The Manual on Uniform Traffic Control Devices (MUTCD) is approved by the Federal Highway Administrator as the National Standard in accordance with Title 23 U.S. Code, Sections 109(d), 114(a), 217, 315, and 402(a), 23 CFR 655, and 49 CFR 1.48(b)(8), 1.48(b)(33), and 1.48(c)(2).

The California Manual on Uniform Traffic Control Devices (California MUTCD) is published by the State of California, Department of Transportation (Caltrans) and is issued to adopt uniform standards and specifications for all official traffic control devices, in accordance with Section 21400 of the California Vehicle Code.

This manual is current as of the date of publication on the footer page. However, it may be necessary from time to time to modify, change or adopt new standards and specifications for traffic control devices and/or issue errata or editorial changes to the manual. To ensure that the traffic control device practitioner is accessing the most current information regarding traffic control device topics for California, the practitioner is advised to always reference the California MUTCD web site.

The California MUTCD, California Sign Specifications and other publications and related current information is available on the Internet at the following web link:

http://www.dot.ca.gov/traffops/engineering/

Addresses for Publications Referenced in the California MUTCD

American Automobile Association (AAA)
1000 AAA Drive
Heathrow, FL 32746
calstate.aaa.com
800-222-4357

American Association of State Highway and Transportation Officials (AASHTO)
444 North Capitol Street, NW, Suite 249
Washington, DC 20001
www.transportation.org
202-624-5800

American National Standards Institute (ANSI)
1819 L Street, NW, 6th floor
Washington, DC 20036
www.ansi.org
202-293-8020

American Railway Engineering and Maintenance-of-Way Association (AREMA)
10003 Derekwood Lane, Suite 210
Lanham, MD 20706
www.arema.org
301-459-3200

California Building Standards Code
International Conference of Building Officials
5360 South Workman Mill Road
Whittier, CA 90601
www.icbo.org
916-263-0916
National Committee on Uniform Traffic Laws and Ordinances (NCUTLO)
107 South West Street, Suite 110
Alexandria, VA 22314
www.ncutlo.org

National Electrical Manufacturers Association (NEMA)
1300 North 17th Street, Suite 1752
Rosslyn, VA 22209
www.nema.org
703–841–3200

Occupational Safety and Health Administration (OSHA)
U.S. Department of Labor
200 Constitution Avenue, NW
Washington, DC 20210
www.osha.gov
800–321–6742

Transportation Research Board (TRB)
The National Academies
500 Fifth Street, NW
Washington, DC 20001
www.nas.edu/trb
202-334-2934

U.S. Architectural and Transportation Barriers Compliance Board (The U.S. Access Board)
1331 F Street, NW, Suite 1000
Washington, DC 20004–1111
www.access-board.gov
202–272–0080
March 8, 2018

Mr. Robert W. Bronkall, Chair  
California Traffic Control Devices Committee  
P.O. Box 942874, MS-36  
Sacramento, CA  94274-0001

Dear Mr. Bronkall:

Effective March 9, 2018, the California Department of Transportation (Caltrans) will be updating the California Manual on Uniform Traffic Control Devices (CA MUTCD) 2014 Revision 2 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 received a letter from the Federal Highway Administration (FHWA) confirming substantial conformance of the CA MUTCD 2014, Revision 3 edition. The revised CA MUTCD includes the FHWA’s Manual on Uniform Traffic Control Devices, policies on traffic control devices issued by Caltrans since April 7, 2017, and other corrections and format changes. The CA MUTCD revision is available on the Internet at <www.dot.ca.gov/trafficops/camutcd/>.

The Division of Traffic Operations appreciates the CTCDC members providing their invaluable time, support, guidance and direction in the development of this version of CA MUTCD.

If you have any questions or concerns, please contact Mr. Vijay Talada, CA MUTCD Editor and CTCDC Executive Secretary at (916) 653-1816, or by email sent to <vijay.talada@dot.ca.gov>.

Sincerely,

JASVINDERJIT S. BHULLAR, Chief  
Division of Traffic Operations

c: Vijay Talada, CA MUTCD Editor, Division of Traffic Operations, Caltrans

“Provide a safe, sustainable, integrated and efficient transportation system to enhance California’s economy and livability”
Ms. Laurie Berman  
Director  
California Department of Transportation  
1120 N Street  
Sacramento, CA 95814

Attention: Jesse Bhullar, Chief, Division of Traffic Operations

SUBJECT: 2014 CA MUTCD Revision 3 Substantial Conformance with 2009 MUTCD Revisions 1 and 2

Dear Ms. Berman:


Per Title 23, Code of Federal Regulations [23 CFR 655.603(b)(1)], FHWA has reviewed the revisions from the 2014 CA MUTCD Revision 2 to the 2014 CA MUTCD Revision 3 and found them to be in substantial conformance with the current 2009 National MUTCD edition.

We look forward to continue working with Caltrans, local public agencies, and the California Traffic Control Devices Committee on needed revisions to the CA MUTCD. This effort results in traffic control devices that enhance the safety of California’s roadways for all road users. We commend the effort that Caltrans’ Office of Traffic Engineering devotes to achieve this objective.

If you have any questions, please contact Steve Pyburn, Senior Traffic Safety and ITS Engineer, at (916) 498-5057 or Steve.Pyburn@dot.gov.

Sincerely,

[Signature]

Maiser Khaled  
Director, Technical Services
February 28, 2018

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

Dear Mr. Mammamno:

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 April 7, 2017, 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 Steve Pyburn of your office for working in partnership with Vijay Talada 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 Steve Pyburn.

Please send the requested letter by March 7, 2018, to Vijay Talada by e-mail at <vijay.talada@dot.ca.gov>. If you have any questions, please contact him at (916) 653-1816, or at the above e-mail address.

Sincerely,

JASVINDERJIT S. BHULLAR, Chief
Division of Traffic Operations

c: Vijay Talada, CA MUTCD Editor, Division of Traffic Operations, Caltrans

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California’s economy and livability"
CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES

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<tr>
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</tr>
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<td>4D-107(CA)</td>
<td>Available Conduit Area</td>
</tr>
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<td>4D-108(CA)</td>
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<tr>
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<td>6C-3</td>
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<td>6H-1</td>
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<td>Index to Typical Applications</td>
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<tr>
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<td>6H-3</td>
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<tr>
<td>6H-4</td>
<td>Formulas for Determining Taper Length</td>
</tr>
<tr>
<td>6H-4(CA)</td>
<td>Taper Length Criteria for Temporary Traffic Control Zones (for 12 feet Offset Width)</td>
</tr>
<tr>
<td>7B-1</td>
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<tr>
<td>9B-1</td>
<td>Bicycle Facility Sign and Plaque Minimum Sizes</td>
</tr>
<tr>
<td>9B-1(CA)</td>
<td>California Bicycle Facility Sign and Plaque Minimum Sizes</td>
</tr>
<tr>
<td>A2-1</td>
<td>Conversion of Inches to Millimeters</td>
</tr>
<tr>
<td>Table A2-2</td>
<td>Conversion of Feet to Meters</td>
</tr>
<tr>
<td>Table A2-3</td>
<td>Conversion of Miles to Kilometers</td>
</tr>
<tr>
<td>Table A2-4</td>
<td>Conversion of Miles per Hour to Kilometers/Hour</td>
</tr>
</tbody>
</table>
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.

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.

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.”

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). 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.

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.

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.

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.

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.

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.

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

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.

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.”

The California MUTCD uses a format similar to the National MUTCD. It incorporates National MUTCD in its entirety and explicitly shows which portions thereof are applicable or not applicable in California. The unedited National MUTCD text is shown in “Times New Roman” font with black color. Text portions of the National 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 National MUTCD content. Changes or additions to text, figures and tables in Revision 1 of the California MUTCD, effective December 9, 2015, are shown with an orange-color margin line on the left. Changes or additions to text, figures and tables in Revision 2 of the California MUTCD, effective April 7, 2017, are shown with a green-color margin line on the left. Changes or additions to text, figures and tables in Revision 3 of the California MUTCD, effective March 9, 2018, are shown with a purple-color margin line on the left.

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

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

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.
Standard:

19 In accordance with 23 CFR 655.603(b)(3), States or other Federal agencies that have their own MUTCDs or Supplements shall revise these MUTCDs or Supplements to be in substantial conformance with changes to the National MUTCD within 2 years of the effective date of the Final Rule for the changes. Substantial conformance of such State or other Federal agency MUTCDs or Supplements shall be as defined in 23 CFR 655.603(b)(1).

20 After the effective date of a new edition of the MUTCD or a revision thereto, or after the adoption thereof by the State, whichever occurs later, new or reconstructed devices installed shall be in compliance with the new edition or revision.

21 In cases involving Federal-aid projects for new highway or bikeway construction or reconstruction, the traffic control devices installed (temporary or permanent) shall be in conformance with the most recent edition of the National MUTCD before that highway is opened or re-opened to the public for unrestricted travel [23 CFR 655.603(d)(2) and (d)(3)].

22 Unless a particular device is no longer serviceable, non-compliant devices on existing highways and bikeways shall be brought into compliance with the current edition of the National MUTCD as part of the systematic upgrading of substandard traffic control devices (and installation of new required traffic control devices) required pursuant to the Highway Safety Program, 23 U.S.C. §402(a). The FHWA has the authority to establish other target compliance dates for implementation of particular changes to the MUTCD [23 CFR 655.603(d)(1)]. These target compliance dates established by the FHWA shall be as shown in Table I-2.

23 Except as provided in Paragraph 24, when a non-compliant traffic control device is being replaced or refurbished because it is damaged, missing, or no longer serviceable for any reason, it shall be replaced with a compliant device.

Option:

24 A damaged, missing, or otherwise non-serviceable device that is non-compliant may be replaced in kind if engineering judgment indicates that:

   A. One compliant device in the midst of a series of adjacent non-compliant devices would be confusing to road users; and/or

   B. The schedule for replacement of the whole series of non-compliant devices will result in achieving timely compliance with the MUTCD.

Standard:

25 Unless allowed per the Option below, in cases involving new highway or bikeway construction or reconstruction, the traffic control devices installed (temporary or permanent) shall be in conformance with the current edition of the California MUTCD before that highway is opened or re-opened to the public for unrestricted travel pursuant to the California Vehicle Code 21401.

Option:

26 In cases involving new highway or bikeway construction or reconstruction, the traffic control devices installed (temporary or permanent) may be in accordance with previous traffic control device standards of January 13, 2012, January 21, 2010 or September 26, 2006 California MUTCD or prior to that of MUTCD 2003 and MUTCD 2003 California Supplement or Caltrans Traffic Manual, if in the judgment of the engineer, incorporating the California MUTCD standards would impose a significant delay or a significant increase in costs for the project.

Support:

27 Reconstruction, as used in the previous Standard and Option topics, for the purpose of a traffic control device would mean if a particular device is modified in any form or shape or is relocated. If a reconstruction project does not modify or relocate a control device, although encouraged, there would be no obligation to upgrade the traffic control device per current edition of the California MUTCD standards.

Standard:

28 Unless allowed per the option below, non-compliant traffic control devices on existing highways and bikeways shall be brought into compliance with the California MUTCD as part of the systematic upgrading of substandard traffic control devices (and installation of new required traffic control devices) required pursuant to the California Vehicle Code 21401.
Option:

29 All traffic control devices on existing highways and bikeways that have become non-compliant per California MUTCD adopted standards may remain in service through the end of their useful service life.

30 To limit financial impact on agencies and for fiscal responsibility reasons, existing inventory of non-compliant traffic control devices may continue to be used until these inventories are depleted.
### Table I-1. Evolution of the MUTCD

<table>
<thead>
<tr>
<th>Year</th>
<th>Name</th>
<th>Month / Year Revised</th>
</tr>
</thead>
<tbody>
<tr>
<td>1927</td>
<td>Manual and Specifications for the Manufacture, Display, and Erection of U.S. Standard Road Markers and Signs (for rural roads)</td>
<td>4/29, 12/31</td>
</tr>
<tr>
<td>1930</td>
<td>Manual on Street Traffic Signs, Signals, and Markings (for urban streets)</td>
<td>No revisions</td>
</tr>
<tr>
<td>1935</td>
<td>Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD)</td>
<td>2/39</td>
</tr>
<tr>
<td>1948</td>
<td>Manual on Uniform Traffic Control Devices for Streets and Highways</td>
<td>9/54</td>
</tr>
<tr>
<td>1961</td>
<td>Manual on Uniform Traffic Control Devices for Streets and Highways</td>
<td>No revisions</td>
</tr>
<tr>
<td>2009</td>
<td>Manual on Uniform Traffic Control Devices for Streets and Highways</td>
<td>5/12</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Year</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1955</td>
<td>Planning Manual of Instructions, Part 8 – Traffic</td>
</tr>
<tr>
<td></td>
<td>Department of Public Works, Division of Highways</td>
</tr>
<tr>
<td>1972</td>
<td>Traffic Manual</td>
</tr>
<tr>
<td></td>
<td>Department of Public Works, Division of Highways</td>
</tr>
<tr>
<td>1996</td>
<td>Traffic Manual (Metric Version)</td>
</tr>
<tr>
<td></td>
<td>Department of Transportation, Division of Traffic Operations</td>
</tr>
<tr>
<td>2004</td>
<td>FHWA’s MUTCD 2003 &amp; MUTCD 2003 California Supplement</td>
</tr>
<tr>
<td></td>
<td>Department of Transportation, Division of Traffic Operations</td>
</tr>
<tr>
<td>2006</td>
<td>California MUTCD</td>
</tr>
<tr>
<td></td>
<td>Department of Transportation, Division of Traffic Operations</td>
</tr>
<tr>
<td>2010</td>
<td>California MUTCD (including Revisions. 1 and 2 of FHWA’s MUTCD 2003)</td>
</tr>
<tr>
<td></td>
<td>Department of Transportation, Division of Traffic Operations</td>
</tr>
<tr>
<td>2012</td>
<td>California MUTCD (including FHWA’s MUTCD 2009)</td>
</tr>
<tr>
<td></td>
<td>Department of Transportation, Division of Traffic Operations</td>
</tr>
<tr>
<td>2014</td>
<td>California MUTCD (including FHWA’s MUTCD 2009 Revisions 1 &amp; 2, as amended for use in California)</td>
</tr>
<tr>
<td></td>
<td>Department of Transportation, Division of Traffic Operations</td>
</tr>
<tr>
<td>2015</td>
<td>California MUTCD, Revision 1</td>
</tr>
<tr>
<td></td>
<td>Department of Transportation, Division of Traffic Operations</td>
</tr>
<tr>
<td>2017</td>
<td>California MUTCD, Revision 2</td>
</tr>
<tr>
<td></td>
<td>Department of Transportation, Division of Traffic Operations</td>
</tr>
<tr>
<td>2018</td>
<td>California MUTCD, Revision 3</td>
</tr>
<tr>
<td></td>
<td>Department of Transportation, Division of Traffic Operations</td>
</tr>
</tbody>
</table>
## Table I-2. Target Compliance Dates Established by the FHWA

<table>
<thead>
<tr>
<th>2009 MUTCD Section Number(s)</th>
<th>2009 MUTCD Section Title</th>
<th>Specific Provision</th>
<th>Compliance Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>2A.08</td>
<td>Maintaining Minimum Retroreflectivity</td>
<td>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)</td>
<td>June 13, 2014</td>
</tr>
<tr>
<td>2A.10</td>
<td>Letter Offset</td>
<td>Single or multiple poles or supports on roads with posted speed limit of 55 mph or higher (see Paragraph 2)</td>
<td>January 7, 2015</td>
</tr>
<tr>
<td>2B.40</td>
<td>ONE WAY Signs (R6-1, R6-2)</td>
<td>New requirements in the 2009 MUTCD for the number and locations of ONE WAY signs (see Paragraphs 4, 9, and 10)</td>
<td>December 31, 2019</td>
</tr>
<tr>
<td>2C.06 through 2C.14</td>
<td>Horizontal Alignment Warning Signs</td>
<td>Revised requirements in the 2009 MUTCD regarding the use of various horizontal alignment signs (see Table 2C-5)</td>
<td>December 31, 2019</td>
</tr>
<tr>
<td>2E.31, 2E.33, and 2E.30</td>
<td>Plaques for Left-Hand Exits</td>
<td>New requirement in the 2009 MUTCD to use E1-5aP and E1-5bP plaques for left-hand exits</td>
<td>December 31, 2014</td>
</tr>
<tr>
<td>4D.26</td>
<td>Yellow Change and Red Clearance Intervals</td>
<td>Durations of yellow change and red clearance intervals shall be determined using engineering practices (see Paragraphs 3 and 6)</td>
<td>June 13, 2017</td>
</tr>
<tr>
<td>4E.06</td>
<td>Pedestrian Intervals and Signal Phases</td>
<td>New requirement in the 2009 MUTCD that the pedestrian crossing interval shall not extend into the red clearance interval and shall be followed by a buffer interval of at least 5 seconds (see Paragraph 4)</td>
<td>June 13, 2017</td>
</tr>
<tr>
<td>6D.03**</td>
<td>Worker Safety Considerations</td>
<td>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)</td>
<td>December 31, 2011</td>
</tr>
<tr>
<td>6E.02**</td>
<td>High-Visibility Safety Apparel</td>
<td>New requirement in the 2009 MUTCD that all flaggers within the right-of-way shall wear high-visibility apparel</td>
<td>December 31, 2011</td>
</tr>
<tr>
<td>7D.04**</td>
<td>Uniform of Adult Crossing Guards</td>
<td>New requirement in the 2009 MUTCD for high-visibility apparel for adult crossing guards</td>
<td>December 31, 2011</td>
</tr>
<tr>
<td>8B.03, 8B.04</td>
<td>Grade Crossing (Crossbucks) Signs and Supports</td>
<td>Retroreflective strip on Crossbucks sign and support (see Paragraph 7 in Section 8B.03 and Paragraphs 15 and 18 in Section 8B.04)</td>
<td>December 31, 2019</td>
</tr>
<tr>
<td>8B.04</td>
<td>Crossbucks Assemblies with YIELD or STOP Signs at Passive Grade Crossings</td>
<td>New requirement in the 2009 MUTCD for the use of STOP or YIELD signs with Crossbucks signs at passive grade crossings</td>
<td>December 31, 2019</td>
</tr>
</tbody>
</table>

* 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

<table>
<thead>
<tr>
<th>2014 CA MUTCD Section Number(s)</th>
<th>2014 CA MUTCD Section Title</th>
<th>Specific Provision</th>
<th>Compliance Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>4D.26</td>
<td>Yellow Change &amp; Red Clearance Intervals</td>
<td>Signalized intersections equipped with Red Light Cameras shall comply with 2014 CA MUTCD, Section 4D.26</td>
<td>August 1, 2015</td>
</tr>
<tr>
<td>4D.26</td>
<td>Yellow Change &amp; Red Clearance Intervals</td>
<td>All signalized intersections shall comply with 2014 CA MUTCD, Section 4D.26</td>
<td>August 1, 2017</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Date Issued by FHWA</th>
<th>Date Adopted in CA</th>
</tr>
</thead>
<tbody>
<tr>
<td>IA-1</td>
<td>Optional use of retroreflective borders on traffic signal backplates</td>
<td>2/6/04</td>
<td>12/7/06</td>
</tr>
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Notes:
- Interim Approvals IA-1, 2, 4R, 8, 9, and 10 were issued by FHWA during the time that the 2003 National MUTCD was in effect, for devices that have been incorporated into the 2009 National MUTCD. These Interim Approvals have been terminated by FHWA and are no longer in effect. Refer https://mutcd.fhwa.dot.gov/res-interim_approvals.htm
Section 1A.11 Relation to Other Publications

Standard:

01 To the extent that they are incorporated by specific reference, the latest editions of the following publications, or those editions specifically noted, shall be a part of this Manual: “Standard Highway Signs and Markings” book (FHWA); and “Color Specifications for Retroreflective Sign and Pavement Marking Materials” (appendix to subpart F of Part 655 of Title 23 of the Code of Federal Regulations).

Support:

02 The “Standard Highway Signs and Markings” book includes standard alphabets and symbols and arrows for signs and pavement markings.

03 For information about the publications mentioned in Paragraph 1, visit the Federal Highway Administration’s MUTCD website at http://mutcd.fhwa.dot.gov, or write to the FHWA, 1200 New Jersey Avenue, SE, HOTO, Washington, DC 20590.

04 Other publications that are useful sources of information with respect to the use of this Manual are listed in this paragraph. See Page i of this Manual for ordering information for the following publications (later editions might also be available as useful sources of information):

37. “Occupational Safety and Health Administration Regulations (Standards - 29 CFR), General Safety and Health Provisions - 1926.20,” amended June 30, 1993 (Occupational Safety and Health Administration—OSHA)

**Standard:**

The latest edition of Caltrans’ California Sign Specifications shall be a part of this manual.

**Support:**

Referring to the following web link for more information: [http://www.dot.ca.gov/trafficops/tcd/specs.html](http://www.dot.ca.gov/trafficops/tcd/specs.html)

The latest version of other documents that are useful sources of information with respect to the use of this Manual are listed below. See the Introduction Part of this California MUTCD for ordering information for the following publications:

1. “California Building Standards Code” (California Building Standards Commission)
2. “California Business and Professions Code” (State of California)
3. “California Code of Regulations” (State of California)
4. “California Education Code” (State of California)
7. “California Streets and Highways Code” (State of California)
8. “California Vehicle Code” (CVC) (Department of Motor Vehicles)
9. “Changeable Message Sign Guidelines” (Caltrans)
10. “Construction Manual” (Caltrans)
11. “Highway Design Handbook For Older Drivers And Pedestrians” (Federal Highway Administration)
12. “Highway Design Manual” (Caltrans)
Section 1A.12 Color Code

Support:
01 The following color code establishes general meanings for 11 colors of a total of 13 colors that have been identified as being appropriate for use in conveying traffic control information. Tolerance limits for each color are contained in 23 CFR Part 655, Appendix to Subpart F and are available at the Federal Highway Administration’s MUTCD website at http://mutcd.fhwa.dot.gov or by writing to the FHWA, Office of Safety Research and Development (HRD-T-301), 6300 Georgetown Pike, McLean, VA 22101.
02 The two colors for which general meanings have not yet been assigned are being reserved for future applications that will be determined only by FHWA after consultation with the States, the engineering community, and the general public. The meanings described in this Section are of a general nature. More specific assignments of colors are given in the individual Parts of this Manual relating to each class of devices.

Standard:
03 The general meaning of the 13 colors shall be as follows:
   A. Black—regulation
   B. Blue—road user services guidance, tourist information, and evacuation route
   C. Brown—recreational and cultural interest area guidance
   D. Coral—unassigned
   E. Fluorescent Pink—incident management
   F. Fluorescent Yellow-Green—pedestrian warning, bicycle warning, playground warning, school bus and school warning
   G. Green—indicated movements permitted, direction guidance
   H. Light Blue—unassigned
   I. Orange—temporary traffic control
   J. Purple—lanes restricted to use only by vehicles with registered electronic toll collection (ETC) accounts
   K. Red—stop or prohibition
   L. White—regulation
   M. Yellow—warning

Section 1A.13 Definitions of Headings, Words, and Phrases in this Manual

Standard:
01 When used in this Manual, the text headings of Standard, Guidance, Option, and Support shall be defined as follows:
   A. Standard—a statement of required, mandatory, or specifically prohibitive practice regarding a traffic control device. All Standard statements are labeled, and the text appears in bold type. The
verb “shall” is typically used. The verbs “should” and “may” are not used in Standard statements. Standard statements are sometimes modified by Options.

B. Guidance—a statement of recommended, but not mandatory, practice in typical situations, with deviations allowed if engineering judgment or engineering study indicates the deviation to be appropriate. All Guidance statements are labeled, and the text appears in unbold type. The verb “should” is typically used. The verbs “shall” and “may” are not used in Guidance statements. Guidance statements are sometimes modified by Options.

C. Option—a statement of practice that is a permissive condition and carries no requirement or recommendation. Option statements sometime contain allowable modifications to a Standard or Guidance statement. All Option statements are labeled, and the text appears in unbold type. The verb “may” is typically used. The verbs “shall” and “should” are not used in Option statements.

D. Support—an informational statement that does not convey any degree of mandate, recommendation, authorization, prohibition, or enforceable condition. Support statements are labeled, and the text appears in unbold type. The verbs “shall,” “should,” and “may” are not used in Support statements.

02 Unless otherwise defined in this Section, or in other Parts of this Manual, words or phrases shall have the meaning(s) as defined in the most recent editions of the “Uniform Vehicle Code,” “AASHTO Transportation Glossary (Highway Definitions),” “California Vehicle Code” and other publications mentioned in Section 1A.11.

03 The following words and phrases, when used in this Manual, shall have the following meanings:

1. Accessible Pedestrian Signal—a device that communicates information about pedestrian signal timing in non-visual format such as audible tones, speech messages, and/or vibrating surfaces.

2. Accessible Pedestrian Signal Detector—a device designated to assist the pedestrian who has visual or physical disabilities in activating the pedestrian phase.

3. Active Grade Crossing Warning System—the flashing-light signals, with or without warning gates, together with the necessary control equipment used to inform road users of the approach or presence of rail traffic at grade crossings.

4. Actuated Operation—a type of traffic control signal operation in which some or all signal phases are operated on the basis of actuation.

5. Actuation—initiation of a change in or extension of a traffic signal phase through the operation of any type of detector.

6. Advance Preemption—the notification of approaching rail traffic that is forwarded to the highway traffic signal controller unit or assembly by the railroad or light rail transit equipment in advance of the activation of the railroad or light rail transit warning devices.

7. Advance Preemption Time—the period of time that is the difference between the required maximum highway traffic signal preemption time and the activation of the railroad or light rail transit warning devices.

8. Advisory Speed—a recommended speed for all vehicles operating on a section of highway and based on the highway design, operating characteristics, and conditions.

9. Alley—a street or highway intended to provide access to the rear or side of lots or buildings in urban areas and not intended for the purpose of through vehicular traffic. Refer to CVC 110, for definition of “Highway”.

10. Altered Speed Zone—a speed limit, other than a statutory speed limit, that is based upon an engineering study. Refer to CVC 22357 and 22358.

11. Approach—all lanes of traffic moving toward an intersection or a midblock location from one direction, including any adjacent parking lane(s).

12. Arterial Highway (Street)—a general term denoting a highway primarily used by through traffic, usually on a continuous route or a highway designated as part of an arterial system.

13. Attended Lane (Manual Lane)—a toll lane adjacent to a toll booth occupied by a human toll collector who makes change, issues receipts, and perform other toll-related functions. Attended lanes at toll plazas typically require vehicles to stop to pay the toll.

14. Automatic Lane—see Exact Change Lane.

15. Average Annual Daily Traffic (AADT)—the total volume of traffic passing a point or segment of a highway facility in both directions for one year divided by the number of days in the year. Normally,
periodic daily traffic volumes are adjusted for hours of the day counted, days of the week, and seasons of the year to arrive at average annual daily traffic.

16. Average Daily Traffic (ADT)—the average 24 hour volume, being the total volume during a stated period divided by the number of days in that period. Normally, this would be periodic daily traffic volumes over several days, not adjusted for days of the week or seasons of the year.

17. Average Day—a day representing traffic volumes normally and repeatedly found at a location, typically a weekday when volumes are influenced by employment or a weekend day when volumes are influenced by entertainment or recreation.

18. Backplate—see Signal Backplate.

19. Barrier-Separated Lane—a preferential lane or other special purpose lane that is separated from the adjacent general-purpose lane(s) by a physical barrier.

20. Beacon—a highway traffic signal with one or more signal sections that operates in a flashing mode.

21. Bicycle—a pedal-powered vehicle upon which the human operator sits. As per CVC 231, a bicycle is a device upon which any person may ride, propelled exclusively by human power through a belt, chain, or gears, and having one or more wheels. Persons riding bicycles are subject to the provisions of this code specified in Sections 21200 and 21200.5. Also refer to CVC 39000 and S&H Code Section 890.2.

22. Bicycle Facilities—a general term denoting improvements and provisions that accommodate or encourage bicycling, including parking and storage facilities, and shared roadways not specifically defined for bicycle use.

23. Bicycle Lane—a portion of a roadway that has been designated for preferential or exclusive use by bicyclists by pavement markings and, if used, signs. See Class II Bikeway.

23a. Bicycle Path – A "bicycle path" or "bike path" is a Class I bikeway, as defined in subdivision (a) of Section 890.4 of the Streets and Highways Code. Refer to CVC 231.5. See Class I Bikeway.

23b. Bicycle Path Crossing - That portion of a roadway included within the prolongation or connection of the boundary lines of a bike path at intersections where the intersecting roadways meet at approximately right angles or any portion of a roadway distinctly indicated for bicycle crossing by lines or other markings on the surface. Refer to CVC 231.6.

24. Bikeway—a generic term for any road, street, path, or way that in some manner is specifically designated for bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes. Bikeway – All facilities that provide primarily for bicycle travel. Refer California Streets and Highways Code Section 890.4.


24b. Buffered Bicycle Lane – A buffered bicycle lane is a bicycle lane that is separated from the adjacent general-purpose lane or parking lane by a pattern of standard longitudinal markings. The buffer area might include chevron or diagonal markings.

25. Buffer-Separated Lane—a preferential lane or other special purpose lane that is separated from the adjacent general-purpose lane(s) by a pattern of standard longitudinal pavement markings that is wider than a normal or wide lane line marking. The buffer area might include rumble strips, textured pavement, or channelizing devices such as tubular markers or traversable curbs, but does not include a physical barrier.

25a. Business District - A "business district" is that portion of a highway and the property contiguous thereto (a) upon one side of which highway, for a distance of 600 feet, 50 percent or more of the contiguous property fronting thereon is occupied by buildings in use for business, or (b) upon both sides of which highway, collectively, for a distance of 300 feet, 50 percent or more of the contiguous property fronting thereon is so occupied. A business district may be longer than the distances specified in this section if the above ratio of buildings in use for business to the length of the highway exists. Refer to CVC 235.


26. Cantilevered Signal Structure—a structure, also referred to as a mast arm, that is rigidly attached to a vertical pole and is used to provide overhead support of highway traffic signal faces or grade crossing signal units.
27. Center Line Markings—the yellow pavement marking line(s) that delineates the separation of traffic lanes that have opposite directions of travel on a roadway. These markings need not be at the geometrical center of the pavement.

28. Changeable Message Sign—a sign that is capable of displaying more than one message (one of which might be a “blank” display), changeable manually, by remote control, or by automatic control. Electronic-display changeable message signs are referred to as Dynamic Message Signs in the National Intelligent Transportation Systems (ITS) Architecture and are referred to as Variable Message Signs in the National Electrical Manufacturers Association (NEMA) standards publication.

29. Channelling Line Markings—a wide or double solid white line used to form islands where traffic in the same direction of travel is permitted on both sides of the island.

30. Circular Intersection—an intersection that has an island, generally circular in design, located in the center of the intersection where traffic passes to the right of the island. Circular intersections include roundabouts, rotaries, and traffic circles.

31. Circulatory Roadway—the roadway within a circular intersection on which traffic travels in a counterclockwise direction around an island in the center of the circular intersection.

31a. Civil Engineer - a professional engineer in the branch of civil engineering and refers to one who practices or offers to practice civil engineering in any of its phases. Refer to California Business and Professions Code Section 6702.

31b. Class I Bikeway (such as a Bike Path or a Shared-Use Path) – Provides a completely separated right-of-way designated for the exclusive use of bicycles and pedestrians with crossflows by motorists minimized. Refer California Streets and Highways Code Section 890.4. Refer to Caltrans’ Highway Design Manual Index 1003.1 for design criteria.

31c. Class II Bikeway (such as a Bike Lane) – Provides a restricted right-of-way designated for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle parking and crossflows by pedestrians and motorists permitted. Refer to California Streets and Highways Code Section 890.4. Refer to Caltrans’ Highway Design Manual Index 1003.2 for design criteria.

31d. Class III Bikeway (such as a Bike Route) – provide a right-of-way designated by signs or permanent markings and shared with pedestrians or motorists. Refer to California Streets and Highways Code Section 890.4. Refer to Caltrans’ Highway Design Manual Index 1003.3 for design criteria.

31e. Class IV Bikeway (such as a cycle track or separated bikeway) – Provides a right-of-way designated exclusively for bicycle travel adjacent to a roadway and which is separated from vehicular traffic. Types of separation include, but are not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking. Refer to California Streets and Highways Code Section 890.4. Refer to Caltrans’ Design Information Bulletin Number 89 for design criteria.

31f. Contraflow Bicycle Lane – A contraflow bicycle lane is an area of the roadway designated to allow for the lawful use by bicyclists to travel in the opposite direction from vehicular traffic on a roadway that allows vehicular traffic to travel in only one direction.

32. Clear Storage Distance—when used in Part 8, the distance available for vehicle storage measured between 6 feet from the rail nearest the intersection to the intersection stop line or the normal stopping point on the highway. At skewed grade crossings and intersections, the 6-foot distance shall be measured perpendicular to the nearest rail either along the center line or edge line of the highway, as appropriate, to obtain the shorter distance. Where exit gates are used, the distance available for vehicle storage is measured from the point where the rear of the vehicle would be clear of the exit gate arm. In cases where the exit gate arm is parallel to the track(s) and is not perpendicular to the highway, the distance is measured either along the center line or edge line of the highway, as appropriate, to obtain the shorter distance.

33. Clear Zone—the total roadside border area, starting at the edge of the traveled way, that is available for an errant driver to stop or regain control of a vehicle. This area might consist of a shoulder, a recoverable slope, and/or a non-recoverable, traversable slope with a clear run-out area at its toe.

34. Collector Highway—a term denoting a highway that in rural areas connects small towns and local highways to arterial highways, and in urban areas provides land access and traffic circulation within residential, commercial, and business areas and connects local highways to the arterial highways.
35. Concurrent Flow Preferential Lane—a preferential lane that is operated in the same direction as the adjacent mixed flow lanes, separated from the adjacent general-purpose freeway lanes by a standard lane stripe, painted buffer, or barrier.

36. Conflict Monitor—a device used to detect and respond to improper or conflicting signal indications and improper operating voltages in a traffic controller assembly.

37. Constant Warning Time Detection—a means of detecting rail traffic that provides relatively uniform warning time for the approach of trains or light rail transit traffic that are not accelerating or decelerating after being detected.

37a. Consulting Engineer – See Professional Engineer. Refer to California Business and Professions Code Section 6704.

38. Contiguous Lane—a lane, preferential or otherwise, that is separated from the adjacent lane(s) only by a normal or wide lane line marking.

39. Controller Assembly—a complete electrical device mounted in a cabinet for controlling the operation of a highway traffic signal.

40. Controller Unit—that part of a controller assembly that is devoted to the selection and timing of the display of signal indications.

41. Conventional Road—a street or highway other than a low-volume road (as defined in Section 5A.01), expressway, or freeway.

42. Counter-Flow Lane—a lane operating in a direction opposite to the normal flow of traffic designated for peak direction of travel during at least a portion of the day. Counter-flow lanes are usually separated from the off-peak direction lanes by tubular markers or other flexible channelizing devices, temporary lane separators, or movable or permanent barrier.

43. Crashworthy—a characteristic of a roadside appurtenance that has been successfully crash tested in accordance with a national standard such as the National Cooperative Highway Research Program Report 350, “Recommended Procedures for the Safety Performance Evaluation of Highway Features” or the Manual for Assessing Safety Hardware (MASH) crash guidelines.

44. Crosswalk—(a) that part of a roadway at an intersection included within the connections of the lateral lines of the sidewalks on opposite sides of the highway measured from the curbs or in the absence of curbs, from the edges of the traversable roadway, and in the absence of a sidewalk on one side of the roadway, the part of a roadway included within the extension of the lateral lines of the sidewalk at right angles to the center line; (b) any portion of a roadway at an intersection or elsewhere distinctly indicated as a pedestrian crossing by pavement marking lines on the surface, which might be supplemented by contrasting pavement texture, style, or color. As per CVC 275, “Crosswalk” is either: (a) That portion of a roadway included within the prolongation or connection of the boundary lines of sidewalks at intersections where the intersecting roadways meet at approximately right angles, except the prolongation of such lines from an alley across a street. (b) Any portion of a roadway distinctly indicated for pedestrian crossing by lines or other markings on the surface. Notwithstanding the foregoing provisions of this section, there shall not be a crosswalk where local authorities have placed signs indicating no crossing.

45. Crosswalk Lines—white or yellow (in school areas per CVC 21368) pavement marking lines that identify a crosswalk.

46. Cycle Length—the time required for one complete sequence of signal indications.

47. Dark Mode—the lack of all signal indications at a signalized location. (The dark mode is most commonly associated with power failures, ramp meters, hybrid beacons, beacons, and some movable bridge signals.)

48. Delineator—a retroreflective device mounted on the roadway surface or at the side of the roadway in a series to indicate the alignment of the roadway, especially at night or in adverse weather.

48a. Department of Transportation – California Department of Transportation or Caltrans.

49. Design Vehicle—the longest vehicle permitted by statute of the road authority (State or other) on that roadway.

50. Designated Bicycle Route—a system of bikeways designated by the jurisdiction having authority with appropriate directional and informational route signs, with or without specific bicycle route numbers.
51. Detectable—having a continuous edge within 6 inches of the surface so that pedestrians who have visual disabilities can sense its presence and receive usable guidance information.

52. Detector—a device used for determining the presence or passage of vehicles (including motorcycles), bicycles or pedestrians.

52a. Divided Highway – A highway with separated roadbeds for traffic in opposing directions.

53. Downstream—a term that refers to a location that is encountered by traffic subsequent to an upstream location as it flows in an “upstream to downstream” direction. For example, “the downstream end of a lane line separating the turn lane from a through lane on the approach to an intersection” is the end of the lane line that is closest to the intersection.

54. Dropped Lane—a through lane that becomes a mandatory turn lane on a conventional roadway, or a through lane that becomes a mandatory exit lane on a freeway or expressway. The end of an acceleration lane and reductions in the number of through lanes that do not involve a mandatory turn or exit are not considered dropped lanes.

55. Dual-Arrow Signal Section—a type of signal section designed to include both a yellow arrow and a green arrow.

56. Dynamic Envelope—the clearance required for light rail transit traffic or a train and its cargo overhang due to any combination of loading, lateral motion, or suspension failure (see Figure 8B-8 8B-6(CA) Sheet 1 of 3).

57. Dynamic Exit Gate Operating Mode—a mode of operation where the exit gate operation is based on the presence of vehicles within the minimum track clearance distance.

58. Edge Line Markings—white or yellow pavement marking lines that delineate the right or left edge(s) of a traveled way.

58a. Electrical Engineer – a professional engineer in the branch of electrical engineering and refers to one who practices or offers to practice electrical engineering in any of its phases. Refer to California Business and Professions Code Section 6702.1.

59. Electronic Toll Collection (ETC)—a system for automated collection of tolls from moving or stopped vehicles through wireless technologies such as radio-frequency communication or optical scanning. ETC systems are classified as one of the following: (1) systems that require users to have registered toll accounts, with the use of equipment inside or on the exterior of vehicles, such as a transponder or barcode decal, that communicates with or is detected by roadside or overhead receiving equipment, or with the use of license plate optical scanning, to automatically deduct the toll from the registered user account, or (2) systems that do not require users to have registered toll accounts because vehicle license plates are optically scanned and invoices for the toll amount are sent through postal mail to the address of the vehicle owner.

60. Electronic Toll Collection (ETC) Account-Only Lane—a non-attended toll lane that is restricted to use only by vehicles with a registered toll payment account.

61. Emergency-Vehicle Hybrid Beacon—a special type of hybrid beacon used to warn and control traffic at an unsignalized location to assist authorized emergency vehicles in entering or crossing a street or highway. Refer to CVC 21355.

62. Emergency-Vehicle Traffic Control Signal—a special traffic control signal that assigns the right-of-way to an authorized emergency vehicle.

63. End-of-Roadway Marker—a device used to warn and alert road users of the end of a roadway in other than temporary traffic control zones.

63a. Engineer – a person registered under California Professional Engineers Act as a professional engineer, including any of the branches thereof. Refer to California Business and Professions Code Section 6706.


64. Engineering Judgment—the evaluation of available pertinent information, and the application of appropriate principles, experience, education, discretion, provisions, and practices as contained in this Manual and other sources, for the purpose of deciding upon the applicability, design, operation, or installation of a traffic control device. Engineering judgment shall be exercised by an engineer, or by an individual working under the supervision of an engineer, through the application of procedures and criteria established by the engineer. Documentation of engineering judgment is not required.
65. Engineering Study—the comprehensive analysis and evaluation of available pertinent information, and the application of appropriate principles, engineering judgment, experience, education, discretion, provisions, and practices as contained in this Manual and other sources, for the purpose of deciding upon the applicability, design, operation, or installation of a traffic control device. An engineering study shall be performed by an engineer, or by an individual working under the supervision of an engineer, through the application of procedures and criteria established by the engineer. An engineering study shall be documented.

66. Entrance Gate—an automatic gate that can be lowered across the lanes approaching a grade crossing to block road users from entering the grade crossing.

67. Exact Change Lane (Automatic Lane)—a non-attended toll lane that has a receptacle into which road users deposit coins totaling the exact amount of the toll. Exact Change lanes at toll plazas typically require vehicles to stop to pay the toll.

68. Exit Gate—an automatic gate that can be lowered across the lanes departing a grade crossing to block road users from entering the grade crossing by driving in the opposing traffic lanes.

69. Exit Gate Clearance Time—for Four-Quadrant Gate systems at grade crossings, the amount of time provided to delay the descent of the exit gate arm(s) after entrance gate arm(s) begin to descend.

70. Exit Gate Operating Mode—for Four-Quadrant Gate systems at grade crossings, the mode of control used to govern the operation of the exit gate arms.

71. Expressway—a divided highway with partial control of access. As per CVC 314, an "expressway" is a portion of highway that is part of either of the following: (a) An expressway system established by a county under Section 941.4 of the Streets and Highways Code. (b) An expressway system established by a county before January 1, 1989, as described in subdivision (g) of Section 941.4 of the Streets and Highways Code.

72. Flagger—a person who actively controls the flow of vehicular traffic into and/or through a temporary traffic control zone using hand-signaling devices or an Automated Flagger Assistance Device (AFAD).

73. Flasher—a device used to turn highway traffic signal indications on and off at a repetitive rate of approximately once per second.

74. Flashing—an operation in which a light source, such as a traffic signal indication, is turned on and off repetitively.

75. Flashing-Light Signals—a warning device consisting of two red signal indications arranged horizontally that are activated to flash alternately when rail traffic is approaching or present at a grade crossing.

76. Flashing Mode—a mode of operation in which at least one traffic signal indication in each vehicular signal face of a highway traffic signal is turned on and off repetitively.

77. Freeway—a divided highway with full control of access. As per CVC 332, "Freeway" is a highway in respect to which the owners of abutting lands have no right or easement of access to or from their abutting lands or in respect to which such owners have only limited or restricted right or easement of access.

78. Full-Actuated Operation—a type of traffic control signal operation in which all signal phases function on the basis of actuation.

79. Gate—an automatically-operated or manually-operated traffic control device that is used to physically obstruct road users such that they are discouraged from proceeding past a particular point on a roadway or pathway, or such that they are discouraged from entering a particular grade crossing, ramp, lane, roadway, or facility.

80. Grade Crossing—the general area where a highway and a railroad and/or light rail transit route cross at the same level, within which are included the tracks, highway, and traffic control devices for traffic traversing that area.

81. Guide Sign—a sign that shows route designations, destinations, directions, distances, services, points of interest, or other geographical, recreational, or cultural information.

82. High-Occupancy Vehicle (HOV)—a motor vehicle carrying at least two or more persons, including carpools, vanpools, and buses.

83. Highway—a general term for denoting a public way for purposes of vehicular travel, including the entire area within the right-of-way. As per CVC 360, "Highway" is a way or place of whatever nature,
84. Highway—Light Rail Transit Grade Crossing—the general area where a highway and a light rail transit route cross at the same level, within which are included the light rail transit tracks, highway, and traffic control devices for traffic traversing that area.

85. Highway—Rail Grade Crossing—the general area where a highway and a railroad cross at the same level, within which are included the railroad tracks, highway, and traffic control devices for highway traffic traversing that area.

86. Highway Traffic Signal—a power-operated traffic control device by which traffic is warned or directed to take some specific action. These devices do not include power-operated signs, steadily-illuminated pavement markers, warning lights (see Section 6F.83), or steady burning electric lamps.

87. HOV Lane—any preferential lane designated for exclusive use by high-occupancy vehicles for all or part of a day—including a designated lane on a freeway, other highway, street, or independent roadway on a separate right-of-way.

88. Hybrid Beacon—a special type of beacon that is intentionally placed in a dark mode (no indications displayed) between periods of operation and, when operated, displays both steady and flashing traffic control signal indications.

89. Inherently Low Emission Vehicle (ILEV)—any kind of vehicle that, because of inherent properties of the fuel system design, will not have significant evaporative emissions, even if its evaporative emission control system has failed.

90. In-Roadway Lights—a special type of highway traffic signal 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.

91. Interchange—a system of interconnecting roadways providing for traffic movement between two or more highways that do not intersect at grade.

92. Interconnection—when used in Part 8, the electrical connection between the railroad or light rail transit active warning system and the highway traffic signal controller assembly for the purpose of preemption.

93. Intermediate Interchange—an interchange with an urban or rural route that is not a major or minor interchange as defined in this Section.

94. Intersection—intersection is defined as follows:

   As per CVC 365, an “intersection” is the area embraced within the prolongation of the lateral curb lines, or, if none, then the lateral boundary lines of the roadways, of two highways which join one another at approximately right angles or the area within which vehicles traveling upon different highways joining at any other angle may come in conflict.

   (a) The area embraced within the prolongation or connection of the lateral curb lines, or if none, the lateral boundary lines of the roadways of two highways that join one another at, or approximately at, right angles, or the area within which vehicles traveling on different highways that join at any other angle might come into conflict.

   (b) The junction of an alley or driveway with a roadway or highway shall not constitute an intersection, unless the roadway or highway at said junction is controlled by a traffic control device.

   (c) If a highway includes two roadways that are 30 feet or more apart (see definition of Median), then every crossing of each roadway of such divided highway by an intersecting highway shall be a separate intersection.

   (d) If both intersecting highways include two roadways that are 30 feet or more apart, then every crossing of any two roadways of such highways shall be a separate intersection.

   (e) At a location controlled by a traffic control signal, regardless of the distance between the separate intersections as defined in (c) and (d) above:

      (1) If a stop line, yield line, or crosswalk has not been designated on the roadway (within the median) between the separate intersections, the two intersections and the roadway (median) between them shall be considered as one intersection;
(2) Where a stop line, yield line, or crosswalk is designated on the roadway on the intersection approach, the area within the crosswalk and/or beyond the designated stop line or yield line shall be part of the intersection; and

(3) Where a crosswalk is designated on a roadway on the departure from the intersection, the intersection shall include the area extending to the far side of such crosswalk.

95. Intersection Control Beacon—a beacon used only at an intersection to control two or more directions of travel.

96. Interval—the part of a signal cycle during which signal indications do not change.

97. Interval Sequence—the order of appearance of signal indications during successive intervals of a signal cycle.

98. Island—a defined area between traffic lanes for control of vehicular movements, for toll collection, or for pedestrian refuge. It includes all end protection and approach treatments. Within an intersection area, a median or an outer separation is considered to be an island.

99. Lane Drop—see Dropped Lane.

100. Lane Line Markings—white pavement marking lines that delineate the separation of traffic lanes that have the same direction of travel on a roadway.

101. Lane-Use Control Signal—a signal face displaying indications to permit or prohibit the use of specific lanes of a roadway or to indicate the impending prohibition of such use.

102. Legend—see Sign Legend.

103. Lens—see Signal Lens.

104. Light Rail Transit Traffic (Light Rail Transit Equipment)—every device in, upon, or by which any person or property can be transported on light rail transit tracks, including single-unit light rail transit cars (such as streetcars and trolleys) and assemblies of multiple light rail transit cars coupled together.

104a. Limit Line - A "limit line" is a solid white line not less than 12 nor more than 24 inches 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. Refer to CVC 377.

104b. Limit Line Detection Zone – a Referenced Bicycle-Rider must be detected in a 6 x 6 feet area immediately behind the limit line, centered either in a normal width lane or if the lane is more than 12 feet wide, centered 6 feet from the left lane line. For a lane of 20 feet or greater, two minimum 6 x 6 feet areas shall constitute the Limit Line Detection Zone.

105. Locomotive Horn—an air horn, steam whistle, or similar audible warning device (see 49 CFR Part 229.129) mounted on a locomotive or control cab car. The terms “locomotive horn,” “train whistle,” “locomotive whistle,” and “train horn” are used interchangeably in the railroad industry.

106. Logo—a distinctive emblem or trademark that identifies a commercial business and/or the product or service offered by the business.

107. Longitudinal Markings—pavement markings that are generally placed parallel and adjacent to the flow of traffic such as lane lines, center lines, edge lines, channelizing lines, and others.

108. Louver—see Signal Louver.

109. Major Interchange—an interchange with another freeway or expressway, or an interchange with a high-volume multi-lane highway, principal urban arterial, or major rural route where the interchanging traffic is heavy or includes many road users unfamiliar with the area.

110. Major Street—the street normally carrying the higher volume of vehicular traffic.

111. Malfunction Management Unit—same as Conflict Monitor.

112. Managed Lane—a highway lane or set of lanes, or a highway facility, for which variable operational strategies such as direction of travel, tolling, pricing, and/or vehicle type or occupancy requirements are implemented and managed in real-time in response to changing conditions. Managed lanes are typically buffer- or barrier-separated lanes parallel to the general-purpose lanes of a highway in which access is restricted to designated locations. There are also some highways on which all lanes are managed.

113. Manual Lane—see Attended Lane.

113a. Markings – All lines, words, or symbols, except signs, officially placed within the roadway to regulate, warn or guide traffic.
114. Maximum Highway Traffic Signal Preemption Time—the maximum amount of time needed following initiation of the preemption sequence for the highway traffic signals to complete the timing of the right-of-way transfer time, queue clearance time, and separation time.

115. Median—the area between two roadways of a divided highway measured from edge of traveled way to edge of traveled way. The median excludes turn lanes. The median width might be different between intersections, interchanges, and at opposite approaches of the same intersection.

116. Minimum Track Clearance Distance—for standard two-quadrant warning devices, the minimum track clearance distance is the length along a highway at one or more railroad or light rail transit tracks, measured from the highway stop line, warning device, or 12 feet perpendicular to the track center line, to 6 feet beyond the track(s) measured perpendicular to the far rail, along the center line or edge line of the highway, as appropriate, to obtain the longer distance. For Four-Quadrant Gate systems, the minimum track clearance distance is the length along a highway at one or more railroad or light rail transit tracks, measured either from the highway stop line or entrance warning device, to the point where the rear of the vehicle would be clear of the exit gate arm. In cases where the exit gate arm is parallel to the track(s) and is not perpendicular to the highway, the distance is measured either along the center line or edge line of the highway, as appropriate, to obtain the longer distance.

117. Minimum Warning Time—when used in Part 8, the least amount of time active warning devices shall operate prior to the arrival of rail traffic at a grade crossing.

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

119. Minor Street—the street normally carrying the lower volume of vehicular traffic.

120. Movable Bridge Resistance Gate—a type of traffic gate, which is located downstream of the movable bridge warning gate, that provides a physical deterrent to vehicle and/or pedestrian traffic when placed in the appropriate position.

121. Movable Bridge Signal—a highway traffic signal installed at a movable bridge to notify traffic to stop during periods when the roadway is closed to allow the bridge to open.

122. Movable Bridge Warning Gate—a type of traffic gate designed to warn, but not primarily to block, vehicle and/or pedestrian traffic when placed in the appropriate position.

123. Multi-Lane—more than one lane moving in the same direction. A multi-lane street, highway, or roadway has a basic cross-section comprised of two or more through lanes in one or both directions. A multi-lane approach has two or more lanes moving toward the intersection, including turning lanes.

124. Neutral Area—the paved area between the channelizing lines separating an entrance or exit ramp or a channelized turn lane or channelized entering lane from the adjacent through lane(s).

124a. Night or Nighttime – is equivalent of “darkness” defined by CVC Section 280: "Darkness" is any time from one-half hour after sunset to one-half hour before sunrise and any other time when visibility is not sufficient to render clearly discernible any person or vehicle on the highway at a distance of 1000 feet.

124b. Non-motorized Traffic – Bicycle and pedestrian component of traffic.

125. Object Marker—a device used to mark obstructions within or adjacent to the roadway.

126. Occupancy Requirement—any restriction that regulates the use of a facility or one or more lanes of a facility for any period of the day based on a specified number of persons in a vehicle.

127. Occupant—a person driving or riding in a car, truck, bus, or other vehicle.

128. Open-Road ETC Lane—a non-attended lane that is designed to allow toll payments to be electronically collected from vehicles traveling at normal highway speeds. Open-Road ETC lanes are typically physically separated from the toll plaza, often following the alignment of the mainline lanes, with toll plaza lanes for cash toll payments being on a different alignment after diverging from the mainline lanes or a subset thereof.

129. Open-Road Tolling—a system designed to allow electronic toll collection (ETC) from vehicles traveling at normal highway speeds. Open-Road Tolling might be used on toll roads or toll facilities in conjunction with toll plazas. Open-Road Tolling is also typically used on managed lanes and on toll facilities that only accept payment by ETC.
130. Open-Road Tolling Point—the location along an Open-Road ETC lane at which roadside or overhead detection and receiving equipment are placed and vehicles are electronically assessed a toll.

131. Opposing Traffic—vehicles that are traveling in the opposite direction. At an intersection, vehicles entering from an approach that is approximately straight ahead would be considered to be opposing traffic, but vehicles entering from approaches on the left or right would not be considered to be opposing traffic.

132. Overhead Sign—a sign that is placed such that a portion or the entirety of the sign or its support is directly above the roadway or shoulder such that vehicles travel below it. Typical installations include signs placed on cantilever arms that extend over the roadway or shoulder, on sign support structures that span the entire width of the pavement, on mast arms or span wires that also support traffic control signals, and on highway bridges that cross over the roadway.

133. Parking Area—a parking lot or parking garage that is separated from a roadway. Parallel or angle parking spaces along a roadway are not considered a parking area.

134. Passive Grade Crossing—a grade crossing where none of the automatic traffic control devices associated with an Active Grade Crossing Warning System are present and at which the traffic control devices consist entirely of signs and/or markings.

135. Pathway—a general term denoting a public way for purposes of travel by authorized users outside the traveled way and physically separated from the roadway by an open space or barrier and either within the highway right-of-way or within an independent alignment. Pathways include shared-use paths, but do not include sidewalks.

136. Pathway Grade Crossing—the general area where a pathway and railroad or light rail transit tracks cross at the same level, within which are included the tracks, pathway, and traffic control devices for pathway traffic traversing that area.

137. Paved—a bituminous surface treatment, mixed bituminous concrete, or Portland cement concrete roadway surface that has both a structural (weight bearing) and a sealing purpose for the roadway.

138. Pedestrian—a person on foot, in a wheelchair, on skates, or on a skateboard. As per CVC 467, (a) A "pedestrian" is a person who is afoot or who is using any of the following: (1) A means of conveyance propelled by human power other than a bicycle. (2) An electric personal assistive mobility device. (b) "Pedestrian" includes a person who is operating a self-propelled wheelchair, motorized tricycle, or motorized quadricycle and, by reason of physical disability, is otherwise unable to move about as a pedestrian, as specified in subdivision(a).

139. Pedestrian Change Interval—an interval during which the flashing UPRAISED HAND (symbolizing DONT WALK) signal indication is displayed.

140. Pedestrian Clearance Time—the time provided for a pedestrian crossing in a crosswalk, after leaving the curb or shoulder, to travel to the far side of the traveled way or to a median.

141. Pedestrian Facilities—a general term denoting improvements and provisions made to accommodate or encourage walking.

142. Pedestrian Hybrid Beacon—a special type of hybrid beacon used to warn and control traffic at an unsignalized location to assist pedestrians in crossing a street or highway at a marked crosswalk.

143. Pedestrian Signal Head—a signal head, which contains the symbols WALKING PERSON (symbolizing WALK) and UPRAISED HAND (symbolizing DONT WALK), that is installed to direct pedestrian traffic at a traffic control signal.

144. Permissive Mode—a mode of traffic control signal operation in which left or right turns are permitted to be made after yielding to pedestrians, if any, and/or opposing traffic, if any. When a CIRCULAR GREEN signal indication is displayed, both left and right turns are permitted unless otherwise prohibited by another traffic control device. When a flashing YELLOW ARROW or flashing RED ARROW signal indication is displayed, the turn indicated by the arrow is permitted.

145. Physical Gore—a longitudinal point where a physical barrier or the lack of a paved surface inhibits road users from crossing from a ramp or channelized turn lane or channelized entering lane to the adjacent through lane(s) or vice versa.

146. Pictograph—a pictorial representation used 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, a toll payment system, or a government-approved institution.
147. Plaque—a traffic control device intended to communicate specific information to road users through a word, symbol, or arrow legend that is placed immediately adjacent to a sign to supplement the message on the sign. The difference between a plaque and a sign is that a plaque cannot be used alone. The designation for a plaque includes a “P” suffix.

148. Platoon—a group of vehicles or pedestrians traveling together as a group, either voluntarily or involuntarily, because of traffic signal controls, geometrics, or other factors.

149. Portable Traffic Control Signal—a temporary traffic control signal that is designed so that it can be easily transported and reused at different locations.

150. Post-Mounted Sign—a sign that is placed to the side of the roadway such that no portion of the sign or its support is directly above the roadway or shoulder.

151. Posted Speed Limit—a speed limit determined by law or regulation and displayed on Speed Limit signs.

152. Preemption—the transfer of normal operation of a traffic control signal to a special control mode of operation.

153. Preferential Lane—a highway lane reserved for the exclusive use of one or more specific types of vehicles or vehicles with at least a specific number of occupants.

154. Pre-Signal—traffic control signal faces that control traffic approaching a grade crossing in conjunction with the traffic control signal faces that control traffic approaching a highway-highway intersection beyond the tracks. Supplemental near-side traffic control signal faces for the highway-highway intersection are not considered pre-signals. Pre-signals are typically used where the clear storage distance is insufficient to store one or more design vehicles.

155. Pre-timed Operation—a type of traffic control signal operation in which none of the signal phases function on the basis of actuation.

156. Primary Signal Face—one of the required or recommended minimum number of signal faces for a given approach or separate turning movement, but not including near-side signal faces required as a result of the far-side signal faces exceeding the maximum distance from the stop line.

157. Principal Legend—place names, street names, and route numbers placed on guide signs.

158. Priority Control—a means by which the assignment of right-of-way is obtained or modified.

159. Private Road Open to Public Travel—private toll roads and roads (including any adjacent sidewalks that generally run parallel to the road) within shopping centers, airports, sports arenas, and other similar business and/or recreation facilities that are privately owned, but where the public is allowed to travel without access restrictions. Roads within private gated properties (except for gated toll roads) where access is restricted at all times, parking areas, driving aisles within parking areas, and private grade crossings shall not be included in this definition. The MUTCD national standard and Caltrans standards and specifications for traffic control devices shall not be applicable to privately owned and maintained roads or commercial establishments, unless the particular city or county enacts an ordinance or resolution to this effect. Refer to CVC Sections 21100, 21100.1, 21107, 21107.5, 21107.6, and 21107.7.

159a. Private Road or Driveway - "Private road or driveway" is a way or place in private ownership and used for vehicular travel by the owner and those having express or implied permission from the owner but not by other members of the public. Refer to CVC 490.

159b. Professional Engineer - a person engaged in the professional practice of rendering service or creative work requiring education, training and experience in engineering sciences and the application of special knowledge of the mathematical, physical and engineering sciences in such professional or creative work as consultation, investigation, evaluation, planning or design of public or private utilities, structures, machines, processes, circuits, buildings, equipment or projects, and supervision of construction for the purpose of securing compliance with specifications and design for any such work. Refer to California Business and Professions Code Section 6701.

160. Protected Mode—a mode of traffic control signal operation in which left or right turns are permitted to be made when a left or right GREEN ARROW signal indication is displayed.

161. Public Road—any road, street, or similar facility under the jurisdiction of and maintained by a public agency and open to public travel (see definition of private road open to public travel).

162. Pushbutton—a button to activate a device or signal timing for pedestrians, bicyclists, or other road users.
163. Pushbutton Information Message—a recorded message that can be actuated by pressing a
 pushbutton when the walk interval is not timing and that provides the name of the street that the
crosswalk associated with that particular pushbutton crosses and can also provide other information
about the intersection signalization or geometry.

164. Pushbutton Locator Tone—a repeating sound that informs approaching pedestrians that a
pushbutton exists to actuate pedestrian timing or receive additional information and that enables
pedestrians who have visual disabilities to locate the pushbutton.

165. Queue Clearance Time—when used in Part 8, the time required for the design vehicle of maximum
length stopped just inside the minimum track clearance distance to start up and move through and
clear the entire minimum track clearance distance. If pre-signals are present, this time shall be long
enough to allow the vehicle to move through the intersection, or to clear the tracks if there is
sufficient clear storage distance. If a Four-Quadrant Gate system is present, this time shall be long
enough to permit the exit gate arm to lower after the design vehicle is clear of the minimum track
clearance distance.

166. Quiet Zone—a segment of a rail line, with one or a number of consecutive public highway-rail grade
crossings at which locomotive horns are not routinely sounded per 49 CFR Part 222.

167. Rail Traffic—every device in, upon, or by which any person or property can be transported on rails
or tracks and to which all other traffic must yield the right-of-way by law at grade crossings,
including trains, one or more locomotives coupled (with or without cars), other railroad equipment,
and light rail transit operating in exclusive or semi-exclusive alignments. Light rail transit operating
in a mixed-use alignment, to which other traffic is not required to yield the right-of-way by law, is a
vehicle and is not considered to be rail traffic.

168. Raised Pavement Marker—a device mounted on or in a road surface that has a height generally not
exceeding approximately 1 inch above the road surface for a permanent marker, or not exceeding
approximately 2 inches above the road surface for a temporary flexible marker, and that is intended
to be used as a positioning guide and/or to supplement or substitute for pavement markings.

169. Ramp Control Signal—a highway traffic signal installed to control the flow of traffic onto a freeway
at an entrance ramp or at a freeway-to-freeway ramp connection.

170. Ramp Meter—see Ramp Control Signal.

171. Red Clearance Interval—an interval that follows a yellow change interval and precedes the next
conflicting green interval.

171a. Reference Bicycle-Rider – a minimum 4 feet tall person, weighing minimum 90 lb, riding on an unmodified
minimum 16 inch wheel bicycle with non-ferromagnetic frame, non-ferromagnetic fork and cranks, aluminum
rims, stainless steel spokes, and headlight.

171b. Registered Engineer – See Professional Engineer. Refer to California Business and Professions Code
Section 6704.

172. Regulatory Sign—a sign that gives notice to road users of traffic laws or regulations.

173. Retroreflectivity—a property of a surface that allows a large portion of the light coming from a
point source to be returned directly back to a point near its origin.

174. Right-of-Way [Assignment]—the permitting of vehicles and/or pedestrians to proceed in a lawful
manner in preference to other vehicles or pedestrians by the display of a sign or signal indications.

175. Right-of-Way Transfer Time—when used in Part 8, the maximum amount of time needed for the
worst case condition, prior to display of the track clearance green interval. This includes any railroad
or light rail transit or highway traffic signal control equipment time to react to a preemption call,
and any traffic control signal green, pedestrian walk and clearance, yellow change, and red clearance
intervals for conflicting traffic.

176. Road—see Roadway.

177. Road User—a vehicle operator, bicyclist, or pedestrian, including persons with disabilities, within
the highway or on a private road open to public travel (see definition of private road open to public
travel).

178. Roadway—that portion of a highway improved, designed, or ordinarily used for vehicular travel
and parking lanes, but exclusive of the sidewalk, berm, or shoulder even though such sidewalk, berm,
or shoulder is used by persons riding bicycles or other human-powered vehicles. In the event a
highway includes two or more separate roadways, the term roadway as used in this Manual shall refer to any such roadway separately, but not to all such roadways collectively. Refer to CVC 527.

179. Roadway Network—a geographical arrangement of intersecting roadways.

180. Roundabout—a circular intersection with yield control at entry, which permits a vehicle on the circulatory roadway to proceed, and with deflection of the approaching vehicle counter-clockwise around a central island.

181. Rumble Strip—a series of intermittent, narrow, transverse areas of rough-textured, slightly raised, or depressed road surface that extend across the travel lane to alert road users to unusual traffic conditions or are located along the shoulder, along the roadway center line, or within islands formed by pavement markings to alert road users that they are leaving the travel lanes.

182. Rural Highway—a type of roadway normally characterized by lower volumes, higher speeds, fewer turning conflicts, and less conflict with pedestrians.

183. Safe-Positioned—the positioning of emergency vehicles at an incident in a manner that attempts to protect both the responders performing their duties and road users traveling through the incident scene, while minimizing, to the extent practical, disruption of the adjacent traffic flow.

183a. Scenic Highway – An officially designated portion of the State Highway System traversing areas of outstanding scenic beauty which together with the adjacent scenic corridors requires special scenic conservation treatment.

184. School—a public or private educational institution recognized by the state education authority for one or more grades K through 12 or as otherwise defined by the State.

185. School Zone—a designated roadway segment approaching, adjacent to, and beyond school buildings or grounds, or along which school related activities occur. As per CVC 22352(a)(2)(B) When approaching or passing a school building or the grounds thereof, contiguous to a highway and posted with a standard "SCHOOL" warning sign, while children are going to or leaving the school either during school hours or during the noon recess period. The prima facie limit shall also apply when approaching or passing any school grounds which are not separated from the highway by a fence, gate, or other physical barrier while the grounds are in use by children and the highway is posted with a standard "SCHOOL" warning sign.

186. Semi-Actuated Operation—a type of traffic control signal operation in which at least one, but not all, signal phases function on the basis of actuation.

187. Separate Turn Signal Face—a signal face that exclusively controls a turn movement and that displays signal indications that are applicable only to the turn movement.

188. Separation Time—the component of maximum highway traffic signal preemption time during which the minimum track clearance distance is clear of vehicular traffic prior to the arrival of rail traffic.

189. Shared Roadway—a roadway that is officially designated and marked as a bicycle route, but which is open to motor vehicle travel and upon which no bicycle lane is designated. Shared Roadway (No Bikeway Designation) – A roadway that permits bicycle use but is not officially designated as a bikeway.

190. Shared Turn Signal Face—a signal face, for controlling both a turn movement and the adjacent through movement, that always displays the same color of circular signal indication that the adjacent through signal face or faces display.

191. Shared-Use Path (Class I Bikeway)—a bikeway outside the traveled way and physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent alignment. Shared-use paths are also used by pedestrians (including skaters, users of manual and motorized wheelchairs, and joggers) and other authorized motorized and non-motorized users. Refer to the Caltrans' Highway Design Manual Index 1003.1 for design criteria.

191a. Shoulder – The portion of the highway contiguous with the roadway for accommodations of pedestrians, bicyclists, stopped vehicles, for emergency use, and for lateral support of base and surface courses.

192. Sidewalk—that portion of a street between the curb line, or the lateral line of a roadway, and the adjacent property line or on easements of private property that is paved or improved and intended for use by pedestrians. As per CVC 555, "Sidewalk" is that portion of a highway, other than the roadway, set apart by curbs, barriers, markings or other delineation for pedestrian travel.
193. Sign—any traffic control device that is intended to communicate specific information to road users through a word, symbol, and/or arrow legend. Signs do not include highway traffic signals, pavement markings, delineators, or channelization devices.

194. Sign Assembly—a group of signs, located on the same support(s), that supplement one another in conveying information to road users.

195. Sign Illumination—either internal or external lighting that shows similar color by day or night. Street or highway lighting shall not be considered as meeting this definition.

196. Sign Legend—all word messages, logos, pictographs, and symbol and arrow designs that are intended to convey specific meanings. The border, if any, on a sign is not considered to be a part of the legend.

197. Sign Panel—a separate panel or piece of material containing a word, symbol, and/or arrow legend that is affixed to the face of a sign.

198. Signal Backplate—a thin strip of material that extends outward from and parallel to a signal face on all sides of a signal housing to provide a background for improved visibility of the signal indications.

199. Signal Coordination—the establishment of timed relationships between adjacent traffic control signals.

200. Signal Face—an assembly of one or more signal sections that is provided for controlling one or more traffic movements on a single approach.

201. Signal Head—an assembly of one or more signal faces that is provided for controlling traffic movements on one or more approaches.

202. Signal Housing—that part of a signal section that protects the light source and other required components.

203. Signal Indication—the illumination of a signal lens or equivalent device.

204. Signal Lens—that part of the signal section that redirects the light coming directly from the light source and its reflector, if any.

205. Signal Louver—a device that can be mounted inside a signal visor to restrict visibility of a signal indication from the side or to limit the visibility of the signal indication to a certain lane or lanes, or to a certain distance from the stop line.

206. Signal Phase—the right-of-way, yellow change, and red clearance intervals in a cycle that are assigned to an independent traffic movement or combination of movements.

207. Signal Section—the assembly of a signal housing, signal lens, if any, and light source with necessary components to be used for displaying one signal indication.

208. Signal System—two or more traffic control signals operating in signal coordination.

209. Signal Timing—the amount of time allocated for the display of a signal indication.

210. Signal Visor—that part of a signal section that directs the signal indication specifically to approaching traffic and reduces the effect of direct external light entering the signal lens.

211. Signing—individual signs or a group of signs, not necessarily on the same support(s), that supplement one another in conveying information to road users.

212. Simultaneous Preemption—notification of approaching rail traffic is forwarded to the highway traffic signal controller unit or assembly and railroad or light rail transit active warning devices at the same time.

213. Special Purpose Road—a low-volume, low-speed road that serves recreational areas or resource development activities.

214. Speed—speed is defined based on the following classifications:
   (a) Average Speed—the summation of the instantaneous or spot-measured speeds at a specific location of vehicles divided by the number of vehicles observed.
   (b) Design Speed—a selected speed used to determine the various geometric design features of a roadway.
   (c) 85th-Percentile Speed—the speed at or below which 85 percent of the motor vehicles travel.
   (d) Operating Speed—a speed at which a typical vehicle or the overall traffic operates. Operating speed might be defined with speed values such as the average, pace, or 85th-percentile speeds.
   (e) Pace—the 10 mph speed range representing the speeds of the largest percentage of vehicles in the traffic stream.
215. Speed Limit—the maximum (or minimum) speed applicable to a section of highway as established by law or regulation.

216. Speed Limit Sign Beacon—a beacon used to supplement a SPEED LIMIT sign.

217. Speed Measurement Markings—a white transverse pavement marking placed on the roadway to assist the enforcement of speed regulations.

218. Speed Zone—a section of highway with a speed limit that is established by law or regulation, but which might be different from a legislatively specified statutory speed limit.

219. Splitter Island—a median island used to separate opposing directions of traffic entering and exiting a roundabout.

219a. State highway—Any highway owned and operated by Caltrans.

220. Station Crossing—a pathway grade crossing that is associated with a station platform.

221. Statutory Speed Limit—a speed limit established by legislative action that typically is applicable for a particular class of highways with specified design, functional, jurisdictional and/or location characteristics and that is not necessarily displayed on Speed Limit signs.

222. Steady (Steady Mode)—the continuous display of a signal indication for the duration of an interval, signal phase, or consecutive signal phases.

223. Stop Beacon—a beacon used to supplement a STOP sign, a DO NOT ENTER sign, or a WRONG WAY sign.

224. Stop Line—a solid white pavement marking line extending across approach lanes to indicate the point at which a stop is intended or required to be made. For all purposes, limit line(s) as defined per CVC 377 shall mean stop line(s).

225. Street—see Highway. As per CVC 590, "Street" is a way or place of whatever nature, publicly maintained and open to the use of the public for purposes of vehicular travel.

226. Supplemental Signal Face—a signal face that is not a primary signal face but which is provided for a given approach or separate turning movement to enhance visibility or conspicuity.

227. Symbol—the approved design of a pictorial representation of a specific traffic control message for signs, pavement markings, traffic control signals, or other traffic control devices, as shown in the MUTCD.

228. Temporary Traffic Control Signal—a traffic control signal that is installed for a limited time period.

229. Temporary Traffic Control Zone—an area of a highway where road user conditions are changed because of a work zone or incident by the use of temporary traffic control devices, flaggers, uniformed law enforcement officers, or other authorized personnel.

230. Theoretical Gore—a longitudinal point at the upstream end of a neutral area at an exit ramp or channelized turn lane where the channelizing lines that separate the ramp or channelized turn lane from the adjacent through lane(s) begin to diverge, or a longitudinal point at the downstream end of a neutral area at an entrance ramp or channelized entering lane where the channelizing lines that separate the ramp or channelized entering lane from the adjacent through lane(s) intersect each other.

231. Timed Exit Gate Operating Mode—a mode of operation where the exit gate descent at a grade crossing is based on a predetermined time interval.

232. Toll Booth—a shelter where a toll attendant is stationed to collect tolls or issue toll tickets. A toll booth is located adjacent to a toll lane and is typically set on a toll island.

233. Toll Island—a raised island on which a toll booth or other toll collection and related equipment are located.

234. Toll Lane—an individual lane located within a toll plaza in which a toll payment is collected or, for toll-ticket systems, a toll ticket is issued.

235. Toll Plaza—the location at which tolls are collected consisting of a grouping of toll booths, toll islands, toll lanes, and, typically, a canopy. Toll plazas might be located on highway mainlines or on interchange ramps. A mainline toll plaza is sometimes referred to as a barrier toll plaza because it interrupts the traffic flow.

236. Toll-Ticket System—a system in which the user of a toll road receives a ticket from a machine or toll booth attendant upon entering a toll system. The ticket denotes the user’s point of entry and, upon
exiting the toll system, the user surrenders the ticket and is charged a toll based on the distance traveled between the points of entry and exit.

237. Traffic—pedestrians, bicyclists, ridden or herded animals, vehicles, streetcars, and other conveyances either singularly or together while using for purposes of travel any highway or private road open to public travel (see definition of private road open to public travel). As per CVC 620, the term “traffic” includes pedestrians, ridden animals, vehicles, street cars, and other conveyances, either singly or together, while using any highway for purposes of travel.

238. Traffic Control Device—a sign, signal, marking, or other device used to regulate, warn, or guide traffic, placed on, over, or adjacent to a street, highway, private road open to public travel (see definition of private road open to public travel), pedestrian facility, or shared-use path by authority of a public agency or official having jurisdiction, or, in the case of a private road open to public travel (see definition of private road open to public travel), by authority of the private owner or private official having jurisdiction.

239. Traffic Control Signal (Traffic Signal)—any highway traffic signal by which traffic is alternately directed to stop and permitted to proceed.

240. Train—one or more locomotives coupled, with or without cars, that operates on rails or tracks and to which all other traffic must yield the right-of-way by law at highway-rail grade crossings.

241. Transverse Markings—pavement markings that are generally placed perpendicular and across the flow of traffic such as shoulder markings; word, symbol, and arrow markings; stop lines; crosswalk lines; speed measurement markings; parking space markings; and others.

242. Traveled Way—the portion of the roadway for the movement of vehicles, exclusive of the shoulders, berms, sidewalks, and parking lanes.

243. Turn Bay—a lane for the exclusive use of turning vehicles that is formed on the approach to the location where the turn is to be made. In most cases where turn bays are provided, drivers who desire to turn must move out of a through lane into the newly formed turn bay in order to turn. A through lane that becomes a turn lane is considered to be a dropped lane rather than a turn bay.

244. Upstream—a term that refers to a location that is encountered by traffic prior to a downstream location as it flows in an “upstream to downstream” direction. For example, “the upstream end of a lane line separating the turn lane from a through lane on the approach to an intersection” is the end of the line that is furthest from the intersection.

245. Urban Street—a type of street normally characterized by relatively low speeds, wide ranges of traffic volumes, narrower lanes, frequent intersections and driveways, significant pedestrian traffic, and more businesses and houses.

246. Vehicle—every device in, upon, or by which any person or property can be transported or drawn upon a highway, except trains and light rail transit operating in exclusive or semi-exclusive alignments. Light rail transit equipment operating in a mixed-use alignment, to which other traffic is not required to yield the right-of-way by law, is a vehicle. As per CVC 670, a “vehicle” is a device by which any person or property may be propelled, moved, or drawn upon a highway, excepting a device moved exclusively by human power or used exclusively upon stationary rails or tracks.


248. Visibility-Limited Signal Face or Visibility-Limited Signal Section—a type of signal face or signal section designed (or shielded, hooded, or louvered) to restrict the visibility of a signal indication from the side, to a certain lane or lanes, or to a certain distance from the stop line.

249. Walk Interval—an interval during which the WALKING PERSON (symbolizing WALK) signal indication is displayed.

250. Warning Beacon—a beacon used only to supplement an appropriate warning or regulatory sign or marker.

251. Warning Light—a portable, powered, yellow, lens-directed, enclosed light that is used in a temporary traffic control zone in either a steady burn or a flashing mode.

252. Warning Sign—a sign that gives notice to road users of a situation that might not be readily apparent.
253. Warrant—a warrant describes a threshold condition based upon average or normal conditions that, if found to be satisfied as part of an engineering study, shall result in analysis of other traffic conditions or factors to determine whether a traffic control device or other improvement is justified. Warrants are not a substitute for engineering judgment. The fact that a warrant for a particular traffic control device is met is not conclusive justification for the installation of the device.

254. Wayside Equipment—the signals, switches, and/or control devices for railroad or light rail transit operations housed within one or more enclosures located along the railroad or light rail transit right-of-way and/or on railroad or light rail transit property.

255. Wayside Horn System—a stationary horn (or series of horns) located at a grade crossing that is used in conjunction with train-activated or light rail transit-activated warning systems to provide audible warning of approaching rail traffic to road users on the highway or pathway approaches to a grade crossing, either as a supplement or alternative to the sounding of a locomotive horn.

256. Worker—a person on foot whose duties place him or her within the right-of-way of a street, highway, or pathway, such as street, highway, or pathway construction and maintenance forces, survey crews, utility crews, responders to incidents within the street, highway, or pathway right-of-way, and law enforcement personnel when directing traffic, investigating crashes, and handling lane closures, obstructed roadways, and disasters within the right-of-way of a street, highway, or pathway.

257. Wrong-Way Arrow—a slender, elongated, white pavement marking arrow placed upstream from the ramp terminus to indicate the correct direction of traffic flow. Wrong-way arrows are intended primarily to warn wrong-way road users that they are going in the wrong direction.

258. Yellow Change Interval—the first interval following the green or flashing arrow interval during which the steady yellow signal indication is displayed.

259. Yield Line—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.

Support:

04 The following terms are defined in the California Vehicle Code:

1. Alley - Section 110.
2. Amber - Section 112.
3. Authorized Emergency Vehicle - Section 165.
5. Axle - Section 230.
6. Bicycle - Section 231.
7. Bicycle Path - Section 231.5
8. Bicycle Path Crossing – Section 231.6
11. Business and Residence Districts: Determination – Section 240
12. Clean Fuel Vehicle - Section 257.
15. Darkness – Section 280
16. Department of Transportation - Section 291.
17. Disabled Person - Section 295.5.
18. Engineering and Traffic Survey - Section 627.
20. Freeway - Section 332.
21. Golf Cart - Section 345.
23. Highway - Section 360.
24. Intersection - Section 365.
25. Limit Line - Section 377.
27. Local Authorities - Section 385.
28. Low Speed Vehicle – Section 385.5.
29. Motorcycle - Section 400.
32. Motorized Quadricycle and Motorized Tricycle – Section 407.
33. Motorized Scooter – Section 407.5.
34. Motor Vehicle - Section 415.
35. Official Traffic Control Device - Section 440.
37. Park or Parking - Section 463.
38. Pedestrian - Section 467.
39. Pickup Truck - Section 471.
40. Pilot Car – Section 472.
41. Pocket Bike – Section 473.
42. Private Road or Driveway - Section 490.
43. Private School - Section 492.
44. Residence District – Section 515.
45. Ridesharing – Section 522.
46. Right-of-way – Section 525.
47. Road - Section 527.
48. Roadway - Section 530.
49. Safety Zone – Section 540.
50. Schoolbus - Section 545.
51. Sidewalk - Section 555.
52. Snowmobile - Section 557.
53. Stop or Stopping - Section 587.
54. Street - Section 590.
55. Street or Highway - Section 591.
56. Street or Highway – Highway Exclusion - Section 592.
57. Through Highway - Section 600.
58. Toll Highway or Toll Road – Section 611.
59. Traffic - Section 620.
60. Trailer - Section 630.
61. U-Turn - Section 665.5.
62. Vehicle - Section 670.

Section 1A.14 Meanings of Acronyms and Abbreviations in this Manual

Standard:

01 The following acronyms and abbreviations, when used in this Manual, shall have the following meanings:

1. AADT—annual average daily traffic
2. AASHTO—American Association of State Highway and Transportation Officials
3. ADA—Americans with Disabilities Act
4. ADAAG—Americans with Disabilities Accessibility Guidelines
5. ADT—average daily traffic
6. AFAD—Automated Flagger Assistance Device
7. ANSI—American National Standards Institute
8. CFR—Code of Federal Regulations
9. CMS—changeable message sign
10. dBA—A-weighted decibels
11. EPA—Environmental Protection Agency
12. ETC—electronic toll collection
13. EV—electric vehicle
14. FHWA—Federal Highway Administration
15. FRA—Federal Railroad Administration
16. FTA—Federal Transit Administration
17. HOT—high-occupancy tolls
18. HOTM—FHWA’s Office of Transportation Management
19. HOTO—FHWA’s Office of Transportation Operations
20. HOV—high-occupancy vehicle
21. ILEV—inherently low emission vehicle
22. ISEA—International Safety Equipment Association
23. ITE—Institute of Transportation Engineers
24. ITS—intelligent transportation systems
25. LED—light emitting diode
26. LP—liquid petroleum
27. MPH or mph—miles per hour
28. MUTCD—Manual on Uniform Traffic Control Devices
29. NCHRP—National Cooperative Highway Research Program
30. ORT—open-road tolling
31. PCMS—portable changeable message sign
32. PRT—perception-response time
33. RPM—raised pavement marker
34. RRPM—raised retroreflective pavement marker
35. RV—recreational vehicle
36. TDD—telecommunication devices for the deaf
37. TRB—Transportation Research Board
38. TTC—temporary traffic control
39. U.S.—United States
41. USDOT—United States Department of Transportation
42. UVC—Uniform Vehicle Code
43. VPH or vph—vehicles per hour

Support:

The following list of acronyms are related to traffic control devices and provided for ease of use and as a handy reference:

1. AADT Average Annual Daily Traffic
2. AASHTO American Association of State Highway and Transportation Officials
3. ADA Americans with Disabilities Act
4. ADT Average Daily Traffic
5. AHS Automated Highway System
6. Alt Alternate
7. AMBER Use of CMS signs for child abduction alert messages
8. AMIS Automated Management Information System
9. ANSI American National Standards Institute
10. APWA American Public Works Association
11. ASCE American Society of Civil Engineers
12. ASTM American Society for Testing and Materials
13. ATIS Advanced Traveler Information Systems
14. ATMS Advanced Traffic Management System
15. ATSSA American Traffic Safety Services Association
16. AVCS Automated Vehicle Control System
17. BART Bay Area Rapid Transit
18. BT&H Business, Transportation & Housing Agency
19. CA California
20. CAC California Administrative Code
21. Cal/OSHA California Occupational Safety and Health Administration
22. CA MUTCD California Manual on Uniform Traffic Control Devices for Streets and Highways
23. Caltrans California Department of Transportation
24. CBD Central Business District
25. CCMP County Congestion Management Plan
26. CCO Contract Change Order
27. CCR California Code of Regulations
28. CDC California Department of Conservation
29. CDF California Department of Forestry
30. CDFW California Department of Fish and Wildlife
31. CEAC County Engineers Association of California
32. CELSOC Consulting Engineering and Land Surveyors of California
33. CFR Code of Federal Regulations
34. CHIN California Highway Information Network
35. CHP California Highway Patrol
36. CMA Congestion Management Agency
37. CMP Congestion Management Program
38. CMS Changeable Message Sign or Congestion Management System
39. COB Close of Business
40. COZEEP Construction Zone Enhanced Enforcement Program
41. CPC California Penal Code
42. CPH California Permit Handbook
43. CPM Critical Path Method
44. CPUC California Public Utilities Commission
45. CRHR California Register of Historical Resources
46. CT Caltrans or California Department of Transportation
47. CTA California Trucking Association
48. CTC California Transportation Commission
49. CT CDC California Traffic Control Devices Committee
50. CTP California Transportation Plan
51. CURE Clean-up Roadside Environment
52. CVC California Vehicle Code
53. Del Delineator
54. DHV Design Hourly Volume
55. DI Delay Index, Drop Inlet or Drainage Inlet
56. DIB Design Information Bulletin
57. DMV Department of Motor Vehicles
58. DOT Department of Transportation
59. DTO Division of Traffic Operations
60. DYS Double Yellow Stripe
61. ENGR Engineer or Engineering
62. EP Edge of Pavement or Environmental Planning
63. ES Edge of Shoulder or End Section
64. ESA Environmentally Sensitive Area or Endangered Species Act
65. ESAL Equivalent Single-Axle Loads
66. ETW Edge of Traveled Way
67. Exp or EXP Expressway
68. F&E System Freeway and Expressway System
69. FAI Federal-aid Interstate
70. FAP Federal-aid Primary
71. FCC Federal Communication Commission
<p>| 72  | FEBT  | Facing Eastbound Traffic |
| 73  | FHWA  | Federal Highway Administration |
| 74  | FNBT  | Facing Northbound Traffic |
| 75  | FR    | Federal Register |
| 76  | Fr Rd | Frontage Road |
| 77  | FS    | Far Side |
| 78  | FSBT  | Facing Southbound Traffic |
| 79  | FSP   | Freeway Service Patrol |
| 80  | FWBT  | Facing Westbound Traffic |
| 81  | Fwy or FWY | Freeway |
| 82  | GR    | Guard Railing |
| 83  | HAR   | Highway Advisory Radio |
| 84  | HAZM A | Hazardous Material |
| 85  | HCM   | Highway Capacity Manual |
| 86  | HDM   | Highway Design Manual |
| 87  | HOT   | High Occupancy Toll |
| 88  | HOV   | High-Occupancy Vehicle |
| 89  | HOVL  | High-Occupancy Vehicle Lane |
| 90  | HM    | Hazardous Material |
| 91  | HQ    | Caltrans Headquarters |
| 92  | HW    | Hazardous Waste |
| 93  | Hwy or HWY | Highway |
| 94  | IGR   | Intergovernmental Review |
| 95  | ILEV  | Inherently Low Emission Vehicle |
| 96  | IRLs  | In-Roadway Lights |
| 97  | IRWLs | In-Roadway Warning Lights |
| 98  | ISO   | International Standards Organization |
| 99  | ISTE A | Intermodal Surface Transportation Efficiency Act of 1991 (Federal) |
| 100 | ITE   | Institute of Transportation Engineers |
| 101 | ITS   | Intelligent Transportation Systems or Institute of Transportation Studies |
| 102 | ITTE  | Institute of Transportation &amp; Traffic Engineering |
| 103 | IVHS  | Intelligent Vehicle Highway System |
| 104 | KP    | Kilometer Post |
| 105 | LED   | Light Emitting Diode |
| 106 | LF    | Linear Foot |
| 107 | Ln or LN | Lane |
| 108 | Loc or LOC | Location |
| 109 | LOS   | Level of service (Traffic Congestion Measure) |
| 110 | LPA   | Local Public Agency |
| 111 | LRT   | Light Rail Transit |
| 112 | MADT  | Monthly Average Daily Traffic |
| 113 | Maint | Maintenance |
| 114 | Max or MAX | Maximum |
| 115 | MAZE EP | Maintenance Zone Enhanced Enforcement Program |
| 116 | MBGR  | Metal Beam Guard Rail |
| 117 | Med or MED | Median |
| 118 | MF    | Mixed Flow |
| 119 | mi or MI | Mile or Miles |
| 120 | Min or MIN | Minimum |
| 121 | Misc or MISC | Miscellaneous |
| 122 | mm    | Millimeter |
| 123 | mph or MPH | Miles per Hour |
| 124 | MPO   | Metropolitan Planning Organization |</p>
<table>
<thead>
<tr>
<th>No.</th>
<th>Abbreviation</th>
<th>Full Form</th>
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</thead>
<tbody>
<tr>
<td>125.</td>
<td>MT</td>
<td>Mass Transit</td>
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<tr>
<td>126.</td>
<td>MTC</td>
<td>Metropolitan Transportation Commission (for the San Francisco Bay Area)</td>
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<tr>
<td>127.</td>
<td>MUTCD</td>
<td>Manual on Uniform Traffic Control Devices</td>
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<tr>
<td>128.</td>
<td>MVM</td>
<td>Per Million Vehicle Miles</td>
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<tr>
<td>129.</td>
<td>NCEES</td>
<td>National Council of Examiners for Engineering and Surveying</td>
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<tr>
<td>130.</td>
<td>NCHRP</td>
<td>National Cooperative Highway Research Program</td>
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<tr>
<td>131.</td>
<td>NCRP</td>
<td>National Cooperative Research Program</td>
</tr>
<tr>
<td>132.</td>
<td>NCUT</td>
<td>National Committee on Urban Transportation</td>
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<tr>
<td>133.</td>
<td>NCUTCD</td>
<td>National Committee on Uniform Traffic Control Devices</td>
</tr>
<tr>
<td>134.</td>
<td>NCU TLO</td>
<td>National Committee on Uniform Traffic Laws and Ordinances</td>
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<td>135.</td>
<td>NHI</td>
<td>National Highway Institute</td>
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<td>136.</td>
<td>NHL</td>
<td>National Historic Landmark</td>
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<tr>
<td>137.</td>
<td>NHS</td>
<td>National Highway System</td>
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<td>138.</td>
<td>NHSB</td>
<td>National Highway Safety Bureau</td>
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<tr>
<td>139.</td>
<td>NHTSA</td>
<td>National Highway Traffic Safety Administration</td>
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<td>140.</td>
<td>NNIH</td>
<td>National Network of Interstate Highways</td>
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<td>141.</td>
<td>NPRM</td>
<td>Notice of Proposed Rule Making</td>
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<td>142.</td>
<td>NPS</td>
<td>National Park Service (U.S.)</td>
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<td>143.</td>
<td>NR</td>
<td>National Register (of Historic Places, abbreviation)</td>
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<td>144.</td>
<td>NRHP</td>
<td>National Register of Historic Places</td>
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<td>145.</td>
<td>NS</td>
<td>Near Side</td>
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<td>146.</td>
<td>NTS</td>
<td>National Transportation System or Not To Scale</td>
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<td>147.</td>
<td>NTSA</td>
<td>National Transportation Safety Board</td>
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<td>148.</td>
<td>O &amp; D</td>
<td>Origin and Destination</td>
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<td>149.</td>
<td>OCTA</td>
<td>Orange County Transportation Authority</td>
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<tr>
<td>150.</td>
<td>ODA</td>
<td>Outdoor Advertising (Act)</td>
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<tr>
<td>151.</td>
<td>OES</td>
<td>Office of Emergency Services</td>
</tr>
<tr>
<td>152.</td>
<td>OG</td>
<td>Original Ground</td>
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<tr>
<td>153.</td>
<td>OH</td>
<td>Overhead (Structure)</td>
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<td>154.</td>
<td>OHP</td>
<td>Office of Historic Preservation</td>
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<tr>
<td>155.</td>
<td>OSA</td>
<td>Office of the State Architect</td>
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<td>156.</td>
<td>OSHA</td>
<td>Occupational Safety and Health Administration</td>
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<td>157.</td>
<td>P2P</td>
<td>Peer-to-Peer Program</td>
</tr>
<tr>
<td>158.</td>
<td>P&amp;P</td>
<td>Policy &amp; Procedure</td>
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<tr>
<td>159.</td>
<td>PCH</td>
<td>Pacific Coast Highway</td>
</tr>
<tr>
<td>160.</td>
<td>PCMS</td>
<td>Portable Changeable Message Sign</td>
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<tr>
<td>161.</td>
<td>PDO</td>
<td>Property Damage Only</td>
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<tr>
<td>162.</td>
<td>PE</td>
<td>Professional Engineer or Project Engineer</td>
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<tr>
<td>163.</td>
<td>Ped or PED</td>
<td>Pedestrian</td>
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<tr>
<td>164.</td>
<td>PHF</td>
<td>Peak Hour Factor</td>
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<tr>
<td>165.</td>
<td>PHI</td>
<td>Point of Historic Interest</td>
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<tr>
<td>166.</td>
<td>PM</td>
<td>Post Mile</td>
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<tr>
<td>167.</td>
<td>PMS</td>
<td>Pavement Management System</td>
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<td>168.</td>
<td>PMT</td>
<td>Passenger Miles Traveled</td>
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<tr>
<td>169.</td>
<td>PS&amp;E</td>
<td>Plans, Specifications, and Estimate</td>
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<td>170.</td>
<td>Pavement or PVMT</td>
<td>Pavement</td>
</tr>
<tr>
<td>171.</td>
<td>PUC</td>
<td>California Public Utilities Commission</td>
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<tr>
<td>172.</td>
<td>R&amp;D</td>
<td>Research and Development</td>
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<tr>
<td>173.</td>
<td>RCE</td>
<td>Registered Civil Engineer</td>
</tr>
<tr>
<td>174.</td>
<td>RE</td>
<td>Resident Engineer or Right of Entry</td>
</tr>
<tr>
<td>175.</td>
<td>ROW</td>
<td>Right of Way</td>
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<tr>
<td>176.</td>
<td>RR</td>
<td>Railroad</td>
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<td>177.</td>
<td>Rte or RTE</td>
<td>Route or Registered Traffic Engineer</td>
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<tr>
<td>Code</td>
<td>Definition</td>
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<tr>
<td>RV</td>
<td>Recreational Vehicle</td>
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<tr>
<td>R/W</td>
<td>Right of Way</td>
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<tr>
<td>Rwy</td>
<td>Railway</td>
<td></td>
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<tr>
<td>RXR</td>
<td>Railroad Crossing</td>
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<tr>
<td>S&amp;H Code</td>
<td>Streets &amp; Highways Code</td>
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<tr>
<td>SACOG</td>
<td>Sacramento Area Council of Governments</td>
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<tr>
<td>SAFE</td>
<td>Service Authority for Freeways &amp; Expressways</td>
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<tr>
<td>SB</td>
<td>Southbound or Senate Bill</td>
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<tr>
<td>SCAG</td>
<td>Southern California Association of Governments</td>
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<tr>
<td>SCRA</td>
<td>Southern California Regional Rail Authority</td>
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<tr>
<td>SCRTD</td>
<td>Southern California Rapid Transit District</td>
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<tr>
<td>SHELL</td>
<td>State Highway Extra Legal Loads</td>
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<tr>
<td>SHL</td>
<td>State Historical Landmark</td>
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<td>SHOPP</td>
<td>State Highway Operation and Protection Program</td>
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<tr>
<td>SHS</td>
<td>Standard Highway Signs and Markings book (FHWA)</td>
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<tr>
<td>SI</td>
<td>Safety Index or International System of Units (Metric)</td>
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<tr>
<td>SR</td>
<td>State Route or Senate Resolution</td>
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<tr>
<td>SSA</td>
<td>Safety Roadside Rest Area</td>
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<tr>
<td>SSD</td>
<td>Stopping Sight Distance</td>
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<tr>
<td>SSP's</td>
<td>Standard Special Provisions</td>
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<tr>
<td>STA</td>
<td>State Transit Assistance</td>
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<tr>
<td>STIP</td>
<td>State Transportation Improvement Program</td>
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<tr>
<td>Str or STR</td>
<td>Structure</td>
<td></td>
</tr>
<tr>
<td>SW</td>
<td>Sidewalk or Soundwall</td>
<td></td>
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<tr>
<td>SWITRS</td>
<td>Statewide Integrated Traffic Records Systems</td>
<td></td>
</tr>
<tr>
<td>TASAS</td>
<td>Traffic Accident Surveillance and Analysis System</td>
<td></td>
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<tr>
<td>TC</td>
<td>Traffic Control</td>
<td></td>
</tr>
<tr>
<td>TCM</td>
<td>Transportation Control Measure</td>
<td></td>
</tr>
<tr>
<td>TCP</td>
<td>Traffic/Transportation Control Plan</td>
<td></td>
</tr>
<tr>
<td>TEA21</td>
<td>Transportation Efficiency Act for the 21st Century</td>
<td></td>
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<td>Temp or TEMP</td>
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Section 1A.15 Abbreviations Used on Traffic Control Devices

Standard:
01 When the word messages shown in Table 1A-1 need to be abbreviated in connection with traffic control devices, the abbreviations shown in Table 1A-1 shall be used.
02 When the word messages shown in Table 1A-2 need to be abbreviated on a portable changeable message sign, the abbreviations shown in Table 1A-2 shall be used. Unless indicated by an asterisk, these abbreviations shall only be used on portable changeable message signs.

Guidance:
03 The abbreviations for the words listed in Table 1A-2 that also show a prompt word should not be used on a portable changeable message sign unless the prompt word shown in Table 1A-2 either precedes or follows the abbreviation, as applicable.

Standard:
04 The abbreviations shown in Table 1A-3 shall not be used in connection with traffic control devices because of their potential to be misinterpreted by road users.

Guidance:
05 If multiple abbreviations are permitted in Table 1A-1 or 1A-2, the same abbreviation should be used throughout a single jurisdiction.
06 Except as otherwise provided in Table 1A-1 or 1A-2 or unless necessary to avoid confusion, periods, commas, apostrophes, question marks, ampersands, and other punctuation marks or characters that are not letters or numerals should not be used in any abbreviation.
Figure 1A-1. Process for Requesting and Conducting Experimentations for New Traffic Control Devices

1. Requesting jurisdiction submits request to FHWA.
2. FHWA Review.
3. Approved?
   - Yes: Requesting jurisdiction installs experimental traffic control device.
   - No: Requesting jurisdiction responds to questions raised by FHWA.
4. Requesting jurisdiction evaluates experimental traffic control device.
5. Requesting jurisdiction provides semi-annual reports to FHWA Division & HQ.
6. Requesting jurisdiction provides FHWA a copy of final report.

If the request is not approved, the process may need to be repeated or the jurisdiction may need to seek CTCDC approval.

If the experimental traffic control device is approved, the jurisdiction can proceed to install it and evaluate its performance.
<table>
<thead>
<tr>
<th>Sign or Plaque</th>
<th>Sign Designation</th>
<th>Section</th>
<th>Conventional Road</th>
<th>Expressway</th>
<th>Freeway</th>
<th>Minimum</th>
<th>Oversized</th>
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Chapter 2B – Regulatory Signs, Barricades, and Gates  
Part 2 – Signs  
November 7, 2014
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<tr>
<td>No Pedestrian Crossing</td>
<td>R9-3a</td>
<td>2B.51</td>
<td>12 x 12</td>
<td>12 x 12</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Use Crosswalk (plate)</td>
<td>R9-30P</td>
<td>2B.51</td>
<td>18 x 12</td>
<td>18 x 12</td>
<td>—</td>
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</tr>
<tr>
<td>No Hitchhiking (symbol)</td>
<td>R9-4</td>
<td>2B.50</td>
<td>18 x 18</td>
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<td>—</td>
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<td>R9-4a</td>
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<td>18 x 24</td>
<td>18 x 24</td>
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<td>—</td>
<td>12 x 18</td>
</tr>
<tr>
<td>No Skaters</td>
<td>R9-13</td>
<td>2B.59</td>
<td>18 x 18</td>
<td>18 x 18</td>
<td>24 x 24</td>
<td>30 x 30</td>
<td>30 x 30</td>
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<tr>
<td>No Equestrians</td>
<td>R9-14</td>
<td>2B.59</td>
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<td>18 x 18</td>
<td>24 x 24</td>
<td>30 x 30</td>
<td>30 x 30</td>
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<td>Cross Only On Green</td>
<td>R10-1</td>
<td>2B.52</td>
<td>12 x 18</td>
<td>12 x 18</td>
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<td>—</td>
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</tr>
<tr>
<td>Pedestrian Signs and Plaques</td>
<td>R10-2,3,30,30,34,4</td>
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<td>Pedestrian Signs</td>
<td>R10-3a,3b,3c,3d,3e</td>
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<td>Left on Green Arrow Only</td>
<td>R10-5</td>
<td>2B.53</td>
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<td>48 x 60</td>
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<tr>
<td>Stop Here on Red</td>
<td>R10-6</td>
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<td>Do Not Block Intersection</td>
<td>R10-5a</td>
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<td>24 x 30</td>
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<td>Use Lane with Green Arrow</td>
<td>R10-8</td>
<td>2B.53</td>
<td>36 x 42</td>
<td>36 x 42</td>
<td>36 x 42</td>
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<td>60 x 72</td>
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<td>Left (Right) Turn Signal</td>
<td>R10-10</td>
<td>2B.53</td>
<td>30 x 36</td>
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<td>—</td>
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<tr>
<td>No Turn on Red</td>
<td>R10-11</td>
<td>2B.53</td>
<td>24 x 30</td>
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<td>—</td>
<td>—</td>
<td>56 x 48</td>
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<tr>
<td>No Turn on Red</td>
<td>R10-11a</td>
<td>2B.54</td>
<td>30 x 30</td>
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<td>—</td>
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<tr>
<td>No Turn on Red</td>
<td>R10-11b</td>
<td>2B.54</td>
<td>36 x 36</td>
<td>36 x 48</td>
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<td>—</td>
<td>—</td>
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<tr>
<td>No Turn on Red Except From Right Lane</td>
<td>R10-11c</td>
<td>2B.54</td>
<td>30 x 42</td>
<td>30 x 42</td>
<td>—</td>
<td>—</td>
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<tr>
<td>No Turn on Red From This Lane</td>
<td>R10-11d</td>
<td>2B.54</td>
<td>30 x 42</td>
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<td>—</td>
<td>—</td>
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<tr>
<td>Left Turn Yield on Green</td>
<td>R10-12</td>
<td>2B.53</td>
<td>30 x 36</td>
<td>30 x 36</td>
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<td>Emergency Signal</td>
<td>R10-13</td>
<td>2B.53</td>
<td>42 x 30</td>
<td>42 x 30</td>
<td>—</td>
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<td>—</td>
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<td>Emergency Signal - Stop on</td>
<td>R10-14</td>
<td>2B.53</td>
<td>36 x 42</td>
<td>36 x 42</td>
<td>—</td>
<td>—</td>
<td>—</td>
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<tr>
<td>Emergency Signal - Stop on</td>
<td>R10-14a</td>
<td>2B.53</td>
<td>60 x 24</td>
<td>60 x 24</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Turning Vehicles Yield to Peds</td>
<td>R10-15</td>
<td>2B.53</td>
<td>30 x 30</td>
<td>30 x 30</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>u-Turn Yield to Right Turn</td>
<td>R10-16</td>
<td>2B.53</td>
<td>30 x 36</td>
<td>30 x 36</td>
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<td>—</td>
<td>—</td>
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<tr>
<td>Right on Red Arrow After Stop</td>
<td>R10-17a</td>
<td>2B.54</td>
<td>36 x 48</td>
<td>36 x 48</td>
<td>—</td>
<td>—</td>
<td>—</td>
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<tr>
<td>Traffic Lens Photo Enforced</td>
<td>R10-18</td>
<td>2B.55</td>
<td>36 x 24</td>
<td>36 x 24</td>
<td>48 x 90</td>
<td>54 x 90</td>
<td>54 x 90</td>
</tr>
<tr>
<td>Photo Enforced (symbol plaque)</td>
<td>R10-18P</td>
<td>2B.55</td>
<td>24 x 24</td>
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<td>36 x 10</td>
<td>48 x 24</td>
<td>48 x 24</td>
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<tr>
<td>Photo Enforced (plaque)</td>
<td>R10-18aP</td>
<td>2B.55</td>
<td>24 x 10</td>
<td>24 x 10</td>
<td>36 x 10</td>
<td>48 x 24</td>
<td>48 x 24</td>
</tr>
</tbody>
</table>
Standard:

11 The Emergency Vehicle (W11-8) sign (see Figure 2C-10) with the EMERGENCY SIGNAL AHEAD (W11-12P) supplemental plaque (see Figure 2C-10) shall be placed in advance of all emergency-vehicle traffic control signals (see Chapter 4G).

Option:

12 The Emergency Vehicle (W11-8) sign, or a word message sign indicating the type of emergency vehicle (such as rescue squad), may be used in advance of the emergency-vehicle station when no emergency-vehicle traffic control signal is present.

Standard:

12a The Emergency Vehicle (W11-8) sign or the EMERGENCY VEHICLES (SW52(CA)) sign (see Figure 2C-10(CA)) shall be used for all types of emergency vehicles.

Guidance:

12b Vehicular Traffic signs should not be placed on the highway where the unexpected entry is located on an intersecting roadway.

Option:

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

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

Standard:

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

Support:

16 Studies indicate that 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.

Option:

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

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

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

Guidance:

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

Option:

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

Guidance:

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

Support:

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

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

Option:

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

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

Guidance:

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

Standard:

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

Option:

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

Standard:

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

Option:

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

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

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

Support:

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

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

Guidance:

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

Option:

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

Guidance:

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

Option:

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

09g The SENIOR ZONE (SW50-1P(CA)) plaque or SENIOR (SW50-2P(CA)) plaque (see Figure 2C-11(CA)) may be used in combination, above the Speed Limit (R2-1 (25,20 or 15)) sign on any street or road, other than a State highway, with a speed limit greater than 25 mph that is adjacent to a senior citizen facility. Refer to CVC 22352 and 22358.4.

Guidance:

10 When a fluorescent yellow-green background is used, a systematic approach featuring one background color within a zone or area should be used. The mixing of standard yellow and fluorescent yellow-green backgrounds within a selected site area should be avoided.
Figure 2C-10. Vehicular Traffic Warning Signs and Plaques

TRUCK CROSSING
W8-6

BICYCLE
W11-1

Agricultural Tractor
W11-5

Agricultural Tractor
W11-5a

Fire Truck
W11-8

Truck
W11-10

Fork Lift
W11-11

Emergency Signal Ahead
W11-12P

Bicycle
W11-14

Pedestrian Crossing (optional)
W11-15p

Trail Crossing
W11-15a

*A fluorescent yellow-green background color may be used for this sign or plaque.

Figure 2C-10 (CA). Vehicular Traffic Warning Signs and Plaques

OFF HIGHWAY VEHICLES
SW47 (CA)

EMERGENCY VEHICLES
SW52 (CA)

WATCH FOR SNOW REMOVAL EQUIPMENT
SW58 (CA)
**Figure 2C-11. Non-Vehicular Warning Signs**

- W11-2
- W11-3 (Deer)
- W11-4 (Cow)
- W11-6
- W11-7
- W11-9
- W11-16 (Bear)
- W11-17 (Sheep)
- W11-18 (Bighorn Sheep)
- W11-19 (Donkey)
- W11-20 (Elk)
- W11-21 (Moose)
- W11-22 (Wild Horse)
- W15-1

* A fluorescent yellow-green background color may be used for this sign or plaque.

---

**Figure 2C-11 (CA). Non-Vehicular Warning Signs**

- DEAF CHILDREN NEAR SW38 (CA)
- PLAYGROUND SW49 (CA)
- *SENIOR ZONE* SW50-1P (CA)
- *SENIOR* SW50-2P (CA)
- *SENIOR* SW59 (CA)
### Table 2C-2(CA). California Warning Sign and Plaque Sizes (Sheet 2 of 2)

<table>
<thead>
<tr>
<th>Sign or Plaque</th>
<th>Sign Designation</th>
<th>Section</th>
<th>Conventional Road</th>
<th>Expressway</th>
<th>Freeway</th>
<th>Minimum</th>
<th>Oversized</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Single Lane</td>
<td>Multi-Lane</td>
<td></td>
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<tr>
<td>FLASH FLOOD AREA</td>
<td>SW35(CA)</td>
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<td>END FREEWAY</td>
<td>SW36(CA)</td>
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<td>48X48</td>
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<td>TUNNEL</td>
<td>SW37(CA)</td>
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<td>DEAF CHILDREN NEAR</td>
<td>SW38(CA)</td>
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<td>SNOW SLIDE AREA</td>
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<td>SW47(CA)</td>
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<td>TRACTOR-SEMS OVER ____ FEET KINGPIN TO REAR AXLE NOT ADVISED</td>
<td>SW48(CA)</td>
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<td>NEXT RIGHT</td>
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<td>PLAYGROUND</td>
<td>SW49(CA)</td>
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<td>SENIOR ZONE</td>
<td>SW50-1P(CA)</td>
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<td>SENIOR</td>
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<td>54X48</td>
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<tr>
<td>Migrating Bears</td>
<td>SW59(CA)</td>
<td>2C.50</td>
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<td>36X36</td>
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<td>30X30</td>
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<td>WATCH FOR STOPPED VEHICLES</td>
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### Table 2C-3. Minimum Size of Supplemental Warning Plaques

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<tr>
<th>Size of Warning Sign</th>
<th>Size of Supplemental Plaque</th>
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<td>24 x 24</td>
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<td>30 x 30</td>
<td>30 x 18</td>
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<td>36 x 36</td>
<td>30 x 18</td>
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<tr>
<td>48 x 48</td>
<td>30 x 18</td>
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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

<table>
<thead>
<tr>
<th>Posted or 85th-Percentile Speed</th>
<th>Condition A: Speed reduction and lane changing in heavy traffic²</th>
<th>Condition B: Deceleration to the listed advisory speed (mph) for the condition</th>
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<td>0³</td>
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<td>20 mph</td>
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</tr>
<tr>
<td>25 mph</td>
<td>325 ft</td>
<td>100 ft²</td>
</tr>
<tr>
<td>30 mph</td>
<td>460 ft</td>
<td>100 ft²</td>
</tr>
<tr>
<td>35 mph</td>
<td>565 ft</td>
<td>100 ft²</td>
</tr>
<tr>
<td>40 mph</td>
<td>670 ft</td>
<td>125 ft</td>
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<tr>
<td>45 mph</td>
<td>775 ft</td>
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<tr>
<td>50 mph</td>
<td>885 ft</td>
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<tr>
<td>55 mph</td>
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<tr>
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<td>400 ft</td>
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<tr>
<td>65 mph</td>
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<td>75 mph</td>
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</tbody>
</table>

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 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 sight 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/second², 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/second², 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

<table>
<thead>
<tr>
<th>Type of Horizontal Alignment Sign</th>
<th>Difference Between Speed Limit and Advisory Speed (See Section 2C.06)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5 mph</td>
</tr>
<tr>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Turn (W1-1), Curve (W1-2), Reverse Turn (W1-3), Reverse Curve (W1-4), Winding Road (W1-5), and Combination Horizontal Alignment/Intersection (W1-9-10) (see Section 2C.07 to determine which sign to use)</td>
<td>Recommended</td>
</tr>
<tr>
<td>Advisory Speed Plateau (W13-15)</td>
<td>Recommended</td>
</tr>
<tr>
<td>Chevrons (W1-8) and/or One Direction Large Arrow (W1-8)</td>
<td>Optional</td>
</tr>
<tr>
<td>Exit Speed (W13-2) and Ramp Speed (W13-3) on exit ramp</td>
<td>Optional</td>
</tr>
</tbody>
</table>
Option:

12a The Adopt-A-Highway (S32(CA)) sign (see Figure 2H-5(CA)) may be installed near the beginning of each section of State highway that is being maintained under Caltrans' Encroachment Permit (Adopt-A-Highway), form TR-0121.

12b The Adopt-A-Bike Path (S32(CA) alternate) sign (see Figure 2H-5(CA)) may be installed near the beginning of each section of Class I (Bike Path) constructed adjacent to State Highways or other roadways that are being maintained under Caltrans' Encroachment Permit (Adopt-A-Highway), form TR-0121 or under a similar action allowed by a local agency for bike paths that do not require a Caltrans Encroachment Permit.

Standard:

13 The Adopt-A-Highway Symbol (S32A(CA)) sign shall be installed on the Adopt-A-Highway (S32(CA)) sign, and Adopt-A-Bike Path (S32(CA) alternate) signs.

Support:

14 The 10 x 12 inch symbol size is used on the 36 x 30 inch size S32(CA) sign and the 15 x 18 inch symbol size is used on the 54 x 42 inch size S32(CA) sign. Bike Paths will only use the 36 x 30 inch size S32(CA) alternate sign.

15 The Adopt-A-Highway, or Adopt-A-Bike Path Recognition Panel (S32B(CA)) with a participant's name and/or logo is placed over the information area of the S32(CA) sign when a section of State highway or Bike Path has been adopted.

Standard:

16 When used, the Litter Removal (S32-1(CA)), Wildflower Planting (S32-2(CA)), Tree Planting (S32-3(CA)), Graffiti Removal (S32-4(CA)) or Vegetation Control (S32-5(CA)) signs shall be placed below the S32(CA) sign.
Figure 2H-1. General Information and Miscellaneous Information Signs

Figure 2H-1 (CA). General Information and Miscellaneous Information Signs

G9-2 (CA)  G9-5 (CA)  G10 (CA)  G10B (CA)  G10-3 (CA)
Soda Springs  Cloverdale  Kern  Welcome to  Kern
City Limit  County Line  California  County Line
G9-4 (CA)  G16 (CA)  G17 (CA)  G94-1 (CA)  SG28 (CA)
Donner Pass  Elevation  Airplane  Access  Coastal
Elev 3000 ft  SG28 (CA)

SG60 (CA)  S28 (CA)  S36 (CA)  S36A (CA)  S36B (CA)
Post Office  Using Recycled Water  Water  Entering  Leaving
Figure 2H-5. Examples of Acknowledgment Sign Designs

D14-1

PARKWAY SPONSORED BY
NAPERVILLE EVENING KIWANIS
NEXT 3 MILES

D14-2

ADOPT A STREET
NEXT 2 MILES PARKWAY MAINTAINED BY
LINDAS GARDEN CLUB

D14-3

ADOPT A HIGHWAY
SPONSORED BY
FREDS SIGN SHOP

Figure 2H-5 (CA). Examples of Adopt-A-Highway Sign Designs

S32 (CA)
Assembly

S32 (CA)
Assembly Alternate

S32A (CA)

S32B (CA)
Recognition Panel

S32-2 (CA)

S32-3 (CA)

S32-4 (CA)

S32-1 (CA)

S32-5 (CA)
<table>
<thead>
<tr>
<th>Sign</th>
<th>Designation</th>
<th>Section</th>
<th>Conventional Road</th>
<th>Freeway or Expressway</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference Location (1 digit)</td>
<td>D10-1</td>
<td>2H.05</td>
<td>10 x 18</td>
<td>12 x 24</td>
</tr>
<tr>
<td>Intermediate Reference Location (2 digits)</td>
<td>D10-1a</td>
<td>2H.05</td>
<td>10 x 27</td>
<td>12 x 36</td>
</tr>
<tr>
<td>Reference Location (2 digits)</td>
<td>D10-2</td>
<td>2H.05</td>
<td>10 x 27</td>
<td>12 x 36</td>
</tr>
<tr>
<td>Intermediate Reference Location (3 digits)</td>
<td>D10-2a</td>
<td>2H.05</td>
<td>10 x 36</td>
<td>12 x 48</td>
</tr>
<tr>
<td>Reference Location (3 digits)</td>
<td>D10-3</td>
<td>2H.05</td>
<td>10 x 36</td>
<td>12 x 48</td>
</tr>
<tr>
<td>Intermediate Reference Location (4 digits)</td>
<td>D10-3a</td>
<td>2H.05</td>
<td>10 x 48</td>
<td>12 x 60</td>
</tr>
<tr>
<td>Enhanced Reference Location</td>
<td>D10-4</td>
<td>2H.06</td>
<td>18 x 54</td>
<td>18 x 54</td>
</tr>
<tr>
<td>Intermediate Enhanced Reference Location</td>
<td>D10-5</td>
<td>2H.06</td>
<td>18 x 60</td>
<td>18 x 60</td>
</tr>
<tr>
<td>Acknowledgement</td>
<td>D14-1</td>
<td>2H.08</td>
<td>36 x 30*</td>
<td>72 x 48*</td>
</tr>
<tr>
<td>Acknowledgement</td>
<td>D14-2</td>
<td>2H.08</td>
<td>36 x 30*</td>
<td>72 x 48*</td>
</tr>
<tr>
<td>Acknowledgement</td>
<td>D14-3</td>
<td>2H.08</td>
<td>42 x 24*</td>
<td>96 x 36*</td>
</tr>
<tr>
<td>Signals Set for XX MPH</td>
<td>I-1-1</td>
<td>2H.03</td>
<td>24 x 36</td>
<td>—</td>
</tr>
<tr>
<td>Jurisdictional Boundary</td>
<td>I-2</td>
<td>2H.04</td>
<td>Varies x 18**</td>
<td>Varies x 36**</td>
</tr>
<tr>
<td>Geographical Features</td>
<td>I-3</td>
<td>2H.04</td>
<td>Varies x 18**</td>
<td>Varies x 36**</td>
</tr>
<tr>
<td>Airport</td>
<td>I-5</td>
<td>2H.02</td>
<td>24 x 24</td>
<td>30 x 30</td>
</tr>
<tr>
<td>Bus Station</td>
<td>I-6</td>
<td>2H.02</td>
<td>24 x 24</td>
<td>30 x 30</td>
</tr>
<tr>
<td>Train Station</td>
<td>I-7</td>
<td>2H.02</td>
<td>24 x 24</td>
<td>30 x 30</td>
</tr>
<tr>
<td>Library</td>
<td>I-8</td>
<td>2H.02</td>
<td>24 x 24</td>
<td>30 x 30</td>
</tr>
<tr>
<td>Vehicle Ferry Terminal</td>
<td>I-9</td>
<td>2H.02</td>
<td>24 x 24</td>
<td>30 x 30</td>
</tr>
<tr>
<td>Recycling Collection Center</td>
<td>I-11</td>
<td>2H.02</td>
<td>30 x 48</td>
<td>—</td>
</tr>
<tr>
<td>Light Rail Transit Station</td>
<td>I-12</td>
<td>2H.02</td>
<td>24 x 24</td>
<td>—</td>
</tr>
</tbody>
</table>

* The size shown is the maximum size for the corresponding roadway classification. The size of the sign and acknowledgment logo should be appropriately reduced where shorter legends are used.
** The size shown is for the typical sign illustrated in the figure. The size should be determined based on the amount of legend required for the sign.

Notes:
1. Larger signs may be used when appropriate, except for the D14 series signs.
2. Dimensions in inches are shown as width x height.
## Table 2H-1(CA). California General Information Sign Sizes

<table>
<thead>
<tr>
<th>Sign or Plaque</th>
<th>Sign Designation</th>
<th>Section</th>
<th>Conventional Road</th>
<th>Freeway or Expressway</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unincorporated Community</td>
<td>G9-2(CA)</td>
<td>2H.02</td>
<td>VAR x 18</td>
<td>VAR x 30</td>
</tr>
<tr>
<td>City Limit</td>
<td>G9-5(CA)</td>
<td>2H.02</td>
<td>VAR x 24</td>
<td>VAR x 42</td>
</tr>
<tr>
<td>County Line</td>
<td>G10(CA)</td>
<td>2H.02</td>
<td>VAR x 24</td>
<td>VAR x 36</td>
</tr>
<tr>
<td>Welcome To California</td>
<td>G10B(CA)</td>
<td>2H.02</td>
<td>60 x 36</td>
<td>132 x 84</td>
</tr>
<tr>
<td>County Line</td>
<td>G10-3(CA)</td>
<td>2H.02</td>
<td>60 x 30</td>
<td>90 x 42</td>
</tr>
<tr>
<td>WHERE WE HONOR VETERANS</td>
<td>G10-4(CA)</td>
<td>2H.02</td>
<td>60 x 9</td>
<td>90 x 12</td>
</tr>
<tr>
<td>Mountain Pass Elevation</td>
<td>G16(CA)</td>
<td>2H.02</td>
<td>VAR x 18</td>
<td>VAR x 36</td>
</tr>
<tr>
<td>Elevation</td>
<td>G17(CA)</td>
<td>2H.02</td>
<td>36 x 18</td>
<td>72 x 36</td>
</tr>
<tr>
<td>Conventional Airport</td>
<td>G94-1(CA)</td>
<td>2H.02</td>
<td>24 x 24</td>
<td>30 x 30</td>
</tr>
<tr>
<td>Coastal Access</td>
<td>SG28(CA)</td>
<td>2H.02</td>
<td>30 x 30</td>
<td>48 x 48</td>
</tr>
<tr>
<td>POST OFFICE with Symbol and Arrow</td>
<td>SG60(CA)</td>
<td>2H.02</td>
<td>42 x 30</td>
<td>---</td>
</tr>
<tr>
<td>USING RECYCLED WATER</td>
<td>S28(CA)</td>
<td>2H.02</td>
<td>36 x 24</td>
<td>54 x 36</td>
</tr>
<tr>
<td>Watershed Boundary</td>
<td>S36(CA)</td>
<td>2H.02</td>
<td>48 x 54</td>
<td>48 x 54</td>
</tr>
<tr>
<td>ENTERING</td>
<td>S36A(CA)</td>
<td>2H.02</td>
<td>48 x 12</td>
<td>48 x 12</td>
</tr>
<tr>
<td>LEAVING</td>
<td>S36B(CA)</td>
<td>2H.02</td>
<td>48 x 12</td>
<td>48 x 12</td>
</tr>
<tr>
<td>Adopt-A-Highway</td>
<td>S32(CA)</td>
<td>2H.08</td>
<td>36 x 30*</td>
<td>54 x 42*</td>
</tr>
<tr>
<td>Adopt-A-Bike Path</td>
<td>S32(CA) Alternate</td>
<td>2H.08</td>
<td>36 x 30*</td>
<td>---</td>
</tr>
<tr>
<td>Adopt-A-Highway Symbol</td>
<td>S32A(CA)</td>
<td>2H.08</td>
<td>10 x 12*</td>
<td>15 x 18*</td>
</tr>
<tr>
<td>Adopt-A-Highway Recognition Panel</td>
<td>S32B(CA)</td>
<td>2H.08</td>
<td>30 x 15*</td>
<td>45 x 21*</td>
</tr>
<tr>
<td>Litter Removal</td>
<td>S32-1(CA)</td>
<td>2H.08</td>
<td>15 x 18*</td>
<td>15 x 18*</td>
</tr>
<tr>
<td>Wildflower Planting</td>
<td>S32-2(CA)</td>
<td>2H.08</td>
<td>15 x 18*</td>
<td>15 x 18*</td>
</tr>
<tr>
<td>Tree Planting</td>
<td>S32-3(CA)</td>
<td>2H.08</td>
<td>15 x 18*</td>
<td>15 x 18*</td>
</tr>
<tr>
<td>Graffiti Removal</td>
<td>S32-4(CA)</td>
<td>2H.08</td>
<td>15 x 18*</td>
<td>15 x 18*</td>
</tr>
<tr>
<td>Vegetation Control</td>
<td>S32-5(CA)</td>
<td>2H.08</td>
<td>15 x 18*</td>
<td>15 x 18*</td>
</tr>
</tbody>
</table>

* The size shown is the maximum size for the corresponding roadway classification. The size of the sign and Adopt-A-Highway logo should be appropriately reduced where shorter legends are used.
CHAPTER 2J. SPECIFIC SERVICE SIGNS

Section 2J.01 Eligibility

Standard:
01 Specific Service signs shall be defined as guide signs that provide road users with business identification and directional information for services and for eligible attractions. Eligible service categories shall be limited to gas, food, lodging, camping, attractions, and 24-hour pharmacies.

Support:
01a California Streets and Highways Code, Division 1, Chapter 1, Article 3, Section 101.7 and California Code of Regulations, Title 21, Division 2, Chapter 19, Sections 2100 through 2120, do not include the “attractions” category.

Guidance:

Standard:
02 The use of Specific Service signs shall be limited to areas primarily rural in character or to areas where adequate sign spacing can be maintained. Refer California Streets and Highways Code, Division 1, Chapter 1, Article 3, Section 101.7.

Option:
03 Where an engineering study determines a need, Specific Service signs may be used on any class of highways.

Support:
03a California Streets and Highways Code, Division 1, Chapter 1, Article 3, Section 101.7 includes the use of specific service signs for freeways only.

Guidance:

Standard:
04 Specific Service signs shall not be installed at an interchange where the road user cannot conveniently reenter the freeway or expressway and continue in the same direction of travel.

Support:
04a Refer California Code of Regulations, Title 21, Division 2, Chapter 19, Section 2108(d).

Standard:
05 Eligible service facilities shall comply with laws concerning the provisions of public accommodations without regard to race, religion, color, age, sex, or national origin, and laws concerning the licensing and approval of service facilities.

Guidance:

Standard:
The attraction services shall include only facilities which have the primary purpose of providing amusement, historical, cultural, or leisure activities to the public.

Guidance:

Standard:
Distances to eligible 24-hour pharmacies shall not exceed 3 miles in any direction of an interchange on the Federal-aid system.

Guidance:

Option:
If, within the 3-mile limit, facilities for the services being considered other than pharmacies are not available or choose not to participate in the program, the limit of eligibility may be extended in 3-mile increments until one or more facilities for the services being considered chooses to participate, or until 15 miles is reached, whichever comes first.

Guidance:

If State or local agencies elect to provide Specific Service signing, there should be a statewide policy for such signing and criteria for the availability of the various types of services. The criteria should consider the following:

A. To qualify for a GAS FUEL logo sign panel, a business should have:
   1. Vehicle services including gas and/or alternative fuels, oil, and water;
   2. Continuous operation at least 16 hours per day, 7 days per week for freeways and expressways, and continuous operation at least 12 hours per day, 7 days per week for conventional roads;
   3. Modern sanitary facilities and drinking water; and
4. Public telephone.

B. To qualify for a FOOD logo sign panel, a business should have:
   1. Licensing or approval, where required;
   2. Continuous operations to serve at least two meals per day, at least 6 days per week;
   3. Modern sanitary facilities; and
   4. Public telephone.

C. To qualify for a LODGING logo sign panel, a business should have:
   1. Licensing or approval, where required;
   2. Adequate sleeping accommodations;
   3. Modern sanitary facilities; and
   4. Public telephone.

D. To qualify for a CAMPING logo sign panel, a business should have:
   1. Licensing or approval, where required;
   2. Adequate parking accommodations;
   3. Modern sanitary facilities and drinking water.

E. To qualify for an ATTRACTION logo sign panel, a facility should have:
   1. Regional significance, in compliance with the provisions of Paragraph 6; and
   2. Adequate parking accommodations.

E. To qualify for an Electric Vehicle Charging (EV CHARGING) logo sign panel, a business should have:
   1. Availability to the public 16 hours a day.
   2. Location within 3 miles of a freeway interchange.

Support:
12 Section 2I.04 contains information regarding the Interstate Oasis program.

Support:
13 Refer California Streets and Highways Code, Division 1, Chapter 1, Article 3, Section 101.7 and California Code of Regulations, Title 21, Division 2, Chapter 19, Sections 2100 through 2120 for detailed policies on specific service signs. See Section 1A.11 for information regarding these publications.

Sign Eligibility Criteria

Standard:
14 A qualified specific service shall meet the following minimum criteria:

1. Fuel
   The business:
   A. Shall be located not more than 1 mile from the interchange where the Logo Panel is to be displayed according to the State Measured Distance.
   B. Shall provide vehicle services, including but not limited to: fuel, oil, tire repair, battery, and radiator water.
   C. Shall provide public rest room facilities, each containing at least a sink, running water, and a flush toilet.
   D. Shall provide drinking water from a fountain or dispenser for public use.
   E. Shall provide a public telephone.
   F. Shall be open for business, with all of the above services and facilities available, and in a continuous operation, for at least 16 consecutive hours daily, seven (7) days a week, except that the qualified business shall not be considered to be in violation of this requirement when, as a result of a shortage of fuel, the facility is closed or when its hours of operation are reduced.
   G. Shall obtain and display any appropriate license or permit as may be required by law.
   H. A permittee may include the word "Diesel" or a Caltrans approved symbol for diesel, or the letters "LPG" for liquid propane fuel, or any other word or symbol that has been approved by Caltrans which represent a type of fuel on the Logo Panel as specifically provided in the permit.
2. **Food**

The business:

A. Shall be located not more than 3 miles from the interchange where the Logo Panel is to be displayed according to the State Measured Distance.

B. Shall accumulate at least seven (7) points from the following four (4) categories, but at least one point must be accumulated from Category 3:

   Category 1. If the State Measured Distance is:
   
   a. 0 to 0.5 miles, inclusive assign 3 points
   b. 0.5 to 1.0 mile, inclusive assign 2 points
   c. Over 1.0 to 3.0 miles, inclusive assign 1 point

   Category 2. If the number of traffic control devices consisting of traffic signals or stop signs between said gore and said nearest driveway is:
   
   a. 0-1 device assign 3 points
   b. 2-3 devices assign 2 points
   c. 4-5 devices assign 1 point
   d. More than 5 devices assign 0 points

   Category 3. If the number of indoor seats totals:
   
   (1) 50 or more seats assign 3 points
   (2) 30 seats to 49 seats assign 2 points
   (3) 15 seats to 29 seats assign 1 point
   (4) Less than 15 seats assign 0 points

   Or

   b. If the parking facilities for drive-in or drive-through service totals:
   
   (1) 20 or more spaces assign 3 points
   (2) 11 spaces to 19 spaces assign 2 points
   (3) 5 spaces to 10 spaces assign 1 point
   (4) Less than 5 spaces assign 0 points

   Category 4. When the distance as measured from said gore of the interchange where the Logo Panel is to be displayed to the gore of the next exit served by a food establishment which business would qualify for signing is:
   
   a. Over 10 miles assign 3 points
   b. Over 3 to 10 miles, inclusive assign 2 points
   c. 1 to 3 miles, inclusive assign 1 point
   d. Less than 1 mile assign 0 points

C. Shall be in compliance with respect to licensing, approval, and regulation by any state agency and/or any political subdivision of the state having or exercising jurisdiction over the business premises. Licenses and permits required and issued by the state or its political subdivisions shall be displayed on the premises.

D. Shall provide a public telephone.

E. Shall provide public rest room facilities, each containing at least a sink, running water, and a flush toilet.

F. Shall be open for business, with all the above services and facilities available, and in continuous operation for at least 12 consecutive hours daily, beginning not later than 7 a.m., six (6) days a week, and serving breakfast, lunch, and dinner.

3. **Lodging**

The business:

A. Shall be located not more than 3 miles from the interchange where the Logo Panel is to be displayed according to the State Measured Distance.

B. Shall accumulate at least seven (7) points from the following four (4) categories:

   Category 1. If the State Measured Distance is:
   
   a. 0 to 0.5 miles, inclusive assign 3 points
   b. Over 0.5 to 1.0 mile, inclusive assign 2 points
   c. Over 1.0 to 3.0 miles, inclusive assign 1 point
Category 2. If the number of traffic control devices consisting of traffic signals or stop signs between said gore and said nearest driveway is:

a. 0-1 device assign 3 points
b. 2-3 devices assign 2 points
c. 4-5 devices assign 1 point
d. More than 5 devices assign 0 points

Category 3. If the number of lodging units, each with private bath facilities, is:

(1) 50 or more units assign 3 points
(2) 30 units to 49 units assign 2 points
(3) 15 units to 29 units assign 1 point
(4) Less than 15 units assign 0 points

Category 4. When the distance as measured from said gore of the interchange where the Logo Panel is to be displayed to the gore of the next exit served by a lodging establishment which would qualify for signing is:

a. Over 10 miles assign 3 points
b. Over 3 to 10 miles, inclusive assign 2 points
c. 1 to 3 miles, inclusive assign 1 point
d. Less than 1 mile assign 0 points

C. Shall be in compliance with respect to licensing, approval, and regulation by any state agency and/or any political subdivision of the state having or exercising jurisdiction over the business premises. Any licenses or permits, which are issued by the state or a local governmental body, shall be displayed on the premises.

D. Shall provide at least one off-street passenger vehicle parking space for each lodging unit available for rent.

E. Shall provide a public telephone.

F. Shall be open for business, with all of the above services and facilities available, and in continuous operation 24 hours a day, seven (7) days a week.

4. Camping

The business:

A. Shall be located not more than 10 miles from the interchange where the Logo Panel is to be displayed according to the State Measured Distance.

B. Shall be in compliance with respect to licensing, approval, and regulation by any state agency and/or any political subdivision of the state having or exercising jurisdiction over the business premises or be operated by a governmental agency. Any license or permits, which are issued by the state or a local governmental body, shall be displayed on the premises.

C. Must establish eligibility under at least one of the following three criteria:

1. Shall have not less than 25 vehicular overnight camping units or spaces available for rent. Each unit or space must provide individual service and utility hook-ups suitable for travel trailers, campers, and other recreational vehicles. The facility shall be accessible to and capable of accommodating all types of recreational vehicles, travel trailers and campers.

2. Shall have not less than 15 overnight camping units or spaces available, which will accommodate tents, and have at least one vehicle parking space for each unit or space available for rent. Shall have sanitary facilities, and drinking water for the units or spaces, but not necessarily at each individual campsite.

3. Shall have not less than 30 overnight camping units or spaces available, consisting of a combination of the types specified in items A. and B. herein and above.

D. Shall have an attendant on duty 24 hours a day to manage and maintain the facility while it is open for business.

E. Shall be open for business and in continuous operation 24 hours a day, seven (7) days a week, except that seasonally the facility may be closed to the public for not more than 150 consecutive days, provided Caltrans has received proper notification together with a request to cover or remove all Logo Panels fastened to the Specific Service Signs.

5. Electric Vehicle Charging

The business:

A. Shall be located not more than 3 miles from the interchange where the Logo Panel is to be displayed according to the State Measured Distance.
B. Shall be open for business, with the ability to provide Electric Vehicle Charging, for at least 16 consecutive hours daily, seven (7) days a week, except that the qualified business shall not be considered to be in violation of this requirement when, as a result of a shortage of electricity, the facility is closed or when its hours of operation are reduced.

C. A Logo permittee for Food, Fuel, Lodging or Camping may include the legend “EV CHARGING” which represent this service across the bottom of their permitted Logo sign panel, if they also offer EV CHARGING within 3 miles of a freeway interchange, and make this service available at least 16 hours daily, seven (7) days a week.


A Qualified Specific Service Business shall give written assurances of its conformity with all applicable laws concerning the provisions of public accommodations without regard to race, sex, religion, color, or national origin and shall not be in continuing breach of that assurance.

7. Equal Access

A. The order of priority for granting permits to “LODGING”, “EV CHARGING” or “CAMPING” businesses for the installation of their Logo Panels on Specific Service (Mainline) Signs or Specific Service (Ramp) Signs, when applications are received from a greater number of Qualified Specific Service Businesses which meet the minimum eligibility criteria than there is space available on the Specific Service Sign, shall be determined based upon the State Measured Distance; with first priority going to the closest business, second priority to the next closest business, and so on until all available space on the Specific Service Sign has been allocated. The same order of priority shall apply when the maximum number of permits has been issued and a new application is received from a Qualified Specific Service Business located closer to the interchange than another qualified business, which is already signed.

B. The order of priority for granting permits to “FOOD” or “FUEL” businesses for the installation of their Logo Panels on Specific Service (Mainline) Signs or Specific Service (Ramp) Signs, when applications are received from a greater number of Qualified Specific Service Businesses which meet the eligibility criteria than there is space available on the Specific Service Sign, shall be based upon the highest point accumulation from the following two (2) categories:

Category 1. If the State Measured Distance is:
   a. 0 to 0.5 miles, inclusive assign 3 points
   b. Over 0.5 to 1.0 mile, inclusive assign 2 points
   c. Over 1.0 to 3.0 miles, inclusive assign 1 point

Category 2. If the business is open:
   a. 20-24 hours per day assign 3 points
   b. 16-20 hours per day assign 2 points
   c. 12-16 hours per day assign 1 point

The same order of priority shall apply when the maximum number of permits has been issued and a new application is received from a Qualified Specific Service Business with a higher point accumulation than another qualified business, which is already signed.

Section 2J.02 Application

Standard:

01 The number of Specific Service signs along an approach to an interchange or intersection, regardless of the number of service types displayed, shall be limited to a maximum of four. In the direction of traffic, successive Specific Service signs shall be for 24-hour pharmacy, attraction, Electric Vehicle Charging camping, lodging, food, and gas fuel services, in that order.

02 A Specific Service sign shall display the word message GAS FUEL, FOOD, LODGING, CAMPING, ATTRACTION, or 24-HOUR PHARMACY, or EV CHARGING, an appropriate directional legend such as the word message EXIT XX, NEXT RIGHT, SECOND RIGHT, or directional arrows, and the related logo sign panels.

03 No more than three two types of services shall be represented on any sign or sign assembly. If three two types of services are displayed on one sign, then the logo sign panels shall be limited to two three for each service type (for a total of six logo sign panels). Refer California Code of Regulations, Title 21, Division 2, Chapter...
**19. Section 2110(f).** If two types of services are displayed on one sign, then the logo sign panels shall be limited to either three for each service type (for a total of six logo sign panels) or four for one service type and two for the other service type (for a total of six logo sign panels). The legend and logo sign panels applicable to a service type shall be displayed such that the road user will not associate them with another service type on the same sign.

- **04** No service type shall appear on more than two signs (see Paragraph 6).
- **05** The signs shall have a blue background, a white border, and white legends of upper-case letters, numbers, and arrows.

**Support:**
- **05a** California Streets and Highways Code, Division 1, Chapter 1, Article 3, Section 101.7 and California Code of Regulations, Title 21, Division 2, Chapter 19, Sections 2100 through 2120, do not include the “attractions”, “24 hour pharmacy”, or “electric vehicle charging” categories.
- **05b** In California, the generic term FUEL is used for GAS.

**Guidance:**
- **06** Where a service type is displayed on two signs, the signs for that service should follow one another in succession.
- **07** The Specific Service signs should be located to take advantage of natural terrain, to have the least impact on the scenic environment, and to avoid visual conflict with other signs within the highway right-of-way.

**Option:**
- **08** General Service signs (see Sections 2I.02 and 2I.03) may be used in conjunction with Specific Service signs for eligible types of services that are not represented by a Specific Service sign.

**Support:**
- **09** Examples of Specific Service signs are shown in Figure 2J-1 and 2J-1(CA). Examples of sign locations are shown in Figure 2J-2.

## Section 2J.03 Logos and Logo Sign Panels

**Standard:**
- **01** A logo shall be either an identification symbol/trademark or a word message. Each logo shall be placed on a separate logo sign panel that shall be attached to the Specific Service sign. Symbols or trademarks used alone for a logo shall be reproduced in the colors and general shape consistent with customary use, and any integral legend shall be in proportionate size. A logo that resembles an official traffic control device shall not be used.

**Guidance:**
- **02** A word message logo, not using a symbol or trademark, should have a blue background with white legend and border.

**Support:**
- **03** Section 2J.05 contains information regarding the minimum letter heights for logo sign panels.

**Option:**
- **04** Where business identification symbols or trademarks are used alone for a logo, the border may be omitted from the logo sign panel.
- **05** A portion of a logo sign panel may be used to display a supplemental message horizontally along the bottom of the logo sign panel, provided that the message displays essential motorist information (see Figure 2J-3 and Figure 2J-3(CA)).

**Standard:**
- **06** All supplemental messages shall be displayed within the logo sign panel and shall have letters and numerals that comply with the minimum height requirements shown in Table 2J-1.

**Guidance:**
- **07** A logo sign panel should not display more than one supplemental message.
- **08** The supplemental message should be displayed in a color to contrast effectively with the background of the business sign or separated from the other legend or logo by a divider bar.
- **09** State or local agencies that elect to allow supplemental messages on logo sign panels should develop a statewide policy for such messages.
Support:
10 Typical supplemental messages might include DIESEL, 24 HOURS, CLOSED and the day of the week when the facility is closed, ALTERNATIVE FUELS (see Section 2I.03), EV CHARGING and RV ACCESS.

Option:
11 The RV ACCESS supplemental message may be circular.

Standard:
12 If the RV ACCESS supplemental message is circular, it shall be the abbreviation RV in black letters inside a yellow circle with a black border and it shall be displayed within the logo sign panel near the lower right-hand corner (see Figure 2J-4).

Guidance:
13 If the circular RV ACCESS supplemental message is used, the circle should have a diameter of 10 inches and the letters should have a height of 6 inches.
14 If a State or local agency elects to display the designation of businesses as providing on-premise accommodations for recreational vehicles with the RV ACCESS supplemental message or the RV Access circular message, there should be a statewide policy for such designation and criteria for qualifying businesses. The criteria should include such site conditions as access between the public roadway and the site, on-premise geometry, and parking.

Option:
15 If a business designated as an Interstate Oasis (see Section 21.04) has a business logo sign panel on the Food and/or Gas Specific Service signs, the word OASIS may be displayed on the bottom portion of the logo sign panel for that business.

Standard:
16 A logo sign panel shall not display the symbol/trademark or name of more than one business.

Section 2J.04 Number and Size of Signs and Logo Sign Panels

Guidance:
01 Sign sizes should be determined by the amount and height of legend and the number and size of logo sign panels attached to the sign. All logo sign panels on a sign should be the same size.

Standard:
02 Each Specific Service sign or sign assembly shall be limited to no more than six logo sign panels. There shall be no more than three logo panels for one of the two service types on the same sign or sign assembly. Refer California Code of Regulations, Title 21, Division 2, Chapter 19, Section 2110(f).

Option:
03 Where more than six businesses of a specific service type are eligible for logo sign panels at the same interchange, additional logo sign panels of that same specific service type may also be displayed in accordance with the provisions of Paragraph 4. The additional logo sign panels may be displayed either by placing more than one specific service type on the same sign (see Paragraph 3 of Section 2J.02) or by using a second Specific Service sign of that specific service type if the additional sign can be added without exceeding the limit of four Specific Service signs at an interchange or intersection approach (see Paragraph 6 of Section 2J.02).

Standard:
04 Where logo sign panels for more than six businesses of a specific service type are displayed at the same interchange or intersection approach, the following provisions shall apply:
A. No more than 12 logo sign panels of a specific service type shall be displayed on no more than two Specific Service signs or sign assemblies;
B. No more than six logo sign panels shall be displayed on a single Specific Service sign; and
C. No more than four Specific Service signs shall be displayed on the approach.

Support:
05 Section 21.08 contains information regarding Specific Service signs for double-exit interchanges.

Standard:
06 Each logo sign panel attached to a Specific Service sign shall have a rectangular shape with a width longer than the height. A logo sign panel on signs for freeways and expressways shall not exceed 60 inches in width and 36 inches in height. A logo sign panel on signs for conventional roads and freeway and
expressway ramps shall not exceed 30 inches in width and 18 inches in height. California Streets and Highways Code, Division 1, Chapter 1, Article 3, Section 101.7 includes the use of specific service signs for freeways only. The vertical and horizontal spacing between logo sign panels shall not exceed 8 inches and 12 inches, respectively.

A logo panel on signs for the mainline shall be 48 inch in width and 36 inch in height.
A logo panel on signs for the ramps shall be 18 inch in width and 12 inch in height.

Support:
Sections 2A.14, 2E.15, and 2E.16 contain information regarding borders, interline spacing, and edge spacing.

Section 2J.05 Size of Lettering
Standard:
All Specific Service signs and logo sign panels shall have letter and numeral sizes that comply with the minimum requirements of Table 2J-1.

Guidance:
Any legend on a symbol/trademark should be proportional to the size of the symbol/trademark.

Section 2J.06 Signs at Interchanges
Standard:
The Specific Service signs shall be installed between the preceding interchange and at least 800 feet in advance of the Exit Direction sign at the interchange from which the services are available (see Figure 2J-2).

Guidance:
There should be at least an 800 foot spacing between the Specific Service signs, except for Specific Service ramp signs. However, excessive spacing is not desirable. Specific Service ramp signs should be spaced at least 100 feet from the Exit Gore sign, from each other, and from the ramp terminal.

Standard:
Specific Service signs shall be located between the previous interchange and sufficiently in advance of the approaching interchange so that the last sign is at least 0.25 miles in advance of the gore of the approaching interchange with at least 800 foot spacing between all Specific Service signs and between Specific Service signs and guide signs. Refer California Code of Regulations, Title 21, Division 2, Chapter 19, Section 2108(a).

Option:
At the discretion of Caltrans, the location of the Specific Service signs with respect to their distances from the gore may be increased to avoid conflict with existing guide signs.

Section 2J.07 Single-Exit Interchanges
Standard:
At numbered single-exit interchanges, the name of the service type followed by the exit number shall be displayed on one line above the logo sign panels. At unnumbered interchanges, the directional legend NEXT RIGHT (LEFT) shall be used.

At single-exit interchanges, Specific Service ramp signs shall be installed along the ramp or at the ramp terminal for facilities that have logo sign panels displayed along the main roadway if the facilities are not readily visible from the ramp terminal. Directions to the service facilities shall be indicated by arrows on the ramp signs. Logo sign panels on Specific Service ramp signs shall be duplicates of those displayed on the Specific Service signs located in advance of the interchange, but shall be reduced in size (see Paragraph 6 of Section 2J.04).

Guidance:
Specific Service ramp signs should include distances to the service facilities.

Option:
An exit number plaque (see Section 2E.31) may be used instead of the exit number on the signs located in advance of an interchange.
Standard:

05 The Single-Exit Interchange (One Service) Mainline sign (SG42-1(CA)) shall be used for the Specific Service Signing Program (Logo Program) where there are at least four qualified facilities available with the possibility of more.

06 The Single-Exit Interchange (One Service) Mainline sign (SG42-2(CA)) shall be used for the Specific Service Signing Program (Logo Program) where there are one or two qualified facilities available and it is not likely that there will be more than three.

07 At numbered interchanges, the name of the service type followed by the appropriate exit number shall be displayed on one line above the logo panels for SG42-1(CA) and SG42-2(CA) signs.

Option:

08 At unnumbered interchanges, the directional legend NEXT RIGHT (LEFT), SECOND RIGHT (LEFT), NEXT EXIT, or SECOND EXIT may be used in place of the exit number for SG42-1(CA) and SG42-2(CA) signs.

Standard:

09 The Single-Exit Interchange (Two Services) Mainline sign (SG42-6(CA)) shall be used for the Specific Service Signing Program (Logo Program) where there are a limited number of services, three or four, in remote rural areas.

10 The Single-Exit Interchange (Two Services) Mainline sign (SG42-7(CA)) shall be used for the Specific Service Signing Program (Logo Program) where there are a limited number of services, one or two, in remote rural areas.

11 At numbered interchanges, the appropriate exit number shall be displayed on the first line and the name of each service type shall be displayed above the logo panels for SG42-6(CA) and SG42-7(CA) signs.

Option:

12 At unnumbered interchanges, the directional legend NEXT RIGHT (LEFT), SECOND RIGHT (LEFT), NEXT EXIT, or SECOND EXIT may be used in place of the exit number for SG42-6(CA) and SG42-7(CA) signs.

Standard:

13 The Single-Exit Interchange (One Service) Mainline sign (SG42-9(CA)) shall be used for the Specific Service Signing Program (Logo Program) where there is only one service, in remote rural areas.

14 At numbered interchanges, the name of the service type shall be displayed above the logo panel and the appropriate exit number shall be displayed above the service type.

Option:

15 At unnumbered interchanges, the directional legend NEXT RIGHT (LEFT), SECOND RIGHT (LEFT), NEXT EXIT, or SECOND EXIT may be used in place of the exit number for the SG42-9(CA) sign.

Standard:

16 The Single-Exit Interchange (One Service) Mainline sign (SG42-10(CA)) shall be used for the Specific Service Signing Program (Logo Program) where there are at least two qualified facilities and it is not likely that there will be more than four.

17 At numbered interchanges, the name of the service type followed by the appropriate exit number shall be displayed on one line above the logo panels for the SG42-10(CA) sign.

Option:

18 At unnumbered interchanges, the directional legend NEXT RIGHT (LEFT), SECOND RIGHT (LEFT), NEXT EXIT, or SECOND EXIT may be used in place of the exit number for the SG42-10(CA) sign.

Section 2J.08 Double-Exit Interchanges

Guidance:

01 At double-exit interchanges, the Specific Service signs should consist of two sections, one for each exit (see Figure 2J-1).

Standard:

02 At a double-exit interchange, the top section shall display the logo sign panels for the first exit and the bottom section shall display the logo sign panels for the second exit. At numbered interchanges, the name of the service type and the exit number shall be displayed above the logo sign panels in each section. At unnumbered interchanges, the word message NEXT RIGHT (LEFT) and SECOND RIGHT (LEFT) shall be used in place of the exit number. The number of logo sign panels on the sign (total of both sections) or the sign assembly shall be limited to six.

Guidance:
At a double-exit interchange, where a service type is displayed on two Specific Service signs in accordance with the provisions of Section 2J.04, one of the signs should display the logo sign panels for that service type for the businesses that are accessible from one of the two exits and the other sign should display the logo sign panels for that service type for the businesses that are accessible from the other exit.

Option:

At a double-exit interchange where there are four logo sign panels to be displayed for one of the exits and one or two logo sign panels to be displayed for the other exit, the logo sign panels may be arranged in three rows with two logo sign panels per row.

At a double-exit interchange, where a service is to be signed for only one exit, one section of the Specific Service sign may be omitted, or a single exit interchange sign may be used. Signs on ramps and crossroads as described in Section 2J.07 may be used at a double-exit interchange.

Standard:

The Double-Exit Interchange Mainline sign (SG42-3(CA)) shall be used for the Specific Service Signing Program (Logo Program) where there are one or two qualified facilities available from each exit and it is not likely that there will be more than three from each exit.

At numbered interchanges, the name of the service type followed by the appropriate exit number shall be displayed on one line above the logo panels for the SG42-3(CA) sign.

At unnumbered interchanges, the directional legend NEXT RIGHT (LEFT), SECOND RIGHT (LEFT), NEXT EXIT, or SECOND EXIT may be used in place of the exit number for the SG42-3(CA) sign.

The Double-Exit Interchange Mainline sign (SG42-11(CA)) shall be used for the Specific Service Signing Program (Logo Program) where there is at least one qualified facility available from each exit and it is not likely that there will be more that two from each exit.

At numbered interchanges, the name of the service type followed by the appropriate exit number shall be displayed on one line above the logo panels for the SG42-11(CA) sign.

At unnumbered interchanges, the directional legend NEXT RIGHT (LEFT), SECOND RIGHT (LEFT), NEXT EXIT, or SECOND EXIT may be used in place of the exit number for the SG42-11(CA) sign.

Section 2J.09 Specific Service Trailblazer Signs

Support:

Specific Service trailblazer signs (see Figure 2J-5) are guide signs with one to four logo sign panels that display business identification and directional information for services and for eligible attractions. Specific Service trailblazer signs are installed along crossroads for facilities that have logo sign panels displayed along the main roadway and ramp, and that require additional vehicle maneuvers.

Standard:

Specific Service trailblazer signs shall be installed along crossroads where the route to the business requires a direction change, where it is questionable as to which roadway to follow, or where additional guidance is needed. Where it is not feasible or practical to install Specific Service trailblazer signs to such businesses, those businesses shall not be considered eligible for signing from the ramp and main roadway. A Specific Service trailblazer sign shall not be required at the point where the business is visible from the roadway and its access is readily apparent.

Guidance:

If used, a Specific Service trailblazer sign should be located a maximum of 500 feet in advance of any required turn.

Standard:

The location of other traffic control devices shall take precedence over the location of a Specific Service trailblazer sign.

When used, each Specific Service trailblazer sign or sign assembly shall be limited to no more than four logo sign panels. The logo sign panels on Specific Service trailblazer signs shall be duplicates of those displayed on the Specific Service ramp signs.
06 Appropriate legends, such as directional arrows or the word message NEXT RIGHT or SECOND RIGHT, shall be displayed with the logo sign panel to provide proper guidance. The directional legend and border shall be white and shall be displayed on a blue background.

Option:
07 Specific Service trailblazer signs may contain various types of services on a single sign or on a sign assembly.
08 Specific Service trailblazer signs may be placed farther from the edge of the road than other traffic control signs.

Section 2J.10 Signs at Intersections

Standard:
01 Where both tourist-oriented information (see Chapter 2K) and specific service information would be needed at the same intersection, the design of the tourist-oriented directional signs shall be used, and the needed specific service information shall be incorporated.

Guidance:
02 If specific service signs are used on conventional roads or at intersections on expressways, they should be installed between the previous interchange or intersection and at least 300 feet in advance of the intersection from which the services are available.
03 The spacing between signs should be determined on the basis of an engineering study.
04 Logo sign panels should not be displayed for a type of service for which a qualified facility is readily visible.

Standard:
05 If specific service signs are used on conventional roads or at intersections on expressways, the name of each type of service shall be displayed above its logo sign panel(s), together with an appropriate legend, such as NEXT RIGHT (LEFT) or a directional arrow, either displayed on the same line as the name of the type of service or displayed below the logo sign panel(s).

Option:
06 Signs similar to specific service ramp signs as described in Section 2J.07 may be provided on the crossroad.

Standard:
07 Per California Streets and Highways Code, Division 1, Chapter 1, Article 3, Section 101.7 includes the use of specific service signs for freeways only.
08 The tourist-oriented information and specific service information signs shall be separate installations. Refer California Streets and Highways Code, Division 1, Chapter 1.5, Article 3, Section 229.285.

Section 2J.11 Signing Policy

Guidance:
01 Each highway agency that elects to use specific service signs should establish a signing policy that includes, as a minimum, the guidelines of Section 2J.01 and at least the following criteria:
A. Selection of eligible businesses;
B. Distances to eligible services;
C. The use of logo sign panels, legends, and signs conforming with this Manual and State design requirements;
D. Removal or covering of logo sign panels during off seasons for businesses that operate on a seasonal basis;
E. The circumstances, if any, under which specific service signs are permitted to be used in non-rural areas; and
F. Determination of the costs to businesses for initial permits, installations, annual maintenance, and removal of logo sign panels.

Support:
02 California Streets and Highways Code, Division 1, Chapter 1, Article 3, Section 101.7 provides for placement of specific service signs (logo sign program) on all rural freeways in California. The term "rural" for this purpose means any area outside of an "urban" area. An urban area is an area encompassing a population of 5,000 or more.
03 California Code of Regulations, Title 21, Division 2, Chapter 19, Sections 2100 through 2120 contain standards for the specific service signs (logo sign program).

Standard:
No new Specific Service (SG42 Series(CA)) signs shall be installed in a geographic area with a population over 5,000 as identified on maps prepared by Caltrans based on the most recent United States Bureau of Census data.

When a geographic area exceeds a population of 5,000, Specific Service signs in that area, which were in place prior to the population increase, shall remain in place until new census data shows population levels exceeding 10,000. The Specific Service signs shall then be removed.

Section 2J.101(CA) Signs at Ramps (SG42-4(CA), SG42-5(CA), SG42-8(CA) and SG42-12(CA))

Standard:

Specific Service (Ramp) Signs shall be located on, opposite of, or at the terminus of an off-ramp, in the same direction of travel as the Specific Service (Mainline) Signs (See Section 2J.07 and 2J.08). As viewed in the direction of travel, the successive signs shall be those for “EV CHARGING,” “CAMPING,” “LODGING,” “FOOD,” and "FUEL" in that order.

If either the business premises or an On-Site Sign of a Qualified Specific Service Business is not visible from any point on the off-ramp or from the terminus of the off-ramp, the Owner or Responsible Operator shall be required to make application to have a Logo Panel placed on a Specific Service (Ramp) Sign.

Option:

If either the business premises or an on-site sign of a Qualified Specific Service Business is visible from any point on the off-ramp or from the terminus of the off-ramp, the Owner or Responsible Operator may apply for placement of a Logo Panel on the Specific Service (Ramp) Sign.

Caltrans may require that a Logo panel be placed on a Specific Service (Ramp) Sign when either the business premises or an On-Site Sign is visible from the off-ramp or from the terminus of the off-ramp, if a sign is necessary to avoid misdirection of the motorist because of the complexity of the interchange.

Appropriate trailblazers may be required by Caltrans along other public highways as necessary to adequately direct road users to the business referred to on any Logo Panel.

Standard:

The Logo Panels fastened to a Specific Service (Ramp) Sign or a trailblazer sign shall be the same in shape, color, and message as those shown on the Specific Service (Mainline) Signs, but shall be of smaller size.

Support:

The Specific Service Ramp sign (SG42-4(CA)) may be used for the Specific Service Signing Program (Logo Program) at an exit ramp where there are one or two qualified facilities available and it is not likely that there will be more than three in each direction.

The Specific Service Ramp sign (SG42-5(CA)) may be used for the Specific Service Signing Program (Logo Program) at an exit ramp where there are only one or two qualified facilities in only one direction.

The Specific Service Ramp sign (SG42-12(CA)) may be used for the Specific Service Signing Program (Logo Program) where there is only one qualified facility available and it is not likely that there will ever be more.

Ramp signs shall be installed along the ramp or at the ramp terminal for facilities that have logo panels displayed along the main roadway if the facilities are not readily visible from the ramp terminal. Directions to the service facilities shall be indicated by arrows on the ramp signs. Logo panels on Specific Service ramp signs shall be duplicates of those displayed on the mainline signs located in advance of the interchange, but shall be reduced in size.

Support:

The Specific Service Ramp sign (SG42-8(CA)) may be used for the Specific Service Signing Program (Logo Program) in combination with a Directional Arrow Auxiliary (M6 Series) signs, at an exit ramp terminus, as a follow-up sign to freeway signs. A Mileage Plate may be applied to the sign panel, under the business logo where a business is not visible from the sign's location.
Figure 2J-2. Examples of Specific Service Sign Locations

*Specific service ramp signs (as needed) Spacing should be at least 100 feet from the exit gore sign, from each other, and from the ramp terminal.

The travel distance to be shown on signs should be measured from this point.

If a loop is signed, the travel distance shown on signs should be measured from this point.

Note: For Guide Sign Assemblies use California State Route (G28-1(CA)) or US Route (G26-1(CA)) shields.
Figure 2J-3. Example of Supplemental Messages on Logo Sign Panels

Figure 2J-3 (CA). Example of Supplemental Messages on Logo Sign Panels

Figure 2J-4. Examples of RV Access Supplemental Messages on Logo Sign Panels

Figure 2J-5. Examples of Specific Service Trailblazer Signs
marking no-passing zones and are less than the values that are suggested for geometric design by the AASHTO Policy on Geometric Design of Streets and Highways (see Section 1A.11).

**Guidance:**

07 Where the distance between successive no-passing zones is less than 400 feet, no-passing markings should connect the zones.

**Standard:**

07a If the gap between successive no-passing zones is less than the sight distance for the prevailing speed shown in Table 3B-1, the no-passing zone shall be continuous.

08 Where center line markings are used, no-passing zone markings shall be used on approaches to grade crossings in compliance with Section 8B.27.

**Option:**

09 In addition to pavement markings, no-passing zone signs (see Sections 2B.28, 2B.29, and 2C.45) may be used to emphasize the existence and extent of a no-passing zone.

**Support:**

10 Section 11-307 of the “Uniform Vehicle Code (UVC)” contains further information regarding required road user behavior in no-passing zones. The UVC can be obtained from the National Committee on Uniform Traffic Laws and Ordinances at the address shown on Page i.

**Standard:**

11 On three-lane roadways where the direction of travel in the center lane transitions from one direction to the other, a no-passing buffer zone shall be provided in the center lane as shown in Figure 3B-5. A lane-reduction transition (see Section 3B.09) shall be provided at each end of the buffer zone.

12 The buffer zone shall be a flush median island formed by two sets of double yellow center line markings that is at least 50 feet in length.

**Option:**

13 Yellow diagonal crosshatch markings (see Section 3B.24) may be placed in the flush median area between the two sets of no-passing zone markings as shown in Figure 3B-5.

**Guidance:**

14 For three-lane roadways having a posted or statutory speed limit of 45 mph or greater, the lane transition taper length should be computed by the formula \( L = WS \). For roadways where the posted or statutory speed limit is less than 45 mph, the formula \( L = WS^2/60 \) should be used to compute the taper length.

**Support:**

15 Under both formulas, \( L \) equals the taper length in feet, \( W \) equals the width of the center lane or offset distance in feet, and \( S \) equals the 85th-percentile speed or the posted or statutory speed limit, whichever is higher.

**Guidance:**

16 The minimum lane transition taper length should be 100 feet in urban areas and 200 feet in rural areas.

**Support:**

17 Refer to CVC 21750 through 21759 for overtaking and passing.

18 Refer to CVC 21460 for Double Lines.

19 CVC 21752 restricts passing (driving on left side of a two-way roadway) when approaching within 100 feet of or when traversing any intersection or railroad grade crossing. CVC 21752 also restricts passing (driving on left side of a two-way roadway) when the view is obstructed upon approaching within 100 feet of any bridge, viaduct, or tunnel. The patterns and policy for intersection markings are shown in Figure 3A-109(CA).

**Standard:**

20 No-passing zone patterns shall be selected from those shown in Figures 3A-103(CA) and 3A-104(CA).

**Guidance:**

21 The no-passing zone markings at intersections, when used, should be between 100 feet and 300 feet in length at the approach to an intersection and placed in a pattern as shown in Figure 3A-109(CA).
Section 3B.03 Other Yellow Longitudinal Pavement Markings

**Standard:**

01 If reversible lanes are used, the lane line pavement markings on each side of reversible lanes shall consist of a normal broken double yellow line to delineate the edge of a lane in which the direction of travel is reversed from time to time, such that each of these markings serve as the center line markings of the roadway during some period (see Figure 3B-6).

02 Signs (see Section 2B.26), lane-use control signals (see Chapter 4M), or both shall be used to supplement reversible lane pavement markings.

03 If a two-way left-turn lane that is never operated as a reversible lane is used, the lane line pavement markings on each side of the two-way left-turn lane shall consist of a normal broken yellow line and a normal solid yellow line to delineate the edges of a lane that can be used by traffic in either direction as part of a left-turn maneuver. These markings shall be placed with the broken line toward the two-way left-turn lane and the solid line toward the adjacent traffic lane as shown in Figure 3B-7.

**Guidance:**

**Option:**

04 White two-way left-turn lane-use arrows (see Figure 3B-7), should may be used in conjunction with the longitudinal two-way left-turn markings at the locations described in Section 3B.20.

05 Signs should may be used in conjunction with the two-way left turn markings (see Section 2B.24).

**Standard:**

06 If a continuous flush median island formed by pavement markings separating travel in opposite directions is used, two sets of solid double yellow lines shall be used to form the island as shown in Figures 3B-2 and 3B-5. Other markings in the median island area shall also be yellow, except crosswalk markings which shall be white (see Section 3B.18).

07 On State highways, reversible lanes shall be separated by physical barriers or delineators.

**Support:**

08 A two-way left-turn lane is a lane reserved in the center of a highway for exclusive use of left or U-turning vehicles. Refer to CVC 21460.5. It is normally used where there are many points of access.

**Standard:**

09 The two-way left-turn lane markings shall be selected from those shown in Figure 3A-108(CA).

**Option:**

10 Optional treatments at signalized, major and minor intersections as shown in Figure 3B-7(CA) may be used.

11 Two-way opposing pavement arrows may be used as shown in Figure 3B-7(CA). The arrows may be supplemented by Two-Way Left Turn Lane (R3-9a or R3-9b) sign at new installations and problem locations.

**Guidance:**

12 A gap in the markings should be made at all intersections.

**Support:**

13 For left turn channelization, see Figure 3B-101(CA) and Caltrans’ Highway Design Manual, Section 405.2. See Section 1A.11 for information regarding this publication.

14 Channelized left-turn lanes in combination with continuous raised-curb medians are used instead of two-way left-turn lanes (TWLTL) if one or more of the following conditions exist:
   A. Average daily traffic volumes exceed 20,000 vehicles per day
   B. For remediation where there is a demonstrated crash problem,
   C. Wherever a need is demonstrated through engineering study.

15 Refer to CVC 21460.5 for Two-Way Left-Turn Lanes.

16 For details of two-way left-turn lanes, see Figure 3B-7(CA). For left turn channelization, see Figure 3B-101(CA) and Caltrans’ Highway Design Manual, Section 405.2. See Section 1A.11 for information regarding this publication.

**Standard:**

17 Left-turn or right-turn lanes shall be separated from the through lanes by a single solid 8 inch wide white line as shown in Figure 3A-112(CA) except as provided in paragraph 18.

**Option:**

18 Left-turn or right-turn lanes may be separated from the through lanes by multiple solid 8 inch wide white lines or two longitudinal solid 8 inch wide lines with diagonal lines used for crosshatch markings.
Figure 3B-22 (CA). Examples of Disabled Persons Parking Symbol, Legend and Related Markings (Sheet 1 of 2)

Off-Street Parking

ISA Marking at rear limit of stall (See detail and Notes 1 below)

International Symbol of Accessibility (ISA) Marking

Sen Note 2

5'-0' Min for regular accessible parking stall
8'-0' Min for van accessible parking stall

See Note 2

Notes:
1. The design details for this symbol, legends, and related markings are shown in the Department of Transportation’s Standard Plans. See Standard Plan A24C for square unit area for the ISA marking.
2. The words “NO PARKING” shall be painted in the loading and unloading area in white letters no less than 12 in high on a contrasting background and located so that it is visible to traffic enforcement officials. See Standard Plan A24E for square unit area for “NO PARKING” legend.
3. Loading and unloading area border shall be marked in blue paint. The hatched lines shall be painted a suitable contrasting color to the parking space. Blue or white paint is preferred.
**Figure 3B-22 (CA). Examples of Disabled Persons Parking Symbol, Legend and Related Markings (Sheet 2 of 2)**

**On-Street Parking (Conventional)**

![Diagram of on-street parking (conventional)]

**On-Street Parking (Restricted Right of Way Width)**

![Diagram of on-street parking (restricted right of way width)]

NOTES:

1. The words “NO PARKING”, shall be painted in white letters no less than 12 in high on a contrasting background and located so that it is visible to traffic enforcement officials. See Standard Plan A24E for square unit area for painting the legend “NO PARKING”.
2. Accessible on-street parking spaces shall not be smaller in length or width than that specified by the local jurisdiction for other parking spaces, but not less than 20 ft in length and not less than 8 ft in width.
3. The hatched lines shall be painted a suitable contrasting color to the parking space. Blue or white paint is preferred.
4. Actual dimensions and curb geometry may differ from that shown. See Standard Plan A90B for additional details.
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 faces 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 faces 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 roadside mounted signal faces are installed, a minimum of two signal faces shall be provided for each of the lanes, with both mounted at the side of the roadway on a single pole (see Paragraphs 9 and 10 below). Roadside mounted signal faces only apply to configurations with 2 separately controlled lanes.
B. If overhead mounted signals faces are installed, 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.

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.
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:**

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:**

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:**

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:**

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

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**Section 4I.03 Operation of Freeway Entrance Ramp Control Signals**

**Guidance:**

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.

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:**

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 5G. TEMPORARY TRAFFIC CONTROL ZONES

Section 5G.01 Introduction

Guidance:
01 The safety of road users, including pedestrians and bicyclists, as well as personnel in work zones, should be an integral and high priority element of every project in the planning, design, maintenance, and construction phases. Part 6 should be reviewed for additional criteria, specific details, and more complex temporary traffic control zone requirements. The following principles should be applied to temporary traffic control zones:

A. Traffic movement should be disrupted as little as possible.
B. Road users should be guided in a clear and positive manner while approaching and within construction, maintenance, and utility work areas.
C. Routine inspection and maintenance of traffic control elements should be performed both day and night.
D. Both the contracting agency and the contractor should assign at least one person on each project to have day-to-day responsibility for assuring that the traffic control elements are operating effectively and any needed operational changes are brought to the attention of their supervisors.

02 Traffic control in temporary traffic control zones should be designed on the assumption that road users will only reduce their speeds if they clearly perceive a need to do so, and then only in small increments of speed. Temporary traffic control zones should not present a surprise to the road user. Frequent and/or abrupt changes in geometrics and other features should be avoided. Transitions should be well delineated and long enough to accommodate driving conditions at the speeds vehicles are realistically expected to travel.

03 A temporary traffic control plan (see Section 6C.01) should be used for a temporary traffic control zone on a low-volume road to specify particular traffic control devices and features, or to reference typical drawings such as those contained in Part 6.

Support:
04 Applications of speed reduction countermeasures and enforcement can be effective in reducing traffic speeds in temporary traffic control zones.

Section 5G.02 Applications

Guidance:
01 Planned work phasing and sequencing should be the basis for the use of traffic control devices for temporary traffic control zones. Part 6 should be consulted for specific traffic control requirements and examples where construction or maintenance work is planned.

Support:
02 Maintenance activities might not require extensive temporary traffic control if the traffic volumes and speeds are low.

Option:
03 The traffic applications shown in Figures 6H-1, 6H-10, 6H-10(CA), 6H-15(CA), 6H-11, 6H-13, 6H-15, 6H-16, and 6H-18 of Part 6 are among those that may be used on low-volume roads.

Support:
04 Table 6H-3 provides distances for the advance placement of the traffic control devices shown in the typical applications.

Option:
05 For low-volume roadways with speeds of 30 miles per hour or less, a minimum distance of 100 feet may be used for the advance placement distance and the distance between signs shown in the typical applications.

06 For temporary traffic control zones on low-volume roads that require flaggers, a single flagger may be adequate if the flagger is visible to approaching traffic from all appropriate directions.

Section 5G.03 Channelization Devices

Standard:
01 Channelization devices for nighttime use shall have the same retroreflective requirements as specified for higher-volume roadways.
Option:
02 To alert, guide, and direct road users through temporary traffic control zones on low-volume roads, tapers may be used to move a road user out of the traffic lane and around the work space using the spacing of devices that is described in Section 6F.63.

Section 5G.04 Markings
 Guidance:
01 Pavement markings should be considered for temporary traffic control zones on paved low-volume roads, especially roads that had existing pavement markings or that have a surfaced detour or temporary roadway.
Option:
02 Interim pavement markings may be omitted in a temporary traffic control zone if they are not needed based on the criteria for these markings in Section 6F.78.

Section 5G.05 Other Traffic Control Devices
 Standard:
01 Other traffic control devices, such as other signs, signals, and illumination that are used on low-volume roads in temporary traffic control zones, but are not described in Part 5, shall comply with the provisions contained in other Parts of this Manual.
Support:
02 Some of the signs that might be applicable in a temporary traffic control zone on a low-volume road are shown in Figure 5G-1.

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![Figure 5G-1. Temporary Traffic Control Signs and Plaques on Low-Volume Roads](image)
15 For portable changeable message signs mounted on service patrol trucks or other incident response vehicles, a letter height as short as 10 inches may be used. Shorter letter sizes may also be used on a portable changeable message sign used on low speed facilities provided that the message is legible from at least 650 feet.

16 The portable changeable message sign may vary in size.

Guidance:

17 Messages on a portable changeable message sign should consist of no more than two phases, and a phase should consist of no more than three lines of text. Each phase should be capable of being understood by itself, regardless of the order in which it is read. Messages should be centered within each line of legend. If more than one portable changeable message sign is simultaneously legible to road users, then only one of the signs should display a sequential message at any given time.

Support:

18 Road users have difficulties in reading messages displayed in more than two phases on a typical three-line portable changeable message sign.

Standard:

19 Techniques of message display such as animation, rapid flashing, dissolving, exploding, scrolling, travelling horizontally or vertically across the face of the sign, or other dynamic elements shall not be used.

Guidance:

20 When a message is divided into two phases, the display time for each phase should be at least 2 seconds, and the sum of the display times for both of the phases should be a maximum of 8 seconds.

21 All messages should be designed with consideration given to the principles provided in this Section and also taking into account the following:

A. The message should be as brief as possible and should contain three thoughts (with each thought preferably shown on its own line) that convey:

1. The problem or situation that the road user will encounter ahead,
2. The location of or distance to the problem or situation, and
3. The recommended driver action.

B. If more than two phases are needed to display a message, additional portable changeable message signs should be used. When multiple portable changeable message signs are needed, they should be placed on the same side of the roadway and they should be separated from each other by a distance of at least 1,000 feet on freeways and expressways, and by a distance of at least 500 feet on other types of highways.

22 When the word messages shown in Tables 1A-1 or 1A-2 need to be abbreviated on a portable changeable message sign, the provisions described in Section 1A.15 shall be followed.

23 In order to maintain legibility, portable changeable message signs shall automatically adjust their brightness under varying light conditions.

24 The control system shall include a display screen upon which messages can be reviewed before being displayed on the message sign. The control system shall be capable of maintaining memory when power is unavailable.

25 Portable changeable message signs shall be equipped with a power source and a battery back-up to provide continuous operation when failure of the primary power source occurs.

26 The mounting of portable changeable message signs on a trailer, a large truck, or a service patrol truck shall be such that the bottom of the message sign shall be a minimum of 7 feet above the roadway in urban areas and 5 feet above the roadway in rural areas when it is in the operating mode.

Guidance:

27 Portable changeable message signs should be used as a supplement to and not as a substitute for conventional signs and pavement markings.

28 When portable changeable message signs are used for route diversion, they should be placed far enough in advance of the diversion to allow road users ample opportunity to perform necessary lane changes, to adjust their speed, or to exit the affected highway.

29 Portable changeable message signs should be sited and aligned to provide maximum legibility and to allow time for road users to respond appropriately to the portable changeable message sign message.
30 Portable changeable message signs should be placed off the shoulder of the roadway and behind a traffic barrier, if practical. Where a traffic barrier is not available to shield the portable changeable message sign, it should be placed off the shoulder and outside of the clear zone. If a portable changeable message sign has to be placed on the shoulder of the roadway or within the clear zone, it should be delineated with retroreflective TTC devices. When used, advanced warning delineation is not needed if the portable changeable message sign is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of the traveled way (see Section 6C.04). If the portable changeable message sign is placed on shoulder or partially blocking the shoulder (including overhangs), the shoulder should be closed off by a taper of channelizing devices with a length of 1/3 L using the formulas in Tables 6C-3, 6C-3(CA) and 6C-4 (see Section 6C.08). See Figure 6F-104(CA) for typical layout using channelizing devices to delineate a portable changeable message sign on shoulder.

Option:

30a For incident management before additional resources are available or for short duration use (see Section 6G.02) or when portable changeable message sign is placed well beyond the shoulder but partially within 15 feet from the edge of the traveled way it may be delineated with a minimum of a 30 feet taper formed by three traffic cones.

Guidance:

31 When portable changeable message signs are used in TTC zones, they should display only TTC messages.

32 When portable changeable message signs are not being used to display TTC messages, they should be relocated such that they are outside of the clear zone or shielded behind a traffic barrier and turned away from traffic. If relocation or shielding is not practical, they should be delineated with retroreflective TTC devices. If the portable changeable message sign is stored within a shoulder or partially blocking a shoulder, the shoulder should be closed according to Section 6G.07. If the portable changeable message sign is stored well beyond the shoulder but within the clear zone, it should be delineated by a taper of channelizing devices with a length of 1/3 L using the formulas in Tables 6C-3, 6C-3(CA) and 6C-4 (see Section 6C.08). Clear zone is defined by AASHTO’s “Roadside Design Guide” (see Section 1A.11). See Figure 6F-104(CA) for typical layout using channelizing devices to delineate a portable changeable message sign on a shoulder.

33 Portable changeable message sign trailers should be delineated on a permanent basis by affixing retroreflective material, known as conspicuity material, in a continuous line on the face of the trailer as seen by oncoming road users.

Standard:

34 On State highways, the message displayed on Portable Changeable Message signs shall be visible from a distance of 1500 feet and shall be legible from a distance of 750 feet, at noon on a cloudless day, by persons with vision of or corrected to 20/20.

Guidance:

35 On local roads, the message displayed on Portable Changeable Message signs should be visible from a distance of 1500 feet and shall be legible from a distance of 750 feet, at noon on a cloudless day, by persons with vision of or corrected to 20/20.

Support:

36 Refer to Caltrans’ Standard Specifications Section 12-3.32 for visibility criteria cited. See Section 1A.11 for information regarding this publication.

37 Refer to Section 2B.13 for Vehicle Speed Feedback Signs.

### Section 6F.61 Arrow Boards

**Standard:**

01 An arrow board shall be a sign with a matrix of elements capable of either flashing or sequential displays. This sign shall provide additional warning and directional information to assist in merging and controlling road users through or around a TTC zone.

**Guidance:**

02 An arrow board in the arrow or chevron mode should be used to advise approaching traffic of a lane closure along major multi-lane roadways in situations involving heavy traffic volumes, high speeds, and/or limited sight distances, or at other locations and under other conditions where road users are less likely to expect such lane closures.
PART 9
TRAFFIC CONTROL FOR BICYCLE FACILITIES

CHAPTER 9A. GENERAL

Section 9A.01 Requirements for Bicyclist Traffic Control Devices
Support:
01 General information and definitions concerning traffic control devices are found in Part 1.

Section 9A.02 Scope
Support:
01 Part 9 covers signs, pavement markings, and highway traffic signals specifically related to bicycle operation on both roadways, separated bikeways and shared-use paths.
Guidance:
02 Parts 1, 2, 3, and 4 should be reviewed for general provisions, signs, pavement markings, and signals.
Standard:
03 The absence of a marked bicycle lane or any of the other traffic control devices discussed in this Chapter on a particular roadway shall not be construed to mean that bicyclists are not permitted to travel on that roadway.

Section 9A.03 Definitions Relating to Bicycles
Support:
01 Definitions and acronyms pertaining to Part 9 are provided in Sections 1A.13 and 1A.14.

Section 9A.04 Maintenance
Guidance:
01 All signs, signals, and markings, including those on bicycle facilities, should be properly maintained to command respect from both the motorist and the bicyclist. When installing signs and markings on bicycle facilities, an agency should be designated to maintain these devices.
02 Separated bikeways should be accessible to street maintenance equipment (e.g., street sweeping, snow removal).

Section 9A.05 Relation to Other Documents
Support:
01 “The Uniform Vehicle Code and Model Traffic Ordinance” published by the National Committee on Uniform Traffic Laws and Ordinances and the California Vehicle Code (see Section 1A.11) have provisions for bicycles and are the basis for the traffic control devices included in this Manual.
02 Refer to California Streets and Highway Code Section 890.4 for definition of “Bikeways”.
02 Informational documents used during the development of the signing and marking recommendations in Part 9 include the following:
A. “Guide for Development of Bicycle Facilities,” which is available from the American Association of State Highway and Transportation Officials (see Page i for the address); and
B. State and local government design guides.
C. “Highway Design Manual” (Caltrans).
E. “Separated Bike Lane Planning and Design Guide,” which is available from the Federal Highway Administration (see Page ii for the address); and
F. NACTO Urban Bikeway Design Guide and Urban Street Design Guide (see Page iii for the address).
03 Other publications that relate to the application of traffic control devices in general are listed in Section 1A.11.

Section 9A.06 Placement Authority

Support:

01 Section 1A.08 contains information regarding placement authority for traffic control devices.

02 The following references from the California Vehicle Code relate to bicycles:
A. Section 21100 – Rules and regulations for operation of bicycles on the public sidewalks.
B. Section 21113 – Driving or parking of bicycles or motorized bicycles on public grounds including University of California and the California State University campuses.
C. Section 21116 - Bicycle paths or routes on levees, canal banks, natural watercourse banks, or pipeline rights-of-way.
D. Sections 21200 through 21212 – Operation of bicycles on California roadways.
E. Section 21202 – Bicycle operation on roadway.
F. Section 21207 – Bicycle lanes.
G. Section 21208 – Permitted movements from bicycle lanes.
H. Section 21209 - Motor vehicles and motorized bicycles in bicycle lanes.
I. Section 21210 – Bicycle parking.
J. Section 21211 - Obstruction of bikeways or bicycle paths or trails.
K. Section 21229 – Operation of motorized scooters in bicycle lanes.
L. Section 21230 – Operation of motorized scooters on bicycle paths, trails or bikeways.
M. Section 21450 – Color-lighted bicycle symbols on official traffic control signals.
N. Section 21450.5 – Detection of motorcycles and bicycles at traffic-actuated signals.
O. Section 21456.2 – Bicycles and traffic signals.
P. Section 21456.3 – Bicycle signals.
Q. Section 21650.1 – Bicycle operated on roadway or highway shoulder.
R. Section 21717 – Turning across bicycle lane.
S. Section 21750 – Overtake and pass to left.
T. Section 21760 – Three Feet for Safety Act
U. Section 21960 – Bicycle and pedestrian restrictions on freeways and expressways.
V. Section 21966 – Pedestrians in bicycle lanes.
W. Section 23330 – Bicycles not permitted at vehicle crossings.

03 The following references from the California Streets and Highways Code relate to bicycles:
A. Section 885.2 – Statewide bicycle program.
B. Section 886 – State bicycle facilities coordinator.
C. Section 887 - Definition of non-motorized transportation facility.
D. Section 887.2 – Statewide bicycle map.
E. Section 887.6 – Agreements with local agencies to construct and maintain non-motorized transportation facilities.
F. Section 888 – Severance of existing major non-motorized route by freeway construction.
G. Section 888.2 – Incorporation of non-motorized transportation facilities in the design of freeways.
H. Section 889 – California Bicycle Routes of National, State, or Regional Significance Act.
I. Section 890.2 – Definition of bicycle.
J. Section 890.4 – Definitions of Class I, II, III and IV bikeways.
K. Section 890.6 – Caltrans, in cooperation with county and city governments, to establish minimum safety design criteria for the planning and construction of bikeways and roadways where bicycle travel is permitted.
L. Section 890.8 - Caltrans to establish uniform specifications and symbols for signs, markers, and traffic control devices for bikeways and roadways where bicycle travel is permitted.
M. Section 891 – Local agencies must comply with design criteria and uniform specifications and symbols for signs, markers, and traffic control devices established by Caltrans.
N. Section 891.2 & 891.4 – Local agencies bicycle transportation plan.
O. Section 891.8 – Local agency establishment of bikeways.
P. Section 892 – Use of abandoned right of way as a non-motorized transportation facility.
Section 9A.07 Meaning of Standard, Guidance, Option, and Support
Support:
01 The introduction to this Manual Paragraph 1 of Section 1A.13 and Section 1A.13 contains information regarding the meaning of the headings Standard, Guidance, Option, and Support, and the use of the words “shall,” “should,” and “may.”

Section 9A.08 Colors
Support:
01 Section 1A.12 contains information regarding the color codes.

Section 9A.101(CA) Traffic Controls for Bicycle Facilities at Rail Crossings
Standard:
01 Any bicycle facility traversing an at-grade railroad crossing shall conform to Part 8.
“lane that is too narrow for a bicycle and a vehicle to travel safely side by side within the same lane.”

Section 9B.07 Bicycle WRONG WAY Sign and RIDE WITH TRAFFIC Plaque (R5-1b, R9-3c)

Option:
01 The Bicycle WRONG WAY (R5-1b) sign and RIDE WITH TRAFFIC (R9-3cP) plaque (see Figure 9B-2) may be placed facing wrong-way bicycle traffic, such as on the left side of a roadway.
02 This sign and plaque may be mounted back-to-back with other signs to minimize visibility to other traffic.

Guidance:
03 The RIDE WITH TRAFFIC plaque should be used only in conjunction with the Bicycle WRONG WAY sign, and should be mounted directly below the Bicycle WRONG WAY sign.

Section 9B.08 NO MOTOR VEHICLES Sign (R5-3)

Option:
01 The NO MOTOR VEHICLES (R5-3) sign (see Figure 9B-2) may be installed at the entrance to a shared-use path.
02 The Bike Path Exclusion (R44A(CA)) sign may be used to identify a bike path and prohibit motor vehicles and motorized bicycles from entering the bike path. If motorized bicycles are permitted, the "Motorized Bicycles" portion may be replaced with "Motorized Bicycles Permitted".

Support:
03 The R44A(CA) sign is shown in Figure 9B-2(CA).

Section 9B.09 Selective Exclusion Signs

Option:
01 Selective Exclusion signs (see Figure 9B-2) may be installed at the entrance to a roadway or facility to notify road or facility users that designated types of traffic are excluded from using the roadway or facility.

Standard:
02 If used, Selective Exclusion signs shall clearly indicate the type of traffic that is excluded.

Support:
03 Typical exclusion messages include:
   A. No Bicycles (R5-6),
   B. No Pedestrians (R9-3),
   C. No Skaters (R9-13), and
   D. No Equestrians (R9-14).

Option:
04 Where bicyclists, pedestrians, and motor-driven cycles are all prohibited, it may be more desirable to use the R5-10a word message sign that is described in Section 2B.39.

Section 9B.10 No Parking Bike Lane Signs (R7-9, R7-9a)

Standard:
01 If the installation of signs is necessary to restrict parking, standing, or stopping in a bicycle lane, appropriate signs as described in Sections 2B.46 through 2B.48, or the No Parking Bike Lane (R7-9 or R7-9a) signs (see Figure 9B-2) shall be installed.

Section 9B.11 Bicycle Regulatory Signs (R9-5, R9-6, R10-4, R10-24, R10-25, and R10-26)

Option:
01 The R9-5 sign (see Figure 9B-2) may be used where the crossing of a street by bicyclists is controlled by pedestrian signal indications.
02 Where it is not intended for bicyclists to be controlled by pedestrian signal indications, the R10-4, R10-24, or R10-26 sign (see Figure 9B-2 and Section 2B.52) may be used.

Guidance:
03 If used, the R9-5, R10-4, R10-24, or R10-26 signs should be installed near the edge of the sidewalk in the vicinity of where bicyclists will be crossing the street.
Option:

04 If bicyclists are crossing a roadway where In-Roadway Warning Lights (see Section 4N.02) or other warning lights or beacons have been provided, the R10-25 sign (see Figure 9B-2) may be used.

05 The R9-6 sign (see Figure 9B-2) may be used where a bicyclist is required to cross or share a facility used by pedestrians and is required to yield to the pedestrians.

Section 9B.12 Shared-Use Path Restriction Sign (R9-7)

Option:

01 The Shared-Use Path Restriction (R9-7) sign (see Figure 9B-2) may be installed to supplement a solid white pavement marking line (see Section 9C.03) on facilities that are to be shared by pedestrians and bicyclists in order to provide a separate designated pavement area for each mode of travel. The symbols may be switched as appropriate.

01a The Shared-Use Path Restriction (R9-7) sign may be used for locations with sidewalk level separated bikeways to further communicate the appropriate use of each space. The symbols may be switched as appropriate.

Guidance:

02 If two-way operation is permitted on the facility for pedestrians and/or bicyclists, the designated pavement area that is provided for each two-way mode of travel should be wide enough to accommodate both directions of travel for that mode.

Section 9B.13 Bicycle Signal Actuation Sign (R10-22)

Option:

01 The Bicycle Signal Actuation (R10-22) sign (see Figure 9B-2) may be installed at signalized intersections where markings are used to indicate the location where a bicyclist is to be positioned to actuate the signal (see Section 9C.05).

Guidance:

02 If the Bicycle Signal Actuation sign is installed, it should be placed at the roadside adjacent to the marking to emphasize the connection between the marking and the sign.

Section 9B.14 Other Regulatory Signs

Option:

01 Other regulatory signs described in Chapter 2B may be installed on bicycle facilities as appropriate.

Section 9B.15 Turn or Curve Warning Signs (W1 Series)

Guidance:

01 To warn bicyclists of unexpected changes in shared-use path direction, appropriate turn or curve (W1-1 through W1-7) signs (see Figure 9B-3) should be used.

02 The W1-1 through W1-5 signs should be installed at least 50 feet in advance of the beginning of the change of alignment.

Section 9B.16 Intersection Warning Signs (W2 Series)

Option:

01 Intersection Warning (W2-1 through W2-5) signs (see Figure 9B-3) may be used on a roadway, street, or shared-use path in advance of an intersection to indicate the presence of an intersection and the possibility of turning or entering traffic.

Guidance:

02 When engineering judgment determines that the visibility of the intersection is limited on the shared-use path approach, Intersection Warning signs should be used.

03 Intersection Warning signs should not be used where the shared-use path approach to the intersection is controlled by a STOP sign, a YIELD sign, or a traffic control signal.

Section 9B.17 Bicycle Surface Condition Warning Sign (W8-10)

Option:

01 The Bicycle Surface Condition Warning (W8-10) sign (see Figure 9B-3) may be installed where roadway or shared-use path conditions could cause a bicyclist to lose control of the bicycle.
CHAPTER 9C. MARKINGS

Section 9C.01 Functions of Markings

Support:

01 Markings indicate the separation of the lanes for road users, assist the bicyclist by indicating assigned travel paths, indicate correct position for traffic control signal actuation, and provide advance information for turning and crossing maneuvers.

Section 9C.02 General Principles

Guidance:

01 Bikeway design guides (see Section 9A.05) should be used when designing markings for bicycle facilities.

Standard:

02 Markings used on bikeways shall be retroreflectorized.

02a On State highways, markings material shall conform to Sections 84-2.02 and 84-3.02 of the Standard Specifications published by Caltrans.

Guidance:

03 Pavement marking word messages, symbols, and/or arrows should be used in bikeways where appropriate. Consideration should be given to selecting pavement marking materials that will minimize loss of traction for bicycles under wet conditions.

Standard:

04 The colors, width of lines, patterns of lines, symbols, and arrows used for marking bicycle facilities shall be as defined in Sections 3A.05, 3A.06, and 3B.20.

Support:

05 Figures 9B-7 and 9C-1 through 9C-9 show examples of the application of lines, word messages, symbols, and arrows on designated bikeways.

Option:

06 A dotted line may be used to define a specific path for a bicyclist crossing an intersection (see Figure 9C-1) as described in Sections 3A.06 and 3B.08.

Section 9C.03 Marking Patterns and Colors on Shared-Use Paths

Option:

01 Where shared-use paths are of sufficient width to designate two minimum width lanes, a solid yellow line may be used to separate the two directions of travel where passing is not permitted, and a broken yellow line may be used where passing is permitted (see Figure 9C-2).

Guidance:

02 Broken lines used on shared-use paths should have the usual 1-to-3 segment-to-gap ratio. A nominal 3-foot segment with a 9-foot gap should be used.

03 If conditions make it desirable to separate two directions of travel on shared-use paths at particular locations, a solid yellow line should be used to indicate no passing and no traveling to the left of the line.

04 Markings as shown in Figure 9C-2 9C-8 should be used at the location of obstructions in the center of the path, including vertical elements intended to physically prevent unauthorized motor vehicles from entering the path.

Support:

05 A centerline marking is particularly beneficial in the following circumstances:
   A. Where there is heavy use;
   B. On curves with restricted sight distance; and,
   C. Where the path is unlighted and nighttime riding is expected.

Option:

05 A solid white line may be used on shared-use paths to separate different types of users. The R9-7 sign (see Section 9B.12) may be used to supplement the solid white line.
05a A solid white line may be used to delineate the traveled way of the bike path from the shoulder if the shoulder is paved with the same material as the bike path.

Support:
05b Refer to Caltrans’ Highway Design Manual Index 1003.1.

06 Smaller size letters and symbols may be used on shared-use paths. Where arrows are needed on shared-use paths, half-size layouts of the arrows may be used (see Section 3B.20).

Section 9C.04 Markings For Bicycle Lanes

Support:
01 Pavement markings designate that portion of the roadway for preferential use by bicyclists. Markings inform all road users of the restricted nature of the bicycle lane.

Standard:
02 Longitudinal pavement markings shall be used to define bicycle lanes.

Guidance:
03 If used, bicycle lane word, symbol, and/or arrow markings (see Figure 9C-3) should be placed at the beginning of a bicycle lane and at periodic intervals along the bicycle lane based on engineering judgment.

Standard:
04 If the bicycle lane symbol marking is used in conjunction with word or arrow messages, it shall precede them.

Option:
05 If the word, symbol, and/or arrow pavement markings shown in Figure 9C-3 are used, Bike Lane signs (see Section 9B.04) may also be used, but to avoid overuse of the signs not necessarily adjacent to every set of pavement markings.

Bicycle Lane Treatment at Intersections

Option:
05a When a bike lane approaches an intersection with right- or left-turn only lanes, Figures 9C-1, 9C-4, 9C-4(CA) or 9C-5 may be used.

Standard:
06 A through bicycle lane shall not be positioned to the right of a right turn only lane or to the left of a left turn only lane.

Support:
07 A bicyclist continuing straight through an intersection from the right of a right-turn lane or from the left of a left-turn lane would be inconsistent with normal traffic behavior and would violate the expectations of right- or left-turning motorists.

Guidance:
08 When the right through lane is dropped to become a right turn only lane, the bicycle lane markings should stop at least 100 feet before the beginning of the right-turn lane. Through bicycle lane markings should resume to the left of the right turn only lane.

09 An optional through-right turn lane next to a right turn only lane should not be used where there is a through bicycle lane. If a capacity analysis indicates the need for an optional through-right turn lane, the bicycle lane should be discontinued at the intersection approach.

09a A dashed line across the right-turn-only lane should not be used on extremely long lanes, or where there are double right-turn-only lanes. For these types of intersections, all striping should be dropped to permit judgment by the bicyclists to prevail.

Option:
09b A Bicycle Crossing (W11-1) sign may be used to warn road users of the potential for bicyclists crossing their path. See Section 9B.18.

09c When a bike lane approaches ramp intersection that intersects the local facility at or close to 90° (typical of a compact or spread diamond configuration), then Figures 9C-4, 9C-4(CA) and 9C-5 may be used.

Guidance:
09d However, when a bike lane approaches one or more ramp intersections that intersect the local facility at various angles other than 90° (typically high-speed, skewed ramps), Figure 9C-103(CA) should be used.
09e  At locations with right-turn-only lanes where bicycles are not prohibited but Class II bicycle facilities do not exist on the
approach, a minimum 4-foot wide space for bicycle use may be provided between the right-turn and through lane, and where
the posted speed is greater than 40 mph the minimum width should be 6 feet.
09f  When the width between the right-turn and through lane is greater than 4-feet, a buffer area may be striped adjacent to
the 4’ minimum width for bicycle travel, regardless of the posted speed.
09g  The buffer may be placed on the left or on the right of the 4’ space for bicycle travel.

Support:
09h  Refer to Caltrans’ Highway Design Manual, Index 403.6.

Standard:
09i  If used, the space for bicycle use shall be delineated by Detail 39 on the right of the through lane and Detail 38A
on the left of the right-turn-only lane.

Support:
09j  Refer to Figure 9C-4(CA) for details on striping and Figure 9C-104 (CA) for details on buffer area striping.

Guidance:
10  Posts or raised pavement markers should not be used to separate bicycle lanes from adjacent travel lanes.

Support:
11  Using raised devices creates a collision potential for bicyclists by placing fixed objects immediately adjacent
to the travel path of the bicyclist. In addition, raised devices can prevent vehicles turning right from merging with
the bicycle lane, which is the preferred method for making the right turn. Raised devices used to define a bicycle
lane can also cause problems in cleaning and maintaining the bicycle lane.

Option:
11a  A bicycle lane for travel in the same direction as the general purpose lanes may be placed on the left hand side of the
general purpose lanes.

Standard:
12  Bicycle lanes shall not be provided on the circular roadway of a roundabout.

Guidance:
13  Bicycle lane markings should stop at least 100 feet before the crosswalk, or if no crosswalk is provided, at
least 100 feet before the yield line, or if no yield line is provided, then at least 100 feet before the edge of the
circulatory roadway.

Support:
14  Examples of bicycle lane markings at right-turn lanes are shown in Figures 9C-1, 9C-4, and 9C-5. Examples
of pavement markings for bicycle lanes on a two-way street are shown in Figure 9C-6. Pavement word message,
symbol, and arrow markings for bicycle lanes are shown in Figure 9C-3.
15  Class III Bikeways (Bike Route) are shared routes and do not require pavement markings. In some instances, a 4 inch
white edge stripe separating the traffic lanes from the shoulder can be helpful in providing for safer shared use. This practice
is particularly applicable on rural highways and on major arterials in urban areas where there is no vehicle parking.

Option:
16  The Bike Lane Intersection (Detail 39A) line as shown in Figure 9C-101(CA) may be used to extend the bike lane to or
through an intersection.
again on the far side. Where there is no right turn only lane and right turns are permitted, the solid stripe should terminate 50 feet to 200 feet prior to the intersection.

Option:
20 A dashed line, as shown in Figure 9C-102(CA), may be carried to, or near, the intersection. Where city blocks are short (less than 400 feet), the length of dashed stripe may be 50 feet.

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

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

Support:
23 Raised barriers prevent motorists from merging into bike lanes before making right turns, as required by the CVC, and restrict the movement of bicyclists desiring to enter or exit bike lanes.
24 They also impede routine maintenance. Raised pavement markers increase the difficulty for bicyclists when entering or exiting bike lanes, and discourage motorists from merging into bike lanes before making right turns.

Option:
25 Physical barriers may be used to convert a Class II Bikeway (Bike Lane) to Class I Bikeway (Bike Path) or Class IV Bikeway (Separated Bikeway).

Bicycle Lane Treatment through Interchanges

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

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

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

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

Standard:
30 The shoulder width shall not be reduced through the interchange area. The minimum shoulder width shall match the approach roadway shoulder width, but not less than 4 feet, or with not less than 3 feet of pavement if a gutter exists. If the shoulder width is not available, the designated bike lane shall end at the previous local road intersection.

Bicycle Lane Treatment Where Vehicle Parking is Prohibited/Permitted

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

Standard:
32 Where motorist right turns are permitted, the solid bike lane shall either be dropped entirely, or dashed (Refer Bike Intersection lane, Detail 39A, shown in Figure 9C-101(CA)) beginning at a point between 50 feet and 200 feet in advance of the intersection.

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

BIKE LANE Pavement Markings

Standard:
34 The BIKE LANE pavement markings shall be placed on the far side of each intersection.

Option:
35 The BIKE LANE pavement markings may also be placed at other locations as desired.

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

Option:

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

**Buffered Bicycle Lanes**

**Support:**

38 A buffered bicycle lane is a bicycle lane that is separated from the adjacent general-purpose lane or parking lane by a pattern of standard longitudinal markings. The buffer area might include chevron or diagonal markings. The buffer area width includes the width of the parallel white lines.

39 Markings for buffered bicycle lanes are shown in Figure 9C-104(CA).

40 Pavement markings can designate a buffer area between a bicycle lane and adjacent general purpose lane and/or parking lane. A buffer area provides a greater separation between the bicycle lane and adjacent lanes than is provided by a single normal or wide lane line.

Option:

41 A bicycle lane buffer area may be used to separate a bicycle lane from an adjacent general-purpose lane and/or parking lane.

**Standard:**

42 If used, a buffer area between a bicycle lane and general-purpose lane or parking lane shall be delineated by normal white longitudinal pavement markings.

**Guidance:**

43 The use of chevron or diagonal markings should be considered in a bicycle lane buffer area and should be based on Section 3B.24 and engineering judgment.

44 If used, interior chevron or diagonal markings should consist of 4 inch lines angled at 45 degrees and striped at intervals of 10 to 40 feet.

Support:

45 Increased interior chevron or diagonal marking frequency can increase motorist compliance.

Option:

46 The chevron or diagonal markings may be omitted from bicycle lane buffer areas less than 4 feet wide.

Guidance:

47 If used and where there is parking on the right side of the buffered bicycle lane, the rightmost line should be broken. Where vehicles are expected to cross the buffer area at driveways, both lines should be broken. Where neither condition exists, both lines should be solid.

48 End the buffer area on the approach to the intersection of side streets or major commercial driveways as shown in Figure 9C-104(CA).

**Contraflow Bicycle Lanes**

**Support:**

49 A contraflow bicycle lane is an area of the roadway designated to allow for the lawful use by bicyclists to travel in the opposite direction from traffic on a roadway that allows traffic to travel in only one direction.

50 Markings for contraflow bicycle lanes are shown in Figure 9C-105(CA).

**Standard:**

51 Where used, a contraflow bicycle lane shall be marked on the left side of travel lanes so that contraflow bicycle travel is on the left of opposing traffic.

52 Where used, a contraflow bicycle lane shall be separated from opposite-direction travel by use of a solid double yellow center line marking, a painted median island, or raised median island.

53 Where intersection traffic controls along the street exist, (e.g., stop signs, flashing light signals, or traffic signals), appropriate devices shall be oriented toward bicyclists in the contraflow lane.

54 A contraflow bicycle lane shall not be installed on a two-way roadway.

**Guidance:**

55 A buffer area per Section 3B.24 or an island should be used to separate the contraflow lane from adjacent travel lanes at posted speeds of 40 mph and above.

Guidance:

56 Where signs are provided to regulate turns from streets or driveways that intersect with a roadway that has a contraflow bicycle lane, One Way (R6-1 or R6-2) signs should not be used. Turn Prohibition signs (R3-1 or R3-2) with supplemental...
EXCEPT Bicycle plaques (R118(CA)) should be used. If DO NOT ENTER signs (R5-1) are used, an EXCEPT Bicycle plaque (R118(CA)) should be placed under the DO NOT ENTER sign. See Figure 9C-105(CA).

Support:

57 Contraflow bicycle travel can be unexpected by motorists crossing the contraflow bicycle lane when entering, exiting, or crossing the roadway. Consideration of additional signalization, signing and/or marking treatments is appropriate for intersections, alleys, grade crossings, and driveways.

Option:

58 At locations where a contraflow bicycle lane is provided across an intersection or a driveway entrance, pavement markings that inform intersection or driveway traffic of the presence of the bicycle facility and the direction of permitted bicycle traffic may be placed within the contraflow bicycle lane across the intersection or driveway opening.

Bicycle Lane Line Extensions through Intersections

Support:

59 The extension of bicycle lanes through intersections advises motorists that bicyclists are likely to use the intended path.

Option:

60 Bicycle lane markings may be extended through intersections consistent with the provisions of Section 3B.08.

61 Bicycle lane markings as shown in Figure 9C-106(CA) may be used within the boundaries of bicycle lane extensions.

Section 9C.05 Bicycle Detector Symbol

Option:

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

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

Support:

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

Section 9C.06 Pavement Markings for Obstructions

Guidance:

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

Section 9C.07 Shared Lane Marking

Option:

01 The Shared Lane Marking shown in Figure 9C-9 may be used to:

A. Assist bicyclists with lateral positioning in a shared lane with on-street parallel parking in order to reduce the chance of a bicyclist’s impacting the open door of a parked vehicle,

B. Assist bicyclists with lateral positioning in lanes that are too narrow for a motor vehicle and a bicycle to travel side by side within the same traffic lane,

C. Alert road users of the lateral location bicyclists are likely to occupy within the traveled way,

D. Encourage safe passing of bicyclists by motorists, and

E. Reduce the incidence of wrong-way bicycling.

F. Assist bicyclists with lateral positioning within a traffic circle or roundabout (See Figure 9C.107),

G. Supplement a signed bicycle route that is identified as a Class III bicycle facility, and

H. Encourage the lateral positioning of bicyclists away from on-street angled parking.

Guidance:

02 Except as provided in Paragraph 02a, the Shared Lane Marking should not be placed on roadways that have a speed limit above 35 mph.

Option:

02a The Shared Lane Marking may be placed on roadways that have a speed limit above 35 mph, where there is bicycle travel and there is no marked bicycle lane and the right-hand traffic lane is too narrow to allow motor vehicles to safely pass bicyclists.
Support:
02 Support on roadways that have a speed limit above 35 mph, a Class II bikeway or Class IV bikeway is more appropriate to facilitate bicycle travel.

Standard:
03 Shared Lane Markings shall not be used on shoulders, separated bikeways or in designated bicycle lanes.

Lateral Positioning
Support:
03 The effective lane width as used in this section indicates the width of the pavement available after subtracting the width of the parked vehicle and door zone from the distance of the lane line/centerline to the face of the curb/edge of the pavement.

Guidance:
04 If used in a shared lane with on-street parallel parking, if the effective lane width is 14 feet or greater, Shared Lane Markings should be placed so that the centers of the markings are at least 11 feet from the face of the curb, or from the edge of the pavement where there is no curb. If the effective lane width is less than 14 feet, the marking should be centered within the effective lane width. See Figure 9C-108(CA).

05 If used on a street without on-street parking that has an outside travel lane that is less than 14 feet wide, the centers of the Shared Lane Markings should be centered in the travel lane. If used on a street without on-street parking that has an outside travel lane whose width is 14 feet or greater, the shared lane markings should be centered at least 4 feet from the face of the curb, or from the edge of the pavement where there is no curb.

Support:
05a When a shared lane is sufficiently wide that motor vehicles can pass bicyclists within the lane, the purpose of the Shared Lane Marking is to indicate a bicyclist line of travel that facilitates passing while avoiding fixed obstructions (e.g. drainage inlet, gutter joint). When a shared lane is not wide enough to enable passing with adequate clearance, the purpose of the marking is to indicate a bicyclist line of travel that deters passing within the lane.

Spacing
06 If used, the Shared Lane Marking should be placed immediately after an intersection and spaced at intervals not greater than 250 feet thereafter.

Option:
06a Closer spacing between Shared Lane Markings may be considered approaching, traversing, and departing intersections, where there is higher potential for conflicts between motorists and bicyclists. See Figure 9C-109(CA).

06b Closer spacing between Shared Lane Markings may be considered where there are sight distance constraints, for example, approaching the crest of a vertical curve.

06c Closer spacing between Shared Lane Markings may be considered to guide bicyclists when deviating from a straight line of travel (e.g. merging, angled railroad crossing).

Option:
07 Section 9B.06 describes a Bicycles May Use Full Lane sign that may be used in addition to or instead of the Shared Lane Marking to inform road users that bicyclists might occupy the travel lane.

Section 9C.101(CA) Barrier Posts on Class I Bikeways
Support:
01 Before a decision is made to install barrier posts, consideration needs to be given to the implementation of other remedial measures, such as Bike Path Exclusion (R44A(CA)) signs (see Section 9B.08) and/or redesigning the path entry so that motorists do not confuse it with vehicle access.

02 It could be necessary to install barrier posts at entrances to bike paths to prevent motor vehicles from entering. When locating such installations, care needs to be taken to assure that barriers are well marked and visible to bicyclists, day or night (i.e., install reflectors or reflectorized tape).
Guidance:
03 An envelope around the barriers should be striped as shown in Figure 9C-8. If sight distance is limited, special advance warning signs or painted pavement warnings should be provided. Where more than one post is necessary, 5 foot spacing should be used to permit passage of bicycle-towed trailers, adult tricycles, and to assure adequate room for safe bicycle passage without dismounting. Barrier post installations should be designed so they are removable to permit entrance by emergency and service vehicles.

Support:
04 Generally, barrier configurations that preclude entry by motorcycles present safety and convenience problems for bicyclists.

Guidance:
05 Such devices should be used only where extreme problems are encountered.

Section 9C.102 (CA) Class IV Bikeways

Support:
01 Refer to FHWA “Separated Bike Lane Planning and Design Guide” for detailed information on planning and design of separated bike lanes.

Option:
02 Separated bikeways may be delineated for one-way or two-way operation by using traffic control devices.

Standard:
03 Vertical elements shall be used to define separated bikeways.

Support:
04 Vertical elements in the buffer area are critical to separated bikeway design. Forms of vertical separation include, but are not limited to, grade separation, flexible delineator posts, inflexible physical barriers, or on-street parking. See Figure 9C-110(CA). See DIB 89 for more information.

Standard:
05 Where separated bikeways are designed for two-way travel, a solid yellow line shall be used to separate the two directions of travel where passing is not permitted. A broken yellow line shall be used where passing is permitted (Refer to Figure 9C-110(CA). See Section 9C.03 for marking patterns.

Option
06 A through separated bikeway may be positioned to the right of a right turn only lane or to the left of a left turn only lane, if bicycle signals are used. See Section 4D.104 for optional use of Bicycle Signal Faces.

Standard:
07 The Bike Symbol pavement markings or Helmeted Bicyclist Symbol (Figure 9C-3 Option A or Option B) shall be placed on the far side of each intersection.

Option:
08 The DO NOT ENTER (R5-1) sign with the supplemental EXCEPT Bicycle plaque (R118 (CA)) may be used on separated bikeways to reduce the likelihood of accidental entrance by motor vehicles.

Buffer
Standard:
09 If used, the buffer area between the separated bikeway and general-purpose lane and parking lane (if present) shall be delineated.

10 The buffer area shall be delineated by longitudinal pavement markings. See Section 9C.04 for buffer striping details.

Support:
11 The buffer area width includes the width of the parallel lines.
12 See DIB 89 for buffer area width requirements.

Unobstructed passage
Standard
13 If accessible parking or loading zones are provided on a roadway alongside a separated bikeway, then unobstructed access shall be maintained.
Figure 9C-1. Example of Intersection Pavement Markings—Designated Bicycle Lane with Left-Turn Area, Heavy Turn Volumes, Parking, One-Way Traffic, or Divided Highway
Figure 9C-2. Examples of Center Line Markings for Shared-Use Paths

A - Passing permitted

B - Passing NOT permitted
Figure 9C-3. Word, Symbol, and Arrow Pavement Markings for Bicycle Lanes

Legend

* Optional
** Required on far side of each intersection, optional at other locations
Figure 9C-4. Example of Bicycle Lane Treatment at a Right Turn Only Lane

Dotted lines (optional)

R4-4 at upstream end of right turn only lane taper
Figure 9C-4 (CA). Example of Bicycle Lane Treatment at a Right Turn Only Lane (Sheet 1 of 3)

a - Optional Through-Right and Right-Turn-Only Lanes

b - Right Lane Becomes Right-Turn-Only Lane

* 4 ft minimum width.
6 ft minimum width for posted speed greater than 40 mph

LEGEND

- Direction of Travel
- NOT TO SCALE

Minimum 100 ft
Detail 37B or 37C

RIGHT LANE MUST TURN RIGHT

R3-7R

RIGHT LANE TURNS RIGHT AHEAD

W73A (CA)

THRU TRAFFIC MERGE LEFT

W74 (CA)

Revised March 9, 2018

Chapter 9C – Markings
Part 9 – Traffic Control for Bicycle Facilities
**Figure 9C-4 (CA). Example of Bicycle Lane Treatment at a Right Turn Only Lane, Posted Speed > 40 mph (Sheet 2 of 3)**

- **a - Right-Turn-Only Lane**
  - Detail 38A
  - R3-7R
  - R81(CA)
  - W73A (CA)
  - W74 (CA)
  - R81A(CA)
  - **4 ft minimum width**
  - **2 ft (minimum 18 in) buffer area may be striped on the left or on the right within the space for bicycle use**
  - \( d \) = Advance Placement Distance (See Section 2C.05)

- **b - Right Lane Becomes Right-Turn-Only Lane**
  - Detail 38A
  - R3-7R
  - R81(CA)
  - R81A(CA)
  - **4 ft minimum width**
  - **2 ft (minimum 18 in) buffer area may be striped on the left or on the right within the space for bicycle use**
  - \( d \) = Advance Placement Distance (See Section 2C.05)

**LEGEND**

- Arrow: Direction of Travel
- **NOT TO SCALE**
Figure 9C-4 (CA). Example of Bicycle Lane Treatment at a Right Turn Only Lane, Posted Speed ≤ 40 mph (Sheet 3 of 3)

a - Right Turn Only Lane

b - Right Lane Becomes Right Turn Only Lane

* 4 ft minimum width

\[ d = \text{Advance Placement Distance (See Section 2C.05)} \]

**LEGEND**

- Direction of Travel
- NOT TO SCALE
Figure 9C-5. Example of Bicycle Lane Treatment at Parking Lane into a Right Turn Only Lane

- **Dotted lines (optional)**
- **R3-7R** Right Lane Must Turn Right
- **R4-4** at upstream end of right turn only lane
- **Begin Right Turn Lane**
- **Yield to Bikes**
Figure 9C-6. Example of Pavement Markings for Bicycle Lanes on a Two-Way Street

Example of application where parking is prohibited

Normal width solid white line

Example of application where parking is permitted

Normal width solid white line (optional)

Signalized intersection

50 to 200 feet of dotted line

Detail 39A

Dotted line for bus stops immediately beyond the intersection is optional; otherwise use normal width solid white line

Detail 39

50 to 200 feet of dotted line

Detail 39A

6-foot line, 6-foot space

FHWA’s MUTCD 2009 Edition, including Revisions 1 & 2, as amended for use in California

Chapter 9C – Markings
Part 9 – Traffic Control for Bicycle Facilities

November 7, 2014
Figure 9C-7. Bicycle Detector Pavement Marking
Figure 9C-8. Examples of Obstruction Pavement Markings

A - Obstruction within the path

B - Obstruction at edge of path or roadway

L = WS, where W is the offset in feet and S is bicycle approach speed in mph

★ Provide an additional foot of offset for a raised obstruction and use the formula

L = (W+1) S for the taper length

Figure 9C-9. Shared Lane Marking
**Figure 9C-101 (CA). Marking Details for Bicycle Lanes**

**DETAIL 39 - Bike Lane Line**

- 6 in White Line

**DETAIL 39A - Bike Lane Intersection Line**

- 50 ft to 200 ft
- Intersection
- 6 in White Line

NOT TO SCALE
Figure 9C-102 (CA). Examples of Bicycle Lane Treatment Where Vehicle Parking is Prohibited/Permitted

WHERE VEHICLE PARKING IS PROHIBITED

- Centerline or Lane Line
- 50 ft to 200 ft
- See Figure 9C-101 (CA)
- Detail 39
- Detail 39A
- Curb or Edge of Pavement
- 4 ft Minimum Without Gutter
- 5 ft Minimum With Gutter
- R26 (CA)
- R81 (CA)
- NO PARKING ANY TIME

WHERE VEHICLE PARKING IS PERMITTED

- 50 ft to 200 ft
- See Figure 9C-101 (CA)
- Centerline or Lane Line
- See Note
- Detail 39
- Detail 39A
- Curb or Edge of Pavement
- 4 in White Markings (Optional)
- WITHOUT MARKED PARKING STALLS
- WITH MARKED PARKING STALLS
- R81 (CA)
- R81(CA) & M6-1
- 4 in White Markings

NOTE:
- 11 ft Minimum for Rolled Curb
- 12 ft Minimum for Vertical Curb

NOT TO SCALE
**Figure 9C-104(CA). Examples of Markings for Buffered Bicycle Lanes Where Vehicle Parking is Prohibited/Permitted (Sheet 1 of 2)**

**BUFFER BETWEEN BICYCLE LANE AND GENERAL PURPOSE LANE WHERE VEHICLE PARKING IS PROHIBITED**

- Centerline or Lane Line
- See Note
- 6 in Solid White Line
- 6 in Solid White Line
- White chevron or diagonal markings should be used if buffer area is 4 feet or wider. See Note.
- Detail 39A
- Curb or Edge of Pavement
- 4 in White Markings (Optional)

**BUFFER BETWEEN BICYCLE LANE AND GENERAL PURPOSE LANE WHERE VEHICLE PARKING IS PERMITTED**

- Centerline or Lane Line
- See Note
- 6 in Solid White Line
- 6 in Dotted White Line
- White chevron or diagonal markings should be used if buffer area is 4 feet or wider. See Note.
- R81 (CA) & M6-1
- Curb or Edge of Pavement
- 4 in White Markings

**WITHOUT MARKED PARKING STALLS**

**WITH MARKED PARKING STALLS**

**Note:** 18 in Minimum for Buffered Area Width. The Buffer Area Width includes the width of the parallel White Lines

---

Chapter 9C – Markings
Part 9 – Traffic Control for Bicycle Facilities

November 7, 2014
Figure 9C-104(CA). Examples of Markings for Buffered Bicycle Lanes Where Vehicle Parking is Prohibited/Permitted (Sheet 2 of 2)

BUFFER BETWEEN BICYCLE LANE AND PARKING LANE

CENTERLINE OR LANE LINE

DETAIL 39

6 IN DOTTED WHITE LINE

5 FT MINIMUM

4 IN WHITE MARKINGS

WHITE DIAGONAL MARKINGS SHOULD BE USED IF BUFFER AREA IS 4 FEET OR WIDER. SEE NOTE.

WITH PARKING STALLS

NOT TO SCALE

Note: 18 in Minimum for Buffered Area Width. The Buffer Area Width includes the width of the parallel White Lines.
Figure 9C-105 (CA). Example of Contraflow Bicycle Lanes

R118(CA)  
R3-1  
R3-2  
R5-1  
R118(CA)  
DO NOT ENTER  
EXCEPT  
EXCEPT  
Optional Dotted Yellow Line  
4 in Solid Double Yellow Line

R118(CA)  
R3-1  
R3-2  
R118(CA)
Figure 9C-106(CA). Examples of Bicycle Lane Extensions Through an Intersection

Example of application where parking is prohibited

Detail 39

Detail 39A

Dotted white line

Example of application where parking is permitted

Normal width solid white line (optional)

R7 series sign (as appropriate)

NOT TO SCALE
Figure 9C-107 (CA). Example of Marking for a One-Lane Roundabout with Shared Lane Markings and Bicycle Lanes

Legend
* Optional

Notes:
1. See Section 9C.04 Markings For Bicycle Lanes which includes guidance on buffered bicycle lanes.
2. Bicycle facility markings not to scale.
Figure 9C-108 (CA). Example of Placement of Shared Lane Markings

**SHARED LANE MARKING WHEN EFFECTIVE LANE WIDTH ≥ 14’**

- Effective lane width ≥ 14’
- Lateral reference point (e.g., edge of pavement, curb or edge line located within 1’ of the curb)
- Placement of Shared Lane Marking

**NOT TO SCALE**

**SHARED LANE MARKING WHEN EFFECTIVE LANE WIDTH < 14’**

- Effective lane width < 14’
- Lateral reference point (e.g., edge of pavement, curb or edge line located within 1’ of the curb)
- Placement of Shared Lane Marking

**NOT TO SCALE**
Figure 9C-109 (CA). Example of Shared Lane Marking While Approaching an Intersection

* 4 ft minimum width, 6 ft minimum width for posted speed greater than 40 mph.
** The shared lane markings are appropriate to assist bicyclists with positioning, with or without a bicycle lane at the intersection. More than one shared lane marking may be placed.

\[ d = \text{Advance Placement Distance (See Section 2C.06)} \]

**LEGEND**

- **Direction of Travel**
- **NOT TO SCALE**
NOT TO SCALE

NOTES:

1. See Figure 3B-21(CA) for examples of parking space markings.

2. Vertical elements in the buffer are an important separation feature of the Separated Bikeway. These may include grade separation, flexible posts, inflexible physical barriers, or on-street parking. See DIB 89 for more information.

3. See DIB 89 for separated bikeway width and buffer width.
Figure 9C-110 (CA). Examples of Markings for Separated Bikeways (Sheet 2 of 2)

Two-Way Separated Bikeway With On-Street Parking

Curb or Edge of Pavement

Lane Line

Two-Way Separated Bikeway with Buffer and marked parking stalls (See Note 1)

6 in Solid White

See Note 3

White diagonal markings should be used if buffer area is 4 ft or wider

NOT TO SCALE

NOTES:

1. See Figure 3B-21(CA) for examples of parking space markings.

2. Vertical elements in the buffer are an important separation feature of the Separated Bikeway. These may include grade separation, flexible posts, inflexible physical barriers, or on-street parking. See DIB 89 for more information.

3. See DIB 89 for separated bikeway width and buffer width.
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.
Appendices
APPENDIX A1
CONGRESSIONAL LEGISLATION

PUBLIC LAW 102-240-DEC. 18, 1991 (INTERMODAL SURFACE TRANSPORTATION EFFICIENCY ACT OF 1991)
Section 1077, REVISION OF MANUAL — Not later than 90 days after the date of the enactment of this Act, the Secretary shall revise the Manual of Uniform Traffic Control Devices and such other regulations and agreements of the Federal Highway Administration as may be necessary to authorize States and local governments, at their discretion, to install stop or yield signs at any rail-highway grade crossing without automatic traffic control devices with 2 or more trains operating across the rail-highway grade crossing per day.

PUBLIC LAW 102-388-OCT. 6, 1992 (DEPARTMENT OF TRANSPORTATION AND RELATED AGENCIES APPROPRIATIONS ACT, 1993)
Section 406 — The Secretary of Transportation shall revise the Manual of Uniform Traffic Control Devices to include —
(a) a standard for a minimum level of retroreflectivity that must be maintained for pavement markings and signs, which shall apply to all roads open to public travel; and
(b) a standard to define the roads that must have a centerline or edge lines or both, provided that in setting such standard the Secretary shall consider the functional classification of roads, traffic volumes, and the number and width of lanes.

PUBLIC LAW 104-59-NOV. 28, 1995 (NATIONAL HIGHWAY SYSTEM DESIGNATION ACT OF 1995)
Section 205. RELIEF FROM MANDATES —
(c) METRIC REQUIREMENTS —
(1) PLACEMENT AND MODIFICATION OF SIGNS — The Secretary shall not require the States to expend any Federal or State funds to construct, erect, or otherwise place or to modify any sign relating to a speed limit, distance, or other measurement on a highway for the purpose of having such sign establish such speed limit, distance, or other measurement using the metric system.
(2) OTHER ACTIONS — Before September 30, 2000, the Secretary shall not require that any State use or plan to use the metric system with respect to designing or advertising, or preparing plans, specifications, estimates, or other documents, for a Federal-aid highway project eligible for assistance under title 23, United States Code.
(3) DEFINITIONS — In this subsection, the following definitions apply:
(A) HIGHWAY — The term ‘highway’ has the meaning such term has under section 101 of title 23, United States Code.
(B) METRIC SYSTEM — the term ‘metric system’ has the meaning the term ‘metric system of measurement’ has under section 4 of the Metric Conversion Act of 1975 (15 U.S.C. 205c).

Section 306. MOTORIST CALL BOXES — Section 111 of title 23, United States Code, is amended by adding at the end the following:
(c) MOTORIST CALL BOXES —
(1) IN GENERAL — Notwithstanding subsection (a), a State may permit the placement of motorist call boxes on rights-of-way of the National Highway System. Such motorist call boxes may include the identification and sponsorship logos of such call boxes.
(2) SPONSORSHIP LOGOS —
(A) APPROVAL BY STATE AND LOCAL AGENCIES — All call box installations displaying sponsorship logos under this subsection shall be approved by the highway agencies having jurisdiction of the highway on which they are located.
(B) SIZE ON BOX — A sponsorship logo may be placed on the call box in a dimension not to exceed the size of the call box or a total dimension in excess of 12 inches by 18 inches.
(C) SIZE ON IDENTIFICATION SIGN — Sponsorship logos in a dimension not to exceed 12 inches by 30 inches may be displayed on a call box identification sign affixed to the call box post.
(D) SPACING OF SIGNS — Sponsorship logos affixed to an identification sign on a call box post may be located on the rights-of-way at intervals not more frequently than 1 per every 5 miles.
(E) DISTRIBUTION THROUGHOUT STATE — Within a State, at least 20 percent of the call boxes displaying sponsorship logos shall be located on highways outside of urbanized areas with a population greater than 50,000.

(3) NONSAFETY HAZARDS — The call boxes and their location, posts, foundations, and mountings shall be consistent with requirements of the Manual on Uniform Traffic Control Devices or any requirements deemed necessary by the Secretary to assure that the call boxes shall not be a safety hazard to motorists.

Section 353(a) SIGNS — Traffic control signs referred to in the experimental project conducted in the State of Oregon in December 1991 shall be deemed to comply with the requirements of Section 2B-4 of the Manual on Uniform Traffic Control Devices of the Department of Transportation.

Section 353(b) STRIPES — Notwithstanding any other provision of law, a red, white, and blue center line in the Main Street of Bristol, Rhode Island, shall be deemed to comply with the requirements of Section 3B-1 of the Manual on Uniform Traffic Control Devices of the Department of Transportation.
APPENDIX A2
METRIC CONVERSIONS

Throughout this Manual all dimensions and distances are provided in English units. Tables A2-1 through A2-4 show the equivalent Metric (International System of Units) value for each of the English unit numerical values that are used in this Manual.

### Table A2-1. Conversion of Inches to Millimeters

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Note: 1 inch = 25.4 millimeters; 1 millimeter = 0.039 inches

### Table A2-2. Conversion of Feet to Meters

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Note: 1 foot = 0.3048 meters; 1 meter = 3.28 feet

### Table A2-3. Conversion of Miles to Kilometers

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Note: 1 mile = 1.609 kilometers; 1 kilometer = 0.621 miles

### Table A2-4. Conversion of Miles per Hour to Kilometers per Hour

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Note: 1 mile per hour = 1.609 kilometers per hour; 1 kilometer per hour = 0.621 miles per hour