series and R13A(CA) and R13B(CA)) signs.

*Guidance:*

02 *If used, the No Turn on Red (R10-11, R13A(CA) or R13B(CA)) sign should be installed near the appropriate signal head.*

03 *A No Turn on Red (R10-11, R13A(CA) or R13B(CA)) sign should be considered when an engineering study finds that one or more of the following conditions exists:*

*A. Inadequate sight distance to vehicles approaching from the left (or right, if applicable);*
*B. Geometrics or operational characteristics of the intersection that might result in unexpected conflicts;*
*C. An exclusive pedestrian phase;*
*D. An unacceptable number of pedestrian conflicts with right-turn-on-red maneuvers, especially involving children, older pedestrians, or persons with disabilities;*
~~*E. More than three right-turn-on-red accidents reported in a 12-month period for the particular approach; or*~~
*F. The skew angle of the intersecting roadways creates difficulty for drivers to see traffic approaching from their left.*

03a *No Right Turn on Red (R13A(CA)) sign or No Left Turn on Red (R13B(CA)) sign (see Figure 2B-27(CA)) should be used on the near right of skewed intersections where the adjacent approach leg to the left intersects the road user's approach leg at an angle of less than 75 degrees.*

Option:

03b No Right Turn on Red (R13A(CA)) sign or No Left Turn on Red (R13B(CA)) sign (see Figure 2B-27(CA)) may be used on the near right of extremely wide intersections.

*Guidance:*

03c *When used, the No Right Turn on Red (R13A(CA)) sign should be placed where it will most easily be seen by the road user intending to turn. At least one should be placed overhead, or at a right-hand corner facing approaching traffic.*

03d *When used, the No Left Turn on Red (R13B(CA)) sign should be placed where it will most easily be seen by the road user intending to turn. At least one should be placed overhead, or at a left-hand corner facing approaching traffic.*

Option:

04 A supplemental R10-20aP plaque (see Figure 2B-27) showing times of day ~~(similar to the S4-1P plaque shown in Figure 7B-1)~~ with a black legend and border on a white background may be mounted below a No Turn on Red (R10-11, R13A(CA) or R13B(CA)) sign to indicate that the restriction is in place only during certain times.

05 Alternatively, ~~a~~ an Activated Blank-Out ~~blank-out~~ sign may be used instead of a static NO TURN ON RED (symbolic circular red) (R10-11) sign, to display either the NO TURN ON RED legend or the No Right Turn symbol or word message, as appropriate, only at certain times during the day or during one or more portion(s) of a particular cycle of the traffic signal.

06 On signalized approaches with more than one right-turn lane, a NO TURN ON RED EXCEPT FROM RIGHT LANE (R10-11c) sign (see Figure 2B-27) may be post-mounted at the intersection or a NO TURN ON RED FROM THIS LANE (with down arrow) (R10-11d) sign (see Figure 2B-27) may be mounted directly over the center of the lane from which turns on red are prohibited.

*Guidance:*

07 ~~*Where turns on red are permitted and the signal indication is a steady RED ARROW, the RIGHT (LEFT) ON RED ARROW AFTER STOP (R10-17a) sign (see Figure 2B-27) should be installed adjacent to the RED ARROW signal indication.*~~ *A circular red signal face should be used, instead of correcting the condition with this sign.*

Support:

07a The RIGHT (LEFT) ON RED ARROW AFTER STOP (R10-17a) sign is deleted as it compromises the meaning of the right red arrow.

Option:

08 A RIGHT TURN ON RED MUST YIELD TO U-TURN (R10-30) sign (see Figure 2B-27) may be installed to remind road users that they must yield to conflicting u-turn traffic on the street or highway onto which they are turning right on a red signal after stopping.

## Section 2B.55 Photo Enforced Signs and Plaques (R10-18, R10-19P, R10-19aP)

**Standard:**

00 **A Traffic Signal PHOTO ENFORCED (SR56(CA)) sign shall be posted within 200 feet of a traffic signal on the approaches where the automated traffic enforcement system is being utilized to issue citations. See Figure 2B-3(CA). Refer to CVC 21455.5.**

Option:

01 ~~A TRAFFIC LAWS PHOTO ENFORCED (R10-18) or sign (see Figure 2B-3) may be installed at a jurisdictional boundary to advise road users that some of the traffic regulations within that jurisdiction are being enforced by photographic equipment.~~

01a The RED LIGHT VIOLATION $ ___ FINE (SR58(CA)) sign (see Figure 2B-3(CA)) may be used in advance of signalized intersections where a local agency has adopted an ordinance setting a specific fine amount for red light violations within its jurisdiction. The SR58(CA) sign may be placed on State highways when requested by the local agency.

02 ~~A Photo Enforced (R10-19P) plaque or a PHOTO ENFORCED (R10-19aP) word message plaque (see Figure 2B-3) may be mounted below a regulatory sign to advise road users that the regulation is being enforced by photographic equipment.~~

**~~Standard:~~**

03 **~~If used below a regulatory sign, the Photo Enforced (R10-19P or R10-19aP) plaque shall be a rectangle with a black legend and border on a white background.~~**

Support:

04 Refer to CVC 21455.5 for Traffic Signal Automated Enforcement: Photographic Records.

## Section 2B.56 Ramp Metering Signs (R10-28 and R10-29)

Support:

00a For State highways, see Caltrans' Ramp Metering Design Manual. See Section 1A.11 for information regarding this publication.

00b Refer to Section 2G.102(CA) for regulatory signs for HOV lanes at metered ramps.

Option:

01 When ramp control signals (see Chapter 4I) are used to meter traffic on a freeway or expressway entrance ramp, regulatory signs with legends appropriate to the control may be installed adjacent to the ramp control signal faces.

02 ~~For entrance ramps with only one controlled lane, an XX VEHICLE(S) PER GREEN (R10-28) sign (see Figure 2B-28) may be used to inform road users of the number of vehicles that are permitted to proceed during each short display of the green signal indication. For entrance ramps with more than one controlled lane, an XX VEHICLE(S) PER GREEN Each Lane (R10-29) (see Figure 2B-28) sign may be used to inform road users of the number of vehicles that are permitted to proceed from each lane during each short display of the green signal indication.~~

Option:

03 The 1 CAR (2 CARS) PER GREEN (R89(CA)) or 1 CAR (2 CARS) PER GREEN EACH LANE (R89-1(CA)) or 1 CAR (2 CARS) PER GREEN THIS LANE (R89-2(CA)) sign may be used under the lower signal head at freeway ramp meter locations, to indicate the number of vehicle(s) permitted to proceed during each short display of the green signal indication. When used on a signal mast arm, they are respectively placed to the right of the signal head that applies.

04 The RIGHT (LEFT) LANE THIS SIGNAL (R89-3(CA)) sign may be used under the lower signal head at freeway ramp meter locations, where individual signal heads are used for each lane of traffic. When used on a signal mast arm, it is placed to the right of the signal head that applies.

*Guidance:*

05 *The STOP HERE ON RED (R10-6) sign should be placed on Type 1 standards near the limit line at metered entrance ramps with three or more lanes.*

Option:

06 The R10-6 sign may also be used at other locations.

Support:

07 The R10-6 sign is used to emphasize the required observance of the signal limit line, such as the metering signal controlling traffic on metered freeway entrance ramps.

*Guidance:*

08 *The ALL VEHICLES STOP ON RED (R90-1(CA)) sign should be placed when converting a non-metered HOV preferential lane to a metered one.*

Option:

09 The R90-1(CA) sign may also be used on new installations where potential for confusion exists.

Support:

10 Refer to Section 2G.102(CA) for signs for HOV lanes at metered ramps.

## Section 2B.57 KEEP OFF MEDIAN Sign (R11-1)

Option:

01 The KEEP OFF MEDIAN (R11-1) sign (see Figure 2B-29) may be used to prohibit driving into or parking on the median.

*Guidance:*

02 *The KEEP OFF MEDIAN sign should be installed on the left of the roadway within the median at random intervals as needed wherever there is a tendency for encroachment.*

## Section 2B.58 ROAD CLOSED Sign (R11-2) and LOCAL TRAFFIC ONLY Signs (R11-3 Series, R11-4)

*Guidance:*

01 *The ROAD CLOSED (R11-2) sign should be installed where roads have been closed to all traffic (except authorized vehicles).*

02 *ROAD CLOSED—LOCAL TRAFFIC ONLY (R11-3) or ROAD CLOSED TO THRU TRAFFIC (R11-4) signs should be used where through traffic is not permitted, or for a closure some distance beyond the sign, but where the highway is open for local traffic up to the point of closure.*

**Standard:**

03 **The Road Closed (R11-2, R11-3 series, and R11-4) signs (see Figure 2B-29) shall be designed as horizontal rectangles.**

*Guidance:*

03a *These signs ~~shall~~ should be preceded by the applicable Advance Road Closed warning sign with the secondary legend AHEAD and, if applicable, an Advance Detour warning sign (see Section 6F.19).*

Option:

03b The word RAMP may be substituted for ROAD or STREET where applicable.

04 An intersecting street name or a well-known destination may be substituted for the XX MILES AHEAD legend in urban areas.

05 The word message BRIDGE ~~OUT~~ CLOSED may be substituted for the ROAD CLOSED legend where applicable.

## Section 2B.59 Weight Limit Signs (R12-1 through R12-5)

~~Option:~~

~~01 The Weight Limit (R12-1) sign carrying the legend WEIGHT LIMIT XX TONS may be used to indicate vehicle weight restrictions including load.~~

~~02 Where the restriction applies to axle weight rather than gross load, the legend may be AXLE WEIGHT LIMIT XX TONS or AXLE WEIGHT LIMIT XX LBS (R12-2).~~

~~03 To restrict trucks of certain sizes by reference to empty weight in residential areas, the legend may be NO TRUCKS OVER XX TONS EMPTY WT or NO TRUCKS OVER XX LBS EMPTY WT (R12-3).~~

~~04 In areas where multiple regulations of the type described in Paragraphs 1 through 3 are applicable, a sign combining the necessary messages on a single sign may be used, such as WEIGHT LIMIT XX TONS PER AXLE, XX TONS GROSS (R12-4).~~

~~05 Posting of specific load limits may be accomplished by use of the Weight Limit symbol sign (R12-5). A sign containing the legend WEIGHT LIMIT on the top two lines, and showing three different truck symbols and their respective weight limits for which restrictions apply may be used, with the weight limits displayed to the right of each symbol as XX T. A bottom line of legend stating GROSS WT may be included if needed for enforcement purposes.~~

~~**Standard:**~~

06 ~~**If used, the Weight Limit sign (see Figure 2B-29) shall be located in advance of the applicable section of highway or structure.**~~

~~*Guidance:*~~

07 ~~*If used, the Weight Limit sign with an advisory distance ahead legend should be placed at approach road intersections or other points where prohibited vehicles can detour or turn around.*~~

Support:

08 Refer to CVC 21101 through 21104 and 35650 through 35755 for Weight Limit signs.

09 Also refer to Section 2B.39.

**Standard:**

10 **The Weight Limit (R12-1, R12-5 and R20A(CA)) signs (see Figures 2B-29 and 2B-29(CA)) shall be used to specify restrictions of trucks on a bridge, structure or highway.**

Support:

11 The No Trucks (R5-2) sign is used together with a Truck Exclusion plaque (R20D(CA) Series) (see Figures 2B-11 and 2B-11(CA)) to specify the maximum weight limit in effect.

**Standard:**

12 **The weight limit signs shall be placed at each end of the affected portion of a highway section. They shall be placed at a distance of not more than 500 feet from the ends of an affected bridge or structure.**

Option:

13 The Black on Yellow Weight Limit signs (W20(CA) and W20A(CA)) may be used in combination with Distance Ahead Plaque (W34A(CA)), far enough in advance to allow the vehicle operator to select an alternate route.

14 The Commercial Vehicle Weight Exclusion (R36(CA)) sign (see Figure 2B-29(CA)) may be used to indicate vehicles over ___ tons are prohibited from certain streets and highways.

*Guidance:*

15 *An alternative route should be evaluated for height, weight and size restrictions. Appropriate signs should be posted along the route to advise motorists of any restrictions.*

Option:

16 Advance signs may be necessary to give trucks an opportunity to turn around and retrace their path or select another route.

## Section 2B.60 Weigh Station Signs (R13 Series)

*Guidance:*

01 ~~*An R13-1 sign with the legend TRUCKS OVER XX TONS MUST ENTER WEIGH STATION NEXT RIGHT (see Figure 2B-30) should be used to direct appropriate traffic into a weigh station.*~~

02 ~~*The R13-1 sign should be supplemented by the D8 series of guide signs (see Section 2D.49).*~~

02a *An SR57(CA) sign with the legend ALL TRUCKS STOP AT SCALES with NO PICKUPS SG8(CA) mounted below (see Figure 2B-30(CA)) should be used to direct appropriate traffic into a weigh station.*

02b *The SR57(CA) and SG8(CA) sign combination should be supplemented by the D8 series of guide signs (see Section 2D.49).*

Option:

03 The reverse color combination, a white legend and border on a black background, may be used for the ~~R13-1~~ SR57(CA) sign.

Support:

04 Refer to Figure 2B-30(CA) for Weigh Station Signs.

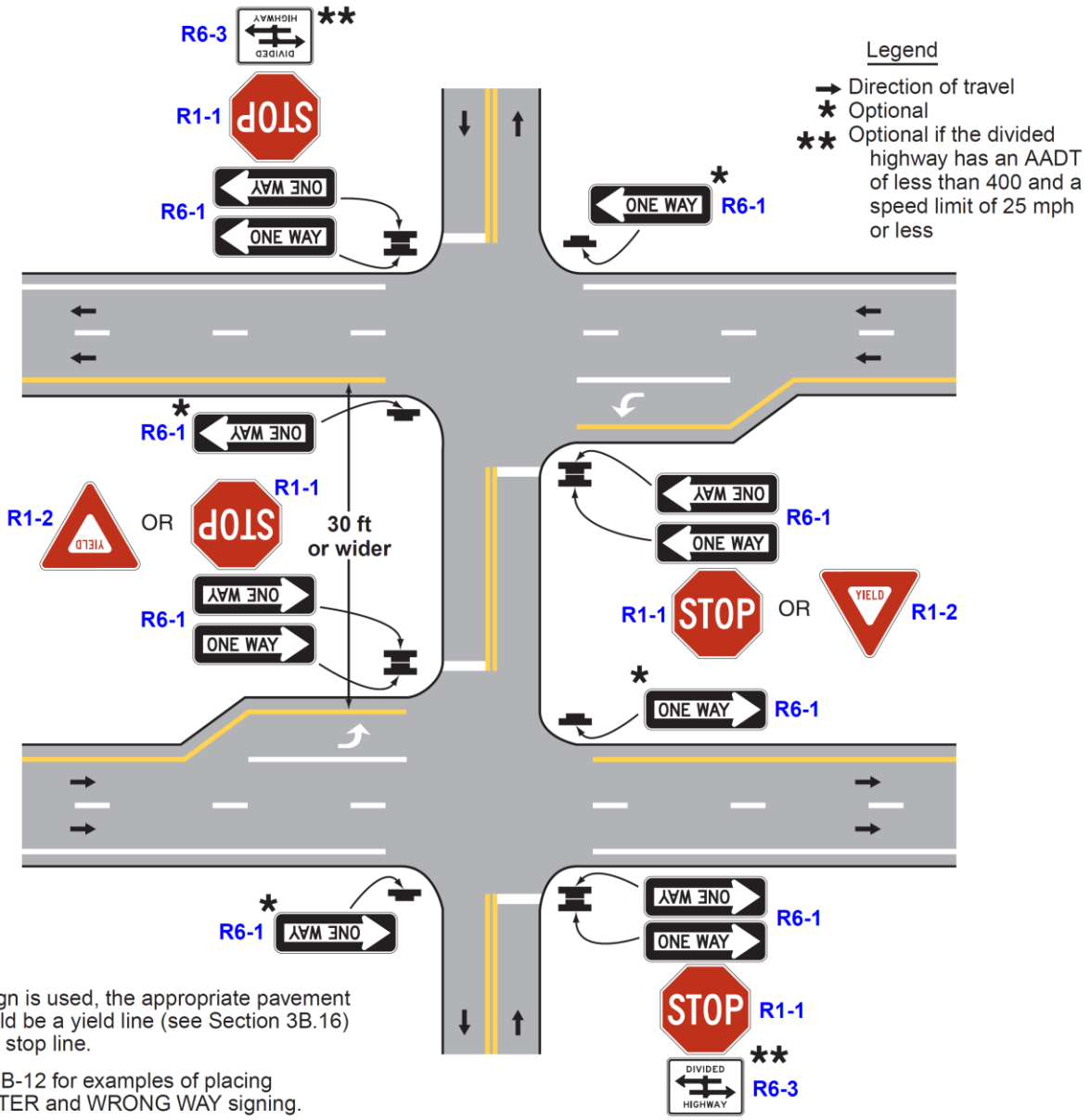
Option:

05 The WAIT HERE UNTIL SCALE CLEAR (SR6-1(CA)) sign may be used at Weigh Stations to provide guidance to trucks entering the scales.

06 The RELEASE BRAKES WHILE ON SCALE (SR7-1(CA)) sign may be used at Weigh Stations to provide guidance to trucks when they are on the scales.

07 The SET PARKING BRAKES (SR8-1(CA)) sign may be used at Weigh Stations to provide guidance to trucks when they are on the scales.

## Figure 2B-15. ONE WAY Signing for Divided Highways with Median Widths of 30 Feet or Wider

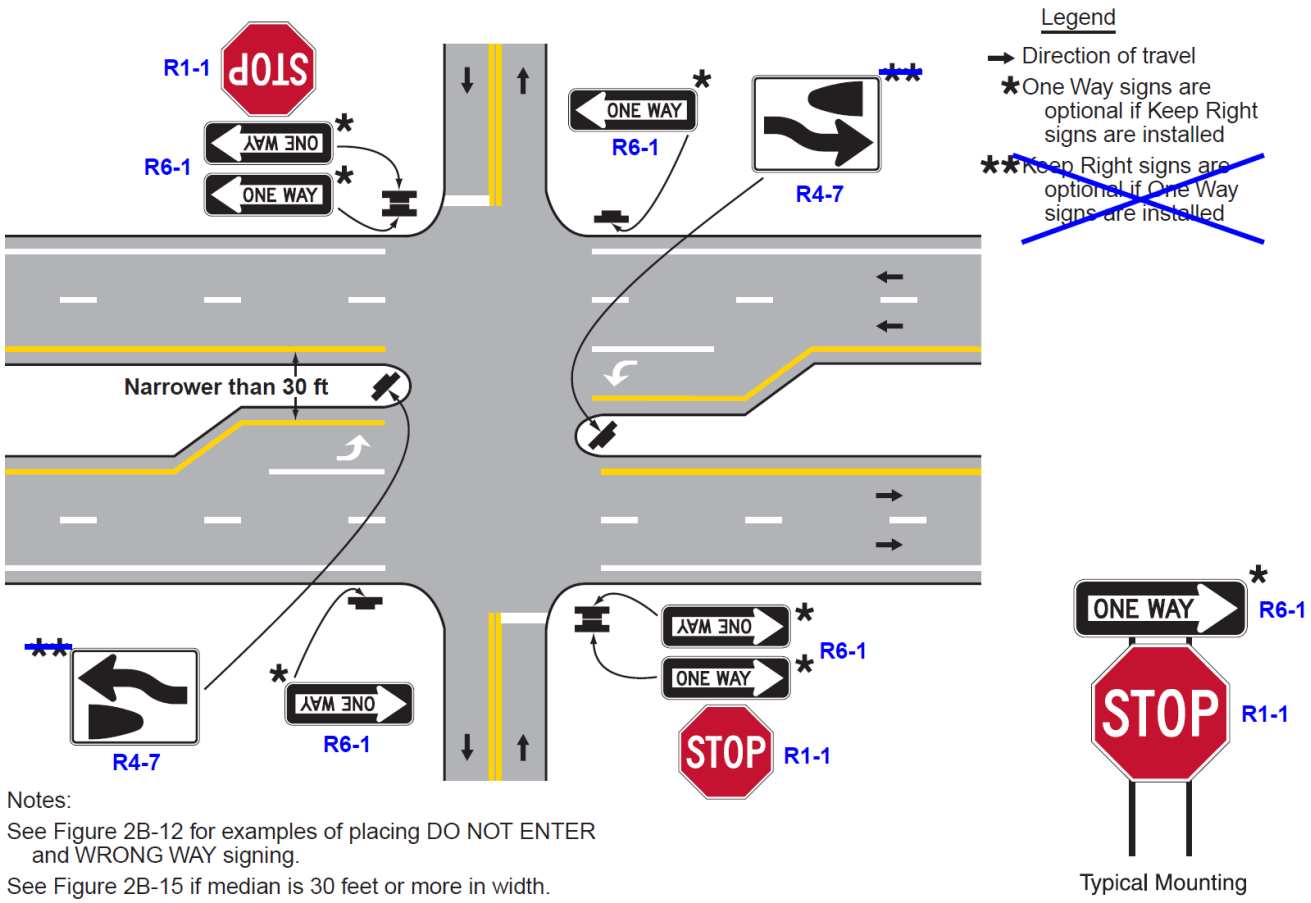



Notes:

If a YIELD sign is used, the appropriate pavement marking would be a yield line (see Section 3B.16) rather than a stop line.

See Figure 2B-12 for examples of placing DO NOT ENTER and WRONG WAY signing.

## Figure 2B-16. ONE WAY Signing for Divided Highways with Median Widths Narrower Than 30 Feet

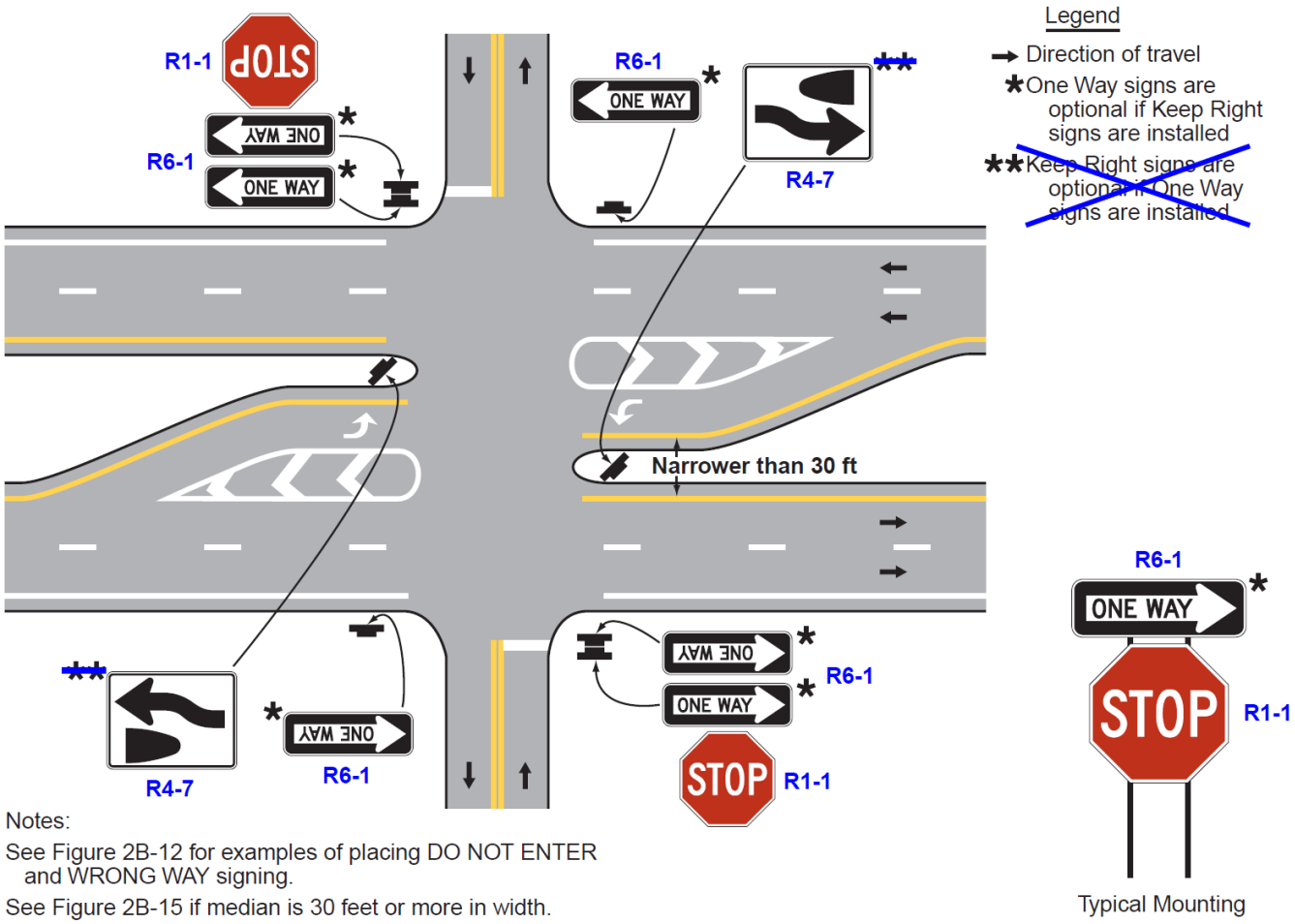



Notes:

See Figure 2B-12 for examples of placing DO NOT ENTER and WRONG WAY signing.

See Figure 2B-15 if median is 30 feet or more in width.

## Figure 2B-17. ONE WAY Signing for Divided Highways with Median Widths Narrower Than 30 Feet and Separated Left-Turn Lanes

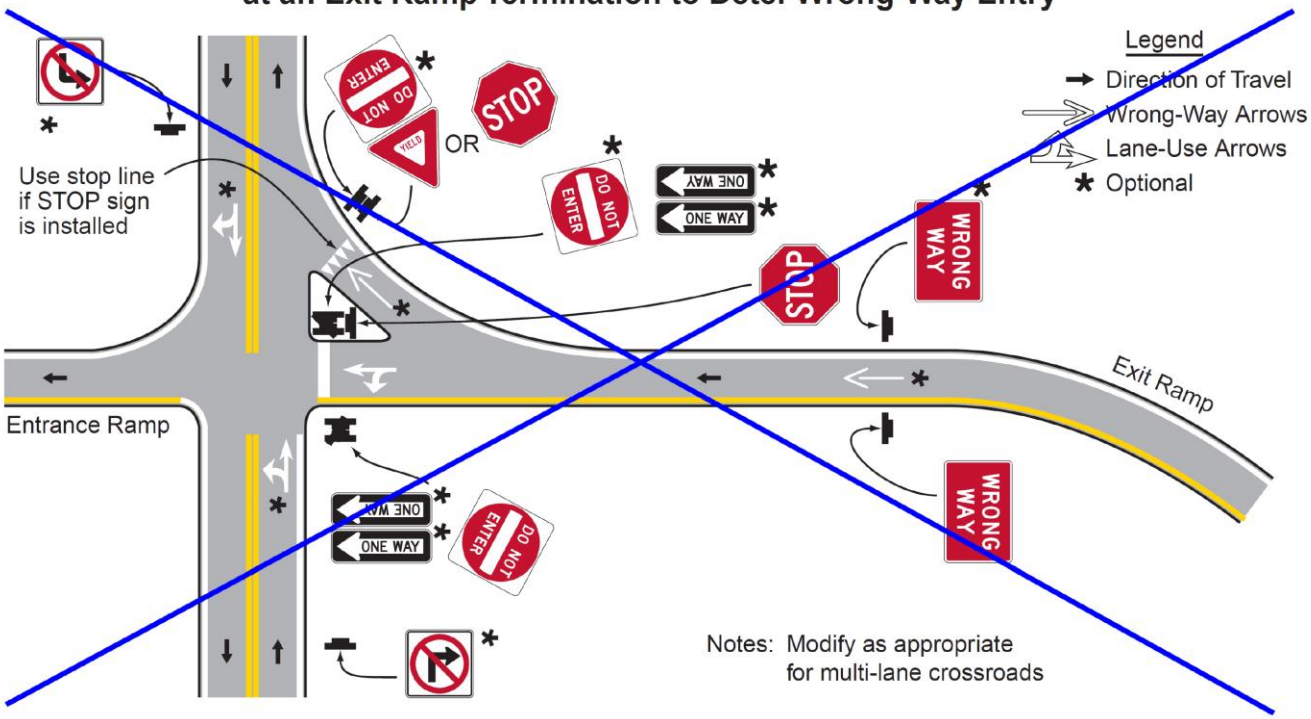



Notes:

See Figure 2B-12 for examples of placing DO NOT ENTER and WRONG WAY signing.

See Figure 2B-15 if median is 30 feet or more in width.

**Figure 2B-18. Example of Application of Regulatory Signing and Pavement Markings at an Exit Ramp Termination to Deter Wrong-Way Entry**



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


R13A (CA) R13B (CA) R73-9 (CA) SR39A (CA) SR39A(U) (CA)

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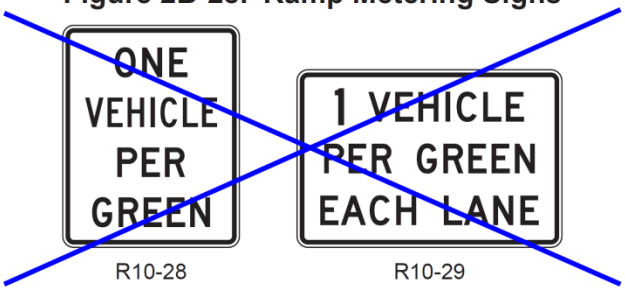
**Figure 2B-28. Ramp Metering Signs**




R10-28 R10-29

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


R89 (CA) R89-1 (CA) R89-2 (CA) R89-3 (CA)

**Figure 2B-29. Road Closed and Weight Limit Signs**

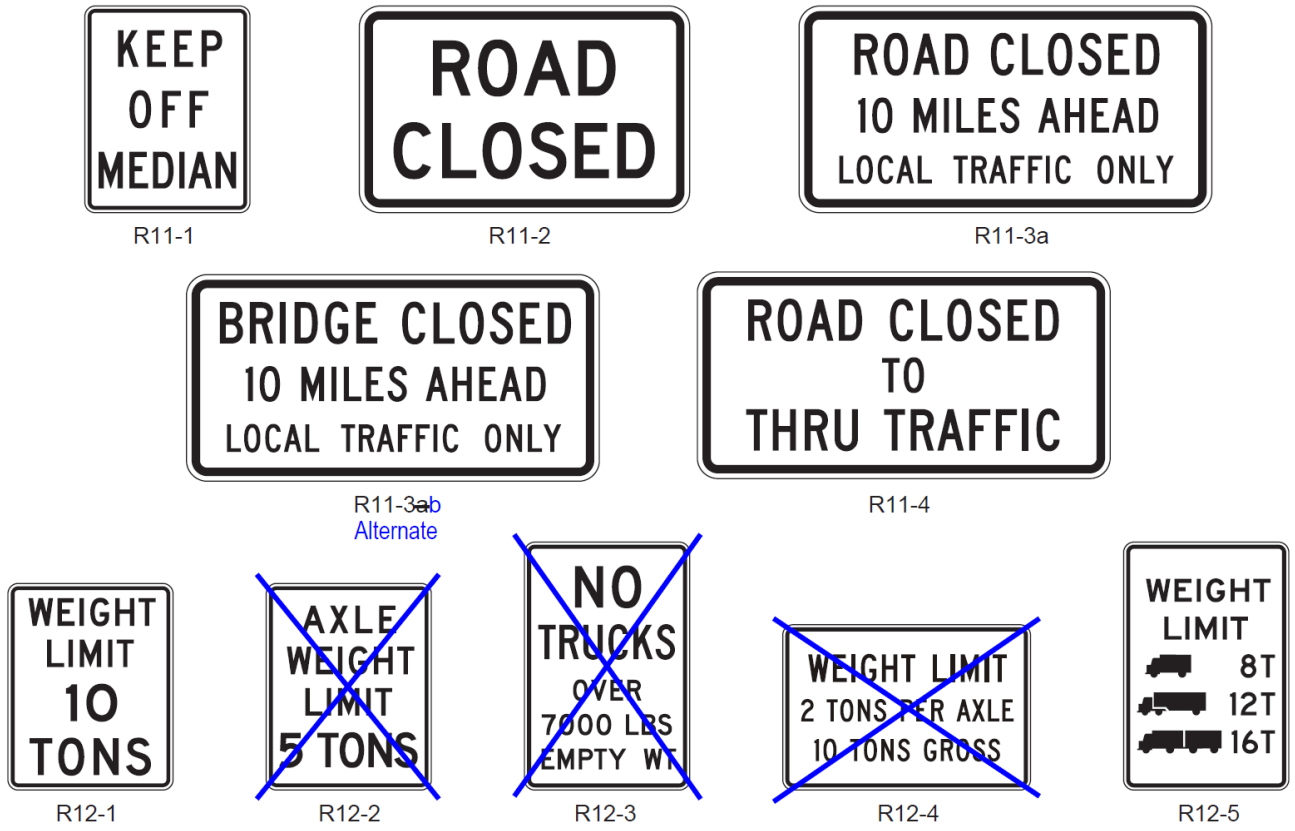
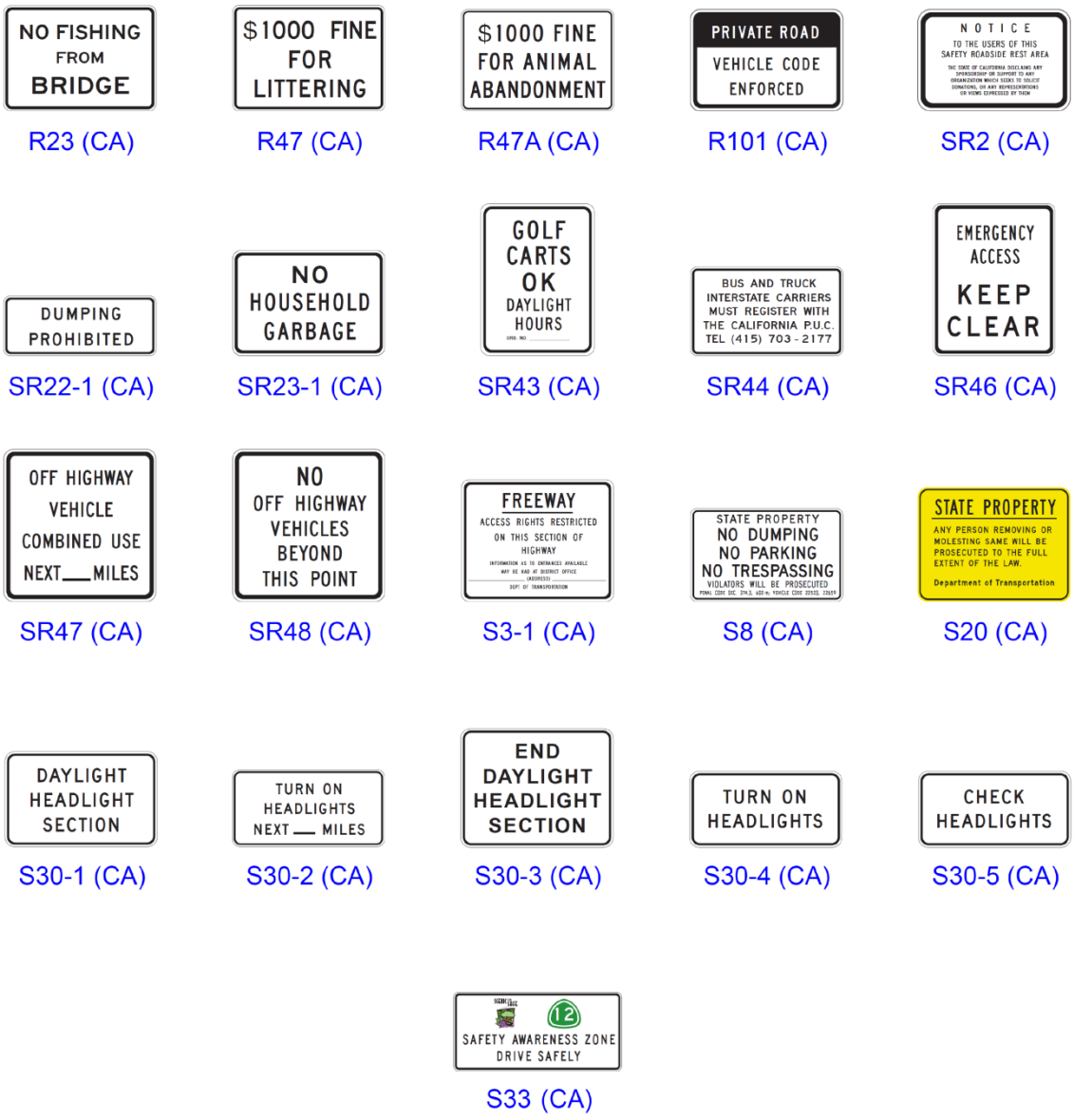



***Figure 2B-29 (CA). Road Closed and Weight Limit Signs***

***Figure 2B-106 (CA). California Miscellaneous Regulatory Signs***



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

| Sign or Plaque | Sign Designation | Section | Conventional Road | | Expressway | Freeway | Minimum | Oversized |
|---|---|---|---|---|---|---|---|---|
| | | | Single Lane | Multi-Lane | | | | |
| Stop | R1-1 | 2B.05 | 30 x 30* | 36 x 36 | 36 x 36 | — | 30 x 30* | 48 x 48 |
| Yield | R1-2 | 2B.08 | 36x36x36* | 48x48x48 | 48x48x48 | 60x60x60 | 30x30x30* | — |
| To Oncoming Traffic (plaque) | R1-2aP | 2B.10 | 24 x 18 | 24 x 18 | 36 x 30 | 48 x 36 | 24 x 18 | — |
| All Way (plaque) | R1-3P | 2B.05 | 18 x 6 | 18 x 6 | — | — | — | 30 x 12 |
| Yield Here to Peds | R1-5 | 2B.11 | — | 36 x 36 | — | — | — | 36 x 36 |
| Yield Here to Pedestrians | R1-5a | 2B.11 | — | 36 x 48 | — | — | — | 36 x 48 |
| ~~Stop Here for Peds~~ | ~~R1-5b~~ | ~~2B.11~~ | | ~~36 x 36~~ | | | | ~~36 x 36~~ |
| ~~Stop Here for Pedestrians~~ | ~~R1-5c~~ | ~~2B.11~~ | | ~~36 x 48~~ | | | | ~~36 x 48~~ |
| In-Street Ped Crossing | R1-6,6a | 2B.12 | 12 x 36 | 12 x 36 | — | — | — | — |
| Overhead Ped Crossing | R1-9,9a | 2B.12 | 90 x 24 | 90 x 24 | — | — | — | — |
| Except Right Turn (plaque) | R1-10P | 2B.05 | 24 x 18 | 24 x 18 | — | — | — | — |
| Speed Limit | R2-1 | 2B.13 | 24 x 30* | 30 x 36 | 36 x 48 | 48 x 60 | 18 x 24* | 30 x 36 |
| ~~Truck Speed Limit (plaque)~~ | ~~R2-2P~~ | ~~2B.14~~ | ~~24 x 24~~ | ~~24 x 24~~ | ~~36 x 36~~ | ~~48 x 48~~ | | ~~36 x 36~~ |
| Night Speed Limit (plaque) | R2-3P | 2B.15 | 24 x 24 | 24 x 24 | 36 x 36 | 48 x 48 | — | 36 x 36 |
| Minimum Speed Limit (plaque) | R2-4P | 2B.16 | 24 x 30 | 24 x 30 | 36 x 48 | 48 x 60 | — | 36 x 48 |
| Combined Speed Limit | R2-4a | 2B.16 | 24 x 48 | 24 x 48 | 36 x 72 | 48 x 96 | — | 36 x 72 |
| ~~Unless Otherwise Posted (plaque)~~ | ~~R2-5P~~ | ~~2B.13~~ | ~~24 x 18~~ | ~~24 x 18~~ | — | — | — | — |
| ~~Citywide (plaque)~~ | ~~R2-5aP~~ | ~~2B.13~~ | ~~24 x 6~~ | ~~24 x 6~~ | — | — | — | — |
| ~~Neighborhood (plaque)~~ | ~~R2-5bP~~ | ~~2B.13~~ | ~~24 x 6~~ | ~~24 x 6~~ | | | | |
| ~~Residential (plaque)~~ | ~~R2-5cP~~ | ~~2B.13~~ | ~~24 x 6~~ | ~~24 x 6~~ | — | — | — | — |
| ~~Fines Higher (plaque)~~ | ~~R2-6P~~ | ~~2B.17~~ | ~~24 x 18~~ | ~~24 x 18~~ | ~~36 x 24~~ | ~~48 x 36~~ | | ~~36 x 24~~ |
| Fines Double (plaque) | R2-6aP | 2B.17 | 24 x 18 | 24 x 18 | 36 x 24 | 48 x 36 | — | 36 x 24 |
| $XX Fine (plaque) | R2-6bP | 2B.17 | 24 x 18 | 24 x 18 | 36 x 24 | 48 x 36 | — | 36 x 24 |
| Begin ~~Higher~~ Double Fines Zone | R2-10 | 2B.17 | 24 x 30 | 24 x 30 | 36 x 48 | 48 x 60 | — | 36 x 48 |
| End ~~Higher~~ Double Fines Zone | R2-11 | 2B.17 | 24 x 30 | 24 x 30 | 36 x 48 | 48 x 60 | — | 36 x 48 |
| Movement Prohibition | R3-1,2,3,4,18,27 | 2B.18 | 24 x 24* | 36 x 36 | 36 x 36 | — | — | 48 x 48 |
| Mandatory Movement Lane Control | R3-5,5a | 2B.20 | 30 x 36 | 30 x 36 | — | — | — | — |
| Left Lane (plaque) | R3-5bP | 2B.20 | 30 x 12 | 30 x 12 | — | — | — | — |
| HOV 2+ (plaque) | R3-5cP | 2B.20 | 24 x 12 | 24 x 12 | — | — | — | — |
| Taxi Lane (plaque) | R3-5dP | 2B.20 | 30 x 12 | 30 x 12 | — | — | — | — |
| Center Lane (plaque) | R3-5eP | 2B.20 | 30 x 12 | 30 x 12 | — | — | — | — |
| Right Lane (plaque) | R3-5fP | 2B.20 | 30 x 12 | 30 x 12 | — | — | — | — |
| Bus Lane (plaque) | R3-5gP | 2B.20 | 30 x 12 | 30 x 12 | — | — | — | — |
| Optional Movement Lane Control | R3-6 | 2B.21 | 30 x 36 | 30 x 36 | — | — | — | — |
| Right (Left) Lane Must Turn Right (Left) | R3-7 | 2B.20 | 30 x 30* | 36 x 36 | — | — | — | — |
| Advance Intersection Lane Control | R3-8,8a,8b | 2B.22 | Varies x 30 | Varies x 30 | — | — | — | Varies x 36 |
| Two-Way Left Turn Only (overhead) | R3-9a | 2B.24 | 30 x 36 | 30 x 36 | — | — | — | — |
| Two-Way Left Turn Only (post-mounted) | R3-9b | 2B.24 | 24 x 36 | 24 x 36 | — | — | — | 36 x 48 |
| BEGIN | R3-9cP | 2B.25 | 30 x 12 | 30 x 12 | — | — | — | — |
| END | R3-9dP | 2B.25 | 30 x 12 | 30 x 12 | — | — | — | — |
| Reversible Lane Control (symbol) | R3-9e | 2B.26 | 108 x 48 | 108 x 48 | — | — | — | — |
| Reversible Lane Control (post-mounted) | R3-9f | 2B.26 | 30 x 42* | 36 x 54 | — | — | — | — |
| Advance Reversible Lane Control Transition Signing | R3-9g,9h | 2B.26 | 108 x 36 | 108 x 36 | — | — | — | — |
| End Reverse Lane | R3-9i | 2B.26 | 108 x 48 | 108 x 48 | — | — | — | — |
| Begin Right (Left) Turn Lane | R3-20 | 2B.20 | 24 x 36 | 24 x 36 | — | — | — | — |
| All Turns (U Turn) from Right Lane | R3-23,23a | 2B.27 | 60 x 36 | 60 x 36 | — | — | — | — |
| All Turns (U Turn) with arrow | R3-24,24b, 25,25b,26a | 2B.27 | 72 x 18 | 72 x 18 | — | — | — | — |
| U and Left Turns with arrow | R3-24a,25a,26 | 2B.27 | 60 x 24 | 60 x 24 | — | — | — | — |
| Right Lane Must Exit | R3-33 | 2B.23 | — | — | 78 x 36 | 78 x 36 | — | — |

# 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 (see definition in Section 1A.13) 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~~ 9, 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 Caltrans' 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(s).

04 Word message warning signs other than those provided in this Manual may be developed by Caltrans (via CTCDC process) and installed by State ~~and~~ or 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.

**Standard:**

06 **Warning signs regarding conditions associated with school buses and schools and their related supplemental plaques shall have a black legend and border on a fluorescent yellow-green background (see Section 7B.07).**

07 The use of educational plaques to supplement symbol signs is described in Section 2A.12.

## Section 2C.04 Size of Warning Signs

**Standard:**

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

Support:

02 Section 2A.11 contains information regarding the applicability of the various columns in Table 2C-2 and 2C-2(CA).

**Standard:**

03 **Except as provided in Paragraph 5, the minimum size for all diamond-shaped warning signs facing traffic on a multi-lane conventional road where the posted speed limit is higher than 35 mph shall be 36 x 36 inches.**

04 **The minimum size for supplemental warning plaques that are not included in Table 2C-2 and 2C-2(CA) shall be as shown in Table 2C-3.**

Option:

05 If a diamond-shaped warning sign is placed on the left-hand side of a multi-lane roadway to supplement the installation of the same warning sign on the right-hand side of the roadway, the minimum size identified in the Single Lane column in Table 2C-2 and 2C-2(CA) may be used.

06 Signs and plaques larger than those shown in Tables 2C-2 and 2C-3 may be used (see Section 2A.11).

*Guidance:*

07 *The minimum size for all diamond-shaped warning signs facing traffic on exit and entrance ramps should be the size identified in Table 2C-2 and 2C-2(CA) for the mainline roadway classification (Expressway or Freeway). If a minimum size is not provided in the Freeway Column, the Expressway size should be used. If a minimum size is not provided in the Freeway or the Expressway Column, the Oversized size should be used.*

## Section 2C.05 Placement of Warning Signs

Support:

01 For information on placement of warning signs, see Sections 2A.16 to 2A.21.

02 The time needed for detection, recognition, decision, and reaction is called the Perception-Response Time (PRT). Table 2C-4 is provided as an aid for determining warning sign location. The distances shown in Table 2C-4 can be adjusted for roadway features, other signing, and to improve visibility.

*Guidance:*

03 *Warning signs should be placed so that they provide an adequate PRT. The distances contained in Table 2C-4 are for guidance purposes and should be applied with engineering judgment. Warning signs should not be placed too far in advance of the condition, such that drivers might tend to forget the warning because of other driving distractions, especially in urban areas.*

04 *Minimum spacing between warning signs with different messages should be based on the estimated PRT for driver comprehension of and reaction to the second sign.*

05 *The effectiveness of the placement of warning signs should be periodically evaluated under both day and night conditions.*

Option:

06 Warning signs that advise road users about conditions that are not related to a specific location, such as Deer Crossing or SOFT SHOULDER, may be installed in an appropriate location, based on engineering judgment, since they are not covered in Table 2C-4.

**Standard:**

07 **Warning signs shall be installed in accordance with the general requirements for sign placement as described in Sections 2A.16 to 2A.21 and as shown in Figure 2A-3.**

*Guidance:*

02 *The actual clearance should be displayed on the Low Clearance sign to the nearest 1 inch not exceeding the actual clearance. However, in areas that experience changes in temperature causing frost action, a reduction, not exceeding 3 inches, should be used for this condition.*

03 *Where the clearance is less than the legal maximum vehicle height, the W12-2 sign with a supplemental distance plaque should be placed at the nearest intersecting road or wide point in the road at which a vehicle can detour or turn around.*

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

05 *Clearances should be evaluated periodically, particularly when resurfacing operations have occurred.*

Option:

06 The Low Clearance sign may be installed on or in advance of the structure. If a sign is placed on the structure, it may be a rectangular shape (W12-2a) with the appropriate legend (see Figure 2C-5).

**Standard:**

07 **The Low Clearance (W12-2) sign shall be used to warn motorists of low structure clearances.**

08 **For clearance 15 feet 6 inch or less, in addition to the W12-2a, two advance Low Clearance signs shall be installed on the right side of the roadway. The first W12-2 sign shall be placed in advance of the nearest intersecting street or highway or wide point in the road at which a motorist can detour or safely turn around.**

*Guidance:*

09 *A Distance Ahead (W34A(CA)) plaque should be placed below the W12-2 sign at this location.*

**Standard:**

10 **The second W12-2 sign shall be placed in advance of the structure.**

Support:

11 No W34A(CA) plaque is needed at the second location.

**Standard:**

12 **The W12-2 sign shall display the same clearance as shown on the W12-2a plaque.**

*Guidance:*

13 *The Distance Ahead (W34A(CA)) plaque when used, should be placed below a W12-2 sign.*

**Standard:**

14 **The __ FT __ IN plaque (W12-2a) shall be used to warn motorists of structural clearance 15 feet 6 inch or less.**

*Guidance:*

15 *The W12-2a plaque should be centered over the traveled way on the approach side of all underpasses, overheads, viaducts, overcrossings, undercrossings, and grade separations for State highways.*

**Standard:**

16 **The W12-2a plaque shall not encroach over the shoulder area.**

17 **The W12-2a plaque shall display the minimum vertical clearance to the nearest inch, not exceeding the measured value.**

18 **The CAUTION, VERTICAL CLEARANCE ___' ___" Arrow (W34C(CA)) sign (see Figure 2C-5(CA)) shall be used on all blind approaches to structures with clearances 15 feet 6 inch or less.**

Support:

19 The W34C(CA) sign is used to warn motorists of low structure clearance around corners.

*Guidance:*

20 *The W34C(CA) sign should be placed at a location where the motorist can detour or safely turn around before making the turn.*

**Standard:**

21 **The W34C(CA) sign shall display the same clearance as shown on the W12-2a plaque.**

## Section 2C.28 BUMP and DIP Signs (W8-1, W8-2)

*Guidance:*

01 *BUMP (W8-1) and DIP (W8-2) signs (see Figure 2C-6) should be used to give warning of a sharp rise or depression in the profile of the road.*

**Standard:**

01a **When used at a cattle guard, the BUMP (W8-1) or DIP (W8-2) signs shall be supplemented with a diagonal downward pointing arrow (W16-7p) plaque showing the location of the cattle guard.**

Option:

02 These signs may be supplemented with an Advisory Speed plaque (see Section 2C.08).

**Standard:**

03 **The DIP sign shall not be used at a short stretch of depressed alignment that might momentarily hide a vehicle.**

*Guidance:*

04 *A short stretch of depressed alignment that might momentarily hide a vehicle should be treated as a no-passing zone when center line striping is provided on a two-lane or three-lane road (see Section 3B.02).*

## Section 2C.29 SPEED HUMP Sign (W17-1)

*Guidance:*

01 *The SPEED HUMP (W17-1) sign (see Figure 2C-6) should be used to give warning of a vertical deflection in the roadway that is designed to limit the speed of traffic.*

02 *If used, the SPEED HUMP sign should be supplemented by an Advisory Speed plaque (see Section 2C.08).*

Option:

03 If a series of speed humps exists in close proximity, an Advisory Speed plaque may be eliminated on all but the first SPEED HUMP sign in the series.

04 The legend SPEED BUMP may be used instead of the legend SPEED HUMP on the W17-1 sign.

Option:

04a If a series of speed humps exist in close proximity, a SPEED HUMPS AHEAD (W84(CA)) sign (see Figure 2C-6(CA)) may replace the first SPEED HUMP sign in the series, provided additional warning of speed humps are provided through signs or pavement markings at the speed humps.

04b If speed humps exist on a network of streets within an area accessible by a limited number of access points to the area, an optional SPEED HUMP AREA (W85(CA)) sign (see Figure 2C-6(CA)) may be placed at each access point to the area, provided additional warning of speed humps are provided through signs or markings at the speed humps.

Support:

05 Speed humps generally provide more gradual vertical deflection than speed bumps. Speed bumps limit the speed of traffic more severely than speed humps. Other forms of speed humps include speed tables and raised intersections. However, these differences in engineering terminology are not well known by the public, so for signing purposes these terms are interchangeable.

## Section 2C.30 PAVEMENT ENDS Sign (W8-3)

*Guidance:*

01 *A PAVEMENT ENDS (W8-3) word message sign (see Figure 2C-6) should be used where a paved surface changes to either a gravel treated surface or an earth road surface.*

Option:

02 An Advisory Speed plaque (see Section 2C.08) may be used when the change in roadway condition requires a reduced speed.

## Section 2C.31 Shoulder Signs (W8-4, W8-9, W8-17, W8-23, and W8-25)

Option:

01 The SOFT SHOULDER (W8-4) sign (see Figure 2C-6) may be used to warn of a soft shoulder condition.

02 The LOW SHOULDER (W8-9) sign (see Figure 2C-6) may be used to warn of a shoulder condition where there is an elevation difference of less than 3 inches between the shoulder and the travel lane.

*Guidance:*

03 *The Shoulder Drop Off (W8-17) sign (see Figure 2C-6) should be used where an unprotected shoulder drop-off, adjacent to the travel lane, exceeds 3 inches in depth for a significant continuous length along the roadway, based on engineering judgment.*

Option:

04 A SHOULDER DROP-OFF (W8-17P) supplemental plaque (see Figure 2C-6) may be mounted below the W8-17 sign.

05 The NO SHOULDER (W8-23) sign (see Figure 2C-6) may be used to warn road users that a shoulder does not exist along a portion of the roadway.

06 The SHOULDER ENDS (W8-25) sign (see Figure 2C-6) may be used to warn road users that a shoulder is ending.

**Standard:**

07 **When used, shoulder signs shall be placed in advance of the condition (see Table 2C-4).**

*Guidance:*

08 *Additional shoulder signs should be placed at appropriate intervals along the road where the condition continually exists.*

Support:

09 The low shoulder condition (elevation difference up to 3 inches) between shoulder and the travel lane) is not treated as a permanent condition on State highways.

**Standard:**

10 **The black on yellow background LOW SHOULDER (W8-9) sign shall not be used on State highways.**

Option:

11 The black on orange background LOW SHOULDER (W8-9) sign may be used on State highways to warn of a shoulder condition where there is an elevation difference of less than 3 inch between the shoulder and the travel lane. See Section 6F.44.

## Section 2C.32 Surface Condition Signs (W8-5, W8-7, W8-8, W8-11, W8-13, and W8-14)

Option:

01 The Slippery When Wet (W8-5) sign (see Figure 2C-6) may be used to warn of unexpected slippery conditions. Supplemental plaques with legends such as ICE, WHEN WET, STEEL DECK, or EXCESS OIL may be used with the W8-5 sign to indicate the reason that the slippery conditions might be present.

**Standard:**

01a **When used at a cattle guard, the Slippery When Wet (W8-5) signs shall be supplemented with a diagonal downward pointing arrow (W16-7p) plaque showing the location of the cattle guard.**

Option:

02 The LOOSE GRAVEL (W8-7) sign (see Figure 2C-6) may be used to warn of loose gravel on the roadway surface.

03 The ROUGH ROAD (W8-8) sign (see Figure 2C-6) may be used to warn of a rough roadway surface. It may be desirable to supplement this sign with an Advisory Speed (W13-1P) plaque. Where the rough road is 1 mile or more in length, the W8-8 sign may be supplemented with a Next Distance (W7-3a) plaque.

04 An UNEVEN LANES (W8-11) sign (see Figure 2C-6) may be used to warn of a difference in elevation between travel lanes.

05 The BRIDGE ICES BEFORE ROAD (W8-13) sign (see Figure 2C-6) may be used in advance of bridges to advise bridge users of winter weather conditions. The BRIDGE ICES BEFORE ROAD sign may be removed or covered during seasons of the year when its message is not relevant.

*Guidance:*

06 *The ~~FALLEN ROCKS (W8-14) sign (see Figure 2C-6) may~~ Rock Slide Area symbol (W50-1(CA)) sign (see Figure 2C-6(CA) should be used in advance of an area that is adjacent to a hillside, mountain, or cliff where rocks frequently fall onto the roadway.*

*Guidance:*

07 *When used, Surface Condition signs should be placed in advance of the beginning of the affected section (see Table 2C-4), and additional signs should be placed at appropriate intervals along the road where the condition exists.*

Option:

08 The SLIDE AREA (W38(CA)) sign (see Figure 2C-6(CA)) may be used in advance of where slides on the highway could be expected.

09 The SNOW SLIDE AREA (SW41(CA)) sign (see Figure 2C-6(CA)) may be used in areas of known snow slide or avalanche activity.

10 The Next Distance (W7-3a) plaque may be used below the W38(CA), W50-1(CA) and SW41(CA) signs.

11 The DRIFTING SAND (SW32(CA)) sign (see Figure 2C-6(CA)) may be used to warn traffic of drifting sand on the roadway.

12 The WATCH FOR SNOW SLIPPERY (SW46(CA)) sign (see Figure 2C-6(CA)) may be used to warn road users of conditions where snow may be on the roadway surface, but chains are not yet required. The SW46(CA) sign may be placed in advance of areas where such conditions may exist, and intermittently as needed where such conditions may exist for long sections of highways.

13 The SW46(CA) sign may be displayed when weather conditions are such that it would be reasonable to assume that snow on the roadway would be a possibility.

*Guidance:*

14 *The SW46(CA) sign should be removed when such conditions are no longer present.*

## Section 2C.33 Warning Signs and Plaques for Motorcyclists (W8-15, W8-15P, and W8-16)

Support:

01 The signs and plaques described in this Section are intended to give motorcyclists advance notice of surface conditions that might adversely affect their ability to maintain control of their motorcycle under wet or dry conditions. The use of some of the advance surface condition warning signs described in Section 2C.32, such as Slippery When Wet, LOOSE GRAVEL, or ROUGH ROAD, can also be helpful to motorcyclists if those conditions exist.

Option:

02 If a portion of a street or highway features a roadway pavement surface that is grooved or textured instead of smooth, such as a grooved skid resistance treatment for a horizontal curve or a brick pavement surface, a GROOVED PAVEMENT (W8-15) sign (see Figure 2C-6) may be used to provide advance warning of this condition to motorcyclists, bicyclists, and other road users. Alternate legends such as TEXTURED PAVEMENT or BRICK PAVEMENT may also be used on the W8-15 sign.

03 If a bridge or a portion of a bridge includes a metal or grated surface, a METAL BRIDGE DECK (W8-16) sign (see Figure 2C-6) may be used to provide advance warning of this condition to motorcyclists, bicyclists, and other road users.

04 A Motorcycle (W8-15P) plaque (see Figure 2C-6) may be mounted below or above a W8-15 or W8-16 sign if the warning is intended to be directed primarily to motorcyclists.

## Section 2C.34 NO CENTER LINE Sign (W8-12)

Option:

01 The NO CENTER LINE (W8-12) sign (see Figure 2C-6) may be used to warn of a roadway without center line pavement markings.

## Section 2C.35 Weather Condition Signs (W8-18, W8-19, W8-21, and W8-22)

Option:

01 The ROAD MAY FLOOD (W8-18) sign (see Figure 2C-6) may be used to warn road users that a section of roadway is subject to frequent flooding. A Depth Gauge (W8-19) sign (see Figure 2C-6) may also be installed within a roadway section that frequently floods.

**Standard:**

02 **If used, the Depth Gauge sign shall be in addition to the ROAD MAY FLOOD sign and shall indicate the depth of the water at the deepest point on the roadway.**

*Guidance:*

02a *The FLOODED (W55(CA)) sign (see Figure 2C-6(CA)) should be used in advance of locations where the highway is flooded.*

**Standard:**

02b **The W55(CA) signs shall be removed or covered when the condition no longer exists.**

Option:

02c The FLASH FLOOD AREA (SW35(CA)) sign (see Figure 2C-6(CA)) may be used in advance of depressions in the highway alignment that are subject to flash flooding.

Option:

03 The GUSTY WINDS AREA (W8-21) sign (see Figure 2C-6) may be used to warn road users that wind gusts frequently occur along a section of highway that are strong enough to impact the stability of trucks, recreational vehicles, and other vehicles with high centers of gravity. A NEXT XX MILES (W7-3a) supplemental plaque may 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.

Support:

05 The Federal Highway Administration has encouraged use of the phrase WHEN FLOODED TURN AROUND DON'T DROWN as an official warning sign.

Option:

06 WHEN FLOODED TURN AROUND DON'T DROWN (W87(CA)) sign (see Figure 2C-6(CA)) may be installed at low-water crossings or at bridges or culverts which cannot pass high flood flows.

*Guidance:*

07 *If used, WHEN FLOODED TURN AROUND DON'T DROWN W87(CA) sign should be installed at locations where stream waters flooding across a road have made passage unsafe.*

## 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 the W16-13P plaque is generally not effective as a warning device for motorists approaching signalized intersections. Not using the W16-13P plaque also addresses the situation when a warning beacon is inoperative for any reason.

*Guidance:*

15 *The Stop Ahead sign (W3-1) should not be used in the approach to an intersection where there is channelization and the majority of the traffic turns to the right without being required to stop.*

Option:

16 The STOP AHEAD pavement markings may be placed in accordance with Section 3B.20.

17 The SIGNAL/STOP AHEAD Arrow sign (SW26(CA)) may be used in the head-on position (left side) where W3-1 and W3-3 signs have proven ineffective.

*Guidance:*

18 *The W3-1 and W3-3 signs should be left in place when the SW26(CA) sign is placed.*

## Section 2C.37 Advance Ramp Control Signal Signs (W3-7 and W3-8)

Support:

00 For State highways, see Caltrans' Ramp Metering Design Manual. See Section 1A.11 for information regarding this publication.

Option:

01 A RAMP METER AHEAD (W3-7) sign (see Figure 2C-6) may be used to warn road users that a freeway entrance ramp is metered and that they will encounter a ramp control signal (see Chapter 4I).

*Guidance:*

02 *When the ramp control signals are in operation ~~operated only during certain periods of the day~~, a RAMP METERED WHEN FLASHING (W3-8) sign (see Figure 2C-6), or an overhead Activated Blank-Out "METER ON" (W88-2(CA), W88-3(CA)) message sign, or "PREPARE TO STOP" (W89(CA)) message sign should be installed in advance of the ramp control signal near the entrance to the ramp, or on the arterial on the approach to the ramp, to alert road users to the presence and operation of ramp meters. See Figure 2C-06(CA).*

**Standard:**

03 **The RAMP METERED WHEN FLASHING sign shall be supplemented with a warning beacon (see Section 4L.03) that flashes when the ramp control signal is in operation.**

## Section 2C.38 Reduced Speed Limit Ahead Signs (W3-5, W3-5a)

*Guidance:*

01 *A Reduced Speed Limit Ahead (W3-5 or W3-5a) sign (see Figure 2C-7) should be used to inform road users of a reduced speed zone where the speed limit is being reduced by more than 10 mph, or where engineering judgment indicates the need for advance notice to comply with the posted speed limit ahead.*

Option:

02 The RIGHT (LEFT) LANE ENDS (W9-1) sign (see Figure 2C-8) may be used in advance of the Lane Ends (W4-2) sign ~~or the LANE ENDS MERGE LEFT (RIGHT) (W9-2) sign~~ as additional warning or to emphasize that the traffic lane is ending and that a merging maneuver will be required.

*Guidance:*

03 *If used, the ~~RIGHT (LEFT) LANE ENDS (W9-1)~~ Lane Ends (W4-2) sign should be installed adjacent to the Lane-Reduction Arrow pavement markings.*

Option:

04 On one-way streets or on divided highways where the width of the median will permit, two Lane Ends signs may be placed facing approaching traffic, one on the right-hand side and the other on the left-hand side or median.

Support:

05 Section 3B.09 contains information regarding the use of pavement markings in conjunction with a lane reduction.

*Guidance:*

06 *Where an extra lane has been provided for slower moving traffic (see Section 2B.31), a Lane Ends word sign or a Lane Ends (W4-2) symbol sign should be installed in advance of the downstream end of the extra lane.*

07 *Lane Ends signs should not be installed in advance of the downstream end of an acceleration lane.*

**Standard:**

08 **In dropped lane situations, regulatory signs (see Section 2B.20) shall be used to inform road users that a through lane is becoming a mandatory turn lane. The W4-2, W9-1, and W9-2 signs shall not be used in dropped lane situations.**

*Guidance:*

09 *The RIGHT (LEFT) LANE ENDS sign (W9-1) should be used in conjunction with the Lane Ends (W4-2) sign.*

Support:

10 The W9-2 or W4-2 sign is not to be used for a lane drop at an exit.

11 See Figure 3B-14(CA) for signing and marking applications for lane reductions.

**Standard:**

12 **The RIGHT (LEFT) LANE EXITS AHEAD (W73(CA)) sign (see Figure 2C-8(CA)) shall be placed between the THRU TRAFFIC MERGE LEFT (RIGHT) (W74(CA)) sign (see Figure 2C-8(CA)) and the RIGHT (LEFT) LANE MUST EXIT sign (R18A(CA)), at locations where overhead Exit Only signs (E11-1 Series or W61(CA) Series) are not in place for lane drops at freeway exit ramps.**

*Guidance:*

13 *On expressways, the RIGHT(LEFT) LANE TURNS RIGHT(LEFT) AHEAD (W73A(CA)) sign (see Figure 2C-8(CA)) should be used in advance of the RIGHT(LEFT) LANE MUST TURN RIGHT(LEFT) sign (R3-7).*

14 *On conventional highways, the RIGHT(LEFT) LANE TURNS RIGHT(LEFT) AHEAD (W73A(CA)) sign and/or the THRU TRAFFIC MERGE LEFT (RIGHT) (W74(CA)) sign (see Figure 2C-8(CA)) should be used in advance of the RIGHT(LEFT) LANE MUST TURN RIGHT(LEFT) sign (R3-7).*

Support:

15 See Figure 3B-10(CA) for lane drop signing and markings at exit ramps.

16 See Figure 3B-14(CA) for signs and lane reduction markings.

## Section 2C.43 RIGHT (LEFT) LANE EXIT ONLY AHEAD Sign (W9-7)

Option:

01 The RIGHT (LEFT) LANE EXIT ONLY AHEAD (W9-7) sign (see Figure 2C-8) may be used to provide advance warning to road users that traffic in the right-hand (left-hand) lane of a roadway that is approaching a grade-separated interchange will be required to depart the roadway on an exit ramp at the next interchange.

**Standard:**

02 **The W9-7 sign shall be a horizontal rectangle with a black legend and border on a yellow background.**

*Guidance:*

03 *If used, the W9-7 sign should be installed upstream from the first overhead guide sign that contains an EXIT ONLY sign panel or upstream from the first RIGHT (LEFT) LANE MUST EXIT (R3-33) regulatory sign, whichever is farther upstream from the exit.*

Support:

04 Section 2B.23 contains information regarding a regulatory sign that can also be used for lane drops at grade-separated interchanges.

## Section 2C.44 Two-Way Traffic Sign (W6-3)

*Guidance:*

01 *A Two-Way Traffic (W6-3) sign (see Figure 2C-8) should be used to warn road users of a transition from a multi-lane divided section of roadway to a two-lane, two-way section of roadway.*

02 *A Two-Way Traffic (W6-3) sign with an AHEAD (W16-9P) plaque (see Figure 2C-12) should be used to warn road users of a transition from a one-way street to a two-lane, two-way section of roadway (see Figure 2B-14).*

Option:

03 The Two-Way Traffic sign may be used at intervals along a two-lane, two-way roadway and may be used to supplement the Divided Highway (Road) Ends (W6-2) sign discussed in Section 2C.23.

*Guidance:*

04 *The Two-Way Traffic (W6-3) sign should also be used at locations where motorists could perceive that they are on a one-way roadway when, in fact, they are on a two lane, two-way highway. Following are some typical situations:*

*A. Construction sites where a two-lane highway is being converted to a freeway or an expressway.*
*B. Two-lane, two-way highways where ultimate freeway or expressway right-of-way has been purchased and grading for the full width has been completed.*
*C. Two-lane, two-way highways following long sections of multi-lane freeway or expressway.*
*D. Two-way highway with edge lines but with no centerlines.*

**Standard:**

05 **The TWO WAY TRAFFIC (W44A(CA)) plaque (see figure 2C-8(CA)), if used, shall be positioned below the W6-3 sign.**

06 **The Black on Yellow PASS WITH CARE (W83(CA)) sign (see figure 2C-8(CA)), when used, shall be positioned below the Two Way Traffic (W6-3) sign where two-way traffic is being routed over a single roadway of a divided highway and passing is permitted.**

Support:

07 See Figure 3B-14(CA) for signing and marking applications for lane reductions.

08 Typical example of W6-3 sign application is shown in Figure 3B-104(CA).

## Section 2C.45 NO PASSING ZONE Sign (W14-3)

**Standard:**

01 **The NO PASSING ZONE (W14-3) sign (see Figure 2C-8) shall be a pennant-shaped isosceles triangle with its longer axis horizontal and pointing to the right. When used, the NO PASSING ZONE sign shall be installed on the left side of the roadway at the beginning of no-passing zones identified by pavement markings or DO NOT PASS signs or both (see Sections 2B.28 and 3B.02).**

Option:

02 The NO PASSING ZONE (W14-3) sign may be used at the beginning of no-passing zones identified by either pavement markings or DO NOT PASS signs or both (see Sections 2B.28 and 3B.02).

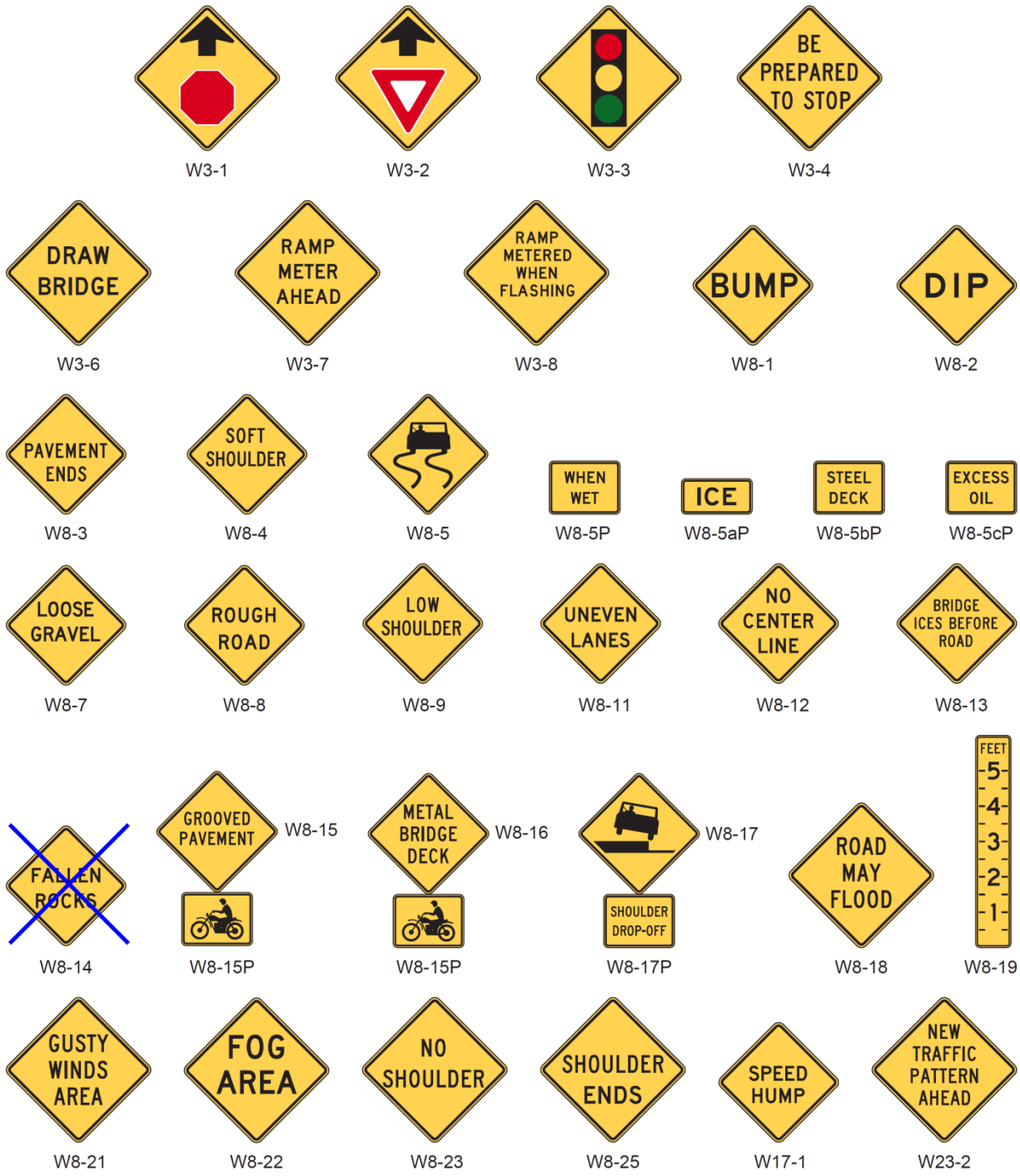
## Section 2C.46 Intersection Warning Signs (W2-1 through W2-8)

Option:

01 A Cross Road (W2-1) symbol, Side Road (W2-2 or W2-3) symbol, T-Symbol (W2-4), or Y-Symbol (W2-5) sign (see Figure 2C-9) may be used in advance of an intersection to indicate the presence of an intersection and the possibility of turning or entering traffic.

02 The Circular Intersection (W2-6) symbol sign (see Figure 2C-9) may be installed in advance of a circular intersection (see Figures 2B-21 through 2B-23).

## Figure 2C-6. Roadway and Weather Condition and Advance Traffic Control Signs and Plaques



## *Figure 2C-6 (CA). Roadway and Weather Condition and Advance Traffic Control Signs and Plaques*


SW17-1 (CA)


SW26 (CA)


SW32 (CA)


SW35 (CA)


SW41 (CA)


SW46 (CA)


SW60 (CA)


W38 (CA)

W50-1 (CA)


W55 (CA)


W84 (CA)


W85 (CA)


W87 (CA)


W88-2 (CA)
Activated Blank-Out


W88-3 (CA)
Activated Blank-Out


W89 (CA)
Activated Blank-Out

## Figure 2C-7. Reduced Speed Limit Ahead Signs


W3-5


W3-5a

## Table 2C-2. Warning Sign and Plaque Sizes (Sheet 3 of 3)

| Sign or Plaque | Sign Designation | Section | Conventional Road | | Expressway | Freeway | Minimum | Oversized |
|---|---|---|---|---|---|---|---|---|
| | | | Single Lane | Multi-Lane | | | | |
| Dead End, No Outlet (with arrow) | W14-1a,2a | 2C.26 | 36 x 8 | 36 x 8 | — | — | — | — |
| No Passing Zone (pennant) | W14-3 | 2C.45 | 48 x 48 x 36 | 48 x 48 x 36 | — | — | 40 x 40 x 30 | 64 x 64 x 48 |
| Playground | W15-1 | 2C.51 | 30 x 30* | 36 x 36 | 36 x 36 | — | 24 x 24* | 48 x 48 |
| Share the Road (plaque) | W16-1P | 2C.60 | 18 x 24 | 18 x 24 | 24 x 30 | — | — | 24 x 30 |
| XX Feet | W16-2P | 2C.55 | 24 x 18 | 24 x 18 | — | — | — | 30 x 24 |
| XX Ft | W16-2aP | 2C.55 | 24 x 12 | 24 x 12 | — | — | — | 30 x 18 |
| XX Miles (2-line plaque) | W16-3P | 2C.55 | 30 x 24 | 30 x 24 | — | — | — | — |
| XX Miles (1-line plaque) | W16-3aP | 2C.55 | 30 x 12 | 30 x 12 | — | — | — | — |
| Next XX Feet (plaque) | W16-4P | 2C.55 | 30 x 24 | 30 x 24 | — | — | — | — |
| Supplemental Arrow (plaque) | W16-5P,6P | 2C.56 | 24 x 18 | 24 x 18 | — | — | — | — |
| Downward Diagonal Arrow (plaque) | W16-7P | 2C.50 | 24 x 12 | 24 x 12 | — | — | — | 30 x 18 |
| Advance Street Name (1-line plaque) | W16-8P | 2C.58 | Varies x 8 | Varies x 8 | — | — | — | — |
| Advance Street Name (2-line plaque) | W16-8aP | 2C.58 | Varies x 15 | Varies x 15 | — | — | — | — |
| Ahead (plaque) | W16-9P | 2C.50 | 24 x 12 | 24 x 12 | 30 x 18 | — | — | — |
| Photo Enforced (symbol plaque) | W16-10P | 2C.61 | 24 x 12 | 24 x 12 | 36 x 18 | — | — | 48 x 24 |
| Photo Enforced (plaque) | W16-10aP | 2C.61 | 24 x 18 | 24 x 18 | 36 x 30 | — | — | 48 x 36 |
| HOV (plaque) | W16-11P | 2G.09 | 24 x 12 | 24 x 12 | 30 x 18 | — | — | 30 x 18 |
| Traffic Circle (plaque) | W16-12P | 2C.46 | 24 x 18 | 24 x 18 | — | — | — | — |
| ~~When Flashing (plaque)~~ | ~~W16-13P~~ | ~~2C.50~~ | ~~24 x 18~~ | ~~24 x 18~~ | — | — | — | — |
| New (plaque) | W16-15P | 2C.62 | 24 x 12 | 24 x 12 | — | — | — | — |
| Roundabout (plaque) | W16-17P | 2C.46 | 24 x 12 | 24 x 12 | — | — | — | — |
| NOTICE | W16-18P | 2A.15 | 24 x 12 | 24 x 12 | — | — | — | — |
| Speed Hump | W17-1 | 2C.29 | 30 x 30* | 36 x 36 | — | — | 24 x 24* | 48 x 48 |
| Freeway Ends XX Miles | W19-1 | 2C.24 | — | — | — | 144 x 48 | — | — |
| Expressway Ends XX Miles | W19-2 | 2C.24 | — | — | 144 x 48 | — | — | — |
| Freeway Ends | W19-3 | 2C.24 | — | — | — | 48 x 48 | — | — |
| Expressway Ends | W19-4 | 2C.24 | — | — | 48 x 48 | — | — | — |
| All Traffic Must Exit | W19-5 | 2C.24 | — | — | 90 x 48 | 90 x 48 | — | — |
| New Traffic Pattern Ahead | W23-2 | 2C.52 | 36 x 36 | 36 x 36 | — | — | — | — |
| ~~Traffic Signal Extended Green~~ | ~~W25-1,2~~ | ~~2C.48~~ | ~~24 x 30~~ | ~~24 x 30~~ | — | — | — | — |

## Table 2C-2(CA). California Warning Sign and Plaque Sizes (Sheet 1 of 2)

| Sign or Plaque | Sign Designation | Section | Conventional Road | | Expressway | Freeway | Minimum | Oversized |
|---|---|---|---|---|---|---|---|---|
| | | | Single Lane | Multi-Lane | | | | |
| Combination Reverse Turn/Advisory Speed | W4-1(CA) | 2C.07, 2C.10 | 48X48 | 48X48 | 60X60 | 60X60 | --- | 72X72 96X96 |
| Combination Hairpin Curve/Advisory Speed | W4-10(CA) | 2C.07, 2C.10 | 48X48 | 48X48 | 60X60 | 60X60 | --- | 72X72 96X96 |
| Combination 270-degree Loop/Advisory Speed | W4-14(CA) | 2C.07 | 48X48 | 48X48 | 60X60 | 60X60 | --- | 72X72 96X96 |
| Combination Reverse Curve/Advisory Speed | W4-18(CA) | 2C.07, 2C.10 | 48X48 | 48X48 | 60X60 | 60X60 | --- | 72X72 96X96 |
| Combination Truck Rollover Warning/Advisory Speed | W4-22(CA) | 2C.07, 2C.10 | 72X72 | 72X72 | 72X72 | 72X72 | --- | 96X96 |
| Weight Limit | W20(CA) | 2B.59 | 30X36 | 30X36 | 36X48 | 36X48 | --- | --- |
| Weight Limit | W20A(CA) | 2B.59 | 30X30 | 30X30 | 36X40 | 36X40 | --- | --- |
| DEEP GRAVEL | W30B(CA) | 2C.17 | 36X36 | 36X36 | 36X36 | 36X36 | --- | --- |
| RIGHT(LEFT) EXIT | W30C(CA) | 2C.17 | --- | --- | 114X24 | 114X24 | 78X18 | --- |
| END | W31(CA) | 2C.26, 2C.66 | 30X30 | 30X30 | 30X30 | 30X30 | 24X24 | --- |
| ROAD ENDS ___ FT | W31A(CA) | 2C.26 | 30X30 | 30X30 | 36X36 | 36X36 | 24X24 | --- |
| Distance Ahead plaque | W34A(CA) | 2C.27, 2C.55 | 36X30 | 36X30 | 48X36 | 48X36 | --- | 60X48 |
| CAUTION VERTICAL CLEARANCE __' __" Arrow | W34C(CA) | 2C.27 | 36X54 | 36X54 | 48X72 | 48X72 | --- | --- |
| SLIDE AREA | W38(CA) | 2C.32 | 30X30 | 30X30 | 48X48 | 48X48 | --- | --- |
| TWO WAY TRAFFIC plaque | W44A(CA) | 2C.44 | 36X24 | 36X24 | --- | --- | --- | --- |
| Rock Slide Area | W50-1(CA) | 2C.32 | 36X36 | 36X36 | 48X48 | 48X48 | --- | --- |
| SLOW TRUCKS | W51(CA) | 2C.16 | 48X48 | 48X48 | 48X48 | 48X48 | --- | 72X72 |
| FLOODED | W55(CA) | 2C.35 | 30X30 | 30X30 | 36X36 | 36X36 | --- | --- |
| END FREEWAY _____ MI | W69(CA) | 2C.46 | --- | --- | --- | 60X60 | --- | --- |
| CROSS TRAFFIC AHEAD | W70(CA) | 2C.46 | --- | --- | 60X60 | --- | --- | --- |
| RIGHT(LEFT) LANE EXITS AHEAD | W73(CA) | 2C.42 | --- | --- | 48X48 | 48X48 | 36X36 | 60X60 |
| RIGHT(LEFT) LANE TURNS RIGHT(LEFT) AHEAD | W73A(CA) | 2C.40, 2C.42 | 36X36 | 36X36 | 48X48 | --- | --- | 60X60 |
| THRU TRAFFIC MERGE LEFT (RIGHT) | W74(CA) | 2B.20, 2C.40, 2C.42 | 36X36 | 36X36 | 48X48 | 48X48 | --- | 60X60 |
| PASS WITH CARE | W83(CA) | 2C.44 | 24X30 | 24X30 | 36X45 | 36X45 | --- | --- |
| SPEED HUMPS AHEAD | W84(CA) | 2C.29 | 36X36 | 36X36 | --- | --- | 30X30 | --- |
| SPEED HUMP AREA | W85(CA) | 2C.29 | 36X36 | 36X36 | --- | --- | 30X30 | --- |
| WHEN FLOODED TURN AROUND DON'T DROWN | W87(CA) | 2C.35 | 48X48 | 48X48 | --- | --- | 48X48 | --- |
| "METER ON" Activated Blank-Out | W88-2(CA) | 2C.37 | --- | --- | 96X48 | 96X48 | --- | --- |
| "___ _____METER ON" Activated Blank-Out | W88-3(CA) | 2C.37 | --- | --- | 96X48 | 96X48 | --- | --- |
| "PREPARE TO STOP" Activated Blank-Out | W89(CA) | 2C.37 | --- | --- | 96X48 | 96X48 | --- | --- |
| WATCH DOWNHILL SPEED | SW4-1(CA) | 2C.57 | 72X72 | 72X72 | 72X72 | 72X72 | --- | --- |
| TRAILERS-CAMPERS-GUSTY WIND AREA NEXT ___MILES | SW17-1(CA) | 2C.38 | 132X48 | 132X48 | 132X48 | 132X48 | --- | --- |
| WINDING LEVEE ROAD | SW22-1(CA) | 2C.07 | 42X42 | 42X42 | --- | --- | --- | --- |
| Speed/Distance plaque | SW22-1A(CA) | 2C.07 | 30X18 | 30X18 | 30X18 | 30X18 | --- | --- |
| SIGNAL/STOP AHEAD Arrow | SW26(CA) | 2C.36 | 60X60 | 72X72 | 72X72 | 72X72 (ramps) | --- | 96X96 |
| DRIFTING SAND | SW32(CA) | 2C.32 | 36X36 | 36X36 | 48X48 | 48X48 | 30X30 | --- |

## Table 2C-2(CA). California Warning Sign and Plaque Sizes (Sheet 2 of 2)

| Sign or Plaque | Sign Designation | Section | Conventional Road | | Expressway | Freeway | Minimum | Oversized |
|---|---|---|---|---|---|---|---|---|
| | | | Single Lane | Multi-Lane | | | | |
| FLASH FLOOD AREA | SW35(CA) | 2C.35 | 36X36 | 36X36 | 36X36 | 36X36 | --- | --- |
| END FREEWAY | SW36(CA) | 2C.46 | 48X48 | 48X48 | 48X48 | 48X48 | --- | --- |
| TUNNEL | SW37(CA) | 2C.20 | 30X30 | 30X30 | 30X30 | 30X30 | --- | --- |
| DEAF CHILDREN NEAR | SW38(CA) | 2C.50 | 30X30 | 30X30 | 30X30 | --- | 24X24 | --- |
| SNOW SLIDE AREA | SW41(CA) | 2C.32 | 36X36 | 36X36 | 48X48 | 48X48 | 30X30 | --- |
| Downward Arrow | SW44(CA) | 2C.19 | 36X36 | 36X36 | 48X48 | 48X48 | 30X30 | --- |
| WATCH FOR SNOW SLIPPERY | SW46(CA) | 2C.32 | 36X36 | 36X36 | 48X48 | 48X48 | --- | --- |
| OFF HIGHWAY VEHICLES | SW47(CA) | 2C.49 | 36X36 | 36X36 | 36X36 | --- | 30X30 | --- |
| TRACTOR-SEMIS OVER ___ FEET KINGPIN TO REAR AXLE NOT ADVISED | SW48(CA) | 2C.07 | 48X36 | 48X36 | 72X54 | 72X54 | --- | --- |
| NEXT RIGHT | SW48-1(CA) | 2C.07 | 48X12 | 48X12 | 72X18 | 72X18 | --- | --- |
| PLAYGROUND | SW49(CA) | 2C.51 | 36X12 | 36X12 | 36X12 | --- | --- | --- |
| SENIOR CITIZEN FACILITY | SW50(CA) | 2C.50 | 36X24 | 36X24 | 36X24 | --- | --- | --- |
| EMERGENCY VEHICLES | SW52(CA) | 2C.49 | 42X42 | 42X42 | 48X48 | 48X48 | 30X30 | --- |
| WATCH FOR SNOW REMOVAL EQUIPMENT | SW58(CA) | 2C.49 | 36X36 | 36X36 | 54X48 | 54X48 | --- | --- |
| Migrating Bears | SW59(CA) | 2C.50 | 36X36 | 36X36 | 48X48 | 48X48 | 30X30 | --- |
| WATCH FOR STOPPED VEHICLES | SW60(CA) | 2C.36 | 36X36 | 36X36 | 48X48 | 48X48 | --- | --- |

## Table 2C-3. Minimum Size of Supplemental Warning Plaques

| Size of Warning Sign | Size of Supplemental Plaque | | | |
|---|---|---|---|---|
| | Rectangular | | | Square |
| | 1 Line | 2 Lines | Arrow | |
| 24 x 24 | 24 x 12 | 24 x 18 | 24 x 12 | 18 x 18 |
| 30 x 30 | | | | |
| 36 x 36 | 30 x 18 | 30 x 24 | 30 x 18 | 24 x 24 |
| 48 x 48 | | | | |

Notes: 1. Larger supplemental plaques may be used when appropriate
2. Dimensions in inches are shown as width x height

## Table 2C-4. Guidelines for Advance Placement of Warning Signs

| Posted or 85th-Percentile Speed | Advance Placement Distance[1] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Condition A: Speed reduction and lane changing in heavy traffic[2] | Condition B: Deceleration to the listed advisory speed (mph) for the condition | | | | | | | |
| | | 0[3] | 10[4] | 20[4] | 30[4] | 40[4] | 50[4] | 60[4] | 70[4] |
| 20 mph | 225 ft | 100 ft[6] | N/A[5] | — | — | — | — | — | — |
| 25 mph | 325 ft | 100 ft[6] | N/A[5] | N/A[5] | — | — | — | — | — |
| 30 mph | 460 ft | 100 ft[6] | N/A[5] | N/A[5] | — | — | — | — | — |
| 35 mph | 565 ft | 100 ft[6] | N/A[5] | N/A[5] | N/A[5] | — | — | — | — |
| 40 mph | 670 ft | 125 ft | 100 ft[6] | 100 ft[6] | N/A[5] | — | — | — | — |
| 45 mph | 775 ft | 175 ft | 125 ft | 100 ft[6] | 100 ft[6] | N/A[5] | — | — | — |
| 50 mph | 885 ft | 250 ft | 200 ft | 175 ft | 125 ft | 100 ft[6] | — | — | — |
| 55 mph | 990 ft | 325 ft | 275 ft | 225 ft | 200 ft | 125 ft | N/A[5] | — | — |
| 60 mph | 1,100 ft | 400 ft | 350 ft | 325 ft | 275 ft | 200 ft | 100 ft[6] | — | — |
| 65 mph | 1,200 ft | 475 ft | 450 ft | 400 ft | 350 ft | 275 ft | 200 ft | 100 ft[6] | — |
| 70 mph | 1,250 ft | 550 ft | 525 ft | 500 ft | 450 ft | 375 ft | 275 ft | 150 ft | — |
| 75 mph | 1,350 ft | 650 ft | 625 ft | 600 ft | 550 ft | 475 ft | 375 ft | 250 ft | 100 ft[6] |

[1] The distances are adjusted for a sign legibility distance of 180 feet for Condition A. The distances for Condition B have been adjusted for a sign legibility distance of 250 feet, which is appropriate for an alignment warning symbol sign. For Conditions A and B, warning signs with less than 6-inch legend or more than four words, a minimum of 100 feet should be added to the advance placement distance to provide adequate legibility of the warning sign.

[2] Typical conditions are locations where the road user must use extra time to adjust speed and change lanes in heavy traffic because of a complex driving situation. Typical signs are Merge and Right Lane Ends. The distances are determined by providing the driver a PRT of 14.0 to 14.5 seconds for vehicle maneuvers (2005 AASHTO Policy, Exhibit 3-3, Decision Sight Distance, Avoidance Maneuver E) minus the legibility distance of 180 feet for the appropriate sign.

[3] Typical condition is the warning of a potential stop situation. Typical signs are Stop Ahead, Yield Ahead, Signal Ahead, and Intersection Warning signs. The distances are based on the 2005 AASHTO Policy, Exhibit 3-1, Stopping Sight Distance, providing a PRT of 2.5 seconds, a deceleration rate of 11.2 feet/second$^2$, minus the sign legibility distance of 180 feet.

[4] Typical conditions are locations where the road user must decrease speed to maneuver through the warned condition. Typical signs are Turn, Curve, Reverse Turn, or Reverse Curve. The distance is determined by providing a 2.5 second PRT, a vehicle deceleration rate of 10 feet/second$^2$, minus the sign legibility distance of 250 feet.

[5] No suggested distances are provided for these speeds, as the placement location is dependent on site conditions and other signing. An alignment warning sign may be placed anywhere from the point of curvature up to 100 feet in advance of the curve. However, the alignment warning sign should be installed in advance of the curve and at least 100 feet from any other signs.

[6] The minimum advance placement distance is listed as 100 feet to provide adequate spacing between signs.

## Table 2C-5. Horizontal Alignment Sign Selection

| Type of Horizontal Alignment Sign | Difference Between Speed ~~Limit~~ and Advisory Speed (See Section 2C.06) | | | | |
|---|---|---|---|---|---|
| | 5 mph | 10 mph | 15 mph | 20 mph | 25 mph or more |
| Turn (W1-1), Curve (W1-2), Reverse Turn (W1-3), Reverse Curve (W1-4), Winding Road (W1-5), and Combination Horizontal Alignment/Intersection ~~(W10-1)~~ (W1-10) (see Section 2C.07 to determine which sign to use) | Recommended | Required | Required | Required | Required |
| Advisory Speed Plaque (W13-1P) | Recommended | Required | Required | Required | Required |
| Chevrons (W1-8) and/or One Direction Large Arrow (W1-6) | Optional | Recommended | Required | Required | Required |
| Exit Speed (W13-2) and Ramp Speed (W13-3) on exit ramp | Optional | Optional | Recommended | Required | Required |

Option:

05 The choice of names for the middle line may be varied on successive Distance signs to give road users additional information concerning communities served by the route.

*Guidance:*

06 *The control city should remain the same on all successive Distance signs throughout the length of the route until that city is reached.*

Option:

07 If more than one distant point may properly be designated, such as where the route divides at some distance ahead to serve two destinations of similar importance, and if these two destinations cannot appear on the same sign, the two names may be alternated on successive signs.

*Guidance:*

08 *On a route continuing into another State, destinations in the adjacent State ~~may~~ should be displayed.*

Support:

09 Refer to Section 2E.13 for the designation of destinations and control cities.

## Section 2D.42 Location of Distance Signs

*Guidance:*

01 *If used, Distance signs should be installed on important routes leaving municipalities and just beyond intersections of numbered routes in rural areas. If used, they should be placed just outside the municipal limits or at the edge of the built-up area if it extends beyond the limits.*

02 *Where overlapping routes separate a short distance from the municipal limits, the Distance sign at the municipal limits should be omitted. The Distance sign should be installed approximately 300 feet beyond the separation of the two routes.*

03 *Where, just outside of an incorporated municipality, two routes are concurrent and continue concurrently to the next incorporated municipality, the top name on the Distance sign should be that of the place where the routes separate; the bottom name should be that of the city to which the greater part of the through traffic is destined.*

Support:

04 Figure 2D-6 shows typical placements of Distance signs.

*Guidance:*

05 *The Distance (G5(CA) Series) signs should be placed at approximate 10 mile intervals, unless the destinations have changed. Distances to the same destinations should not be shown more frequently than at 5 mile intervals.*

Option:

06 The Destination and Street Name with Arrow (G8(CA) Series) signs may be used in advance of conventional highway intersections.

## Section 2D.43 Street Name Signs (D3-1 or D3-1a)

*Guidance:*

01 *Street Name (D3-1 or D3-1a or G7-1(CA)) signs (see Figure 2D-10 and 2D-10(CA)) should be installed in urban areas at all street intersections regardless of other route signs that might be present and should be installed in rural areas to identify important roads that are not otherwise signed.*

Option:

02 For streets that are part of a U.S., State, or county numbered route, a D3-1a Street Name sign (see Figure 2D-10) that incorporates a route shield may be used to assist road users who might not otherwise be able to associate the name of the street with the route number.

**Standard:**

03 **The lettering for names of streets and highways on Street Name signs shall be composed of a combination of lower-case letters with initial upper-case letters (see Section 2A.13).**

*Guidance:*

04 *Lettering on post-mounted Street Name signs should be composed of initial upper-case letters at least 6 inches in height and lower-case letters at least 4.5 inches in height.*

05 *On multi-lane streets with speed limits greater than 40 mph, the lettering on post-mounted Street Name signs should be composed of initial upper-case letters at least 8 inches in height and lower-case letters at least 6 inches in height.*

Option:

06 For local roads with speed limits of 25 mph or less, the lettering on post-mounted Street Name signs may be composed of initial upper-case letters at least 4 inches in height and lower-case letters at least 3 inches in height.

*Guidance:*

07 *If overhead Street Name signs are used, the lettering should be composed of initial upper-case letters at least 12 inches in height and lower-case letters at least 9 inches in height.*

Support:

08 The recommended minimum letter heights for Street Name signs are summarized in Table 2D-2.

Option:

09 Supplementary lettering to indicate the type of street (such as Street, Avenue, or Road) or the section of the city (such as NW) on the D3-1 and D3-1a signs may be in smaller lettering, composed of initial upper-case letters at least 3 inches in height and lower-case letters at least 2.25 inches in height. Conventional abbreviations (see Section 1A.15) may be used except for the street name itself.

10 A pictograph (see definition in Section 1A.13) may be used on a D3-1 sign.

**Standard:**

11 **Pictographs shall not be displayed on D3-1a or Advance Street Name (D3-2) signs (see Section 2D.44).**

12 **If a pictograph is used on a D3-1 sign, the height and width of the pictograph shall not exceed the upper-case letter height of the principal legend of the sign.**

*Guidance:*

13 *The pictograph should be positioned to the left of the street name.*

**Standard:**

14 **The Street Name sign shall be retroreflective or illuminated to show the same shape and similar color both day and night. The color of the legend (and border, if used) shall contrast with the background color of the sign.**

Option:

15 The border may be omitted from a Street Name sign.

16 An alternative background color other than the normal guide sign color of green may be used for Street Name (D3-1 or D3-1a) signs where the highway agency determines this is necessary to assist road users in determining jurisdictional authority for roads.

**Standard:**

17 **Alternative background colors shall not be used for Advance Street Name (D3-2) signs (see Section 2D.44).**

18 **The only acceptable alternative background colors for Street Name (D3-1 or D3-1a) signs shall be blue, brown, or white. Regardless of whether green, blue, or brown is used as the background color for Street Name (D3-1 or D3-1a) signs, the legend (and border, if used) shall be white. For Street Name signs that use a white background, the legend (and border, if used) shall be black.**

*Guidance:*

19 *An alternative background color for Street Name signs, if used, should be applied to the Street Name (D3-1 or D3-1a) signs on all roadways under the jurisdiction of a particular highway agency.*

20 *In business or commercial areas and on principal arterials, Street Name signs should be placed at least on diagonally opposite corners. In residential areas, at least one Street Name sign should be mounted at each intersection. Signs naming both streets should be installed at each intersection.*

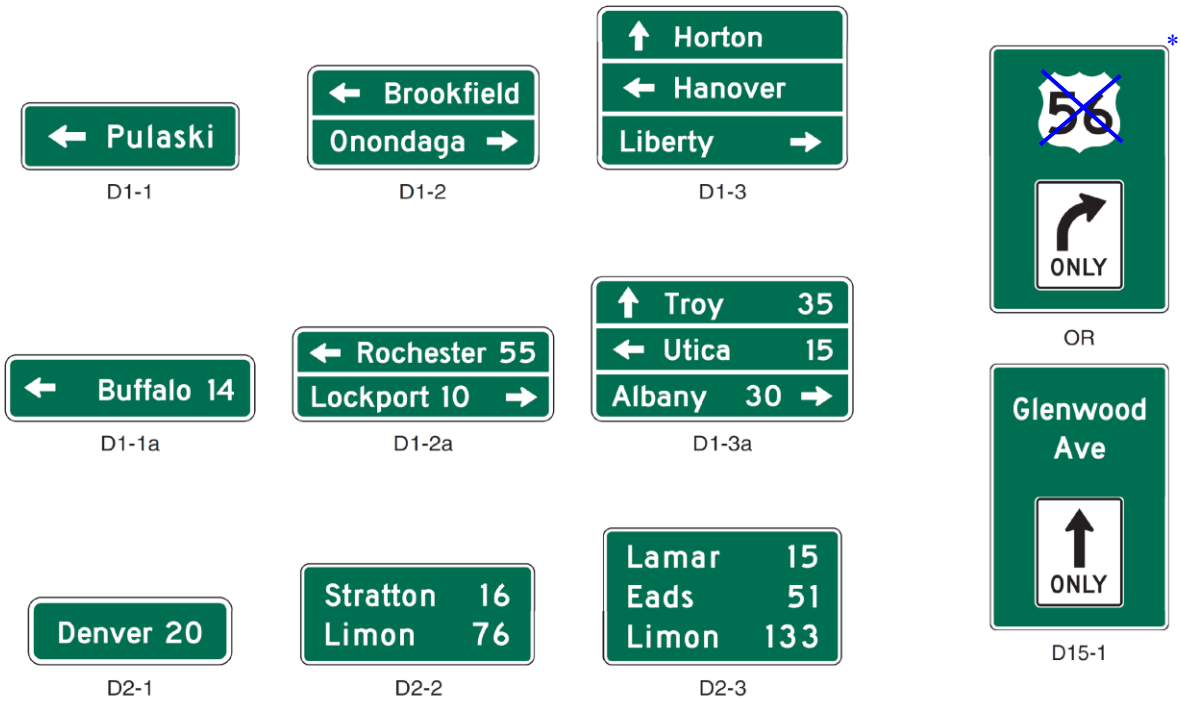
**Standard:**

**They ~~should~~ shall be mounted with their faces parallel to the streets they name.**

Option:

21 To optimize visibility, Street Name signs may be mounted overhead. Street Name signs may also be placed above a regulatory or STOP or YIELD sign with no required vertical separation.

**Figure 2D-7. Destination and Distance Signs**




*Note: For Guide Sign Assemblies use California State Route (G28-1(CA)) and US Route (G26-1(CA)) shields.

## *Figure 2D-7 (CA). California Destination and Distance Signs*

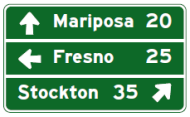
G1-1 (CA)

G1-4 (CA)

G1-7 (CA)

G1-10 (CA)

G1-13 (CA)



G1-16 (CA)

G1-19 (CA)

G5 (CA)

G8-1 (CA)

G8-4 (CA)

G8-7 (CA)

G8-10 (CA)

G8-13 (CA)

G8-16 (CA)

G8-19 (CA)

G8-22 (CA)

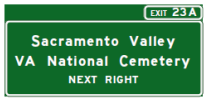
G86-1 (CA)

G86-3 (CA)

G86-5 (CA)

G86-7 (CA)

G86-13 (CA)



G86-14 (CA)

## Table 2D-1(CA). California Conventional Road Guide Sign Sizes (Sheet 2 of 2)

| Sign or Plaque | Sign Designation | Section | Conventional Road | Minimum | Oversized |
|---|---|---|---|---|---|
| Exit Numbered Supplemental Destination | G86-13(CA) | 2D.37 | VAR x 78 | VAR x 78 | VAR x 90 |
| Veterans National Cemetery Sign | G86-14(CA) | 2D.37 | VAR x 72 | --- | --- |
| PARK - RIDE | G95A(CA) | 2D.48 | 96 x 42 | 96 x 42 | 108 x 48 |
| PARK - RIDE NEXT RIGHT | G95B(CA) | 2D.48 | 96 x 60 | 96 x 60 | 108 x 72 |
| Park - Ride Courtesy Plaque | G95B-1(CA) | 2D.48 | 96 x 18 | 96 x 18 | 108 x 24 |
| BUS SERVICE Plaque | G95D(CA) | 2D.48 | 96 x 24 | 96 x 24 | 108 x 30 |
| Park - Ride Plaque | G95E(CA) | 2D.48 | 96 x 18 | 96 x 18 | 120 x 24 |
| Intersection Number | G98(CA) | 2D.102(CA) | 18 x 12 | --- | --- |
| NO PICKUPS | SG8(CA) | 2D.49 | 84 x 18 | 84 x 18 | 120 x 24 |
| Caltrans Facility Entrance | SG26(CA) | 2D.103(CA) | 72 x 36 | --- | --- |
| STATE PROPERTY | S1-1(CA) | 2D.103(CA) | 21 x 15 | --- | --- |
| Inventory Marker (Survey) | S2(CA) | 2D.101(CA) | 3.5 x 12 | --- | --- |
| NO LOITERING, CAMPING, VENDING OR PARKING OF VEHICLES 30 FEET OR LONGER | S22(CA) | 2D.48 | 24x24 | 24x24 | --- |
| VEHICLE INSPECTION ONLY, NO LOITERING OR CAMPING | S22-1(CA) | 2D.49 | 48 x 15 | --- | --- |
| Caltrans CONSTRUCTION FIELD OFFICE | S27(CA) | 2D.103(CA) | 36 x 24 | --- | --- |

## Table 2D-2. Recommended Minimum Letter Heights on Street Name Signs

| Type of Mounting | Type of Street or Highway | Speed Limit | Recommended Minimum Letter Height | |
|---|---|---|---|---|
| | | | Initial Upper-Case | Lower-Case |
| Overhead | All types | All speed limits | 12 inches | 9 inches |
| Post-mounted | Multi-lane | More than 40 mph | 8 inches | 6 inches |
| Post-mounted | Multi-lane | 40 mph or less | 6 inches | 4.5 inches |
| Post-mounted | 2-lane | All speed limits | 6 inches* | 4.5 inches* |

* On local two-lane streets with speed limits of 25 mph or less, 4-inch initial upper-case letters with 3-inch lower-case letters may be used.

## *Table 2D-101 (CA). Route Shield Sizes for Guide Signs*

| Guide Sign Letter Size | State Route Shield Size | Interstate Route Shield Size | U.S. Route Shield Size | Quantity of Numerals | Shield Numeral Size |
|---|---|---|---|---|---|
| 4" & 5" Caps | 10-1/2" x 9" | | | 1 or 2 | 4" |
| 4" & 5" Caps | 15" x 11" | | | 3 | 4" |
| 4" & 5" Caps | | 14" x 12" | | 1 or 2 | 4" |
| 4" & 5" Caps | | 16" x 14" | | 3 | 4" |
| 4" & 5" Caps | | | 11-1/2" x 10" | 1 or 2 | 4" |
| 4" & 5" Caps | | | 14-1/2" x 10" | 3 | 4" |
| 8" U.C. & 6" L.C. or 6" U.C. & 4-1/2" L.C. | 21" x 18" | 21" x 18" | 21" x 18" | 1 or 2 | 8" |
| 8" U.C. & 6" L.C. or 6" U.C. & 4-1/2" L.C. | 24" x 18" | | | 3 | 6" without the numeral 1 |
| 8" U.C. & 6" L.C. or 6" U.C. & 4-1/2" L.C. | 24" x 18" | | | 3 | 8" with the numeral 1 |
| 8" U.C. & 6" L.C. or 6" U.C. & 4-1/2" L.C. | | 21" x 18" | | 3 | 6" with the numeral 1 |
| 8" U.C. & 6" L.C. or 6" U.C. & 4-1/2" L.C. | | 24" x 24" | | 3 | 6" without the numeral 1 |
| 8" U.C. & 6" L.C. or 6" U.C. & 4-1/2" L.C. | | | 27" x 18" | 3 | 8" |
| 10.67" U.C. & 8" L.C. | 28" x 25" | | | 1 or 2 | 10" |
| 10.67" U.C. & 8" L.C. | 32" x 25" | | | 3 | 10" |
| 10.67" U.C. & 8" L.C. | | 24" x 24" | | 1 or 2 | 10" |
| 10.67" U.C. & 8" L.C. | | 30" x 25" | | 3 | 8" without the numeral 1 |
| 10.67" U.C. & 8" L.C. | | 30" x 25" | | 3 | 10" with the numeral 1 |
| 10.67" U.C. & 8" L.C. | | | 28" x 24" | 1 or 2 | 10" |
| 10.67" U.C. & 8" L.C. | | | 36" x 24" | 3 | 10" |
| 13.3" U.C. & 10" L.C. | 35" x 32" | | | 1 or 2 | 12" |
| 13.3" U.C. & 10" L.C. | 40" x 32" | | | 3 | 12" |
| 13.3" U.C. & 10" L.C. | | 36" x 36" | | 1 or 2 | 12" |
| 13.3" U.C. & 10" L.C. | | 36" x 36" | | 3 | 12" with the numeral 1 |
| 13.3" U.C. & 10" L.C. | | 45" x 38" | | 3 | 12" without the numeral 1 |
| 13.3" U.C. & 10" L.C. | | | 35" x 30" | 1 or 2 | 12" |
| 13.3" U.C. & 10" L.C. | | | 45" x 30" | 3 | 12" |
| 16" U.C. & 12" L.C. | 36" x 36" | 36" x 36" | | 1 or 2 | 15" |
| 16" U.C. & 12" L.C. | 45" x 36" | | | 3 | 12" without the numeral 1 |
| 16" U.C. & 12" L.C. | 45" x 36" | | | 3 | 15" with the numeral 1 |
| 16" U.C. & 12" L.C. | | 45" x 38" | | 3 | 12" without the numeral 1 |
| 16" U.C. & 12" L.C. | | 45" x 38" | | 3 | 15" with the numeral 1 |
| 16" U.C. & 12" L.C. | | | 42" x 36" | 1 or 2 | 15" |
| 16" U.C. & 12" L.C. | | | 54" x 36" | 3 | 15" |
| 20" U.C. & 15" L.C. | 42" x 42" | | | 1 or 2 | 18" |
| 20" U.C. & 15" L.C. | 54" x 42" | | | 3 | 18" |
| 20" U.C. & 15" L.C. | | 48" x 48" | | 1 or 2 | 18" |
| 20" U.C. & 15" L.C. | | 58" x 51" | | 3 | 18" |
| 20" U.C. & 15" L.C. | | | 49" x 42" | 1 or 2 | 18" |
| 20" U.C. & 15" L.C. | | | 63" x 42" | 3 | 18" |

**Exceptions:**

1. For **G23 Signs**, use the 10" Numeral Size Shields.
2. For **G77 & G78 signs**, use the 10" Numeral Size Shields. However, when the shield is in line with the word message, the shield's numeral size should match the lower case letter height.

Support:

26 Where one or more lanes of traffic diverge from the main line at a single exit, the exit is numbered and signed at the main line diverge as one exit. Generally, there is adequate information displayed on guide signs downstream of the main line diverge to direct a road user to the desired destination, route or street.

Option:

27 A multiple exit number add-on sign (such as E1-5 with message EXITS 33 A-B in Figure 2E-22) may be placed at the mainline diverge.

*Guidance:*

28 *The multiple exit number add-on sign should only be placed when further clarification is needed to guide road users to the desired destination.*

**Standard:**

29 **If multiple exit number add-on sign is used, exit numbers with the appropriate suffix letters shall be placed on guide signs downstream of the mainline diverge.**

Support:

30 Exit numbers are not required for exits from auxiliary lanes, connectors or collector-distributors.

Option:

31 The single line EXIT XX panel (G70-2(CA)) may be attached to an existing Advance Guide sign, Exit Direction sign, or Supplemental Guide sign that identifies an interchange that has been assigned a one or two digit exit number/suffix.

32 The single line EXIT XXXX panel (G70-3(CA)) may be attached to an existing Advance Guide sign, Exit Direction sign, or Supplemental Guide sign that identifies an interchange that has been assigned a three or four digit exit number/suffix.

33 The two line EXIT XX panel (G70-4(CA)) may be used as an alternate to the single line EXIT XX panel (G70-2(CA)) when an existing sign cannot accommodate the single line format. It may be attached to an existing Advance Guide sign, Exit Direction sign, or Supplemental Guide sign that identifies an interchange that has been assigned a one or two digit exit number/suffix.

34 The two line EXIT XXXX panel (G70-5(CA)) may be used as an alternate to the single line EXIT XXXX panel (G70-3(CA)) when an existing sign cannot accommodate the single line format. It may be attached to an existing Advance Guide sign, Exit Direction sign, or Supplemental Guide sign that identifies an interchange that has been assigned a three or four digit exit number/suffix.

*Guidance:*

35 *The EXIT panels (G70-2(CA), G70-3(CA), G70-4(CA) and G70-5(CA)) should be located toward the top left edge of the sign for a left exit and toward the top right edge for right exits.*

Option:

36 The Exit Numbered Advance Guide (G83-5(CA)) sign with a single border may be used as an alternate to the G83-4(CA) when the sign message requires additional space on the sign.

**Standard:**

37 **If used, G83-5(CA) sign shall be placed on freeways to give motorists advance notice of the exit point to the principal destination served by the next interchange that has been assigned an exit number/suffix, and the distance to that interchange.**

38 **The Exit Gore (E5-1) sign shall be used at exit ramp gores from expressways, from freeway to freeway connectors, and from collector distributors to identify the exiting point.**

39 **The EXIT XX with Arrow Gore (G84-2(CA)) sign shall be used at exit ramp gores on freeways to identify the exiting point at an interchange that has been assigned a one or two digit exit number/suffix.**

40 **The EXIT XXXX with Arrow Gore (G84-3(CA)) sign shall be used at exit ramp gores on freeways to identify the exiting point at an interchange that has been assigned a three or four digit exit number/suffix.**

*Guidance:*

41 *On the Exit Gore (E5-1 and G84-2(CA) and G84-3(CA)) signs, the arrow should be aligned to approximate the angle of departure.*

**Standard:**

42 **The Exit Gore (E5-1 and G84-2(CA) and G84-3(CA)) signs shall be placed in the area between the main roadway and the exit ramp.**

Option:

43 The Exit Numbered Exit Direction (G85-11(CA)) sign with a single border may be used as an alternate to the G85-10(CA) sign when the sign message requires additional space on the sign.

**Standard:**

44 **If used, G85-11(CA) sign shall be placed on freeways to direct motorists to the exit ramp of an interchange that has been assigned an exit number/suffix.**

*Guidance:*

45 *The G85-11(CA) sign should be placed in the area at the beginning of the deceleration lane of the exit ramp.*

Option:

46 The Exit Numbered Supplemental Guide (G86-13(CA)) sign with a single border may be used when the sign message requires additional space on the sign.

47 The G86-13(CA) sign may be placed on freeways to give motorists advance notice of the exit point to the principal destination served by the next interchange that has been assigned an exit number/suffix.

## Section 2E.32 Interchange Classification

Support:

01 For signing purposes, interchanges are classified as major, intermediate, and minor. The minimum alphabet sizes contained in Tables 2E-2 and 2E-4 are based on this classification. Descriptions of these classifications are as follows:

A. Major interchanges are subdivided into two categories: (a) interchanges with other expressways or freeways, or (b) interchanges with high-volume multi-lane highways, principal urban arterials, or major rural routes where the volume of interchanging traffic is heavy or includes many road users unfamiliar with the area.

B. Intermediate interchanges are those with urban and rural routes not in the category of major or minor interchanges.

C. Minor interchanges include those where traffic is local and very light, such as interchanges with land service access roads. Where the sum of exit volumes is estimated to be lower than 100 vehicles per day in the design year, the interchange is classified as minor.

## Section 2E.33 Advance Guide Signs

Support:

01 An Advance Guide sign (see Figure 2E-22 and 2E-22(CA)) gives notice well in advance of the exit point of the principal destinations served by the next interchange and the distance to that interchange.

*Guidance:*

02 *For major and intermediate interchanges (see Section 2E.32), Advance Guide signs should be placed at 1/2 mile and at 1 mile in advance of the exit with a third Advance Guide sign placed at 2 miles in advance of the exit if spacing permits. At minor interchanges, only one Advance Guide sign should be used. It should be located 1/2 to 1 mile from the exit gore. If the sign is located less than 1/2 mile from the exit, the distance displayed should be to the nearest 1/4 mile. Fractions of a mile, rather than decimals, should be displayed in all cases.*

**Standard:**

03 **For numbered exits to the left, a left exit number (E1-5bP) plaque (see Figure 2E-22) shall be added to the top left-hand edge of the sign.**

04 **For non-numbered exits to the left, a LEFT (E1-5aP) plaque (see Figure 2E-22) shall be added to the top left-hand edge of the sign.**

Support:

05 Section 2E.31 contains additional information regarding exit numbering.

**Standard:**

06 **Advance Guide signs for multi-lane exits having an optional exit lane that also carries the through route (see Figures 2E-4, 2E-5, ~~2E-8, and 2E-9~~) and for splits with an option lane (see Figures 2E-6 and ~~2E-~~**

# CHAPTER 2I. GENERAL SERVICE SIGNS

## Section 2I.01 Sizes of General Service Signs

**Standard:**

01 **Except as provided in Section 2A.11, the sizes of General Service signs that have a standardized design shall be as shown in Table 2I-1.**

Support:

02 Section 2A.11 contains information regarding the applicability of the various columns in Table 2I-1.

Option:

03 Signs larger than those shown in Table 2I-1 may be used (see Section 2A.11).

## Section 2I.02 General Service Signs for Conventional Roads

Support:

01 On conventional roads, commercial services such as ~~gas~~ fuel, food, and lodging generally are within sight and are available to the road user at reasonably frequent intervals along the route. Consequently, on this class of road there usually is no need for special signs calling attention to these services. Moreover, General Service signing is usually not required in urban areas except for hospitals, law enforcement assistance, tourist information centers, and camping.

Option:

02 General Service signs (see Figure 2I-1 and 2I-1(CA)) may be used where such services are infrequent and are found only on an intersecting highway or crossroad.

**Standard:**

03 **All General Service signs and supplemental sign panels shall have white letters, symbols, arrows, and borders on a blue background.**

*Guidance:*

04 *General Service signs should be installed at a suitable distance in advance of the turn-off point or intersecting highway.*

05 *States that elect to provide General Service signing should establish a statewide policy or warrant for its use, and criteria for the availability of services. Local jurisdictions electing to use such signing should follow State policy for the sake of uniformity.*

Option:

06 Individual States may sign for whatever alternative fuels are available at appropriate locations.

**Standard:**

07 **General Service signs, if used at intersections, shall be accompanied by a directional message.**

Option:

08 The Advance Turn (M5 series) or Directional Arrow (M6 series) auxiliary signs with white arrows on blue backgrounds as shown in Figure 2I-1 may be used with General Service symbol signs to create a General Service Directional Assembly.

08a The NEXT RIGHT/LEFT (G58(CA)) Auxiliary sign may also be used in conjunction with the General Service signs.

09 The General Service sign legends may be either symbols or word messages.

**Standard:**

10 **Symbols and word message General Service legends shall not be intermixed on the same sign. ~~The Pharmacy (D9-20) sign shall only be used to indicate the availability of a pharmacy that is open, with a State-licensed pharmacist present and on duty, 24 hours per day, 7 days per week, and that is located within 3 miles of an interchange on the Federal-aid system. The D9-20 sign shall have a 24 HR (D9-20aP) plaque mounted below it.~~**

Support:

11 Formats for displaying different combinations of these services are described in Section 2I.03.

Option:

12 If the distance to the next point at which services are available is 10 miles or more, a NEXT SERVICES XX MILES (D9-17P) plaque (see Figure 2I-2) may be installed below the General Service sign.

13 The International Symbol of Accessibility for the Handicapped (D9-6) sign may be used beneath General Service signs where paved ramps and rest room facilities accessible to, and usable by, the physically handicapped are provided.

*Guidance:*

14 *When the D9-6 sign is used in accordance with Paragraph 13, and van-accessible parking is available at the facility, a VAN ACCESSIBLE (D9-6P) plaque (see Figure 2I-1) should be mounted below the D9-6 sign.*

Option:

15 The Recreational Vehicle Sanitary Station (D9-12) sign may be used as needed to indicate the availability of facilities designed for the use of dumping wastes from recreational vehicle holding tanks.

16 The Litter Container (D9-4) sign may be placed in advance of roadside turnouts or rest areas, unless it distracts the driver's attention from other more important regulatory, warning, or directional signs.

17 The Emergency Medical Services (D9-13) symbol sign may be used to identify medical service facilities that have been included in the Emergency Medical Services system under a signing policy developed by the State and/ or local highway agency.

**Standard:**

18 **The Emergency Medical Services symbol sign shall not be used to identify services other than qualified hospitals, ambulance stations, and qualified free-standing emergency medical treatment centers. If used, the Emergency Medical Services symbol sign shall be supplemented by a sign identifying the type of service provided.**

Option:

19 The Emergency Medical Services symbol sign may be used above the HOSPITAL (D9-13aP) ~~sign~~ plaque or Hospital (D9-2) symbol sign or above a sign with the legend AMBULANCE STATION (D9-13bP), EMERGENCY MEDICAL CARE (D9-13cP), or TRAUMA CENTER (D9-13dP). The Emergency Medical Services symbol sign may also be used to supplement Telephone (D9-1), Channel 9 Monitored (D12-3), or POLICE (D9-14) signs.

**Standard:**

20 **The legend EMERGENCY MEDICAL CARE shall not be used for services other than qualified free-standing emergency medical treatment centers.**

*Guidance:*

21 *Each State should develop guidelines for the implementation of the Emergency Medical Services symbol sign.*

22 *The State should consider the following guidelines in the preparation of its policy:*

*A. AMBULANCE*

*1. 24-hour service, 7 days per week.*
*2. Staffed by two State-certified persons trained at least to the basic level.*
*3. Vehicular communications with a hospital emergency department.*
*4. Operator should have successfully completed an emergency-vehicle operator training course.*

*B. HOSPITAL*

*1. 24-hour service, 7 days per week.*
*2. Emergency department facilities with a physician (or emergency care nurse on duty within the emergency department with a physician on call) trained in emergency medical procedures on duty.*
*3. Licensed or approved for definitive medical care by an appropriate State authority.*
*4. Equipped for radio voice communications with ambulances and other hospitals.*

*C. Channel 9 Monitored*

*1. Provided by either professional or volunteer monitors.*
*2. Available 24 hours per day, 7 days per week.*
*3. The service should be endorsed, sponsored, or controlled by an appropriate government authority to guarantee the level of monitoring.*

## Section 2I.03 General Service Signs for Freeways and Expressways

Support:

01 General Service (D9-18 series) signs (see Figure 2I-3) are generally not appropriate at major interchanges (see definition in Section 2E.32) and in urban areas.

Option:

26 The Wildlife Viewing (RS-076) sign may be used to direct road users to the Wildlife Viewing Areas as published in the California Watchable Viewing Guide.

Support:

27 Refer to the following web link for more information:

http://www.cawatchablewildlife.org

**Standard:**

28 **The WILDLIFE VIEWING (G200-81A(CA)) sign shall be placed below the Wildlife Viewing (RS-076) sign.**

Option:

29 The Botanical Management Area (G200-82(CA)) sign may be used to identify areas along the State highway right-of-way that are environmentally significant natural remnants of California's botanical diversity, as designated by the Office of State Landscape Architecture.

*Guidance:*

30 *The G200-82(CA) sign should be placed in combination with the BOTANICAL MANAGEMENT AREA (G200-82A(CA)) plaque.*

31 *The G200-82A(CA) plaque should be placed below the G200-82(CA) sign.*

**Road User Services**

Option:

32 The Camping (Tent) (D9-3) sign may be used for campsite facilities, either public or private, located within 3 miles of the highway.

**Standard:**

33 **For the use of D9-3 sign, a minimum of 15 campsites shall be provided. Water and sanitary facilities shall be available, but not necessarily at each individual campsite.**

Option:

34 The Trailer Site (RS-040) sign may be used to indicate trailer site facilities within a public recreation area, located within 3 miles of the highway.

**Standard:**

35 **For the use of RS-040 sign, a minimum of 15 trailer sites shall be provided. Water and sanitary facilities shall be available.**

Option:

36 The Ferry (RM-030) sign may be used to indicate recreational ferry operations within 2 miles of the highway.

37 The Food Service (D9-8) sign may be used to sign for food service facilities in public recreation areas which meet the criteria for food (D9-8) signs in Chapter 2I. On State highways, only the D9-8 sign is used, where appropriate, to sign for food service facilities.

38 The Gas (D9-7) sign may be used to indicate fuel stations in public recreation areas, which meet the criteria for Gas (D9-7) signs in Chapter 2I. On State highways, only the D9-7 sign may be used where appropriate.

39 The Grocery Store (RS-020) sign may be used within public recreation areas for facilities within 1 mile of the highway that provide standard grocery items such as eggs, bread, milk and fruit, provided there are no other similar facilities within 10 miles.

**Standard:**

40 **For the use of RS-020 sign, services shall be available at least 12 hours per day.**

Option:

41 The Handicapped (D9-6) sign may be used in public recreation areas where paved ramps and rest room facilities accessible to, and usable by, the physically handicapped are provided. On State highways and at other State facilities, only the International Symbol of Accessibility for the Handicapped (D9-6) sign is to be used.

42 The Lodging (D9-9) sign may be used to indicate lodging facilities in public recreation areas, which meet the criteria for lodging (D9-9) signs in Section 2D.45. On State highways, only the D9-9 sign is used, where appropriate, to sign to lodging facilities.

43 The Mechanic (RS-027) sign may be used to indicate facilities in public recreation areas with automotive repair capability.

**Standard:**

44 **The RS-027 sign shall not be used on State highways.**

Option:

45 The Picnic Area (RS-044) sign may be used for picnic areas, either public or private, located within 1 mile of the highway.

**Standard:**

46 **For the use of RS-044 sign, a minimum of 10 sites with tables shall be provided. Water and sanitary facilities shall be available.**

Option:

47 The Rest Room (RS-022) sign may be used to indicate free public access to a restroom within 0.25 miles of the highway where no other publicly accessible restroom is available within 10 miles.

48 The Telephone (D9-1) sign may be used within public recreation areas where a public telephone is available 24 hours a day and it is located in a remote area where it is not expected. On State highways, only the Telephone (D9-1) sign is used, where appropriate, to indicate the availability of a telephone.

49 The Trailer Sanitary Station (RS-041) sign may be used to indicate dump stations where recreational vehicles may dispose of their holding tank waste.

**Standard:**

50 **For the use of RS-041 sign, the station shall be located within a public recreation area and within 1 mile of the highway.**

Option:

51 The Viewing Area (RS-036) sign may be used to direct road users to public recreation area sites, located within 0.25 miles of the highway, which have significant views.

*Guidance:*

52 *For the use of RS-036 sign, the sites should have adequate parking and well maintained access. On freeways, the VISTA POINT (D5-1) sign should be used where appropriate. Refer to Chapter 2I.*

## Accommodation Services

Option:

53 The Airport (I-5) sign may be used in public recreation areas to direct road users to airports, which meet the criteria, specified for Airport (I-5) signs. Only the I-5 and Conventional Airport (G94-1(CA)) signs may be used on State highways to indicate nearby airports.

54 The Parking (RS-034) sign may be used to indicate public parking facilities less than 0.25 miles from a highway in recreation areas.

*Guidance:*

55 *Use of RS-034 signs should be restricted to locations outside of urbanized zones, where the Parking Area (D4-1) sign is inappropriate.*

## Land Recreation

Option:

56 The Amphitheater (RS-070) sign may be used to identify an amphitheater facility within 1 mile of the highway.

57 The Playground (W15-1) sign may be used to identify playgrounds within a recreation area and not more than 1 mile from the highway.

58 The Trail (Bicycle) (D11-1) sign may be used for identifying bicycle trails located within public recreation areas.

*Guidance:*

59 *On State highways, the Bike Lane (R81(CA)) or the Bike Route (D11-1) signs should be used.*

Option:

60 The Trail (Hiking) (RS-068) sign may be used for marked and maintained hiking trails.

**Standard:**

61 **For the use of RS-068 sign, the trailhead shall be within 1 mile of the highway, with sufficient parking to accommodate normal demand.**

Option:

62 The Trail (Horse) (RS-064) sign may be used for identifying horse trails located within public recreation areas.

*Guidance:*

63 *For the use of RS-064 sign, the trailhead should be within 3 miles of the highway.*

Option:

64 The Trail (4WD Vehicle) (RS-067) sign may be used to identify recreation vehicle trails located within public recreation areas.

*Guidance:*

06 *The Historical Landmark (G13-1(CA)) sign should be used on conventional highways to guide road users by the most direct route to registered historical landmarks which are located within 5 miles of the highway. The sign should be placed not more than 150 feet in advance of the intersection on the right.*

07 *The Historical Landmark (G13-2(CA)) sign should be used on freeways to guide road users to the original 21 California Missions and other important well-known historical landmarks. See Section 123.5 of the Streets and Highways Code for signing to Missions. The G13-2(CA) sign should also be used on freeways to guide road users to historical landmarks that have a profound impact on the history of California as a whole.*

Option:

08 Supplemental Destination (G86(CA) Series) signs (white text on green background) may be used on freeways where the landmark generates considerable traffic.

**Standard:**

09 **These G86(CA) Series signs shall be followed up by standard Historical Landmark signs on the next exit ramps.**

*Guidance:*

10 *The Advance Historical Landmark (G14(CA)) sign should be used in advance of a registered historical landmark monument or plaque within or adjacent to the right of way. The sign should be placed 500 to 1500 feet in advance of the landmark or monument on the right, depending on the approach speed of traffic.*

## Section 2M.102(CA) POINT OF HISTORICAL INTEREST Sign (G15(CA))

**Standard:**

01 **The POINT OF HISTORICAL INTEREST (G15(CA)) sign shall have a cream legend on a brown background.**

02 **The G15(CA) sign shall not be used on freeways.**

Option:

03 The POINT OF HISTORICAL INTEREST (G15(CA)) sign may be used to direct the public to a historical point of interest that has been registered with the Office of Historic Preservation, Department of Parks and Recreation. The G15(CA) sign may be used on the right on city streets or conventional rural highways.

Support:

04 The G15(CA) sign is placed when requested by local authorities, after markers or other identification have been placed at the location and follow-up signs, if necessary, have been installed.

## Section 2M.103(CA) Historic Route Signs (SG2(CA), SG2A(CA), S18(CA) and S25(CA))

*Guidance:*

01 *The EL CAMINO REAL (SG2(CA)) sign should be used in combination with the Mission Bell assembly, to identify the original route of El Camino Real.*

02 *The HISTORIC EL CAMINO REAL (SG2A(CA)) sign should be used in combination with the Mission Bell assembly, to identify Historic El Camino Real.*

Option:

03 The Historic Route (S18(CA)) sign may be used to identify a "Historic Route" when directed by the Legislature.

Support:

04 Caltrans and local agencies with portions of Historic Routes under their jurisdiction, upon application by an interested local agency or private group and receiving donations from non-State sources for the cost of the sign and their installation, will place these signs as requested.

05 The Historic Route 99 (S25(CA)) sign is used to identify "Historic Route 99".

06 Caltrans and local agencies with portions of former U.S. Route 99 currently under their jurisdiction, upon application by an interested local agency or private group and receiving donations from non-State sources for the cost of the sign and their installation, will place these signs as requested.

*Guidance:*

07 *Suggested placement should be staggered in each direction at approximately 10 mile intervals on conventional highways and 25 mile intervals on freeways for the S18(CA) and S25(CA) signs.*

## Section 2M.104(CA) Historic Bridge Signs (S29(CA), S29-1(CA) and S29-2(CA))

*Guidance:*

01 *The Historic Bridge (S29(CA) and S29-1(CA)) sign should be used to identify 280 bridges in the State that are of historical significance and appear in Caltrans' publication titled "Historical Highway Bridges of California". See Section 1A.11 for information regarding this publication.*

02 *The Advance Historic Bridge (S29-2(CA)) sign should be used in advance of a historic bridge to direct the public to the historic bridge.*

Support:

03 The initial installation of the Historic Bridge signs was through a grant provided under the ISTEA Enhancement Program and administered by Caltrans' Environmental Program. Maintenance for the existing signs is borne by the agency responsible for the bridge.

**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 R1-5c) 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) 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 377shall mean stop line(s). See Paragraph 5.**

*Guidance:*

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

Option:

22 A limit line may be placed in advance of a crosswalk where vehicles are required to stop, in compliance with a STOP (R1-1) sign, traffic control signal or some other traffic control device.

Support:

23 If a marked crosswalk is in place, it would normally function as a limit line.

24 Typical limit line markings are shown in Figure 3B-103(CA).

## Section 3B.17 Do Not Block Intersection Markings

Support:

00 Refer to CVC 22526 for entering intersection, rail crossing or marked crosswalk.

Option:

01 Do Not Block Intersection markings may be used to mark the edges of an intersection area that is in close proximity to a signalized intersection, railroad crossing, or other nearby traffic control that might cause vehicles to stop within the intersection and impede other traffic entering the intersection. If authorized by law, Do Not Block Intersection markings with appropriate signs may also be used at other locations.

**Standard:**

02 **If used, Do Not Block Intersection markings (see Figure ~~3B-18~~ 3B-18(CA)) shall consist of one of the following alternatives:**

**~~A. Wide solid white lines that outline the intersection area that vehicles must not block;~~**

**B. Wide solid white lines that outline the intersection area that vehicles must not block and a white word message such as DO NOT BLOCK or KEEP CLEAR;**

**~~C. Wide solid white lines that outline the intersection area that vehicles must not block and white cross-hatching within the intersection area; or~~**

**D. A white word message, such as DO NOT BLOCK or KEEP CLEAR, within the intersection area that vehicles must not block.**

03 **Do Not Block Intersection markings shall be accompanied by one or more DO NOT BLOCK INTERSECTION (DRIVEWAY) (CROSSING) (R10-7) signs (see Section 2B.53), one or more DO NOT STOP ON TRACKS (R8-8) signs (see Section 8B.09), or one or more similar signs.**

## Section 3B.18 Crosswalk Markings

Support:

01 Crosswalk markings provide guidance for pedestrians who are crossing roadways by defining and delineating paths on approaches to and within signalized intersections, and on approaches to other intersections where traffic stops.

02 In conjunction with signs and other measures, crosswalk markings help to alert road users of a designated pedestrian crossing point across roadways at locations that are not controlled by traffic control signals or STOP or YIELD signs.

03 At non-intersection locations, crosswalk markings legally establish the crosswalk.

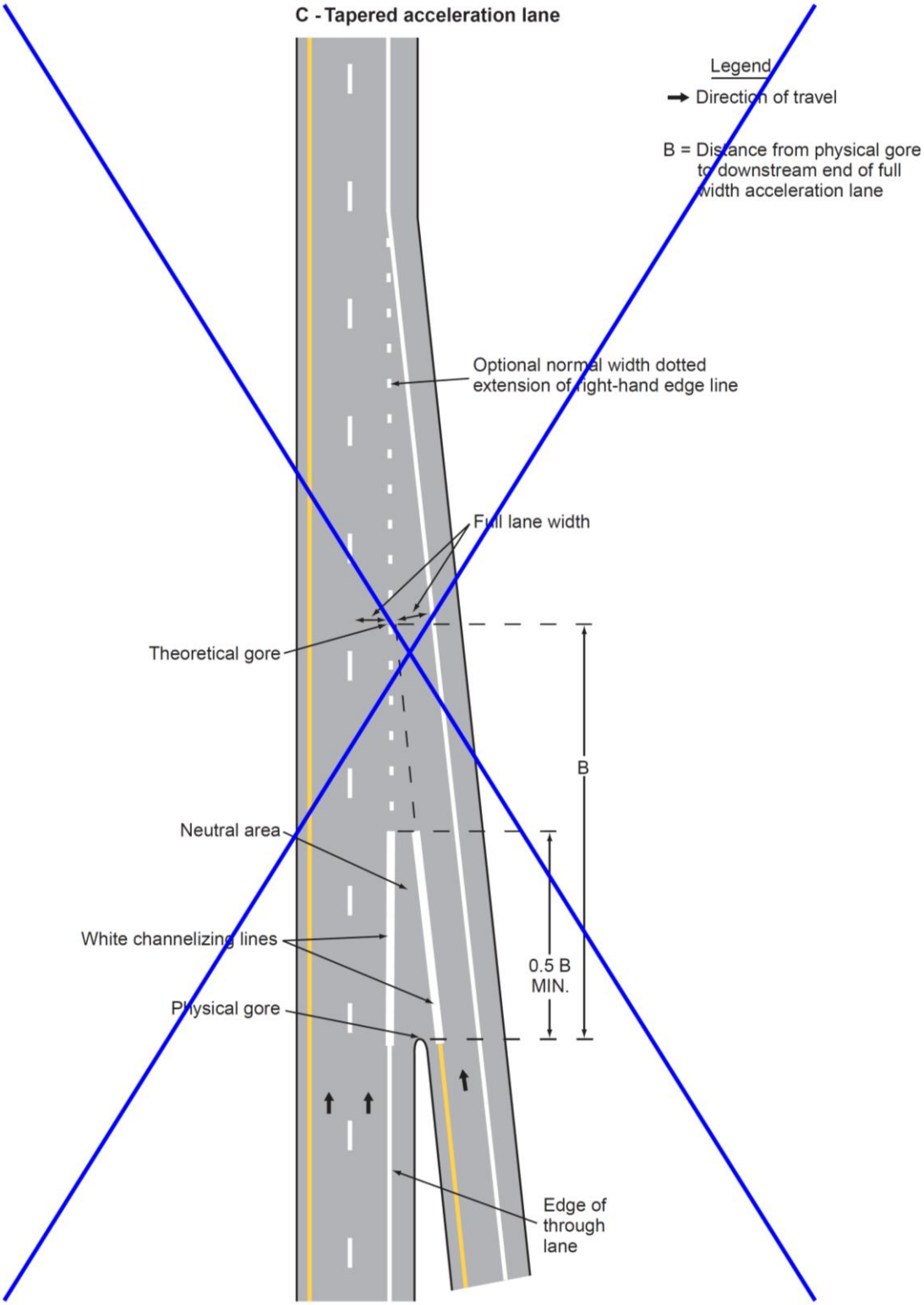
**Standard:**

04 **When crosswalk lines are used, they shall consist of solid white lines that mark the crosswalk. They shall not be less than ~~6~~ 12 inches or greater than 24 inches in width.**

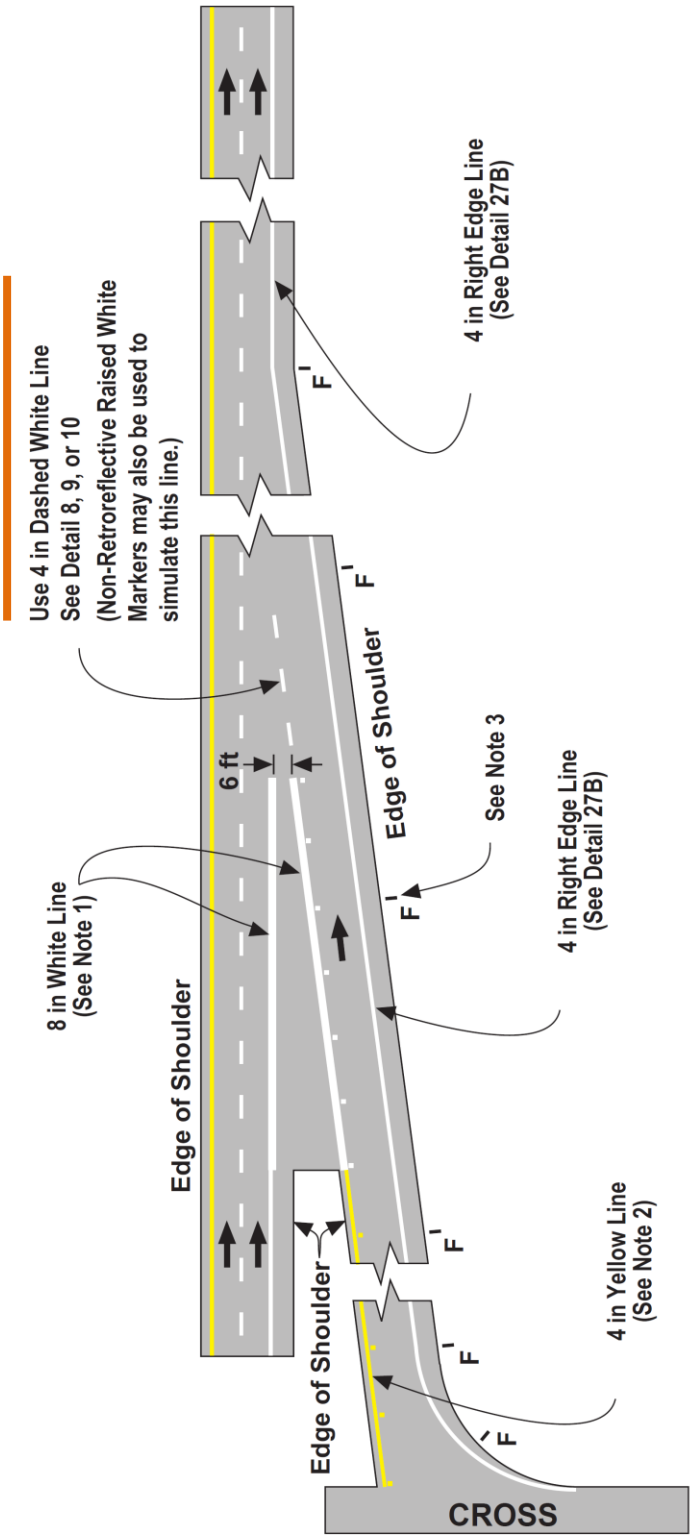
*Guidance:*

05 *If transverse lines are used to mark a crosswalk, the gap between the lines should not be less than 6 feet. If diagonal or longitudinal lines are used without transverse lines to mark a crosswalk, the crosswalk should be not less than 6 feet wide.*

**Figure 3B-9. Examples of Dotted Line and Channelizing Line Applications for Entrance Ramp Markings** (Sheet 2 of 2)



## *Figure 3B-9 (CA). Examples of Dotted Line and Channelizing Line Applications for Entrance Ramp Markings (Sheet 1 of 2)*




NOTES:

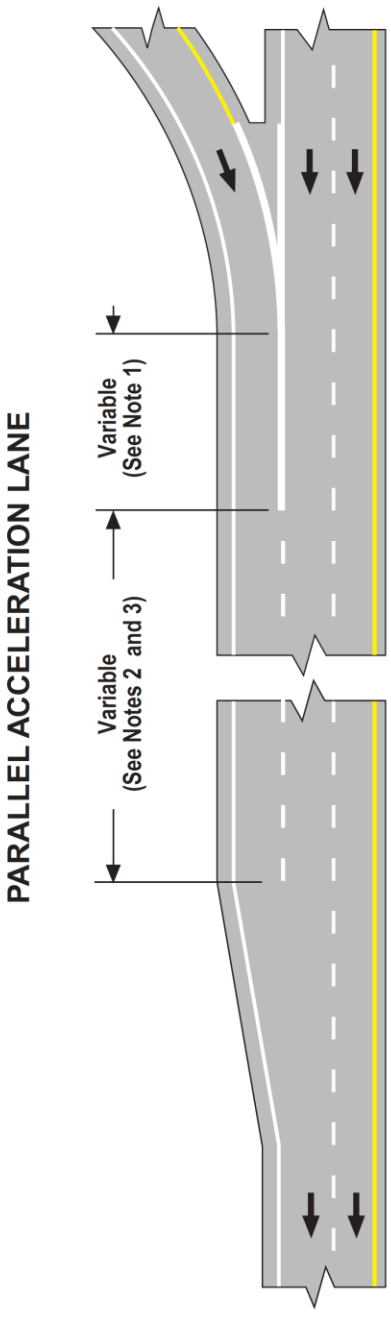
1. Place an 8 in Solid White Line and One-Way Clear Retroreflective Markers on 24 ft centers. See Detail 36A.
2. Place a 4 in Solid Yellow Left Edge Line and One-Way Yellow Retroreflective Pavement Markers on 24 ft centers. See Detail 25A.
3. Place delineators 2 ft to 6 ft outside the edge of paved shoulder, approximately 200 ft apart with a minimum of 3 delineators per tangent. For additional details on delineator locations and spacing on curves, see Figure 3F-1 and 3F-102 (CA)
4. When the entrance ramp lane becomes an added freeway lane, it shall be marked as a standard lane line. If the additional lane terminates at an exit ramp within 1/2 mi.

LEGEND

I Delineator → Direction of Travel

NOT TO SCALE

## *Figure 3B-9 (CA). Examples of Dotted Line and Channelizing Line Applications for Entrance Ramp Markings (Sheet 2 of 2)*




NOTES:

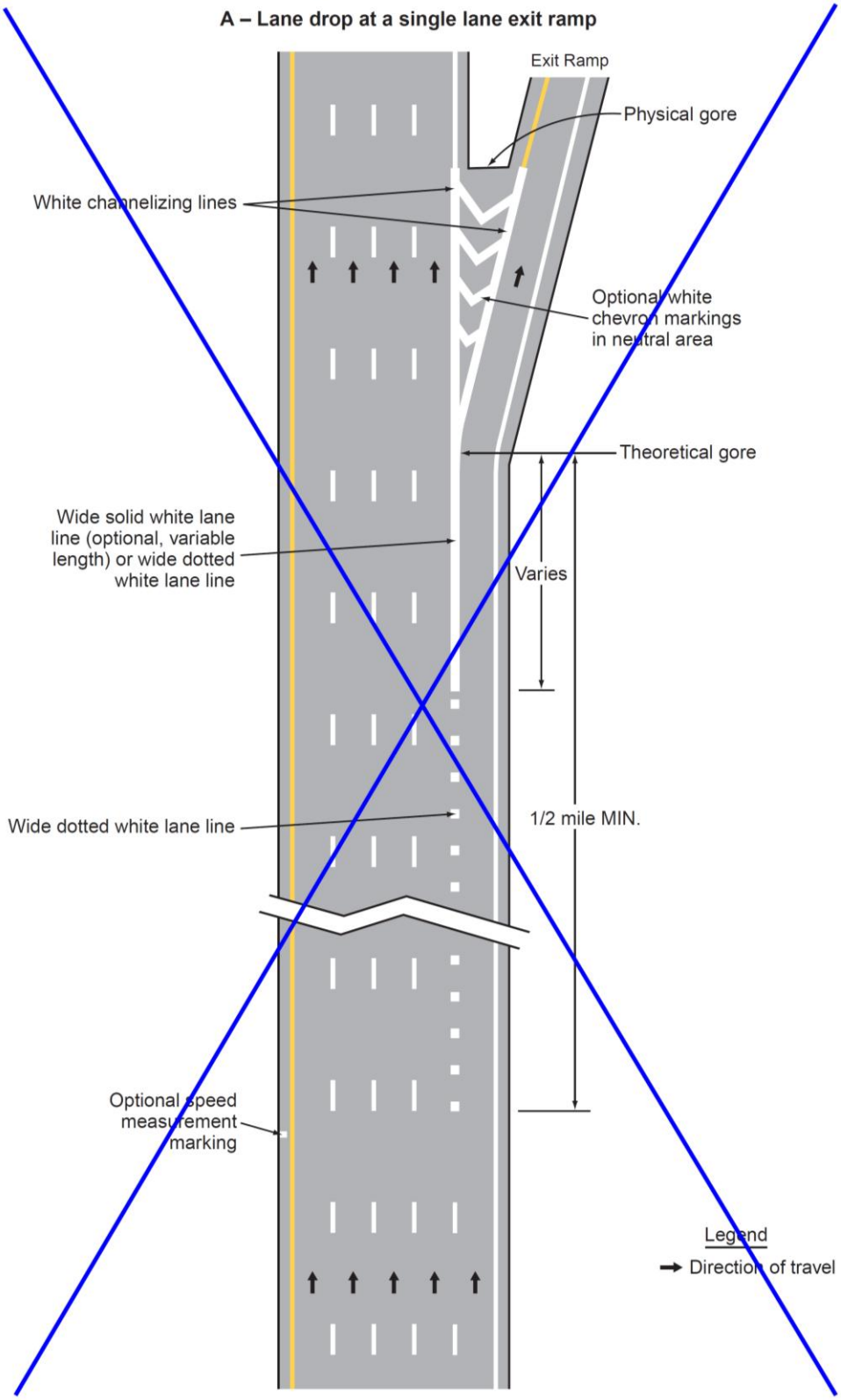
1. An 8 in Solid White Channelizing Line should be continued for approximately one-tenth the length of the acceleration lane beyond the tangent point. See Detail 38A.
2. A 4 in Dashed White Lane Line (Detail 8 or 11) is normally used for the remaining length of the lane. However, in those locations where the lane may give the appearance of an added lane and to discourage its use by through traffic, an 8 in Dashed White Channelizing Line (Detail 37) may be considered.
3. See Figure 3B-14 (CA) for transition area signing and marking details, when the acceleration lane is longer than 1 mi.

LEGEND

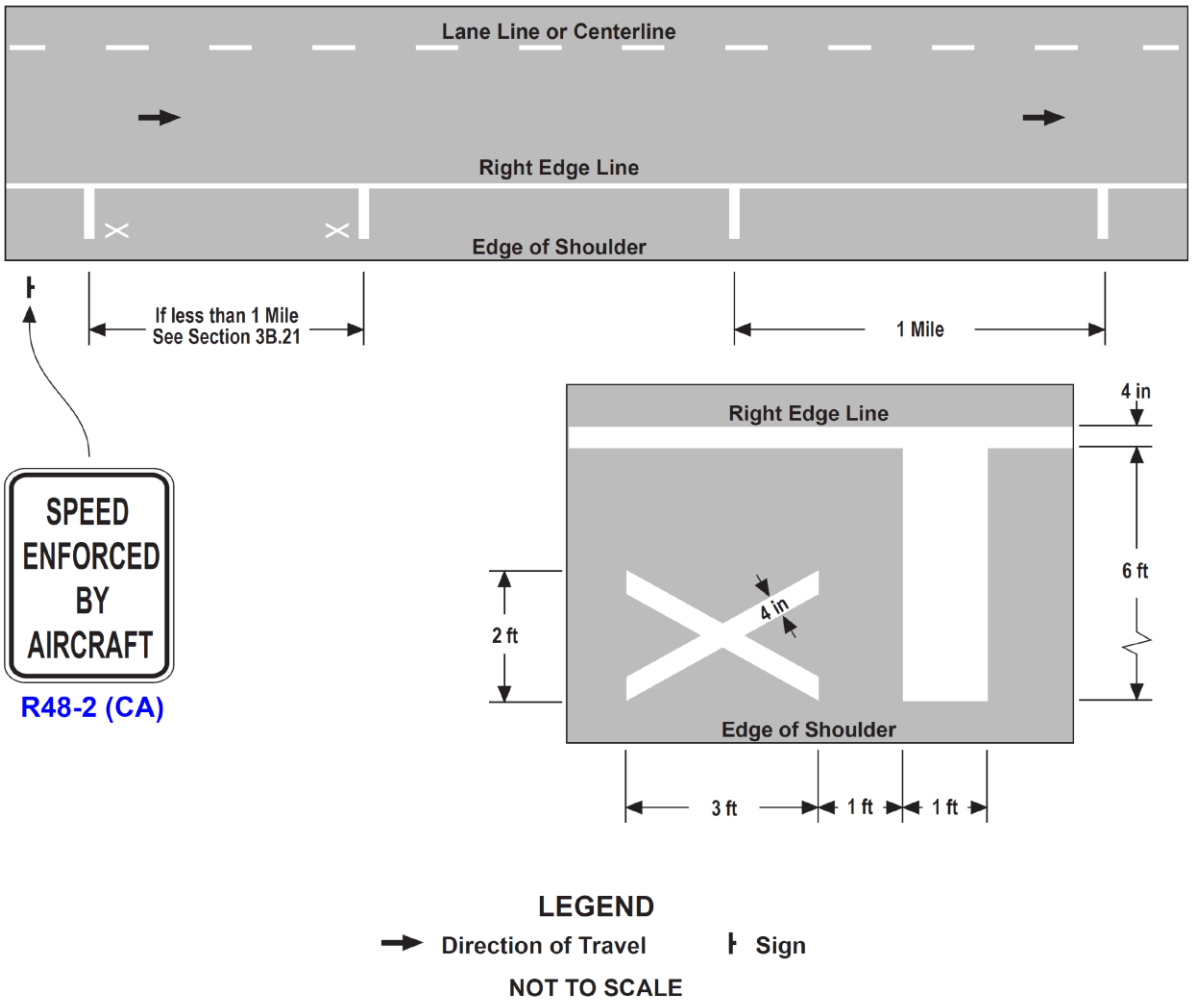
Direction of Travel

NOT TO SCALE

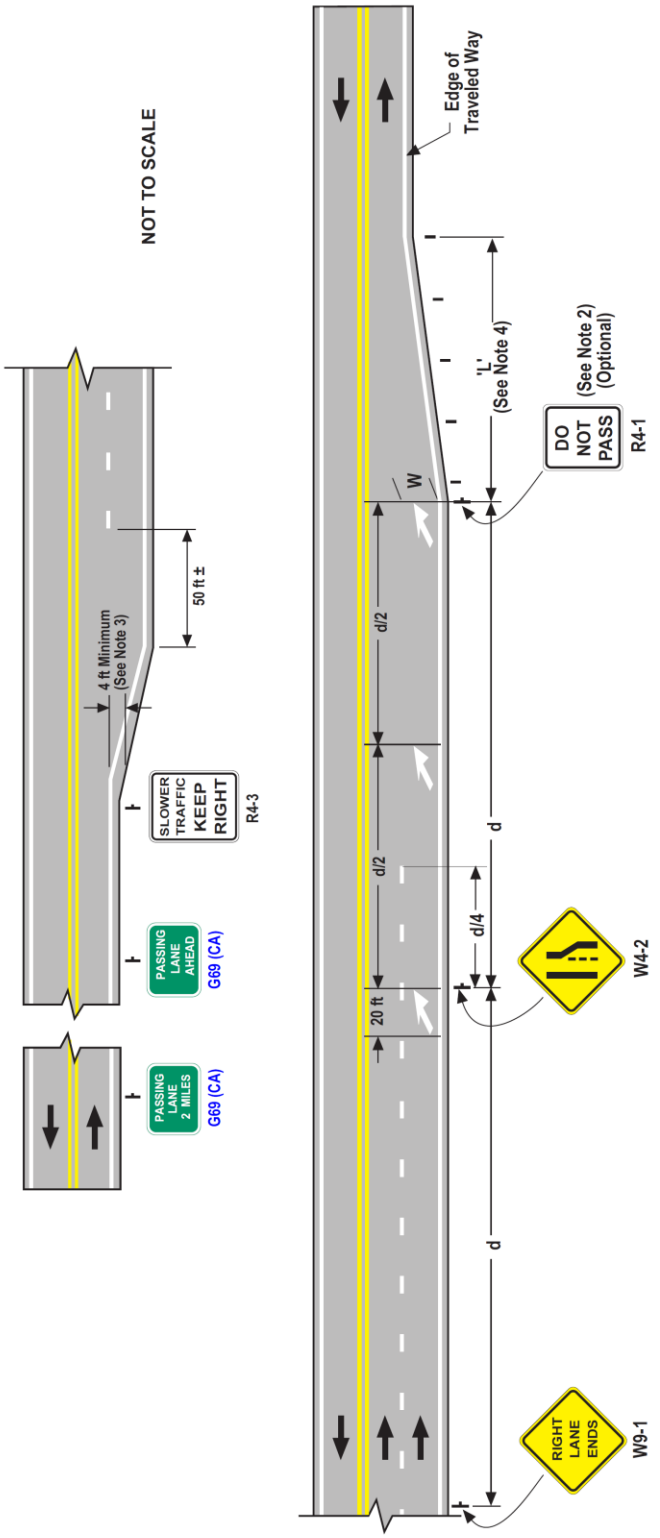
**Figure 3B-10. Examples of Applications of Freeway and Expressway Lane-Drop Markings** (Sheet 1 of 5)



## *Figure 3B-105 (CA). Examples of Signs and Markings for Highways Where Speed is Enforced by Aircraft*



## *Figure 3B-106 (CA). Passing Lanes*




NOTES:

1. For taper lengths, sign and delineator placement at different speeds, see Figure 3B-14 (CA) (Sheet 1 of 3).
2. The R4-1 sign should not be used on a freeway or expressway, etc., where two or more lanes remain after a lane is dropped. See Section 2B.28.
3. To discourage vehicular travel off the traveled way, the Right Edge Line should be continued until there is at least 4 ft between the beginning of the edge line taper and the edge of the traveled way.
4. Delineators should be spaced approximately 200 ft apart. There should be a minimum of 3 delineators throughout the entire length of a lane reduction transition. See Section 3F.04.
5. Lane Reduction Arrows may be placed when a passing lane is 1 mi or more in length.

**LEGEND**

**L = Length in feet**

**S = Posted, 85th Percentile, statutory speed, or design speed for new construction in mph**

**W = Offset in feet**

**d = Advance Placement Distance (see Section 2C.05)**

**Direction of Travel**

**Lane Reduction Arrow**

**Delineators (Type F)**

**Sign Location**

**For speeds 45 mph or more:**
**L=WS**

**For speeds 40 mph or less:**
**$L=WS^2/60$**

## Section 4C.101(CA) Criterion for School Crossing Traffic Signals

01 **Standard:**

**A. The signal shall be designed for full-time operation.**

**B. Pedestrian signal faces of the International Symbol type shall be installed at all marked crosswalks at signalized intersections along the "Suggested Route to School."**

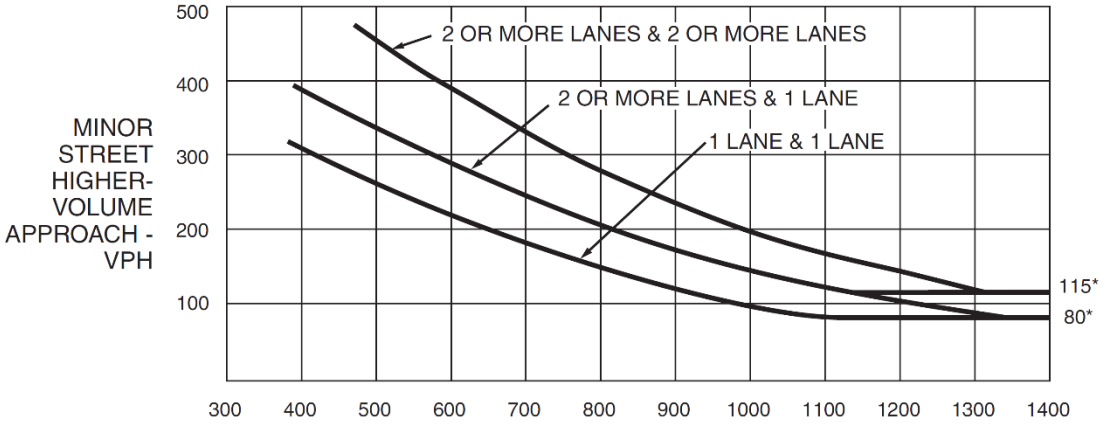
**C. If an intersection is signalized under this guideline for school pedestrians, the entire intersection shall be signalized.**

**D. School area traffic signals shall be traffic actuated type with push buttons or other detectors for pedestrians.**

Option:

02 Non-intersection school pedestrian crosswalk locations may be signalized when justified.

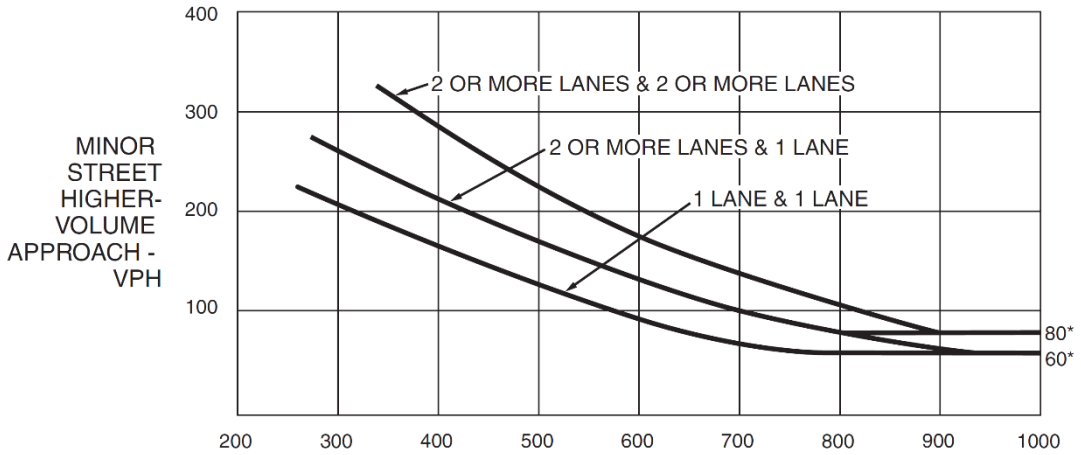
**Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume**




*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

**Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)**

**(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)**




*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

**C. If the approach has one or more exclusive turn lanes in addition to the shared left-turn/right-turn lane and there is a conflict with a signalized vehicular or pedestrian movement, and flashing YELLOW ARROW signal indications are used in place of CIRCULAR GREEN signal indications on the approach, the signal faces for the approach shall be as described in Items B.1 and B.2, except that flashing YELLOW ARROW signal indications shall be used in place of the GREEN ARROW signal indications for the turning movement(s) that conflicts with the signalized vehicular or pedestrian movement.**

Support:

05 Figure 4D-20 illustrates application of these Standards on approaches that have only a shared left-turn/right-turn lane, and on approaches that have one or more exclusive turn lanes in addition to the shared left-turn/right-turn lane.

Option:

06 If the lane-use regulations on an approach are variable such that at certain times all of the lanes on the approach are designated as exclusive turn lanes and no lane is designated as a shared left-turn/right-turn lane:

A. During the times that no lane is designated as a shared left-turn/right-turn lane, the left-turn and right-turn movements may start and terminate independently, and the left-turn and right-turn movements may be operated in one or more of the modes of operation as described in Sections 4D.17 through 4D.24; and
B. If a protected-permissive mode is used, the shared left-turn/right-turn signal face provided in Paragraph 4 may be modified to include a dual-arrow signal section capable of displaying both a GREEN ARROW signal indication and a flashing YELLOW ARROW signal indication for a turn movement(s) in order to not exceed the maximum of five sections per signal face provided in Section 4D.08.

## Section 4D.26 Yellow Change and Red Clearance Intervals

**Standard:**

01 **A steady yellow signal indication shall be displayed following every CIRCULAR GREEN or GREEN ARROW signal indication and following every flashing YELLOW ARROW or flashing RED ARROW signal indication displayed as a part of a steady mode operation. This requirement shall not apply when a CIRCULAR GREEN, a flashing YELLOW ARROW, or a flashing RED ARROW signal indication is followed immediately by a GREEN ARROW signal indication.**

02 **The exclusive function of the yellow change interval shall be to warn traffic of an impending change in the right-of-way assignment.**

03 **The duration of the yellow change interval shall be determined using engineering practices.**

Support:

04 Section 4D.05 contains provisions regarding the display of steady CIRCULAR YELLOW signal indications to approaches from which drivers are allowed to make permissive left turns.

*Guidance:*

05 *When indicated by the application of engineering practices, the yellow change interval should be followed by a red clearance interval to provide additional time before conflicting traffic movements, including pedestrians, are released.*

**Standard:**

06 **When used, the duration of the red clearance interval shall be determined using engineering practices.**

Support:

07 Engineering practices for determining the duration of yellow change and red clearance intervals can be found in ITE's "Traffic Control Devices Handbook" and in ITE's "Manual of Traffic Signal Design" (see Section 1A.11).

**Standard:**

08 **The durations of yellow change intervals and red clearance intervals shall be consistent with the determined values within the technical capabilities of the controller unit.**

09 **The duration of a yellow change interval shall not vary on a cycle-by-cycle basis within the same signal timing plan.**

10 **Except as provided in Paragraph 12, the duration of a red clearance interval shall not be decreased or omitted on a cycle-by-cycle basis within the same signal timing plan.**

Option:

11 The duration of a red clearance interval may be extended from its predetermined value for a given cycle based upon the detection of a vehicle that is predicted to violate the red signal indication.

12 When an actuated signal sequence includes a signal phase for permissive/protected (lagging) left-turn movements in both directions, the red clearance interval may be shown during those cycles when the lagging left-turn signal phase is skipped and may be omitted during those cycles when the lagging left-turn signal phase is shown.

13 The duration of a yellow change interval or a red clearance interval may be different in different signal timing plans for the same controller unit.

*Guidance:*

14 *A yellow change interval should have a minimum duration of 3 seconds and a maximum duration of 6 seconds. The longer intervals should be reserved for use on approaches with higher speeds. Practitioners should exercise engineering judgment for determination of the minimum yellow change interval. Judgment should be based on numerous factors including, but not limited to, field observation of traffic behavior, intersection geometrics, downhill grade, perception-reaction time of drivers in the area, and actually driving the protected left-turn or protected right-turn movements to assess the need for longer yellow change intervals. Particular attention should be paid where setting minimum yellow change interval timing when exclusive turn lane exceeds 150 feet in length excluding the transition. Refer to Table 4D-102(CA).*

Support:

14a The purpose of the yellow signal indication is to warn traffic approaching a traffic signal that the related green movement is ending or that a steady red indication will be exhibited immediately thereafter and traffic will be required to stop when the red signal is exhibited.

**Standard:**

14b **The minimum yellow change interval for through traffic movement shall be determined by using the 85th percentile speed of free-flow traffic rounded up to the next 5 mph increment. Where the posted or prima facie speed limit is higher than the rounded value, use the posted or prima facie speed limit for determination of the minimum yellow change interval for the through traffic movement. See Table 4D-102(CA) sub-heading "a".**

14c **If the 85th percentile speed data is not available, the minimum yellow change interval for through traffic movements shall be determined by adding 7 miles per hour to the posted or prima facie speed limits of 30 mph or higher, and by adding 10 miles per hour to the posted or prima facie speed limits of 25 mph or less. See Table 4D-102(CA) sub-heading "b".**

Option:

14d The minimum yellow change interval for the through movement and the protected left-turn or protected right-turn may be increased based on appropriate engineering judgment.

15 *Except when clearing a one-lane, two-way facility (see Section 4H.02) or when clearing an exceptionally wide intersection, a red clearance interval should have a duration not exceeding 6 seconds.*

Support:

15a When used, red clearance intervals normally range from 0.1 to 2.0 seconds.

**Standard:**

16 **Except for warning beacons mounted on advance warning signs on the approach to a signalized location (see Section 2C.36), signal displays that are intended to provide a "pre-yellow warning" interval, such as flashing green signal indications, vehicular countdown displays, or other similar displays, shall not be used at a signalized location.**

Support:

17 The use of signal displays (other than warning beacons mounted on advance warning signs) that convey a "pre-yellow warning" have been found by research to increase the frequency of crashes.

## Section 4D.27 Preemption and Priority Control of Traffic Control Signals

Option:

01 Traffic control signals may be designed and operated to respond to certain classes of approaching vehicles by altering the normal signal timing and phasing plan(s) during the approach and passage of those vehicles. The alternative plan(s) may be as simple as extending a currently displayed green interval or as complex as replacing the entire set of signal phases and timing.

Support:

02 Preemption control (see definition in Section 1A.13) is typically given to trains, boats, emergency vehicles, and light rail ~~transit~~ vehicles.

03 Examples of preemption control include the following:

A. The prompt displaying of green signal indications at signalized locations ahead of fire vehicles, law enforcement vehicles, ambulances, and other official emergency vehicles;

B. A special sequence of signal phases and timing to expedite and/or provide additional clearance time for vehicles to clear the tracks prior to the arrival of rail traffic; and

C. A special sequence of signal phases to display a steady red indication to prohibit ~~turning~~ all movements toward the tracks during the approach or passage of rail traffic.

04 Priority control (see definition in Section 1A.13) is typically given to certain non-emergency vehicles such as light-rail transit vehicles operating in a mixed-use alignment and buses.

05 Examples of priority control include the following:

A. The displaying of early or extended green signal indications at an intersection to assist public transit vehicles in remaining on schedule, and

B. Special phasing to assist public transit vehicles in entering the travel stream ahead of the platoon of traffic.

06 Some types or classes of vehicles supersede others when a traffic control signal responds to more than one type or class. In general, a vehicle that is more difficult to control supersedes a vehicle that is easier to control.

Option:

07 Preemption or priority control of traffic control signals may also be a means of assigning priority right-of-way to specified classes of vehicles at certain non-intersection locations such as on approaches to one-lane bridges and tunnels, movable bridges, highway maintenance and construction activities, metered freeway entrance ramps, and transit operations.

**Standard:**

08 **During the transition into preemption control:**

**A. The yellow change interval, and any red clearance interval that follows, shall not be shortened or omitted.**

**B. The shortening or omission of any pedestrian walk interval and/or pedestrian change interval shall be permitted.**

**C. The return to the previous green signal indication shall be permitted following a steady yellow signal indication in the same signal face, omitting the red clearance interval, if any.**

09 **During preemption control and during the transition out of preemption control:**

**A. The shortening or omission of any yellow change interval, and of any red clearance interval that follows, shall not be permitted.**

**B. A signal indication sequence from a steady yellow signal indication to a green signal indication shall not be permitted.**

10 **During priority control and during the transition into or out of priority control:**

**A. The shortening or omission of any yellow change interval, and of any red clearance interval that follows, shall not be permitted.**

**B. The shortening of any pedestrian walk interval below that time described in Section 4E.06 shall not be permitted.**

**C. The omission of a pedestrian walk interval and its associated change interval shall not be permitted unless the associated vehicular phase is also omitted or the pedestrian phase is exclusive.**

**D. The shortening or omission of any pedestrian change interval shall not be permitted.**

**E. A signal indication sequence from a steady yellow signal indication to a green signal indication shall not be permitted.**

*Guidance:*

11 *Except for traffic control signals interconnected with light rail transit systems, traffic control signals with railroad preemption or coordinated with flashing-light signal systems should be provided with a back-up power supply.*

12 *When a traffic control signal that is returning to a steady mode from a dark mode (typically upon restoration from a power failure) receives a preemption or priority request, care should be exercised to minimize the possibility of vehicles or pedestrians being misdirected into a conflict with the vehicle making the request.*

Option:

13 During the change from a dark mode to a steady mode under a preemption or priority request, the display of signal indications that could misdirect road users may be prevented by one or more of the following methods:

A. Having the traffic control signal remain in the dark mode,
B. Having the traffic control signal remain in the flashing mode,
C. Altering the flashing mode,
D. Executing the normal start-up routine before responding, or
E. Responding directly to initial or dwell period.

*Guidance:*

14 *If a traffic control signal is installed near or within a grade crossing or if a grade crossing with active traffic control devices is within or near a signalized highway intersection, Chapter 8C should be consulted.*

15 *Traffic control signals operating under preemption control or under priority control should be operated in a manner designed to keep traffic moving.*

16 *Traffic control signals that are designed to respond under preemption or priority control to more than one type or class of vehicle should be designed to respond in the relative order of importance or difficulty in stopping the type or class of vehicle. The order of priority should be: train, boat, heavy vehicle (fire vehicle, emergency medical service), light vehicle (law enforcement), light rail transit, rubber-tired transit.*

Option:

17 A distinctive indication may be provided at the intersection to show that an emergency vehicle has been given control of the traffic control signal (see Section 11-106 of the "Uniform Vehicle Code"). In order to assist in the understanding of the control of the traffic signal, a common distinctive indication may be used where drivers from different agencies travel through the same intersection when responding to emergencies.

18 If engineering judgment indicates that light rail transit signal indications would reduce road user confusion that might otherwise occur if standard traffic signal indications were used to control these movements, light rail transit signal indications complying with Section 8C.11 and as illustrated in Figure ~~8C-3~~ 8C-3(CA) may be used for preemption or priority control of the following exclusive movements at signalized intersections:

A. Public transit buses in "queue jumper" lanes, and
B. Bus rapid transit in semi-exclusive or mixed-use alignments.

*Guidance:*

19 *Traffic control signals within 200 feet of a highway-rail crossing should be operated during railroad pre-emption in a manner that minimizes delay and potential conflicts. These alternatives include steady all-red, all-red flash, limited service or special sequential signal phasing.*

Option:

20 Activated Blank-Out or changeable message regulatory signs and/or appropriate red traffic control signal indications that are visible only during railroad or light rail transit pre-emption may be used to prohibit movements from a signalized location toward a highway-rail crossing. Examples of applicable regulatory signs that may be used in Activated Blank-Out format include the R3-1, R3-2 and R3-27 signs.

Support:

21 Left turns from a nearby signalized intersection toward a highway-rail crossing can be prohibited during railroad or light rail transit pre-emption by use of a red-left arrow display or an Activated Blank-Out R3-2 sign. Likewise, right turns from a nearby signalized intersection toward such a crossing can be prohibited by use of a red right arrow display or an Activated Blank-Out R3-1 sign. Through movements from a nearby signalized intersection toward a highway-rail crossing can be prohibited by a circular red display or an Activated Blank-Out R3-27 sign.

22 Where the highway-rail crossing impacts two streets near a signalized intersection, then steady all red operation may be appropriate during railroad or light rail transit pre-emption.

23 Where the typical pre-emption period tends to be short, such as for light rail vehicles or commuter trains, a single pre-emption signal phase that serves some vehicular movements and prohibits others may be appropriate. So-called "limited-service" operation, which provides a steady circular green to traffic except for the movements that approach the highway-rail crossing, is one such example.

24 Where the pre-emption period tends to be long, such as for some freight train movements, all-red flash or special sequential phases that alternate among movements that do not approach the highway-rail crossing, possibly in combination with Activated Blank-Out signs, may be appropriate to provide alternating right-of-way.

25 Where there are exclusive turn lanes that accommodate turns toward the highway-rail crossing, then it becomes practical to prohibit those moves during railroad pre-emption.

26 Where exclusive turn lanes or special sequential phases are not feasible, then all-red flash may be desirable to allow movements to be made after road users stop to assess the railroad or light rail transit pre-emption operation.

27 The desirability of prohibiting movements toward the highway-rail crossing during railroad or light rail transit pre-emption increases as:

1) the distance between the signalized intersection and the highway-rail crossing decreases; and,
2) the volume that likely would enter increases.

**Railroad Preemption**

Support:

28 Railroad preemption results in a special traffic signal operation depending on the relation of the railroad tracks to the intersection, the number of phases in the traffic signal and other traffic conditions. Railroad preemption is normally initiated by a notification from the railroad grade crossing warning equipment.

*Guidance:*

29 *Typical circumstances where railroad preemption is required, the following type of signal operation should be provided during preemption:*

1. *Where a railroad grade crossing, provided with grade crossing warning equipment, is within 200 feet of a signalized intersection, preemption of the traffic signal should provide the following sequence of operation:*

**Standard:**

**a. A yellow change interval and any required red clearance interval for any signal phase that is green or yellow when preemption is initiated and which will be red during the track clearance interval. The length of yellow change and red clearance intervals shall not be altered by preemption. Phases, which are in the green interval when preemption is initiated, and which will be green during the track clearance interval, shall remain green. Any pedestrian walk or clearance interval, in effect when preemption is initiated, shall immediately be terminated and all pedestrian signal faces shall display steady UPRAISED HAND.**

**b. A track clearance interval for the signal phase or phases controlling the approach that crosses the railroad tracks.**

Option:

The signal indication for the clearance interval may be either green or flashing red.

*Guidance:*

*c. A yellow change interval if green signal indications were provided during the track clearance interval.*

*d. Depending on traffic requirements and phasing of the traffic signal controller, the traffic signal may then do one of the following:*

*(1) Go into flashing operation, with flashing red or flashing yellow indications for the approaches parallel to the railroad tracks and flashing red indications for all other approaches.*

**Standard:**

**Pedestrian signals shall be extinguished. If flashing red is used for all approaches, an all-red or other clearance interval shall be provided prior to returning to normal operation.**

**(2) Revert to limited operation with those signal indications controlling through and left turn approaches towards the railroad tracks displaying steady red. Permitted pedestrian signal phases shall operate normally. This operation shall be used only if the grade crossing warning equipment includes gates.**

**e. The traffic signal shall return to normal operation following release of preemption control.**

*Guidance:*

2. *Where the railroad tracks run within a roadway and train speeds exceed 10 mph, preemption of the traffic signal should provide the following sequence of operation.*

*a. A yellow change interval and any required red clearance interval for all signal phases that are green or yellow when preemption is initiated and which will be red during the preemption period.*

**Standard:**

**The length of yellow change and red clearance intervals shall not be altered by preemption. Phases, which are in the green interval when preemption is initiated, and which will be green during the preemption period, shall remain green. Any walk or pedestrian clearance intervals in effect when preemption is initiated shall be immediately terminated and all pedestrian signal faces shall display UPRAISED HAND.**

**b. All signal faces controlling traffic movements parallel to the railroad tracks will display green or flashing yellow indications. All other vehicle signal faces will display steady red indications; pedestrian signal faces will display UPRAISED HAND.**

Option:

3. Where the railroad tracks run along a roadway of a signalized intersection and train speeds do not exceed 10 mph, trains may be controlled by the vehicle signal indications. This type of train control requires approval from the railroad, the Public Utilities Commission and the Director of Transportation.
4. Unusual or unique track or roadway configurations may require other solutions than those described above.

**Emergency Vehicle Preemption**

30 Authorized emergency vehicles may preempt traffic signals. The purpose of such preemption is to provide the right of way to the emergency vehicle as soon as practical. The preemption may be controlled by one of the following means:

1. By direct wire, modulated light or radio from a remote location such as a fire house; and
2. By modulated light or radio from an emergency vehicle.

*Guidance:*

31 *Emergency vehicle equipment should be capable of encoding IDs.*

32 *Emergency vehicle preemption should provide the following sequence of operation:*

*1. A yellow change interval and any required red clearance interval for any signal phase that is green or yellow when preemption is initiated and which will be red during the preemption interval.*

**Standard:**

**The length of the yellow change and red clearance intervals shall not be altered by preemption. Phases, which are in the green interval when preemption is initiated, and which will be green during the preemption period shall remain green. Any pedestrian walk interval in effect when preemption is initiated shall be immediately terminated. The normal pedestrian clearance interval may be abbreviated.**

**2. An all-red intersection preemption display shall not be used.**

**3. The traffic signal shall return to normal operation upon termination of the demand for preemption or the termination of the assured green interval.**

33 **At a traffic signal provided with both emergency vehicle preemption and railroad preemption, the railroad preemption shall have priority. In the event of a demand for an emergency vehicle preemption during the time that the intersection is operating on railroad preemption, the railroad preemption sequence shall continue unaffected until completion. In the event of a demand for railroad preemption during emergency vehicle preemption operation, railroad preemption shall immediately assume control of the intersection.**

34 **When control of emergency vehicle preemption is by means of a radio or modulated light source, the following shall apply:**

1. **The transmitter shall be permanently mounted on the emergency vehicle or building and shall operate at a range sufficient to permit a normal yellow change interval and any required clearance intervals to take place prior to the arrival of the emergency vehicle. The normal pedestrian clearance interval may be abbreviated.**
2. **The preemption system may provide an indication (such as a special signal) to the driver of an emergency vehicle that preemption of the traffic signal has been effected. If a special signal light is used, the color shall not be red, yellow, or green.**
3. **The system shall be designed to prevent simultaneous preemption by two or more emergency vehicles on separate approaches to the intersection.**

35 **When performed by a local agency, the installation of emergency vehicle preemption equipment shall be covered by an Encroachment Permit issued by the Caltrans District Director.**

**The permit shall state the applicable requirements from those listed above and the following:**

Support:

03 The normal installation of inductive loop and magnetic detectors requires sound pavement if the detector is to operate reliably.

*Guidance:*

04 *If the pavement on an approach in which these detectors are to be installed is cracked, the project should include resurfacing of the areas where the detectors and lead-in cables are to be placed.*

Support:

05 Typical installation details for inductive loop and magnetic detectors are shown on the Standard Plans. The longitudinal location (setback) of detectors relative to the limit line depends on the speed of traffic and the type of detector operation desired. See Table 4D-101(CA) for suggested setback from Limit lines.

## Section 4D.104(CA) Optional Use of Bicycle Signal Faces

Support:

01 A bicycle signal (see Figure 4D-112(CA)) is an electrically powered traffic control device that uses bicycle signal faces and directs bicyclists to take specific actions. Use of bicycle signal faces is analogous to using pedestrian signal heads where implementation is based on engineering judgment. Refer to Table 1A-101(CA) for information on FHWA's Interim Approval for Optional Use of a Bicycle Signal Face (IA-16). See FHWA's memorandum: INFORMATION: MUTCD – Official Ruling 9(09)-47(I) – Clarification of the Interim Approval for the Optional Use of a Bicycle Signal Face (IA-16). Refer to CVC 21450 and 21456.3.

Option:

02 Existing signalized locations may be retrofitted with additional signal heads that include bicycle signal faces if the engineer determines that it would be advantageous or beneficial to have the signalized location implement bicycle signal faces.

**Standard:**

03 **If used, bicycle signal faces shall only be used at signalized locations. Signal phasing shall be such that while bicycles are moving on a green or yellow bicycle indication, they are not in conflict with any simultaneous motor vehicle movements at the signalized location, including right (or left) turns on red.**

*Guidance:*

04 *Before existing signalized intersections are retrofitted with bicycle signal faces, alternative means of handling conflicts between bicycles and motor vehicles should be considered.*

05 *Two alternatives that should be considered are:*

A. *Striping to direct a bicyclist to a lane adjacent to a traffic lane such as a bike lane to left of a right-turn-only lane.*
B. *Redesigning the intersection to direct a bicyclist from an off-street path to a bicycle lane at a point removed from the signalized intersection.*

## Section 4D.105(CA) Bicycle/Motorcycle Detection

**Standard:**

01 **All new limit line detector installations and modifications to the existing limit line detection on a public or private road or driveway intersecting a public road (see Section 1A.13 for definitions) shall either provide a Limit Line Detection Zone in which the Reference Bicycle-Rider is detected or be placed on permanent recall or fixed time operation. Refer to CVC 21450.5.**

02 **All new and modified bike path approaches to a signalized intersection shall be equipped with either a Limit Line Detection Zone or a bicyclist pushbutton, or else the phase serving the bike path shall be placed on permanent recall or fixed time operation. A bicyclist pushbutton, if used, shall be located on the right side of the bike path and where it can be reached from the bike path. See Section 9B.11 for bicycle regulatory signs.**

03 **At new signalized intersections or when the advance detection is being replaced at existing signalized intersections, phases with advance detection only shall be placed on permanent recall.**

Support:

04 The requirement to detect the Reference Bicycle-Rider in the Limit Line Detection Zone is technology-neutral.

Option:

05 The detection zone in a bike lane may be narrower than 6 feet. See Figure 4D-111(CA).

06 A Bicycle Detector Symbol may be used. See Sections 9B.13 and 9C.05.

07 A bicyclist pushbutton may be used to supplement the required limit line detection.

Support:

08 See Section 9B.10 for bicycle regulatory signs.

*Guidance:*

09 *If more than 50% of the limit line detectors need to be replaced at a signalized intersection, then the entire intersection should be upgraded so that every lane has a Limit Line Detection Zone.*

10 *The Reference Bicycle-Rider or the equivalent should be used to confirm bicycle detection under the following situations:*

*A. A new detection system has been installed; or*

*B. The detection configuration has been modified.*

Support:

11 CVC Section 21202(a) requires bicyclists traveling "at a speed less than the normal speed of traffic" to ride "as close as practicable to the right-hand curb or edge of the roadway" with exceptions, including when the bicyclist is "approaching a place where a right turn is authorized." This exception was intended to provide the bicyclist the flexibility to avoid having to ride against the right hand curb or edge of the road where a potential conflict would be created with a right turning road user.

12 A Limit Line Detection Zone provides for the detection of both bicycles and vehicles, including motorcycles.

*Guidance:*

13 *Where a Limit Line Detection Zone that detects the Reference Bicycle-Rider has been provided, minimum bicycle timing should be provided as follows:*

14 *For all phases, the sum of the minimum green, plus the yellow change interval, plus any red clearance interval should be sufficient to allow a bicyclist riding a bicycle 6 feet long to clear the last conflicting lane at a speed of 14.7 feet/sec plus an additional effective start-up time of 6 seconds, according the formula*

$$Gmin + Y + Rclear \geq 6 \text{ sec} + (W+6 \text{ feet})/14.7 \text{ feet/sec},$$

*Where:*

*Gmin = Length of minimum green interval (sec)*
*Y = Length of yellow interval (sec)*
*Rclear = Length of red clearance interval (sec)*
*W = Distance from limit line to far side of last conflicting lane (feet)*

Support:

15 Bicyclist crossing times are shown in Table 4D-109(CA). The speed of 14.7 feet/sec represents the final crossing speed and the effective start-up time of 6 seconds represents the time lost in reacting to the green light and then accelerating to full speed.

Option:

16 A limit line detection system that can discriminate between bicyclists and vehicles may be used to extend the length of the minimum green.

17 Supplemental Reference Bicycle-Rider detection zones, new technology, or various signal controller settings may be utilized to adjust the time (Gmin + Y + Rclear ) and/or travel distance (W) that bicyclists are exposed to conflicting vehicular traffic.

## Section 4D.106(CA) Selection of Traffic Signal Operation

*Guidance:*

01 *A prime factor to be considered in selection of the type of traffic signal operation is adequacy. Even though a sophisticated signal control should operate satisfactorily at any intersection, the intersection should not be provided with a type of control that is unnecessarily complex and expensive.*

Support:

02 The type of traffic signal operation to be used is dependent upon the variations in traffic demand. The two general types of signal operation are pre-timed and traffic-actuated. Traffic-actuated operation can be further classified as full-traffic-actuated or semi-traffic-actuated. With full-traffic-actuated operation, all traffic movements or phases are provided with detectors. In semi-traffic-actuated operation, certain phases (usually the coordinated phases) do not have detectors.

*Guidance:*

03 *Pre-timed and semi-traffic-actuated operation should be used in coordinated systems only. They should not be installed at isolated intersections (more than 1 mile) from the closest signalized intersection).*

04 *Where the distance between signalized intersections is 0.5 mile or less, coordination of signals should be considered, including the preparation of a time-space diagram and an evaluation of the cost-effectiveness of coordination.*

05 *Discretion should be used with phasing at offset intersections as it may introduce operational problems, which should be recognized and avoided. The most critical of these problems is where one approach right-of-way is terminated while the opposing approach continues with a green indication.*

Support:

21 If a leading pedestrian interval is used without accessible features, pedestrians who are visually impaired can be expected to begin crossing at the onset of the vehicular movement when drivers are not expecting them to begin crossing.

*Guidance:*

22 *If a leading pedestrian interval is used, it should be at least 3 seconds in duration and should be timed to allow pedestrians to cross at least one lane of traffic or, in the case of a large corner radius, to travel far enough for pedestrians to establish their position ahead of the turning traffic before the turning traffic is released.* 23 *If a leading pedestrian interval is used, consideration should be given to prohibiting turns across the crosswalk during the leading pedestrian interval.*

Support:

24 At intersections with pedestrian volumes that are so high that drivers have difficulty finding an opportunity to turn across the crosswalk, the duration of the green interval for a parallel concurrent vehicular movement is sometimes intentionally set to extend beyond the pedestrian clearance time to provide turning drivers additional green time to make their turns while the pedestrian signal head is displaying a steady UPRAISED HAND (symbolizing DONT WALK) signal indication after pedestrians have had time to complete their crossings.

## Section 4E.07 Countdown Pedestrian Signals

**Standard:**

01 **All pedestrian signal heads used at crosswalks where the pedestrian change interval is more than 7 seconds shall include a pedestrian change interval countdown display in order to inform pedestrians of the number of seconds remaining in the pedestrian change interval.**

Option:

02 Pedestrian signal heads used at crosswalks where the pedestrian change interval is 7 seconds or less may include a pedestrian change interval countdown display in order to inform pedestrians of the number of seconds remaining in the pedestrian change interval.

**Standard:**

03 **Where countdown pedestrian signals are used, the countdown shall always be displayed simultaneously with the flashing UPRAISED HAND (symbolizing DONT WALK) signal indication displayed for that crosswalk.**

04 **Countdown pedestrian signals shall consist of Portland orange numbers that are at least 6 inches in height on a black opaque background. The countdown pedestrian signal shall be located immediately adjacent to the associated UPRAISED HAND (symbolizing DONT WALK) pedestrian signal head indication (see Figure 4E-1).**

05 **The display of the number of remaining seconds shall begin only at the beginning of the pedestrian change interval (flashing UPRAISED HAND). After the countdown displays zero, the display shall remain dark until the beginning of the next countdown.**

06 **The countdown pedestrian signal shall display the number of seconds remaining until the termination of the pedestrian change interval (flashing UPRAISED HAND). Countdown displays shall not be used during the walk interval or during the red clearance interval of a concurrent vehicular phase.**

*Guidance:*

07 *If used with a pedestrian signal head that does not have a concurrent vehicular phase, the pedestrian change interval (flashing UPRAISED HAND) should be set to be approximately 4 seconds less than the required pedestrian clearance time (see Section 4E.06) and an additional clearance interval (during which a steady UPRAISED HAND is displayed) should be provided prior to the start of the conflicting vehicular phase.*

08 *For crosswalks where the pedestrian enters the crosswalk more than 100 feet from the countdown pedestrian signal display, the numbers should be at least 9 inches in height.*

09 *Because some technology includes the countdown pedestrian signal logic in a separate timing device that is independent of the timing in the traffic signal controller, care should be exercised by the engineer when timing changes are made to pedestrian change intervals.*

10 *If the pedestrian change interval is interrupted or shortened as a part of a transition into a preemption sequence (see Section 4E.06), the countdown pedestrian signal display should be discontinued and go dark immediately upon activation of the preemption transition.*

## Section 4E.08 Pedestrian Detectors

Option:

01 Pedestrian detectors may be pushbuttons or passive detection devices.

Support:

02 Passive detection devices register the presence of a pedestrian in a position indicative of a desire to cross, without requiring the pedestrian to push a button. Some passive detection devices are capable of tracking the progress of a pedestrian as the pedestrian crosses the roadway for the purpose of extending or shortening the duration of certain pedestrian timing intervals.

03 The provisions in this Section place pedestrian pushbuttons within easy reach of pedestrians who are intending to cross each crosswalk and make it obvious which pushbutton is associated with each crosswalk. These provisions also position pushbutton poles in optimal locations for installation of accessible pedestrian signals (see Sections 4E.09 through 4E.13). Information regarding reach ranges can be found in the "Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG)" (see Section 1A.11).

*Guidance:*

04 *If pedestrian pushbuttons are used, they should be capable of easy activation and conveniently located near each end of the crosswalks. Except as provided in Paragraphs 5 and 6, pedestrian pushbuttons should be located to meet all of the following criteria (see Figure 4E-3):*

*A. Unobstructed and adjacent to a level all-weather surface to provide access from a wheelchair;*
*B. Where there is an all-weather surface, a wheelchair accessible route from the pushbutton to the ramp;*
*C. Between the edge of the crosswalk line (extended) farthest from the center of the intersection and the side of a curb ramp (if present), but not greater than 5 feet from said crosswalk line;*
*D. Between 1.5 and 6 feet from the edge of the curb, shoulder, or pavement;*
*E. With the face of the pushbutton parallel to the crosswalk to be used; and*
*F. At a mounting height of approximately 3.5 feet, but no more than 4 feet, above the sidewalk.*

05 *Where there are physical constraints that make it impractical to place the pedestrian pushbutton adjacent to a level all-weather surface, the surface should be as level as feasible.*

06 *Where there are physical constraints that make it impractical to place the pedestrian pushbutton between 1.5 and 6 feet from the edge of the curb, shoulder, or pavement, it should not be farther than 10 feet from the edge of curb, shoulder, or pavement.*

07 *Except as provided in Paragraph 8, where two pedestrian pushbuttons are provided on the same corner of a signalized location, the pushbuttons should be separated by a distance of at least 10 feet.*

Option:

08 Where there are physical constraints on a particular corner that make it impractical to provide the 10-foot separation between the two pedestrian pushbuttons, the pushbuttons may be placed closer together or on the same pole.

Support:

09 Figure 4E-4 shows typical pedestrian pushbutton locations for a variety of situations.

**Standard:**

10 **Signs (see Section 2B.52) shall be mounted ~~adjacent to~~ immediately above or integral with pedestrian pushbuttons, explaining their purpose and use.**

Option:

11 At certain locations, a supplemental sign in a more visible location may be used to call attention to the pedestrian pushbutton.

**Standard:**

12 **The positioning of pedestrian pushbuttons and the legends on the pedestrian pushbutton signs shall clearly indicate which crosswalk signal is actuated by each pedestrian pushbutton.**

# CHAPTER 4I. TRAFFIC CONTROL SIGNALS FOR FREEWAY ENTRANCE RAMPS

## Section 4I.01 Application of Freeway Entrance Ramp Control Signals

Support:

01 Ramp control signals are traffic control signals that control the flow of traffic entering the freeway facility. ~~This is often referred to as "ramp metering."~~

02 Freeway entrance ramp control signals are sometimes used if controlling traffic entering the freeway could reduce the total expected delay to traffic in the freeway corridor, including freeway ramps and local streets.

*Guidance:*

03 *The installation of ramp control signals should be preceded by an engineering study of the physical and traffic conditions on the highway facilities likely to be affected. The study should include the ramps and ramp connections and the surface streets that would be affected by the ramp control, as well as the freeway section concerned.*

Support:

04 Information on conditions that might justify freeway entrance ramp control signals, factors to be evaluated in traffic engineering studies for ramp control signals, design of ramp control signals, and operation of ramp control signals can be found in the FHWA's "Ramp Management and Control Handbook" (see Section 1A.11).

## Section 4I.02 Design of Freeway Entrance Ramp Control Signals

**Standard:**

01 **Ramp control signals shall meet all of the standard design specifications for traffic control signals, except as otherwise provided in this Section.**

02 **The signal face for freeway entrance ramp control signals shall be ~~either a two-section signal face containing red and green signal indications or~~ a three-section signal face containing red, yellow, and green signal indications.**

03 **If only one lane is present on an entrance ramp or if more than one lane is present on an entrance ramp and the ramp control signals are operated such that green signal indications are always displayed simultaneously to all of the lanes on the ramp, then a minimum of two signal faces per ramp shall face entering traffic. The minimum number of upper signal heads per ramp shall not be less than the total number of lanes at the limit line for viewing by approaching motorists. For side-mounted signals, the same number of lower signal heads shall also be provided for viewing by stopped motorists at the limit line.**

04 **~~If more than one lane is present on an entrance ramp and the ramp control signals are operated such that green signal indications are not always displayed simultaneously to all of the lanes on the ramp, then one signal face shall be provided over the approximate center of each separately-controlled lane.~~**

04a **If multiple lanes are present on an entrance ramp and the ramp control faces are operated such that green signal indications are not always displayed simultaneously to all of the lanes on the ramp, then the following shall apply:**

- **A. If there are two separately-controlled lanes, a minimum of two signal faces shall be provided for each of the two lanes, with both mounted overhead, both mounted at the side of the roadway on a single pole (see Paragraphs 9 and 10 below), or a combination thereof.**
- **B. If there are three or more separately-controlled lanes, one signal face shall be provided over the approximate center of each separately-controlled lane.**

*Guidance:*

05 *Additional side-mounted signal faces should be considered for ramps with ~~two or more separately-controlled lanes~~ overhead mounted upper signal faces.*

**Standard:**

06 **Ramp control signals shall be located and designed to minimize their viewing by mainline freeway traffic.**

Option:

07 Ramp control signals may be placed in the dark mode (no indications displayed) when not in use.

08 Ramp control signals may be used to control some, but not all, lanes on a ramp, such as when non-metered HOV ~~bypass~~ lanes are provided on a ramp.

**Standard:**

09 **The required signal faces, if located at the side of the ramp roadway, one for each lane ~~may~~ shall be mounted such that the height above the pavement grade at the center of the ramp roadway to the bottom of the signal housing of the lowest signal face is between 4.5 and 6 feet.**

Option:

10 For entrance ramps with only one controlled lane, the two required signal faces may both be mounted at the side of the roadway on a single pole, with one face at the normal mounting height and one face mounted lower as provided in Paragraph 9, as a specific exception to the normal 8-foot minimum lateral separation of signal faces required by Section 4D.13.

*Guidance:*

11 *Regulatory signs with legends appropriate to the control, such as ~~XX Vehicle (S) Per Green or XX VEHICLE(S) PER GREEN Each Lane~~ 1 CAR (2 CARS) PER GREEN (R89(CA)) or 1 CAR (2 CARS) PER GREEN EACH LANE (R89-1(CA)) or 1 CAR (2 CARS) PER GREEN THIS LANE (R89-2(CA)) (see Section 2B.56), should be installed adjacent to the ramp control signal faces. When ramp control signals are installed on a freeway-to-freeway ramp, special consideration should be given to assuring adequate visibility of the ramp control signals, and multiple advance warning signs with flashing warning beacons should be installed to warn road users of the metered operation.*

Support:

12 Refer to Section 2G.102(CA) for regulatory signs for HOV lanes at metered ramps.

## Section 4I.03 Operation of Freeway Entrance Ramp Control Signals

*Guidance:*

01 *Operational strategies for ramp control signals, such as periods of operation, metering rates and algorithms, and queue management, should be determined by the operating agency prior to the installation of the ramp control signals and should be closely monitored and adjusted as needed thereafter.*

02 *When the ramp control signals are in operation ~~operated only during certain periods of the day~~, a RAMP METERED WHEN FLASHING (W3-8) sign (see Section 2C.37) or an overhead Activated Blank-Out "METER ON" (W88-2(CA), W88-3(CA)) message sign, or an Activated Blank-Out "PREPARE TO STOP" (W89(CA)) message sign should be installed in advance of the ramp control signal near the entrance to the ramp, or on the arterial on the approach to the ramp, to alert road users to the presence and operation of ramp meters. (See Figure 2C-6(CA)).*

**Standard:**

03 **The RAMP METERED WHEN FLASHING sign shall be supplemented with a warning beacon (see Section 4L.03) that flashes when the ramp control signal is in operation.**

# CHAPTER 4N. IN-ROADWAY LIGHTS

## Section 4N.01 Application of In-Roadway Lights

Support:

01 In-Roadway Lights are special types of highway traffic signals installed in the roadway surface to warn road users that they are approaching a condition on or adjacent to the roadway that might not be readily apparent and might require the road users to slow down and/or come to a stop. This includes situations warning of marked school crosswalks, marked midblock crosswalks, marked crosswalks on uncontrolled approaches, marked crosswalks in advance of roundabouts as described in Chapter 3C, and other roadway situations involving pedestrian crossings.

**Standard:**

02 **In-Roadway Lights shall not be used for any application that is not described in this Chapter.**

03 **If used, In-Roadway Lights shall not exceed a height of 3/4 inch above the roadway surface.**

04 **When used, In-Roadway Lights shall be flashed and shall not be steadily illuminated.**

Support:

05 Steadily illuminated lights installed in the roadway surface are considered to be internally illuminated raised pavement markers (see Section 3B.11).

Option:

06 In-Roadway Lights may be flashed in a manner that includes a continuous flash of varying intensity and time duration that is repeated to provide a flickering effect (see Section 4N.02).

## Section 4N.02 In-Roadway Warning Lights at Crosswalks

Option:

01 In-roadway lights may be installed at certain marked crosswalks, based on an engineering study or engineering judgment, to provide additional warning to road users.

**Standard:**

02 **If used, In-Roadway Warning Lights at crosswalks shall be installed only at marked crosswalks with applicable warning signs. They shall not be used at crosswalks controlled by YIELD signs, STOP signs, or traffic control signals.**

03 **If In-Roadway Warning Lights are used at a crosswalk, the following requirements shall apply:**

**A. Except as provided in Paragraphs 7 and 8, they shall be installed along both sides of the crosswalk and shall span its entire length.**

**B. They shall initiate operation based on pedestrian actuation and shall cease operation at a predetermined time after the pedestrian actuation or, with passive detection, after the pedestrian clears the crosswalk.**

**C. They shall display a flashing yellow light when actuated. The flash rate shall be at least 50, but no more than 60, flash periods per minute. If they are flashed in a manner that includes a continuous flash of varying intensity and time duration that is repeated to provide a flickering effect, the flickers or pulses shall not repeat at a rate that is between 5 and 30 per second to avoid frequencies that might cause seizures.**

**D. They shall be installed in the area between the outside edge of the crosswalk line and 10 feet from the outside edge of the crosswalk.**

**E. They shall face away from the crosswalk if unidirectional, or shall face away from and across the crosswalk if bidirectional.**

04 **If used on one-lane, one-way roadways, a minimum of two In-Roadway Warning Lights shall be installed on the approach side of the crosswalk. If used on two-lane roadways, a minimum of three In-Roadway Warning Lights shall be installed along both sides of the crosswalk. If used on roadways with more than two lanes, a minimum of one In-Roadway Warning Light per lane shall be installed along both sides of the crosswalk.**

*Guidance:*

05 *If used, In-Roadway Warning Lights should be installed in the center of each travel lane, at the center line of the roadway, at each edge of the roadway or parking lanes, or at other suitable locations away from the normal tire track paths.*

06 *The location of the In-Roadway Warning Lights within the lanes should be based on engineering judgment.*

Option:

07 On one-way streets, In-Roadway Warning Lights may be omitted on the departure side of the crosswalk.

08 Based on engineering judgment, the In-Roadway Warning Lights on the departure side of the crosswalk on the left side of a median may be omitted.

09 Unidirectional In-Roadway Warning Lights installed at crosswalk locations may have an optional, additional yellow light indication in each unit that is visible to pedestrians in the crosswalk to indicate to pedestrians in the crosswalk that the In-Roadway Warning Lights are in fact flashing as they cross the street. These yellow lights may flash with and at the same flash rate as the light module in which each is installed.

*Guidance:*

10 *If used, the period of operation of the In-Roadway Warning Lights following each actuation should be sufficient to allow a pedestrian crossing in the crosswalk to leave the curb or shoulder and travel at a walking speed of 3.5 feet per second to at least the far side of the traveled way or to a median of sufficient width for pedestrians to wait. Where pedestrians who walk slower than 3.5 feet per second, or pedestrians who use wheelchairs, routinely use the crosswalk, a walking speed of less than 3.5 feet per second should be considered in determining the period of operation.*

**Standard:**

11 **If pedestrian pushbuttons are used to actuate the in-roadway lights, a Push Button To Turn On Warning Lights (with pushbutton symbol) (R10-25) sign (see Figure 2B-26) shall be mounted ~~adjacent to~~ immediately above or integral with each pedestrian pushbutton.**

12 **Where the period of operation is sufficient only for crossing from a curb or shoulder to a median of sufficient width for pedestrians to wait, median-mounted pedestrian actuators shall be provided.**

13 **In-Roadway Warning Lights (IRWLs) shall not be placed on or within the crosswalk markings. If the In-Roadway Warning Lights are activated by a push button, the PUSH BUTTON FOR PEDESTRIAN WARNING LIGHTS, CROSS WITH CAUTION (R62E(CA)) sign shall be used.**

14 **The following shall be considered when evaluating the need for In-Roadway Warning Lights:**

- **A. Whether the crossing is controlled or uncontrolled.**
- **B. An engineering traffic study to determine if In-Roadway Warning Lights are compatible with the safety and operation of nearby intersections, which may or may not be, controlled by traffic signals or STOP/YIELD signs.**
- **C. Standard traffic signs for crossings and crosswalk pavement markings are provided.**
- **D. At least 40 pedestrians regularly use the crossing during each of any two hours (not necessarily consecutive) during a 24-hour period.**
- **E. The vehicular volume through the crossing exceeds 200 vehicles per hour in urban areas or 140 vehicles per hour in rural areas during peak-hour pedestrian usage.**
- **F. The critical approach speed (85th percentile) is 45 mph or less.**
- **G. In-Roadway Warning Lights are visible to drivers at the minimum stopping sight distance for the posted speed limit.**
- **H. Public education on In-Roadway Warning Lights is conducted for new installations.**

Option:

15 Overhead or roadside Flashing Yellow Beacons may be installed in conjunction with In-Roadway Warning Lights. In-Roadway Warning Lights may be installed independently, but are not necessarily intended to be a substitute for standard flashing beacons. Engineering judgment should be exercised.

*Guidance:*

16 *Typical applications of In-Roadway Warning Lights are shown in Figure 4N-101(CA).*

# CHAPTER 5B. REGULATORY SIGNS

## Section 5B.01 Introduction

Support:

01 The purpose of a regulatory sign is to inform highway users of traffic laws or regulations, and to indicate the applicability of legal requirements that would not otherwise be apparent.

02 The provisions for regulatory signs are contained in Chapter 2B and in other Sections of this Manual. Provisions for regulatory signs that are specific to low-volume roads are contained in this Chapter.

## Section 5B.02 STOP and YIELD Signs (R1-1 and R1-2)

*Guidance:*

01 *STOP (R1-1) and YIELD (R1-2) signs (see Figure 5B-1) should be considered for use on low-volume roads where engineering judgment or study, consistent with the provisions of Sections 2B.04 to 2B.10, indicates that either of the following conditions applies:*

*A. An intersection of a less-important road with a main road where application of the normal right-of-way rule might not be readily apparent.*

*B. An intersection that has restricted sight distance for the prevailing vehicle speeds.*

## Section 5B.03 Speed Limit Signs (R2 Series)

**Standard:**

01 **If used, Speed Limit (R2 series) signs (see Figure 5B-1) shall display the speed limit established by law, ordinance, regulation, or as adopted by the authorized agency following an engineering study. The displayed speed limits shall be in multiples of 5 mph.**

02 **Speed limits shall be established in accordance with Section 2B.13.**

Option:

03 Speed limit signs may be used on low-volume roads that carry traffic from, onto, or adjacent to higher-volume roads that have posted speed limits.

## Section 5B.04 Traffic Movement and Prohibition Signs (R3, R4, R5, R6, R9, R10, R11, R12, R13, and R14 Series)

Support:

01 The regulatory signs (see Figure 5B-1) in these series inform road users of required, permitted, or prohibited traffic movements involving turn, alignment, exclusion, and pedestrians.

**Standard:**

02 **If used, signs for traffic prohibitions or restrictions shall be placed in advance of the prohibition or restriction so that traffic can use an alternate route or turn around.**

*Guidance:*

03 *Signs should be used on low-volume roads to indicate traffic prohibitions and restrictions such as road closures and weight restrictions.*

Option:

04 Signs for traffic prohibitions or restrictions may be used on a low-volume road near and at the intersections or the connections with a higher class of road, and where the regulatory message is essential for transition from the low-volume road to the higher-class facility or vice versa.

## Section 5B.05 Parking Signs (R8 Series)

Support:

00 Provisions for parking signs are contained in Chapter 2B of this Manual.

Option:

01 Parking signs (see ~~Figure 5B-2~~ Figure 2B-24(CA)) may be installed selectively on low-volume roads with due consideration of enforcement.

## Section 5B.06 Other Regulatory Signs

**Standard:**

01 **Other regulatory signs used on low-volume roads that are not discussed in Part 5 shall comply with the provisions contained in other Parts of this Manual.**

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**Figure 5B-1. Regulatory Signs on Low-Volume Roads**

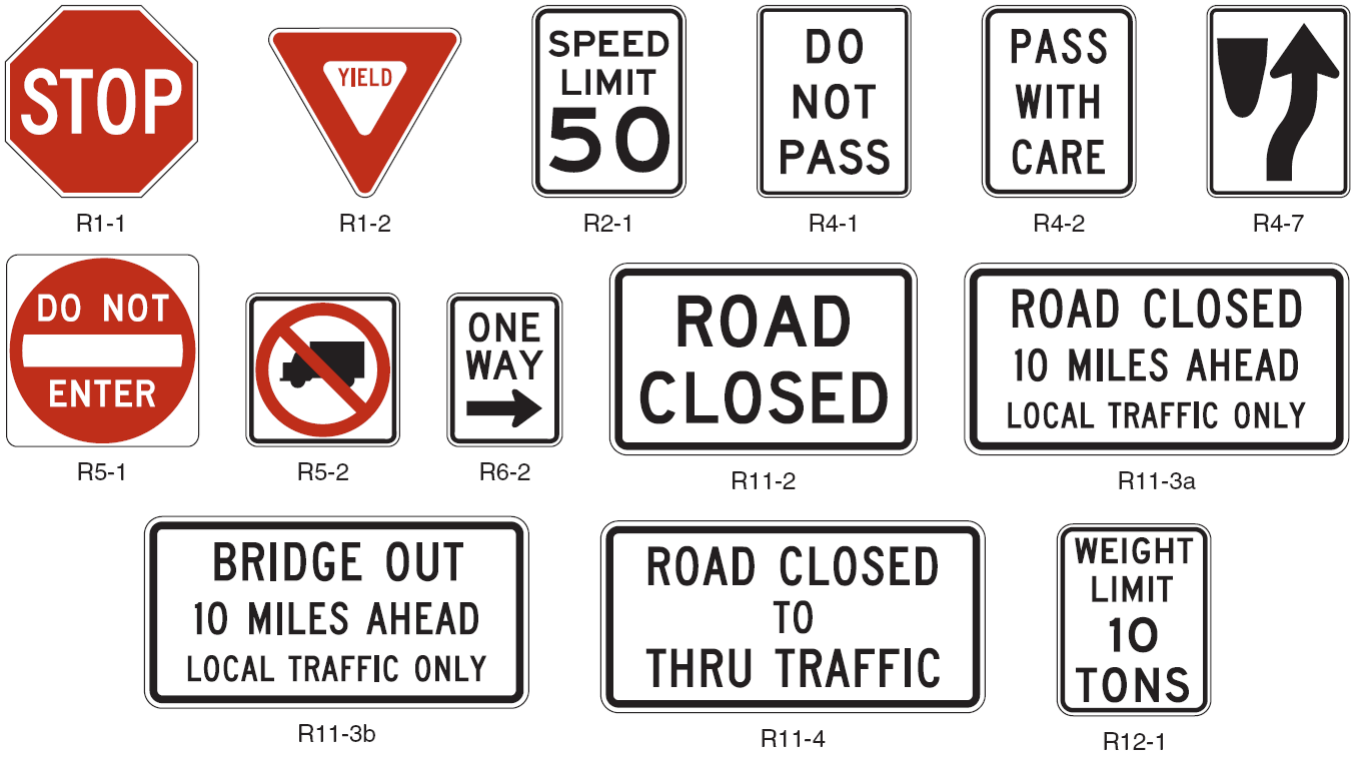


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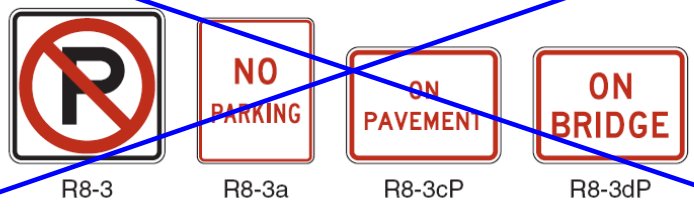
**Figure 5B-2. Parking Signs and Plaques on Low-Volume Roads**



# CHAPTER 6F. TEMPORARY TRAFFIC CONTROL ZONE DEVICES

## Section 6F.01 Types of Devices

*Guidance:*

01 *The design and application of TTC devices used in TTC zones should consider the needs of all road users (motorists, bicyclists, and pedestrians), including those with disabilities.*

Support:

02 FHWA policy requires that all roadside appurtenances such as traffic barriers, barrier terminals and crash cushions, bridge railings, sign and light pole supports, and work zone hardware used on the National Highway System meet the crashworthy performance criteria contained in the National Cooperative Highway Research Program (NCHRP) Report 350, "Recommended Procedures for the Safety Performance Evaluation of Highway Features" or the Manual for Assessing Safety Hardware (MASH). MASH crash testing guidelines were published by the American Association of State and Highway and Transportation Officials on November 20, 2009, and supersede NCHRP Report 350 for roadside safety hardware developed after January 1, 2011. The FHWA website at "http://safety.fhwa.dot.gov/programs/roadside_hardware.htm" identifies all such hardware and includes copies of FHWA acceptance letters for each of them. In the case of proprietary items, links are provided to manufacturers' websites as a source of detailed information on specific devices. The website also contains an "Ask the Experts" section where questions on roadside design issues can be addressed.

02a Caltrans adopted the Manual for Assessing Safety Hardware (MASH) crash testing guidelines in 2012 (TOPD 12-02) for testing and evaluating new roadside safety hardware, bridge railings and barriers and appurtenances to those new highway safety features.

03 Various Sections of the MUTCD require certain traffic control devices, their supports, and/or related appurtenances to be crashworthy. Such MUTCD crashworthiness provisions apply to all streets, highways, and private roads open to public travel (see definition in Section 1A.13). Also, State Departments of Transportation and local agencies might have expanded the NCHRP Report 350 crashworthy criteria to apply to certain other roadside appurtenances.

04 Crashworthiness and crash testing information on devices described in Part 6 are found in AASHTO's "Roadside Design Guide" (see Section 1A.11).

05 As defined in Section 1A.13, "crashworthy" is a characteristic of a roadside appurtenance that has been successfully crash tested in accordance with a national standard such as the NCHRP Report 350, "Recommended Procedures for the Safety Performance Evaluation of Highway Features" or MASH crash guidelines.

**Standard:**

06 **Traffic control devices shall be defined as all signs, signals, markings, and other devices used to regulate, warn, or guide road users, placed on, over, or adjacent to a street, highway, private roads open to public travel (see definition in Section 1A.13), pedestrian facility, or bikeway by authority of a public body or official having jurisdiction.**

07 **All traffic control devices used for construction, maintenance, utility, or incident management operations on a street, highway, or private road open to public travel (see definition in Section 1A.13) shall comply with the applicable provisions of this Manual.**

08 **Caltrans shall implement NCHRP 350 or MASH criteria for crashworthy TTC devices in TTC zones on all State highways effective as of December 1, 2005. Crashworthiness of TTC devices shall be substantiated. When no longer needed, TTC devices shall be removed from the TTC zone.**

09 **Crashworthiness of TTC devices shall be substantiated as follows:**

10 **Category 1 devices purchased after October 1, 1998 shall be employed based on the vendor's self-certification. Self-certification shall be based on crash testing, crash testing of similar devices, or years of demonstrable safe performance.**

11 **Category 2 devices shall be on FHWA's list of Acceptable Crashworthy Category 2 Hardware for Work Zones which meet NCHRP Report 350 or MASH criteria for crashworthiness. Category 2 devices that have not received FHWA acceptance and were purchased before October 1, 2000, shall not be used. Category 2 devices in use that have received FHWA acceptance shall be labeled with the FHWA acceptance letter number and the name of the**

**manufacturer by the start of the project. The label shall be readable and permanently affixed by the manufacturer. Category 2 devices without a label shall not be used in highway work zones.**

12 **Category 3 devices shall be crash tested in accordance with NCHRP Report 350 or MASH criteria. Caltrans shall include Standard Special Provision (SSP) 12-000, Standard Plans and construction details in all contract documents.**

Support:

13 For Category 3, the compliance date was October 1, 1998 for truck mounted attenuators and work zone crash cushions. The compliance date for other Category 3 devices was October 1, 2002.

## Section 6F.02 General Characteristics of Signs

Support:

01 TTC zone signs convey both general and specific messages by means of words, symbols, and/or arrows and have the same three categories as all road user signs: regulatory, warning, and guide.

**Standard:**

02 **The colors for regulatory signs shall follow the Standards for regulatory signs in Table ~~2A-5~~ 2A-5(CA) and Chapter 2B. Warning signs in TTC zones shall have a black legend and border on an orange background, except for the Grade Crossing Advance Warning (W10-1) sign which shall have a black legend and border on a yellow background, and except for signs that are required or recommended in Parts 2 or 7 to have fluorescent yellow-green backgrounds. Colors for guide signs shall follow the Standards in Table ~~2A-5~~ 2A-5(CA) and Chapter 2D, except for guide signs as otherwise provided in Section 6F.55.**

Option:

03 Where the color orange is required, the fluorescent orange color may also be used.

Support:

04 The fluorescent version of orange provides higher conspicuity than standard orange, especially during twilight.

Option:

05 Existing warning signs that are still applicable may remain in place.

06 In order to maintain the systematic use of yellow or fluorescent yellow-green backgrounds for pedestrian, bicycle, and school warning signs in a jurisdiction, the yellow or fluorescent yellow-green background for pedestrian, bicycle, and school warning signs may be used in TTC zones.

07 Standard orange flags or flashing warning lights may be used in conjunction with signs.

**Standard:**

08 **When standard orange flags or flashing warning lights are used in conjunction with signs, they shall not block the sign face.**

09 **Except as provided in Section 2A.11, the sizes for TTC signs and plaques shall be as shown in Table 6F-1 and 6F-1(CA). The sizes in the minimum column shall only be used on local streets or roadways where the 85th-percentile speed or posted speed limit is less than 35 mph.**

Option:

10 The dimensions of signs and plaques shown in Table 6F-1 and 6F-1(CA) may be increased wherever necessary for greater legibility or emphasis.

**Standard:**

11 **Deviations from standard sizes as prescribed in this Manual shall be in 6-inch increments.**

Support:

12 Sign design details are contained in the "Standard Highway Signs and Markings" book (see Section 1A.11).

13 Section 2A.06 contains additional information regarding the design of signs, including an Option allowing the development of special word message signs if a standard word message or symbol sign is not available to convey the necessary regulatory, warning, or guidance information.

**Standard:**

14 **All signs used at night shall be either retroreflective with a material that has a smooth, sealed outer surface or illuminated to show the same shape and similar color both day and night.**

15 **The requirement for sign illumination shall not be considered to be satisfied by street, highway, or strobe lighting.**

15a **TTC zone signs used at night shall maintain retroreflectivity at or above the minimum levels in Table 2A-3.**

Option:

16 Sign illumination may be either internal or external.

17 Signs may be made of rigid or flexible material.

Support:

18 Sign design details are contained in FHWA's "Standard Highway Signs and Markings" book and Caltrans' California Sign Specifications. See Section 1A.11 for information regarding these publications.

## Section 6F.03 Sign Placement

*Guidance:*

01 *Signs should be located on the right-hand side of the roadway unless otherwise provided in this Manual.*

Option:

02 Where special emphasis is needed, signs may be placed on both the left-hand and right-hand sides of the roadway. Signs mounted on portable supports may be placed within the roadway itself. Signs may also be mounted on or above barricades.

Support:

03 The provisions of this Section regarding mounting height apply unless otherwise provided for a particular sign elsewhere in this Manual.

**Standard:**

04 **The minimum height, measured vertically from the bottom of the sign to the elevation of the near edge of the pavement, of signs installed at the side of the road in rural areas shall be 5 feet (see Figure 6F-1).**

05 **The minimum height, measured vertically from the bottom of the sign to the top of the curb, or in the absence of curb, measured vertically from the bottom of the sign to the elevation of the near edge of the traveled way, of signs installed at the side of the road in business, commercial, or residential areas where parking or pedestrian movements are likely to occur, or where the view of the sign might be obstructed, shall be 7 feet (see Figure 6F-1).**

06 **The minimum height, measured vertically from the bottom of the sign to the sidewalk, of signs installed above sidewalks shall be 7 feet.**

Option:

07 The height to the bottom of a secondary sign mounted below another sign may be 1 foot less than the height provided in Paragraphs 4 through 6.

*Guidance:*

08 ~~*Neither portable nor permanent sign supports should be located on sidewalks, bicycle facilities, or areas designated for pedestrian or bicycle traffic.*~~ *Sign supports should be located so as to accommodate pedestrians and bicyclists in areas designated for their use. A minimum lateral width of 4 feet should be maintained for pedestrian pathways. If the bottom of a secondary sign that is mounted below another sign is mounted lower than 7 feet above a pedestrian sidewalk or pathway (see Section 6D.02), the secondary sign should not project more than 4 inches into the pedestrian facility.*

**Standard:**

09 **Where it has been determined that the accommodation of pedestrians with disabilities is necessary, signs shall be mounted and placed in accordance with Section 4.4 of the "Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG)" (see Section 1A.11).**

10 **Signs mounted on barricades and barricade/sign combinations shall be crashworthy.**

*Guidance:*

11 *Except as provided in Paragraph 12, signs (see Figures 6F-3, 6F-4 and 6F-5) mounted on portable sign supports that do not meet the minimum mounting heights provided in Paragraphs 4 through 6 should not be used for a duration of more than 3 days.*

Option:

12 The R9-8 through R9-11a series, R11 series, W1-6 through W1-8 series, M4-10, E5-1, ~~or other similar type signs (see Figures 6F-3, 6F-4, and 6F-5)~~ may be used on portable sign supports that do not meet the minimum mounting heights provided in Paragraphs 4 through 6 for longer than 3 days.

Support:

13 Methods of mounting signs other than on posts are illustrated in Figure 6F-2.

*Guidance:*

14 *Signs mounted on Type 3 Barricades should not cover more than 50 percent of the top two rails or 33 percent of the total area of the three rails.*

**Standard:**

15 **Sign supports shall be crashworthy. 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.**

16 **The bottom of a sign mounted on a barricade, or other portable support, shall be at least 1 foot above the traveled way.**

Option:

17 For mobile operations, a sign may be mounted on a work vehicle, a shadow vehicle, or a trailer stationed in advance of the TTC zone or moving along with it.

Support:

18 If alterations are made to specific traffic control device supports that have been successfully crash tested in accordance with NCHRP Report 350 or MASH crash guidelines, the altered supports might not be considered to be crashworthy.

19 Refer to Section 2A.21 for mounting of small plastic signs on channelizers (CA), cones or portable delineators.

## Section 6F.04 Sign Maintenance

*Guidance:*

01 *Signs should be properly maintained for cleanliness, visibility, and correct positioning.*

02 *Signs that have lost significant legibility should be promptly replaced.*

Support:

03 Section 2A.08 contains information regarding the retroreflectivity of signs, including the signs that are used in TTC zones.

## Section 6F.05 Regulatory Sign Authority

Support:

01 Regulatory signs such as those shown in Figure 6F-3 inform road users of traffic laws or regulations and indicate the applicability of legal requirements that would not otherwise be apparent.

**Standard:**

02 **Regulatory signs shall be authorized by the public agency or official having jurisdiction and shall conform with Chapter 2B.**

Support:

03 Some of the California regulatory signs used in TTC zones are shown in Figure 6F-101(CA) and Table 6F-1(CA).

## Section 6F.06 Regulatory Sign Design

**Standard:**

01 **TTC regulatory signs shall comply with the Standards for regulatory signs presented in Part 2 and in the FHWA's "Standard Highway Signs and Markings" book (see Section 1A.11).**

Support:

02 Regulatory signs are generally rectangular with a black legend and border on a white background. Exceptions include the STOP, YIELD, DO NOT ENTER, WRONG WAY, and ONE WAY signs.

Option:

03 The ONE WAY sign may be either a horizontal or vertical rectangular sign.

## Section 6F.07 Regulatory Sign Applications

**Standard:**

01 **If a TTC zone requires regulatory measures different from those existing, the existing permanent regulatory devices shall be removed or covered and superseded by the appropriate temporary regulatory signs. This change shall be made in compliance with applicable ordinances or statutes of the jurisdiction.**

## Section 6F.08 ROAD (STREET) CLOSED Sign (R11-2)

*Guidance:*

01 *The ROAD (STREET) CLOSED (R11-2) sign (see Figure 6F-3) should be used when the roadway is closed to all road users except contractors' equipment or officially authorized vehicles. The R11-2 sign should be accompanied by appropriate warning and detour signing.*

Option:

02 The words ~~BRIDGE OUT (or~~ BRIDGE CLOSED~~)~~ may be substituted for ROAD (STREET) CLOSED where applicable.

*Guidance:*

03 *The ROAD (STREET) CLOSED sign should be installed at or near the center of the roadway on or above a Type 3 Barricade that closes the roadway (see Section 6F.68).*

**Standard:**

04 **The ROAD (STREET) CLOSED sign shall not be used where road user flow is maintained through the TTC zone with a reduced number of lanes on the existing roadway or where the actual closure is some distance beyond the sign.**

## Section 6F.09 Local Traffic Only Signs (R11-3a, R11-4)

*Guidance:*

01 *The Local Traffic Only signs (see Figure 6F-3) should be used where road user flow detours to avoid a closure some distance beyond the sign, but where local road users can use the roadway to the point of closure. These signs should be accompanied by appropriate warning and detour signing.*

02 *In rural applications, the Local Traffic Only sign should have the legend ROAD CLOSED XX MILES AHEAD, LOCAL TRAFFIC ONLY (R11-3a).*

Option:

03 In urban areas, the legend ROAD (STREET) CLOSED TO THRU TRAFFIC (R11-4) or ROAD CLOSED, LOCAL TRAFFIC ONLY may be used.

04 In urban areas, a word message that includes the name of an intersecting street name or well-known destination may be substituted for the words XX MILES AHEAD on the R11-3a sign where applicable.

05 The words ~~BRIDGE OUT (or~~ BRIDGE CLOSED~~)~~ may be substituted for the words ROAD (STREET) CLOSED on the R11-3a or R11-4 sign where applicable.

Option:

06 The word RAMP may be substituted for ROAD or STREET where applicable.

## Section 6F.10 Weight Limit Signs (R12-1, R12-2, R12-5)

**Standard:**

01 **A Weight Limit sign (see Figure 6F-3), which shows the gross weight ~~or axle weight~~ that is permitted on the roadway or bridge, shall be consistent with State or local regulations and shall not be installed without the approval of the authority having jurisdiction over the highway.**

02 **When weight restrictions are imposed because of the activity in a TTC zone, a marked detour shall be provided for vehicles weighing more than the posted limit.**

## Section 6F.11 STAY IN LANE Sign (R4-9)

Option:

01 A STAY IN LANE (R4-9) sign (see Figure 6F-3) may be used where a multi-lane shift has been incorporated as part of the TTC on a highway to direct road users around road work that occupies part of the roadway on a multi-lane highway.

## Section 6F.12 Work Zone and Higher Fines Signs and Plaques

Option:

01 A WORK ZONE (G20-5aP) plaque (see Figure 6F-3) may be mounted above a Speed Limit (R2-1) sign to emphasize that a reduced speed limit is in effect within a TTC zone. An END WORK ZONE SPEED LIMIT (R2-12) sign (see Figure 6F-3) may be installed at the downstream end of the reduced speed limit zone.

*Guidance:*

02 *A BEGIN ~~HIGHER~~ DOUBLE FINES ZONE (R2-10) sign (see Figure 6F-3) should be installed at the upstream end of a work zone where increased fines are imposed for traffic violations, and an END ~~HIGHER~~*

*DOUBLE FINES ZONE (R2-11) sign (see Figure 6F-3) should be installed at the downstream end of the work zone.*

Option:

03 Alternate legends such as BEGIN (or END) DOUBLE FINES ZONE may also be used for the R2-10 and R2-11 signs.

04 A ~~FINES HIGHER,~~ FINES DOUBLE, ~~or $XX FINE~~ plaque (see Section 2B.17 and Figure 6F-3) may be mounted below the Speed Limit sign if increased fines are imposed for traffic violations within the TTC zone.

05 Individual signs and plaques for work zone speed limits and higher fines may be combined into a single sign or may be displayed as an assembly of signs and plaques.

06 The TRAFFIC FINES DOUBLED IN CONSTRUCTION ZONES (C40(CA)) and TRAFFIC FINES DOUBLED IN WORK ZONES (C40A(CA)) signs may be placed approximately 500 feet in advance of the first required TTC sign(s). The placement of the C40(CA) and C40A(CA) signs is at the discretion of the responsible person(s) in charge of the work zone.

Support:

07 Refer to CVC 42009 for fines for offenses committed in highway construction or maintenance area. In California, as per CVC only doubling of the fines is allowed, not higher fines of other denominations.

*Guidance:*

08 *The C40A(CA) sign is intended to be manufactured as a fabric sign and should be used on a short term (daily) basis only. Longer term situations should use the C40(CA) sign.*

Support:

09 CVC 22362 applies to "When Workers are Present" condition and signs need to be covered or removed when no work is in progress. However, 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.

Option:

10 The Speed Limit (R2-1) sign with a WORK ZONE (G20-5aP) plaque mounted above it may be used for the protection of workers during working hours to reduce speed limit within a TTC zone.

**Standard:**

11 **The R2-1 sign with G20-5aP plaque mounted above it shall only be used in conjunction with appropriate advance warning signs.**

12 **The R2-1 signs with G20-5aP plaques mounted above them shall be removed or covered promptly when no longer applicable.**

Support:

14 The R2-1 sign with G20-5aP mounted above it is authorized for use by CVC Section 22362. This section provides authority to post a speed limit of not less than 25 mph at locations where employees of any contractor, or of the agency in charge of the job, are engaged in work upon the roadway.

15 Posting unrealistically low speed limits will result in loss of sign credibility and a high violation rate.

*Guidance:*

16 *Before using a R2-1 sign with G20-5aP plaque mounted above it, work zone conditions should be analyzed to determine what maximum speed limit would be appropriate for that particular location.*

17 *The R2-1 sign with G20-5aP plaque mounted above it should be placed within 400 feet of the zone where workers are on the roadway or so nearly adjacent as to be endangered by traffic.*

Option:

18 The R2-1 sign with G20-5aP plaque mounted above it may be provided by the agency having jurisdiction over the street or road.

*Guidance:*

19 *The R2-1 sign with G20-5aP plaque mounted above it should be posted a maximum distance of 400 feet in advance of where, and when workers are present; and the Speed Reduction (W3-5) sign or Speed Zone Ahead (R2-4(CA)) sign informs road users of the reduced speed limit TTC zone.*

20 *As the TTC zone activities change, signs should be moved as appropriate.*

## Section 6F.13 PEDESTRIAN CROSSWALK Sign (R9-8)

Option:

01 The PEDESTRIAN CROSSWALK (R9-8) sign (see Figure 6F-3) may be used to indicate where a temporary crosswalk has been established.

**Standard:**

02 **If a temporary crosswalk is established, it shall be accessible to pedestrians with disabilities in accordance with Section 6D.02.**

## Section 6F.14 SIDEWALK CLOSED Signs (R9-9, R9-10, R9-11, R9-11a)

*Guidance:*

01 *SIDEWALK CLOSED signs (see Figure 6F-3) should be used where pedestrian flow is restricted. Bicycle/Pedestrian Detour (M4-9a) signs or Pedestrian Detour (M4-9b) signs should be used where pedestrian flow is rerouted (see Section 6F.59).*

02 *The SIDEWALK CLOSED (R9-9) sign should be installed at the beginning of the closed sidewalk, at the intersections preceding the closed sidewalk, and elsewhere along the closed sidewalk as needed.*

03 *The SIDEWALK CLOSED, (ARROW) USE OTHER SIDE (R9-10) sign should be installed at the beginning of the restricted sidewalk when a parallel sidewalk exists on the other side of the roadway.*

04 *The SIDEWALK CLOSED AHEAD, (ARROW) CROSS HERE (R9-11) sign should be used to indicate to pedestrians that sidewalks beyond the sign are closed and to direct them to open crosswalks, sidewalks, or other travel paths.*

05 *The SIDEWALK CLOSED, (ARROW) CROSS HERE (R9-11a) sign should be installed just beyond the point to which pedestrians are being redirected.*

Support:

06 These signs are typically mounted on a detectable barricade to encourage compliance and to communicate with pedestrians that the sidewalk is closed. Printed signs are not useful to many pedestrians with visual disabilities. A barrier or barricade detectable by a person with a visual disability is sufficient to indicate that a sidewalk is closed. If the barrier is continuous with detectable channelizing devices for an alternate route, accessible signing might not be necessary. An audible information device is needed when the detectable barricade or barrier for an alternate channelized route is not continuous.

## Section 6F.15 Special Regulatory Signs

Option:

01 Special regulatory signs may be used based on engineering judgment consistent with regulatory requirements.

*Guidance:*

02 *Special regulatory signs should comply with the general requirements of color, shape, and alphabet size and series. The sign message should be brief, legible, and clear.*

## Section 6F.16 Warning Sign Function, Design, and Application

Support:

01 TTC zone warning signs (see Figure 6F-4) notify road users of specific situations or conditions on or adjacent to a roadway that might not otherwise be apparent.

**Standard:**

02 **TTC warning signs shall comply with the Standards for warning signs presented in Part 2 and in FHWA's "Standard Highway Signs and Markings" book (see Section 1A.11). Except as provided in Paragraph 3, TTC warning signs shall be diamond-shaped with a black legend and border on an orange (or fluorescent orange) background, except for the W10-1 sign which shall have a black legend and border on a yellow (or fluorescent yellow) background, and except for signs that are required or recommended in Parts 2 or 7 to have fluorescent yellow-green backgrounds.**

Option:

03 Warning signs used for TTC incident management situations may have a black legend and border on a fluorescent pink background.

04 Mounting or space considerations may justify a change from the standard diamond shape.

05 In emergencies, available warning signs having yellow backgrounds may be used if signs with orange or fluorescent pink backgrounds are not at hand.

*Guidance:*

06 *Where roadway or road user conditions require greater emphasis, larger than standard size warning signs should be used, with the symbol or legend enlarged approximately in proportion to the outside dimensions.*

07 *Where any part of the roadway is obstructed or closed by work activities or incidents, advance warning signs should be installed to alert road users well in advance of these obstructions or restrictions.*

08 *Where road users include pedestrians, the provision of supplemental audible information or detectable barriers or barricades should be considered for people with visual disabilities.*

Support:

09 Detectable barriers or barricades communicate very clearly to pedestrians who have visual disabilities that they can no longer proceed in the direction that they are traveling.

Option:

10 Advance warning signs may be used singly or in combination.

11 Where distances are not displayed on warning signs as part of the message, a supplemental plaque with the distance legend may be mounted immediately below the sign on the same support.

Support:

12 Some of the California warning signs used in TTC zones are shown in Figure 6F-101(CA) and Table 6F-1(CA).

## Section 6F.17 Position of Advance Warning Signs

*Guidance:*

01 *Where highway conditions permit, warning signs should be placed in advance of the TTC zone at varying distances depending on roadway type, condition, and posted speed. Table 6C-1 contains information regarding the spacing of advance warning signs. Where a series of two or more advance warning signs is used, the closest sign to the TTC zone should be placed approximately 100 feet for low-speed urban streets to 1,000 feet or more for freeways and expressways.*

02 *Where multiple advance warning signs are needed on the approach to a TTC zone, the ROAD WORK AHEAD (W20-1) sign should be the first advance warning sign encountered by road users.*

Support:

03 Various conditions, such as limited sight distance or obstructions that might require a driver to reduce speed or stop, might require additional advance warning signs.

Option:

04 As an alternative to a specific distance on advance warning signs, the word AHEAD may be used.

Support:

05 At TTC zones on lightly-traveled roads, all of the advance warning signs prescribed for major construction might not be needed.

Option:

06 Utility work, maintenance, or minor construction can occur within the TTC zone limits of a major construction project, and additional warning signs may be needed.

*Guidance:*

07 *Utility, maintenance, and minor construction signing and TTC should be coordinated with appropriate authorities so that road users are not confused or misled by the additional TTC devices.*

## Section 6F.18 ROAD (STREET) WORK Sign (W20-1)

*Guidance:*

01 *The ROAD (STREET) WORK (W20-1) sign (see Figure 6F-4), which serves as a general warning of obstructions or restrictions, should be located in advance of the work space or any detour, on the road where the work is taking place.*

02 *Where traffic can enter a TTC zone from a crossroad or a major (high-volume) driveway, an advance warning sign should be used on the crossroad or major driveway.*

**Standard:**

03 **The ROAD (STREET) WORK (W20-1) sign shall have the legend ROAD (STREET) WORK, XX FEET, XX MILES, or AHEAD.**

## Section 6F.65 Tubular Markers

Support:

00a Tubular markers are used to guide and channelize traffic for temporary traffic control. Tubular markers generally have the same circular cross-section throughout their length. Tubular markers may be affixed to the ground or may be portable. There are three types of tubular markers and they are defined as following:

00b The term "tubular marker" is used for a tubular marker that is affixed to the pavement and is cylindrical from top to bottom

00c The term "channelizer (CA)" is a special type of tubular marker that is affixed to the pavement and has a cylindrical lower portion and a flattened upper portion. This term "channelizer (CA)" is not to be confused with the term "channelizing device(s)" in Section 6F.63. Although it is similar to the channelizer for permanent use, as discussed in Section 3H.01 and shown in Figure 3H-101(CA), there are differences. The channelizer (CA) is used for temporary traffic control.

00d The term "portable delineator" is used to describe a tubular marker that is not affixed to the pavement but stabilized by using a weighted base or weights, and is cylindrical from top to bottom. This term "portable delineator" is not to be confused with the term "delineator " in Section 6F.80.

**Standard:**

00e **The retroreflectorized bands for tubular markers, channelizers (CA), and portable delineators shall be visible at 1000 feet during night under illumination of legal high beam headlights, by persons with vision of or corrected to 20/20.**

Support:

00f Refer to Caltrans' Standard Specifications Section 12-3.01A(4) for visibility criteria cited. See Section 1A.11 for information regarding this publication.

### Tubular Marker

**Standard:**

01 **Tubular markers (see Figure 6F-7) shall be predominantly orange and shall be not less than 18 inches high and 2 inches wide facing road users. They shall be made of a material that can be struck without causing damage to the impacting vehicle.**

02 **Tubular markers shall be a minimum of 28 inches in height when they are used on freeways and other high-speed highways, on all highways during nighttime, or whenever more conspicuous guidance is needed.**

03 **For nighttime use, tubular markers shall be retroreflectorized. Retroreflectorization of tubular markers that have a height of less than 42 inches shall be provided by two 3-inch wide white bands placed a maximum of 2 inches from the top with a maximum of 6 inches between the bands. Retroreflectorization of tubular markers that have a height of 42 inches or more shall be provided by four 4- to 6-inch wide alternating orange and white stripes with the top stripe being orange.**

Support:

03a The 42 inch high tubular markers provide additional conspicuity in visually complex environments and for older road users.

*Guidance:*

04 *Tubular markers have less visible area than other devices and should be used only where space restrictions do not allow for the use of other more visible devices.*

05 *Tubular markers should be stabilized by affixing them to the pavement~~, by using weighted bases, or weights such as sandbag rings that can be dropped over the tubular markers and onto the base to provide added stability. Ballast should be kept to the minimum amount needed~~.*

Option:

06 Tubular markers may be used effectively to divide opposing lanes of road users, divide vehicular traffic lanes when two or more lanes of moving vehicular traffic are kept open in the same direction, and to delineate the edge of a pavement drop off where space limitations do not allow the use of larger devices.

**Standard:**

07 **A tubular marker shall be attached to the pavement to display the minimum 2-inch width to the approaching road users.**

**Portable Delineator**

**Standard:**

08 **The design of a portable delineator shall be as shown in Figure 6F-102(CA).** 09 **Portable delineators shall be a minimum of 36 inches in height. The vertical portion of portable delineators shall be fluorescent orange or predominantly orange. The posts shall be not less than 3 inches in width or diameter. Retroreflectorization of portable delineators that have a height of less than 42 inches shall be provided by two 3-inch wide white bands placed a maximum of 2 inches from the top with a maximum of 6 inches between the bands. Retroreflectorization of portable delineators that have a height of 42 inches or more shall be provided by four 4-inch to 6-inch wide alternating orange and white stripes with the top stripe being orange.**

Support:

10 The 42 inch or higher portable delineators provide additional conspicuity in visually complex environments and for older road users.

*Guidance:*

*11 Portable delineators have less visible area than other devices and should be used only where space restrictions do not allow for the use of other more visible devices.*

*12 Portable delineators should be stabilized by using weighted bases, or weights such as sandbag rings that can be dropped over the portable delineators and onto the base to provide added stability. Ballast should be kept to the minimum amount needed.*

Option:

13 Portable delineators may be used effectively to divide opposing lanes of road users, divide vehicular traffic lanes when two or more lanes of moving vehicular traffic are kept open in the same direction, and to delineate the edge of a pavement drop off where space limitations do not allow the use of larger devices.

**Channelizer(CA)**

**Standard:**

14 **When a channelizer (CA) is used, it shall be attached to the pavement in a manner such that the retroreflectorized bands facing road users meet the minimum visibility requirements.**

15 **The design of a channelizer (CA) shall be as shown in Figure 6F-102(CA). The height shall be 36 inch minimum where speeds are above 40 mph. The height shall be 28 inch minimum where speeds are 40 mph or less. The width of the post shall be 2 ¼ inch minimum and the color predominantly orange. Channelizers (CA) shall be affixed with retroreflective white sheeting, 3 by 12 inches in size.**

Support:

16 Channelizers (CA) are implanted in the ground or affixed to the pavement, and are not susceptible to displacement, and are capable of normally withstanding numerous vehicular impacts.

17 Channelizers (CA) are generally used in series to create a visual fence/barrier, to provide additional guidance and/or restriction to traffic.

Option:

18 Channelizers (CA) may be used in lieu of cones, portable delineators, or drums, to channelize traffic or divide opposing lanes of traffic.

## Section 6F.66 Vertical Panels

**Standard:**

01 **Vertical panels (see Figure 6F-7) shall have retroreflective striped material that is 8 to 12 inches in width and at least 24 inches in height. They shall have alternating diagonal orange and white retroreflective stripes sloping downward at an angle of 45 degrees in the direction vehicular traffic is to pass.**

02 **Where the height of the retroreflective material on the vertical panel is 36 inches or more, a stripe width of 6 inches shall be used.**

*Guidance:*

*02a Vertical panels should be a minimum of 12 inch in width.*

Option:

03 Where the height of the retroreflective material on the vertical panel is less than 36 inches, a stripe width of 4 inches may be used.

## Section 6F.106(CA) Slow For The Cone Zone (SC19(CA) and SC20(CA)) Signs

Option:

01 The Slow For The Cone Zone (SC19(CA)) and SLOW FOR THE CONE ZONE (SC20(CA)) signs (see Figures 6H-32(CA), 6H-33 & 6H-36(CA)) may be used to remind motorists to slow down when entering a temporary traffic control (TTC) zone to improve worker and road user safety.

02 If used, SC19(CA) and/or SC20(CA) signs may be used within the advance warning area, transition area, or activity area of a TTC zone.

03 A pictograph may be used on the SC19(CA) sign to identify a governmental jurisdiction, an area of jurisdiction, a governmental agency, a military base or branch of service, a governmental-approved university or college, or a governmental-approved institution.

**Standard:**

04 **If a pictograph is used on the SC19(CA) sign, the maximum dimension (height or width) of a pictograph shall not exceed two times the letter height of the largest legend used on the sign.**

## Section 6F.107(CA) FRESH CONCRETE (C43(CA)) Sign

Option:

01 The FRESH CONCRETE (C43(CA)) sign (see Figure 6F-101(CA)) may be used to warn road users of the surface treatment.

**Standard:**

02 **When used, the FRESH CONCRETE (C43(CA)) sign shall be placed at the beginning of the pavement work area.**

*Guidance:*

03 *The FRESH CONCRETE (C43(CA)) sign should remain in place during the entire curing period.*

## Section 6F.108(CA) CAUTION FREQUENT STOPPING AND BACKING STAY BACK 100 FEET (SC21(CA)) Sign and MOVE OVER OR SLOW WHEN AMBER LIGHTS FLASHING (R111(CA)) Sign

Option:

01 For mobile operations, CAUTION FREQUENT STOPPING AND BACKING STAY BACK 100 FEET (SC21(CA)) sign (see Figure 6F-101(CA)) may be mounted on a work vehicle to warn road users and workers of the frequent stopping and backing maneuvers made by the vehicle.

02 On Freeways, lane and/or shoulder closures, incident management, and for short duration work, MOVE OVER OR SLOW WHEN AMBER LIGHTS FLASHING (R111(CA)) sign (see Figure 6F-101(CA)) may be temporarily displayed on the back of a work vehicle to warn and regulate road users to move over and/or slow when passing work vehicles displaying a flashing amber warning light within or adjacent to the highway.

## Section 6F.109(CA) Construction Funding Identification (C47(CA) Series) Signs

Option:

01 For use on projects with estimated contract costs of $750,000 or more and 50 working days or more, or 70 working days minimum when Saturdays or holidays are counted as working days, the Construction Funding Identification (C47(CA) Series) signs may be used to identify funding sources for a highway project. Formats of the sign series are flexible to include federal, state and/or local agency funding sources. See Figure 6F-101(CA).

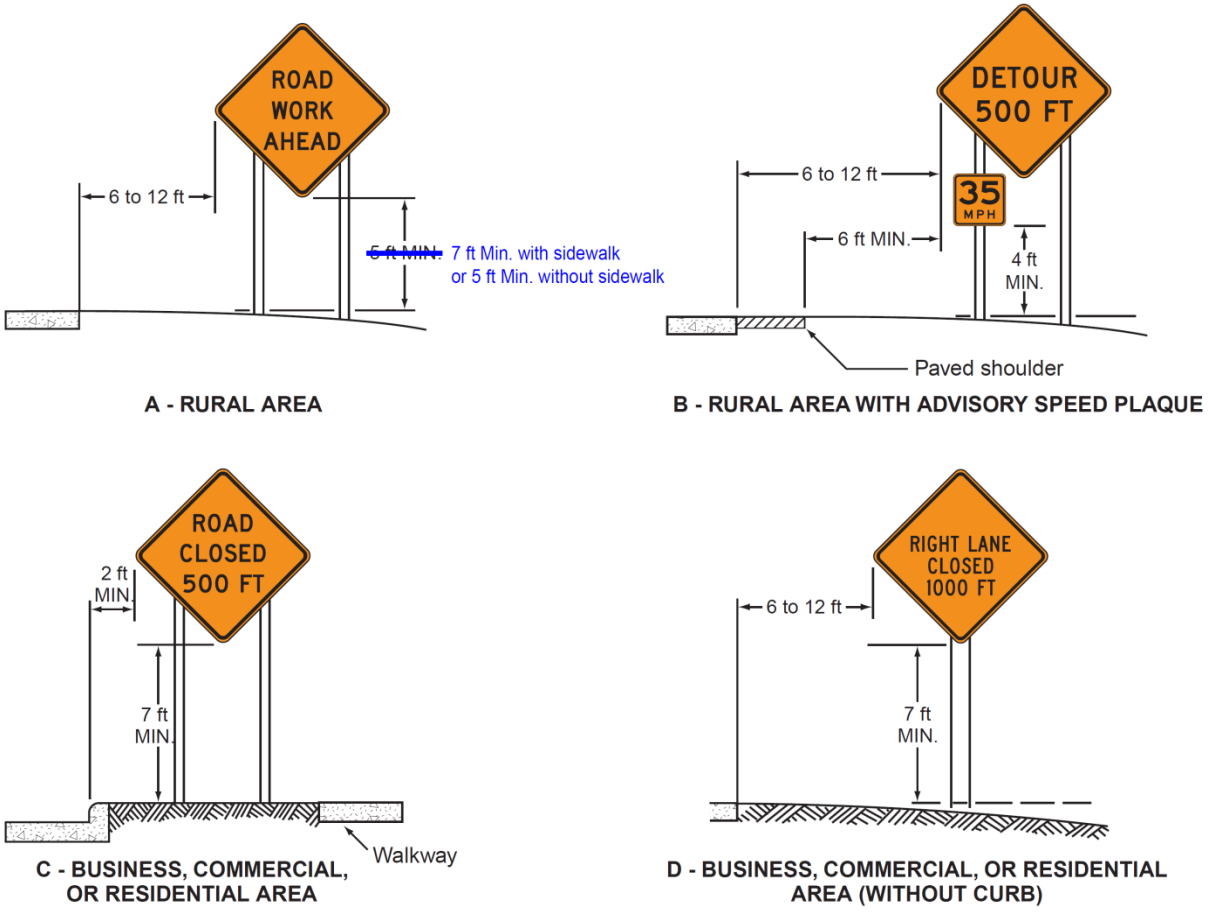
**Standard:**

02 **If used, header panel shall include local agency pictograph and legend designed to fit within fluorescent orange portion, or shall include legend "Your Tax Dollars AT WORK" with a scaled image of the SLOW FOR THE CONE ZONE (SC19(CA)) sign to fit. Installation shall be placed in advance of temporary traffic control zone signs, one sign installed in each direction on up to two approaches.**

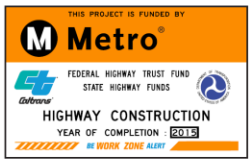
*Guidance:*

03 *Information on the sign should include type of project, such as Highway Construction, Highway Repair, Highway Improvement, Bridge Construction, Bridge Repair, or Roadside Work; types of funding, such as FEDERAL HIGHWAY TRUST FUNDS, STATE HIGHWAY FUNDS, STATE TRANSPORTATION BOND FUNDS, and/or COUNTY (CITY, RTPO, or MPO) TRANSPORTATION FUNDS; and anticipated year of completion, according to established contract completion schedule.*

## Figure 6F-1. Height and Lateral Location of Signs—Typical Installations



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




C47A (CA)


C47B (CA)


R111 (CA)


R115 (CA)


SC3 (CA)

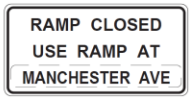

SC5 (CA)


SC6A (CA)


SC6B (CA)


SC6-3 (CA)


SC6-4 (CA)




SC7 (CA)


SC8 (CA)


SC9 (CA)


SC10 (CA)


SC11 (CA)


SC13 (CA)


SC15 (CA)

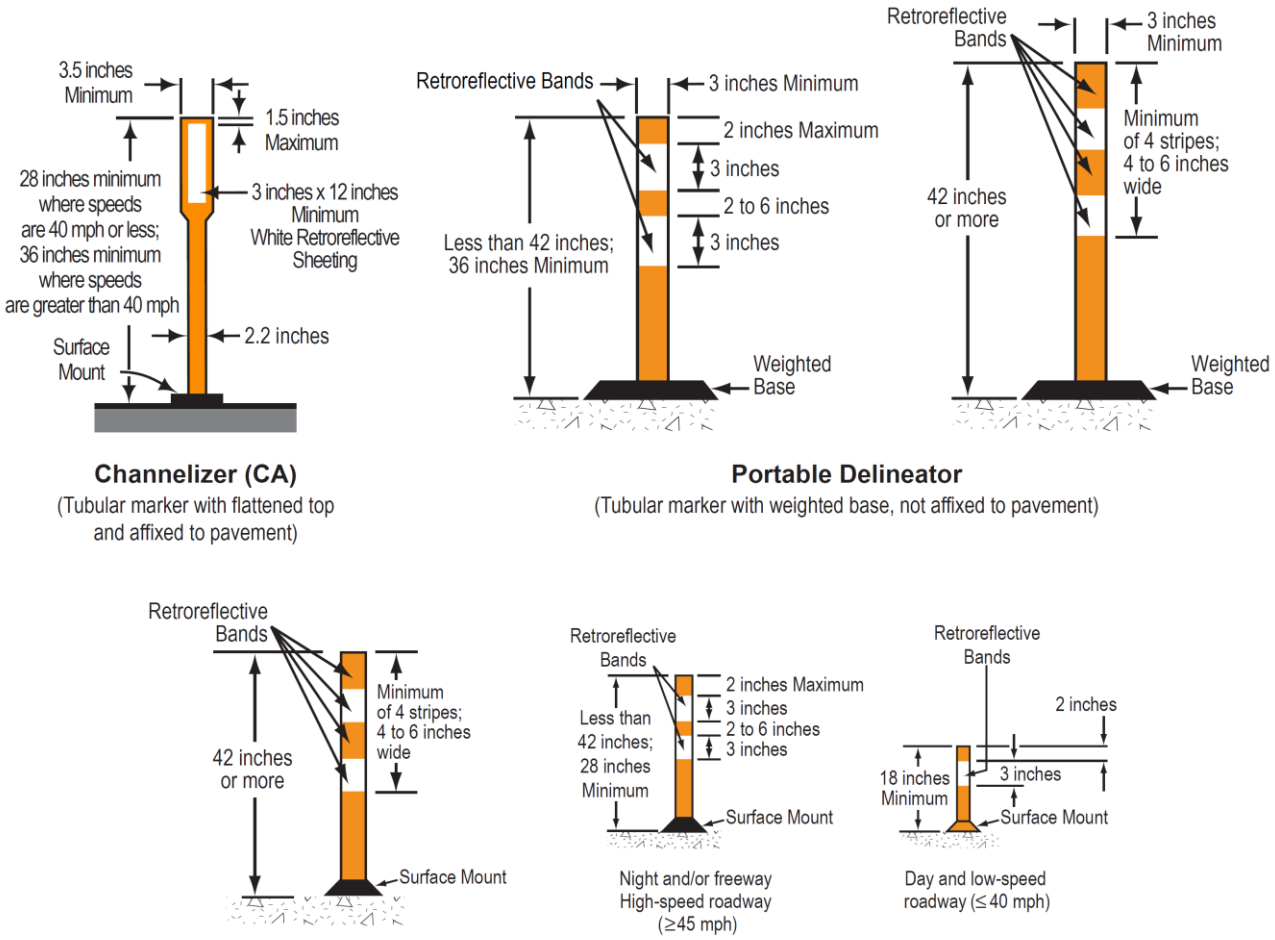

SC18 (CA)


SC19 (CA)


SC20 (CA)


SC21 (CA)

## *Figure 6F-102 (CA). Tubular Markers*




**Channelizer (CA)**
(Tubular marker with flattened top and affixed to pavement)

**Portable Delineator**
(Tubular marker with weighted base, not affixed to pavement)

**Tubular Marker** (Affixed to pavement)

## Table 6F-1. Temporary Traffic Control Zone Sign and Plaque Sizes (Sheet 3 of 3)

| Sign or Plaque | Sign Designation | Section | Conventional Road | Freeway or Expressway | Minimum | |
|---|---|---|---|---|---|---|
| Detour (with distance) | W20-2 | 6F.19 | 36 x 36 | 48 x 48 | 30 x 30 | |
| Road (Street) Closed (with distance) | W20-3 | 6F.20 | 36 x 36 | 48 x 48 | 30 x 30 | (See C19(CA) for RAMP CLOSED Sign) |
| One Lane Road (with distance) | W20-4 | 6F.21 | 36 x 36 | 48 x 48 | 30 x 30 | |
| Lane(s) Closed (with distance) | W20-5,5a | 6F.22 | 36 x 36 | 48 x 48 | 30 x 30 | (Also See C20(CA) Sign Size) |
| ~~Flagger (symbol)~~ | ~~W20-7~~ | ~~6F.31~~ | ~~36 x 36~~ | ~~48 x 48~~ | ~~30 x 30~~ | |
| Flagger | W20-7a | 6F.31 | 36 x 36 | 48 x 48 | 30 x 30 | (Also See C9A(CA) Sign Size) |
| Slow (on Stop/Slow Paddle) | W20-8 | 6E.03 | 18 x 18 | — | — | |
| Workers | W21-1,1a | 6F.33 | 36 x 36 | 48 x 48 | 30 x 30 | |
| Fresh Oil (Tar) | W21-2 | 6F.34 | 36 x 36 | 48 x 48 | 30 x 30 | |
| Road Machinery Ahead | W21-3 | 6F.35 | 36 x 36 | 48 x 48 | 30 x 30 | |
| Slow Moving Vehicle | W21-4 | 6G.06 | 36 x 18 | — | — | |
| Shoulder Work | W21-5 | 6F.37 | 36 x 36 | 48 x 48 | 30 x 30 | |
| Shoulder Closed | W21-5a | 6F.37 | 36 x 36 | 48 x 48 | 30 x 30 | |
| Shoulder Closed (with distance) | W21-5b | 6F.37 | 36 x 36 | 48 x 48 | 30 x 30 | |
| Survey Crew | W21-6 | 6F.38 | 36 x 36 | 48 x 48 | 30 x 30 | |
| Utility Work Ahead | W21-7 | 6F.39 | 36 x 36 | 48 x 48 | 30 x 30 | |
| Mowing Ahead | W21-8 | 6G.06 | 36 x 36 | 48 x 48 | 30 x 30 | |
| Blasting Zone Ahead | W22-1 | 6F.41 | 36 x 36 | 48 x 48 | 30 x 30 | |
| Turn Off 2-Way Radio and Cell Phone | W22-2 | 6F.42 | 42 x 36 | 42 x 36 | — | |
| End Blasting Zone | W22-3 | 6F.43 | 42 x 36 | 42 x 36 | 36 x 30 | |
| Slow Traffic Ahead | W23-1 | 6F.27 | 54 x 30 ~~48 x 24~~ | 72 x 42 ~~60 x 24~~ | 48 x 24 | |
| New Traffic Pattern Ahead | W23-2 | 6F.30 | 36 x 36 | 48 x 48 | 30 x 30 | |
| Double Reverse Curve (1 lane) | W24-1 | 6F.49 | 36 x 36 | 48 x 48 | 30 x 30 | |
| ~~Double Reverse Curve (2 lanes)~~ | ~~W24-1a~~ | ~~6F.49~~ | ~~36 x 36~~ | ~~48 x 48~~ | ~~30 x 30~~ | (See W24-1 Sign Size) |
| ~~Double Reverse Curve (3 lanes)~~ | ~~W24-1b~~ | ~~6F.49~~ | ~~36 x 36~~ | ~~48 x 48~~ | ~~30 x 30~~ | (See W24-1 Sign Size) |
| All Lanes | W24-1cP | 6F.49 | 24 x ~~24~~ 18 | 30 x ~~30~~ 24 | — | |
| Road Work (Construction) Next XX Miles | G20-1 | 6F.56 | 60 x 36 ~~36 x 18~~ | 90 x 48 ~~48 x 24~~ | 36 x 18 | |
| End Road Work | G20-2 | 6F.57 | 36 x 18 | 48 x 24 | — | |
| Pilot Car Follow Me | G20-4 | 6F.58 | 36 x 18 | — | — | |
| Work Zone (plaque) | G20-5aP | 6F.12 | 24 x 18 | 36 x 24 | — | |
| Exit Open | E5-2 | 6F.28 | 48 x 36 | 48 x 36 | — | |
| Exit Closed | E5-2a | 6F.28 | 48 x 36 | 48 x 36 | — | |
| Exit Only | E5-3 | 6F.29 | 48 x 36 | 48 x 36 | — | |
| Detour | M4-8 | 6F.59 | 24 x 12 | 30 x 15 | — | |
| End Detour | M4-8a | 6F.59 | 24 x 18 | 24 x 18 | — | |
| End | M4-8b | 6F.59 | 24 x 12 | 24 x 12 | — | |
| Detour | M4-9 | 6F.59 | 30 x 24 | 48 x 36 | — | |
| Bike/Pedestrian Detour | M4-9a | 6F.59 | 30 x 24 | — | — | |
| Pedestrian Detour | M4-9b | 6F.59 | 30 x 24 | — | — | |
| Bike Detour | M4-9c | 6F.59 | 30 x 24 | — | — | |
| Detour | M4-10 | 6F.59 | 48 x 18 | — | — | |

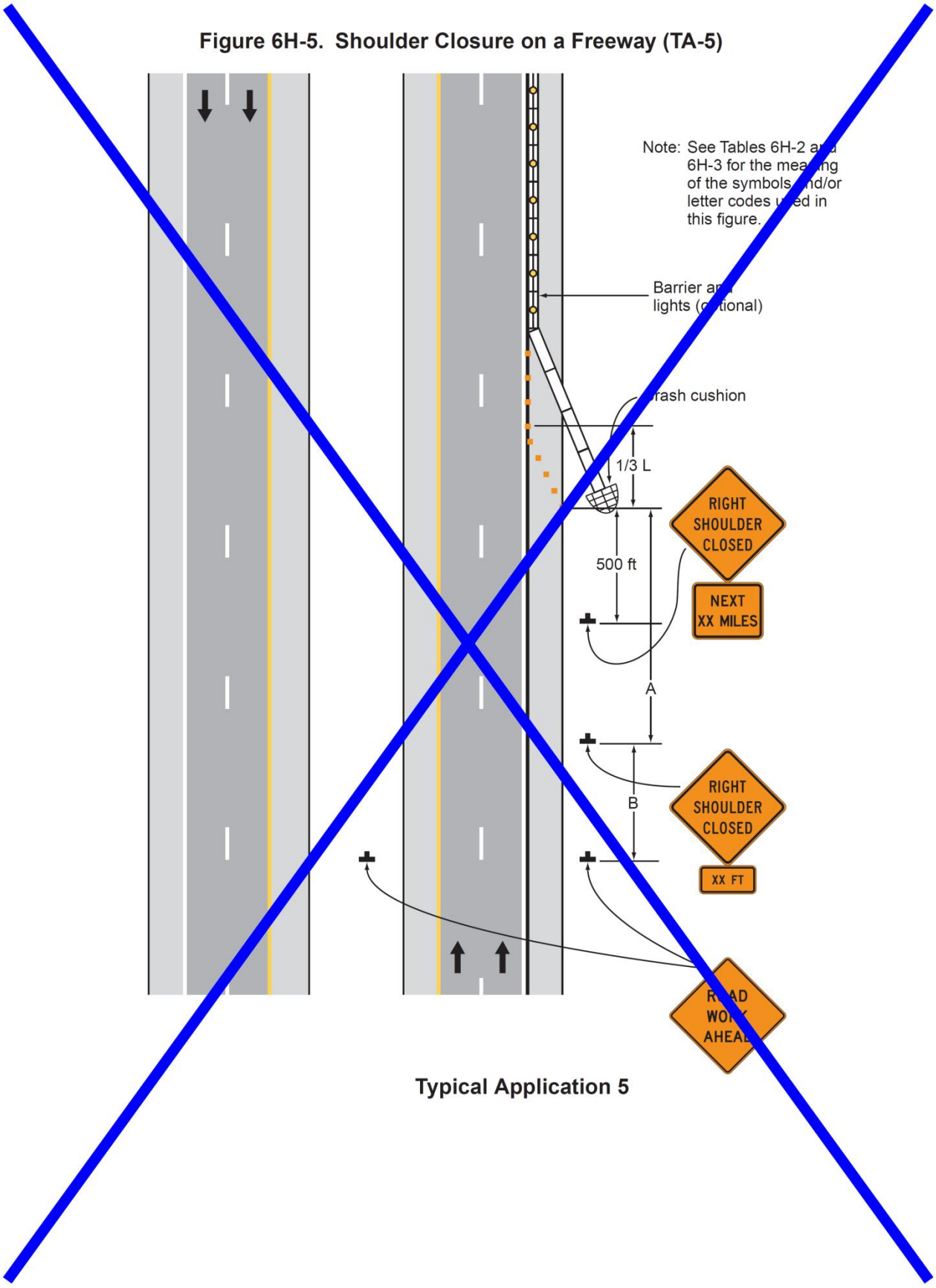
* See Table 2B-1 for minimum size required for signs facing traffic on multi-lane conventional roads

Notes: 1. Larger signs may be used wherever necessary for greater legibility or emphasis
2. Dimensions are shown in inches and are shown as width x height

## Table 6F-1(CA). California Temporary Traffic Control Zone Sign and Plaque Sizes

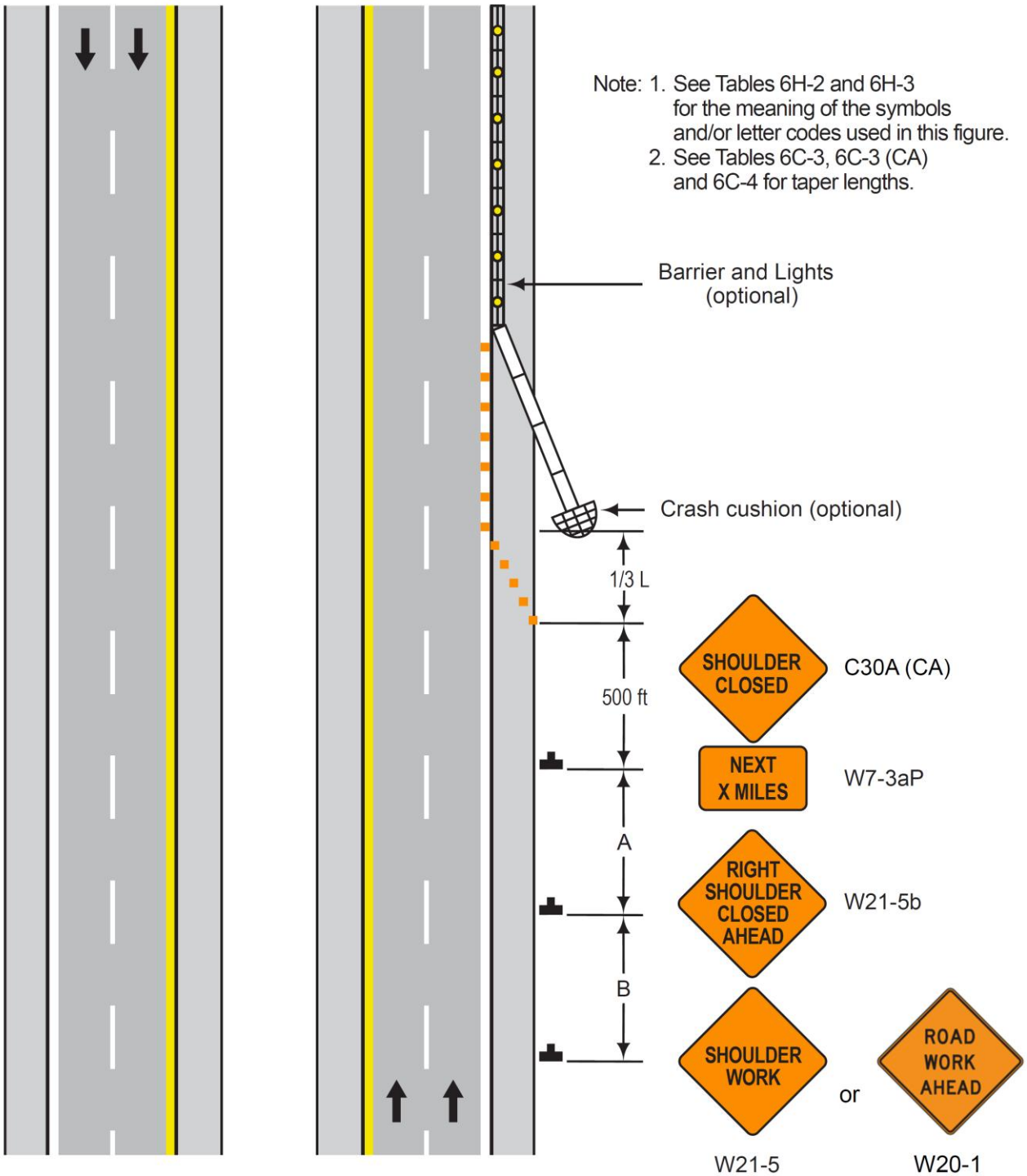
| Sign or Plaque | Sign Designation | Section | Conventional Road (Minimum) | Expressway | Freeway | Oversized |
|---|---|---|---|---|---|---|
| RAMP CLOSED | C2(CA) | 6F.28 | 48 x 30 | 48 x 30 | 48 x 30 | --- |
| California Flagger Symbol | C9A(CA) | 6F.31 | 36 x 36 | 48 x 48 | 48 x 48 | --- |
| NARROW LANE(S) | C12(CA) | 6F.26, 6F.102(CA) | 36 x 36 | 48 x 48 | 48 x 48 | --- |
| RAMP CLOSED AHEAD | C19(CA) | 6F.28 | 36 x 36 | 48 x 48 | 48 x 48 | --- |
| RIGHT LANE CLOSED AHEAD | C20(CA) | 6F.22 | 36 x 36 | 48 x 48 | 48 x 48 | 72 x 72 |
| LEFT plaque | C20A(CA) | 6F.22 | 16 x 7 | 19 x 8 | 19 x 8 | 33 x 10 |
| Numeral plaque | C20B(CA) | 6F.22 | 6 x 8 | 8 x 10 | 8 x 10 | 10 x 12 |
| RAMP WORK AHEAD | C23(CA) | 6F.18 | 36 x 36 | 48 x 48 | 48 x 48 | --- |
| ROAD (STREET) WORK Informational plaque | C23B(CA) | 6F.18 | Var x 18 | Var x 24 | Var x 24 | --- |
| SHOULDER WORK AHEAD | C24(CA) | 6F.37 | 30 x 30 | 48 x 48 | 48 x 48 | --- |
| OPEN TRENCH | C27(CA) | 6F.103(CA) | 36 x 36 | 48 x 48 | 48 x 48 | --- |
| XXXX FT | C29(CA) | 6F.53 | 20 x 7 | 36 x 9 | 36 x 9 | --- |
| LANE CLOSED | C30(CA) | 6F.22 | 30 x 30 | 48 x 48 | 48 x 48 | --- |
| SHOULDER CLOSED | C30A(CA) | 6F.37 | 30 x 30 | 48 x 48 | 48 x 48 | --- |
| NO SHOULDER | C31A(CA) | 6F.44, 6F.103(CA) | 36 x 36 | 48 x 48 | 48 x 48 | --- |
| TRAFFIC CONTROL - WAIT AND FOLLOW PILOT CAR | C37(CA) | 6F.58 | 36 x 42 | 36 x 42 | --- | --- |
| USE NEXT EXIT | C38(CA) | 6F.28 | --- | 48 x 36 | 48 x 36 | --- |
| TRAFFIC FINES DOUBLED IN CONSTRUCTION ZONES | C40(CA) | 6F.12 | 108 x 42 | 144 x 60 | 144 x 60 | --- |
| TRAFFIC FINES DOUBLED IN WORK ZONES | C40A(CA) | 6F.12 | 36 x 36 | 48 x 48 | 48 x 48 | --- |
| FRESH CONCRETE | C43(CA) | 6F.107(CA) | 36 x 36 | 48 x 48 | 48 x 48 | --- |
| TRUCKS ENTERING EXITING | C44(CA) | 6F.36 | 36 x 36 | 48 x 48 | 48 x 48 | --- |
| RUMBLE STRIPS | C45(CA) | 6F.87 | 36 x 36 | 48 x 48 | --- | --- |
| UNEVEN PAVEMENT | C46(CA) | 6F.45 | 36 x 36 | 48 x 48 | 48 x 48 | --- |
| UNEVEN PAVEMENT plaque | C46P(CA) | 6F.45 | 30 x 18 | 36 x 24 | 36 x 24 | --- |
| Construction Funding Identification Signs | C47A, B(CA) | 6F.109(CA) | 96 x 60 | 144 x 90 | 144 x 90 | --- |
| MOVE OVER OR SLOW WHEN AMBER LIGHTS FLASHING | R111(CA) | 6F.108(CA) | 54 x 18 | 54 x 18 | 54 x 18 | --- |
| PILOT CAR DO NOT PASS | R115(CA) | 6F.58 | 36 x 18 | 36 x 18 | --- | --- |
| DETOUR with Arrow | SC3(CA) | 6F.59 | 36 x 12 | 48 x 18 | 48 x 18 | --- |
| SPECIAL EVENT AHEAD | SC5(CA) | 6F.18 | 36 x 36 | 48 x 48 | 48 x 48 | --- |
| RAMP CLOSED (Not more than one day) | SC6-3(CA) | 6F.28 | 48 x 48 | 48 x 48 | 48 x 48 | --- |
| RAMP CLOSED (More than one day) | SC6-4(CA) | 6F.28 | 48 x 60 | 48 x 60 | 48 x 60 | --- |
| Day/Month plaque | SC6A(CA) | 6F.28 | 12 x 6 | 12 x 6 | 12 x 6 | --- |
| Time plaque | SC6B(CA) | 6F.28 | 6 x 6 | 6 x 6 | 6 x 6 | --- |
| RAMP CLOSED, USE RAMP AT ___ | SC7(CA) | 6F.28 | 84 x 42 | 84 x 42 | 84 x 42 | --- |
| ___ EXIT - RAMP CLOSED | SC8(CA) | 6F.28 | --- | 84 x 42 | 84 x 42 | --- |
| (FWY) DETOUR with Arrow | SC9(CA) | 6F.59 | 36 x 36 | 48 x 48 | 48 x 48 | --- |
| LANE CLOSED AHEAD or ROAD WORK AHEAD | SC10(CA) | 6F.104(CA) | 48 x 30 | 66 x 36 | 66 x 36 | --- |
| LANE CLOSED | SC11(CA) | 6F.104(CA) | 42 x 30 | 54 x 42 | 54 x 42 | --- |
| DO NOT PASS | SC13(CA) | 6F.104(CA) | 42 x 30 | 54 x 42 | 54 x 42 | --- |
| CAUTION | SC15(CA) | 6F.104(CA) | 42 x 18 | 54 x 24 | 54 x 24 | --- |
| EXIT with Arrow | SC18(CA) | 6F.28 | --- | 48 x 48 | 48 x 48 | --- |
| Slow For The Cone Zone | SC19(CA) | 6F.106(CA) | 54 x 36 | 54 x 36 | 54 x 36 | 114 x 78 |
| SLOW FOR THE CONE ZONE | SC20(CA) | 6F.106(CA) | 42 x 36 | 54 x 48 | 54 x 48 | --- |
| CAUTION FREQUENT STOPPING AND BACKING STAY BACK 100 FEET | SC21(CA) | 6F.108(CA) | 30 x 42 | 30 x 42 | 30 x 42 | --- |
| FLOODING AHEAD TURN AROUND DON'T DROWN | W86(CA) | 6I.101(CA) | 30 x 24 | --- | --- | --- |
| EMERGENCY SCENE AHEAD | W90(CA) | 6I.101(CA) | 36 X 36 | 48 X 48 | 48 X 48 | |

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




Typical Application 5

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




**Typical Application 5**

Option:

10 If flaggers are used to provide traffic control for an incident management situation, the flaggers may use appropriate traffic control devices that are readily available or that can be brought to the traffic incident scene on short notice.

*Guidance:*

11 *When light sticks or flares are used to establish the initial traffic control at incident scenes, channelizing devices (see Section 6F.63) should be installed as soon thereafter as practical.*

Option:

12 The light sticks or flares may remain in place if they are being used to supplement the channelizing devices.

*Guidance:*

13 *The light sticks, flares, and channelizing devices should be removed after the incident is terminated.*

## Section 6I.03 Intermediate Traffic Incidents

Support:

01 Intermediate traffic incidents typically affect travel lanes for a time period of 30 minutes to 2 hours, and usually require traffic control on the scene to divert road users past the blockage. Full roadway closures might be needed for short periods during traffic incident clearance to allow traffic incident responders to accomplish their tasks.

02 The establishment, maintenance, and prompt removal of lane diversions can be effectively managed by interagency planning that includes representatives of highway and public safety agencies.

*Guidance:*

03 *All traffic control devices needed to set up the TTC at a traffic incident should be available so that they can be readily deployed for intermediate traffic incidents. The TTC should include the proper traffic diversions, tapered lane closures, and upstream warning devices to alert traffic approaching the queue and to encourage early diversion to an appropriate alternative route.*

04 *Attention should be paid to the upstream end of the traffic queue such that warning is given to road users approaching the back of the queue.*

05 *If manual traffic control is needed, it should be provided by qualified flaggers or uniformed law enforcement officers.*

Option:

06 If flaggers are used to provide traffic control for an incident management situation, the flaggers may use appropriate traffic control devices that are readily available or that can be brought to the traffic incident scene on short notice.

*Guidance:*

07 *When light sticks or flares are used to establish the initial traffic control at incident scenes, channelizing devices (see Section 6F.63) should be installed as soon thereafter as practical.*

Option:

08 The light sticks or flares may remain in place if they are being used to supplement the channelizing devices.

*Guidance:*

09 *The light sticks, flares, and channelizing devices should be removed after the incident is terminated.*

## Section 6I.04 Minor Traffic Incidents

Support:

01 Minor traffic incidents are typically disabled vehicles and minor crashes that result in lane closures of less than 30 minutes. On-scene responders are typically law enforcement and towing companies, and occasionally highway agency service patrol vehicles.

02 Diversion of traffic into other lanes is often not needed or is needed only briefly. It is not generally possible or practical to set up a lane closure with traffic control devices for a minor traffic incident. Traffic control is the responsibility of on-scene responders.

*Guidance:*

03 *When a minor traffic incident blocks a travel lane, it should be removed from that lane to the shoulder as quickly as possible.*

## Section 6I.05 Use of Emergency-Vehicle Lighting

Support:

01 The use of emergency-vehicle lighting (such as high-intensity rotating, flashing, oscillating, or strobe lights) is essential, especially in the initial stages of a traffic incident, for the safety of emergency responders and persons involved in the traffic incident, as well as road users approaching the traffic incident. Emergency-vehicle lighting, however, provides warning only and provides no effective traffic control. The use of too many lights at an incident scene can be distracting and can create confusion for approaching road users, especially at night. Road users approaching the traffic incident from the opposite direction on a divided facility are often distracted by emergency-vehicle lighting and slow their vehicles to look at the traffic incident posing a hazard to themselves and others traveling in their direction.

02 The use of emergency-vehicle lighting can be reduced if good traffic control has been established at a traffic incident scene. This is especially true for major traffic incidents that might involve a number of emergency vehicles. If good traffic control is established through placement of advanced warning signs and traffic control devices to divert or detour traffic, then public safety agencies can perform their tasks on scene with minimal emergency-vehicle lighting.

*Guidance:*

03 *Public safety agencies should examine their policies on the use of emergency-vehicle lighting, especially after a traffic incident scene is secured, with the intent of reducing the use of this lighting as much as possible while not endangering those at the scene. Special consideration should be given to reducing or extinguishing forward facing emergency-vehicle lighting, especially on divided roadways, to reduce distractions to oncoming road users.*

04 *Because the glare from floodlights or vehicle headlights can impair the nighttime vision of approaching road users, any floodlights or vehicle headlights that are not needed for illumination, or to provide notice to other road users of an incident response vehicle being in an unexpected location, should be turned off at night*.

## Section 6I.101(CA) FLOODING AHEAD TURN AROUND DON'T DROWN W86(CA) Sign

Support:

01 The Federal Highway Administration has encouraged use of the phrase FLOODING AHEAD TURN AROUND DON'T DROWN as an official incident management sign.

Option:

02 The FLOODING AHEAD TURN AROUND DON'T DROWN (W86(CA)) sign (see Figure 6I-1(CA)) may be deployed to warn during times when low-water crossings, bridges, or culverts cannot pass high flood flows.

**Standard:**

03 **When used, W86(CA) sign shall be mounted on temporary sign holders, not on barricades.**

*Guidance:*

04 *The W86(CA) sign should be deployed at locations where stream waters flooding across a road have made passage unsafe.*

## Section 6I.102(CA) EMERGENCY SCENE AHEAD W90(CA) Sign

Support:

01 The Federal Highway Administration has encouraged use of the phrase EMERGENCY SCENE AHEAD as an official incident management sign.

Option:

02 The EMERGENCY SCENE AHEAD (W90(CA)) sign (see Figure 6I-1(CA)) may be deployed to warn of an incident management scene ahead.

**Standard:**

03 **If used, W90(CA) sign shall be mounted on temporary sign holders, not on barricades.**

*Guidance:*

04 *The W90(CA) sign should be deployed at locations upstream of the traffic queue that has formed due to incident management.*

**Figure 6I-1. Examples of Traffic Incident Management Area Signs**

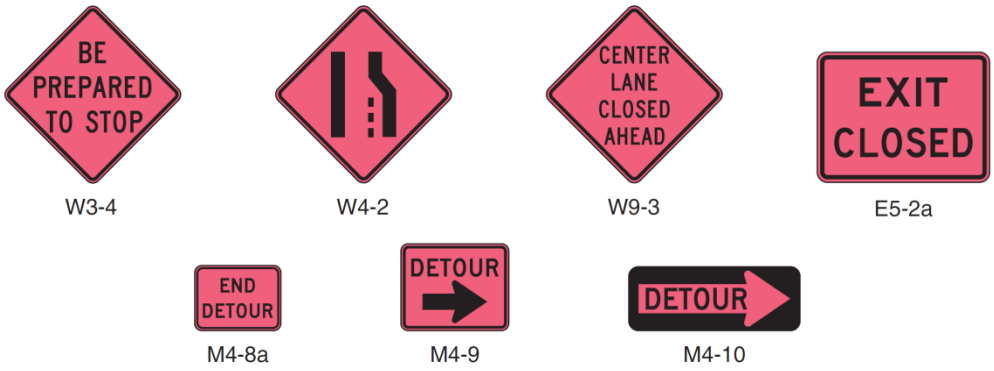
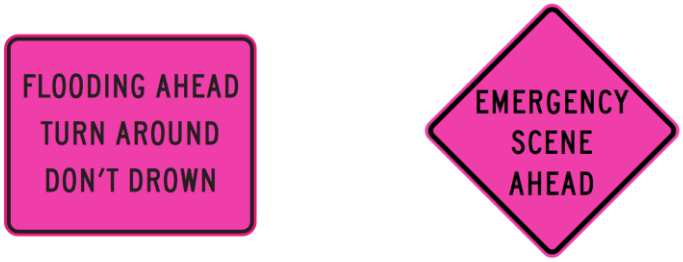



***Figure 6I-1 (CA). Examples of Traffic Incident Management Area Signs***



Support:

06 Information on ground clearance requirements at grade crossings is available in the "American Railway Engineering and Maintenance-of-Way Association's Engineering Manual," or the American Association of State Highway and Transportation Officials' "Policy on Geometric Design of Highways and Streets" (see Section 1A.11).

## Section 8B.24 Storage Space Signs (W10-11, W10-11a, W10-11b)

*Guidance:*

01 *A Storage Space (W10-11) sign supplemented by a word message storage distance (W10-11a) sign (see Figure 8B-4) should be used where there is a highway intersection in close proximity to the grade crossing and an engineering study determines that adequate space is not available to store a design vehicle(s) between the highway intersection and the train or LRT equipment dynamic envelope.*

02 *The Storage Space (W10-11 and W10-11a) signs should be mounted in advance of the grade crossing at an appropriate location to advise drivers of the space available for highway vehicle storage between the highway intersection and the grade crossing.*

Option:

03 A Storage Space (W10-11b) sign (see Figure 8B-4) may be mounted beyond the grade crossing at the highway intersection under the STOP or YIELD sign or just prior to the signalized intersection to remind drivers of the storage space between the tracks and the highway intersection.

## Section 8B.25 Skewed Crossing Sign (W10-12)

~~Option:~~

*Guidance:*

01 *The Skewed Crossing (W10-12) sign (see Figure 8B-4) ~~may~~ should be used at a skewed grade crossing, that is skewed 30 degrees or less from the roadway centerline, to warn road users that the tracks are not perpendicular to the highway.*

*Guidance:*

02 *If the Skewed Crossing sign is used, the symbol should show the direction of the crossing (near left to far right as shown in Figure 8B-4, or the mirror image if the track goes from far left to near right). If the Skewed Crossing sign is used ~~where the angle of the crossing is significantly different than 45 degrees,~~ the symbol should show the approximate angle of the crossing.*

02a *If used, the W10-12 sign should be erected approximately midway between the crossing and the Highway-Rail Grade Crossing Advance Warning (W10-1) sign.*

**Standard:**

03 **The Skewed Crossing sign shall not be used as a replacement for the required Advance Warning (W10-1) sign. If used, the Skewed Crossing sign shall supplement the W10-1 sign and shall be mounted on a separate post.**

## Section 8B.26 Light Rail Transit Station Sign (I-12)

Option:

01 The Light Rail Transit Station (I-12, G96(CA) and G96A(CA)) sign (see Figure 2H-1 and 8B-101(CA)) may be used to direct road users to an LRT station or boarding location. It may be supplemented by the name of the transit system and by arrows as provided in Section 2D.08.

## Section 8B.27 Pavement Markings

**Standard:**

01 **All grade crossing pavement markings shall be retroreflectorized white. All other markings shall be in accordance with Part 3.**

02 **On paved roadways, pavement markings in advance of a grade crossing shall consist of an X, the letters RR, a no-passing zone marking (on two-lane, two-way highways with center line markings in compliance with Section 3B.01), and certain transverse lines as shown in Figures ~~8B-6~~ 8B-6(CA) and ~~8B-7~~ 8B-7(CA).**

03 ~~**Identical markings shall be placed in each approach lane on all paved approaches to grade crossings where signals or automatic gates are located, and at all other grade crossings where the posted or statutory highway speed is 40 mph or greater.**~~

04 ~~**Pavement markings shall not be required at grade crossings where the posted or statutory highway speed is less than 40 mph if an engineering study indicates that other installed devices provide suitable warning and control. Pavement markings shall not be required at grade crossings in urban areas if an engineering study indicates that other installed devices provide suitable warning and control.**~~

04a **Identical (RXR) markings shall be placed in each approach lane on all paved approaches to grade crossings where Crossbuck (R15-1) signs, flashing light signals, or automatic gates are located.**

*Guidance:*

05 *When pavement markings are used, a portion of the X symbol should be directly opposite the Grade Crossing Advance Warning sign.* ~~*The X symbol and letters should be elongated to allow for the low angle at which they will be viewed.*~~

05a *Figures 8B-6(CA) and 8B-7(CA) should be used for X symbol and letters details.*

Option:

06 When justified by engineering judgment, supplemental pavement marking symbol(s) may be placed between the Grade Crossing Advance Warning sign and the grade crossing.

07 Pavement (RXR) markings may be omitted where the distance between a cross street and the track is less than 50 feet.

## Section 8B.28 Stop and Yield Lines

**Standard:**

01 **On paved roadways at grade crossings that are equipped with active control devices such as flashing-light signals, gates, or traffic control signals, a stop line (see Section 3B.16) shall be installed to indicate the point behind which highway vehicles are or might be required to stop.**

*Guidance:*

02 *On paved roadway approaches to passive grade crossings where a STOP sign is installed in conjunction with the Crossbuck sign, a stop line should be installed to indicate the point behind which highway vehicles are required to stop or as near to that point as practical.*

03 *If a stop line is used, it should be a transverse line at a right angle to the traveled way and should be placed approximately 8 feet in advance of the gate (if present), but no closer than 15 feet in advance of the nearest rail.*

03a *Stop lines should be used as shown in Figures 8B-6(CA) and 8B-7(CA).*

**Standard:**

03b **Stop lines shall be 24 inch wide.**

Option:

04 On paved roadway approaches to passive grade crossings where a YIELD sign is installed in conjunction with the Crossbuck sign, a yield line (see Section 3B.16) ~~or a stop line~~ may be installed to indicate the point behind which highway vehicles are required to yield or stop or as near to that point as practical.

*Guidance:*

05 *If a yield line is used, it should be a transverse line (see Figure 3B-16) at a right angle to the traveled way and should be placed no closer than 15 feet in advance of the nearest rail (see Figure* ~~*8B-7*~~ *8B-7(CA)).*

## Section 8B.29 Dynamic Envelope Markings

Support:

01 The dynamic envelope (see Figures ~~8B-8~~ 8B-6(CA) Sheet 1 of 3 and 8B-9) markings indicate the clearance required for the train or LRT equipment overhang resulting from any combination of loading, lateral motion, or suspension failure.

Option:

02 Dynamic envelope markings may be installed at all grade crossings, unless a Four-Quadrant Gate system (see Section 8C.06) is used.

04 When some, but not all, non-motorized user types are encouraged or permitted on a shared-use path, Mode-Specific Guide signs may be placed in combination with each other, and in combination with signs (see Section 9B.09) that prohibit travel by particular modes.

Support:

05 Figure 9B-8 shows an example of signing where separate pathways are provided for different non-motorized user types.

## Section 9B.26 Object Markers

Option:

01 Fixed objects adjacent to shared-use paths may be marked with Type 1, Type 2, or Type 3 object markers (see Figure 9B-3) such as those described in Section 2C.63. If the object marker is not intended to also be seen by motorists, a smaller version of the Type 3 object marker may be used (see Table 9B-1).

**Standard:**

02 **Obstructions in the traveled way of a shared-use path shall be marked with retroreflectorized material or appropriate object markers.**

03 **All object markers shall be retroreflective.**

04 **On Type 3 object markers, the alternating black and retroreflective yellow stripes shall be sloped down at an angle of 45 degrees toward the side on which traffic is to pass the obstruction.**

## Section 9B.101(CA) Freeway Bicycle Signs

Support:

01 Refer Section 2B.39 and CVC 21960 for restrictions on use of freeways.

02 Refer Section 2B.39 for NO PEDESTRIANS BICYCLES MOTOR-DRIVEN CYCLES (R5-10a), NO PEDESTRIANS OR BICYCLES (R5-10b) and NO PEDESTRIANS (R5-10c) signs.

**Standard:**

03 **The BICYCLES MOTOR-DRIVEN CYCLES MUST EXIT (R44B(CA)) sign shall be used on freeways in advance of an exit ramp where bicycles and motor-driven cycles must exit.**

*Guidance:*

04 *The R5-10a, R5-10b or R5-10c sign, as appropriate, should be placed beyond the exit ramp gore as a follow-up message to the R44B(CA) sign.*

**Standard:**

05 **The BICYCLES MUST EXIT (R44C(CA)) sign shall be used on freeways where bicycles are required to exit.**

Support:

06 The R44B(CA) and R44C(CA) signs are shown in Figure 9B-2(CA).

## Section 9B.102(CA) PASS Bicycle 3 FT MIN Sign (R117(CA))

Option:

01 In situations where there is a need to remind motorists to pass bicyclists with sufficient lateral clearance in compliance with CVC 21760 (Three Feet for Safety Act) the PASS Bicycle 3 FT MIN sign (R117(CA)) may be used.

Support:

02 CVC 21202(a)(3) defines a "substandard width lane" as a lane that is too narrow for a bicycle and vehicle to travel safely side by side within the same lane.

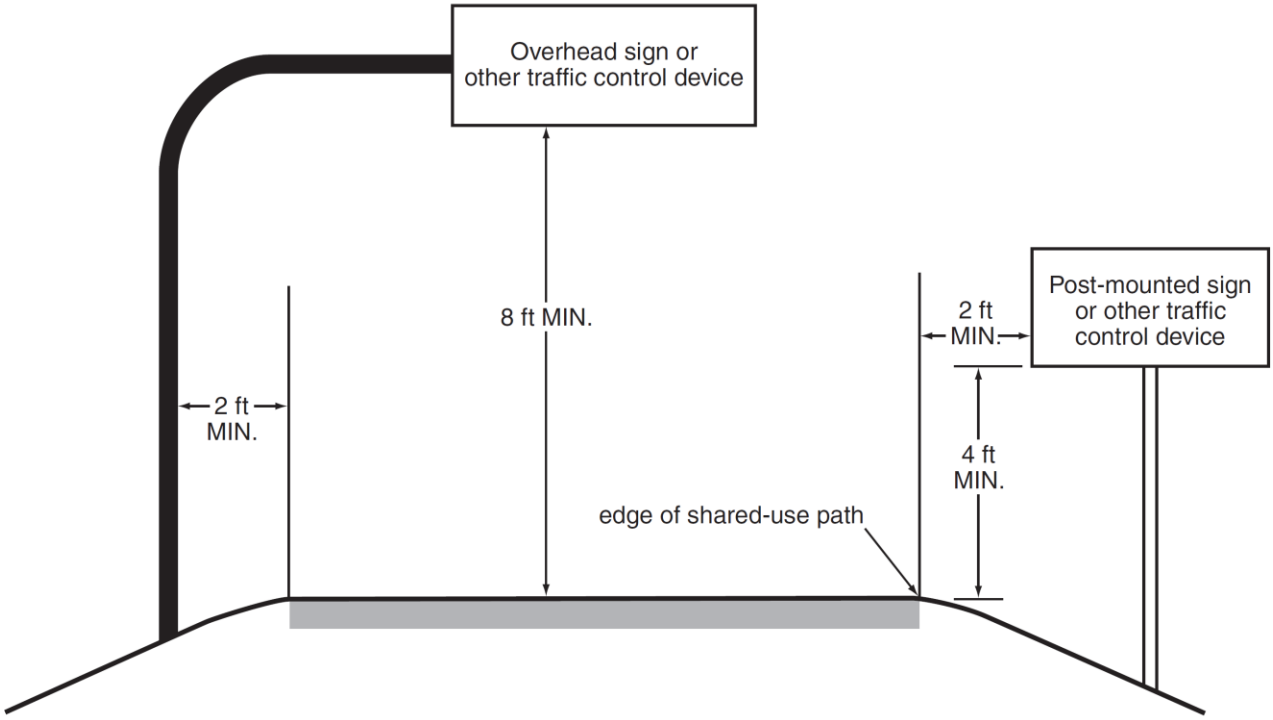
03 Refer to Section 9B.06 for Bicycles May Use Full Lane (R4-11) sign

## Section 9B.103(CA) EXCEPT Bicycle Plaque (R118(CA))

*Guidance:*

01 *Where signs are provided to prohibit or regulate turns from streets or driveways that intersect with a roadway and those signs are not intended for bicycle traffic, the supplemental EXCEPT Bicycle plaque (R118(CA)) should be used.*

**Figure 9B-1. Sign Placement on Shared-Use Paths**



# CHAPTER 9D. SIGNALS

## Section 9D.01 Application

Support:

01 Part 4 contains information regarding signal warrants and other requirements relating to signal installations.

Option:

02 For purposes of signal warrant evaluation, bicyclists may be counted as either vehicles or pedestrians.

Support:

03 Also refer Part 4 of this Manual for highway traffic signals, in particular:

A. Section 4D.104(CA) – Optional Use of Bicycle Signal Faces.
B. Section 4D.105(CA) – Bicycle Detectors.

## Section 9D.02 Signal Operations for Bicycles

**Standard:**

01 **At installations where visibility-limited signal faces are used, signal faces shall be adjusted so bicyclists for whom the indications are intended can see the signal indications. If the visibility-limited signal faces cannot be aimed to serve the bicyclist, then separate signal faces shall be provided for the bicyclist.**

02 **On bikeways, signal timing and actuation shall be reviewed and adjusted to consider the needs of bicyclists.**