MUTCD 2003
CALIFORNIA SUPPLEMENT

May 20, 2004

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

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Issued by the
DEPARTMENT OF TRANSPORTATION

ARNOLD SCHWARZENEGGER
Governor

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Acting Director, Department of Transportation

Addresses for Publications Referenced in the California Supplement

Department of Transportation Publications
California Department of Transportation
Publications Distribution Unit
1900 Royal Oaks Drive
Sacramento, CA 95815-3800
http://caltrans-opac.ca.gov/publicat.htm

California Vehicle Code
Department of Motor Vehicles
Sacramento, California
http://www.dmv.ca.gov/pubs/pubs.htm

California Building Standards Code
International Conference of Building Officials
5360 South Workman Mill Road
Whittier, CA 90601
www.icbo.org

California Code Publications
California Law
http://www.leginfo.ca.gov/calaw.html

California Department of General Services
Office of State Publishing
Customer Development Department
344 N. 7th Street
Sacramento, CA 95814-0212
http://www.osp.dgs.ca.gov/default.htm

MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES 2003
CALIFORNIA SUPPLEMENT

INTRODUCTION

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

Federal Highway Administration's Manual on Uniform Traffic Control Devices (2003 Edition), as amended by This MUTCD 2003 California Supplement is hereby adopted as the standard for all official traffic control devices, in accordance with Sections 21350 and 21400 of the California Vehicle Code. The MUTCD 2003 Edition and the MUTCD 2003 California Supplement supersede and replace the 1996 Caltrans Traffic Manual, as amended, and all previous editions thereof.

Department of Transportation publishes Standard Specifications, Standard Special Provisions, Standard Plans and other manuals, which contain specifications and requirements for traffic control devices, including their use and placement, when performing work on State highways. In some cases those specifications and requirements may vary from, and be more stringent than those shown in the MUTCD 2003 Edition and the MUTCD 2003 California Supplement. Whenever there is a discrepancy between the specifications and requirements contained in the MUTCD 2003 Edition and the MUTCD 2003 California Supplement, and those contained in the publications noted in the beginning of this paragraph for work on State highways, those publications shall govern.

On State highways the California Supplement shall mean to include Department of Transportation's Standard Specifications, Standard Special Provisions and Standard Plans publications.

All references made in the MUTCD to itself (such as "this manual") shall be taken to include this MUTCD 2003 California Supplement.

The MUTCD 2003 Edition and the MUTCD 2003 California Supplement do not supersede Department of Transportation's Standard Plans, Standard Specifications or the Special Provisions publications.

Nothing contained in the MUTCD 2003 Edition and the MUTCD 2003 California Supplement shall prevent the Department of Transportation from modifying, changing, or adopting new specifications deemed necessary.

Whenever there is a discrepancy between the specifications and requirements contained in the MUTCD 2003 Edition and the MUTCD 2003 California Supplement, the MUTCD 2003 California Supplement shall govern.

The text and figures shown in the MUTCD 2003 California Supplement are not legal standards except as they describe a device. Criteria for position, location, and use of traffic control devices is furnished solely for the purpose of guidance and information, and is not a legal standard. Engineering judgment must be used to apply these guidelines and typical applications, or adjust them to fit individual field site conditions. The

MUTCD 2003 California Supplement is not intended to be a substitute for engineering knowledge, experience or judgement.

Throughout this MUTCD 2003 California Supplement, the overall format of the MUTCD has been followed. There are ten 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. Sections are identified by the Chapter number and letter followed by a decimal point and a number, such as Section 2B.05-STOP Sign Applications.

The MUTCD 2003 California Supplement Parts, Chapters and Sections correlate to the MUTCD Parts, Chapters and Sections in the same sequence, heading and numbering. In instances where there is no corresponding Section in the MUTCD for a topic, the Section in the MUTCD 2003 California Supplement is given a number that begins with 101 for that chapter, and increases in sequence. For example, Section 2B.116 – Speed Limits and Zones. Similarly, Figures and Tables which do not have any corresponding MUTCD Figures or Tables are given a number that begins with 101 for that chapter, and increases in sequence. For example, Figures 3A-101 through 3A-112 for pavement marking details. The MUTCD Figures and Tables that have been modified in the MUTCD 2003 California Supplement retain the same MUTCD Figure or Table number but include "CA" in parentheses to indicate that it is the California version of the MUTCD Figure or Table. For example, MUTCD 2003 California Supplement Figure 2B-13 (CA) modifies and replaces the MUTCD Figure 2B-13.

In instances where the MUTCD Section, Figure or Table is not mentioned in the MUTCD 2003 California Supplement, that MUTCD Section, Figure or Table is adopted as is for California without any changes or additions. For example, MUTCD Section 2B.07 – Multiway STOP Applications.

The headings Standard, Guidance, Option, and Support are used to classify the nature of the text that follows. Figures and tables 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 or table.

Throughout this MUTCD 2003 California Supplement all dimensions and distances are provided in the International System of Units, a modernized version of the Metric system, and their English equivalent units are shown in parentheses.

The target compliance dates listed in the Introduction part of the MUTCD and target compliance dates for other changes resulting from the MUTCD adoption process will be finalized after the adoption of the MUTCD for California, in consultation with the California Traffic Control Devices Committee.

Table I-101 Evolution of the Traffic Manual

Year	Name
1955	Department of Public Works, Division of Highways Planning Manual of Instructions, Part 8 - Traffic
1972	Department of Public Works, Division of Highways Traffic Manual
1996	Department of Transportation, Division of Traffic Operations Traffic Manual, Metric Version
2004	Department of Transportation, Division of Traffic Operations MUTCD 2003 California Supplement

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PART 1
GENERAL

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

PART 1. GENERAL

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CHAPTER 1A. GENERAL

Section 1A.04 Placement and Operation of Traffic Control Devices

The following is added to this section:

Guidance:

Traffic control devices, which are used on a part-time basis, should be in operation only during the time periods that they are required.

Section 1A.06 Uniformity of Traffic Control Devices

The following is added to this section:

Standard:

Any given device for the control of traffic shall have the same meaning and require the same action on the part of motorists regardless of where it is encountered.

Section 1A.07 Responsibility for Traffic Control Devices

The following is added to this section:

Support:

Pursuant to the provisions in CVC Section 21400, the Department of Transportation adopts uniform standards and specifications for all traffic control devices after consultation with local agencies and public hearings. The Department of Transportation consults with local agencies and the public through the California Traffic Control Devices Committee. The Department of Transportation publicizes these uniform standards and specifications for traffic control devices through the California Supplement and the MUTCD.

Standard:

In accordance with CVC Section 21401, only traffic control devices conforming to Department of Transportation standards and specifications shall be placed on streets and highways.

Subject to the requirements in CVC Sections 21100, 21100.1, 21107, 21107.5, 21107.6, and 21107.7, no person shall install or maintain in any area of private property used by the public any sign, signal, or marking or other device intended to regulate, warn, or guide traffic unless it conforms with Department of Transportation standards and specifications.

Support:

The delegation of maintenance activities to local authorities is usually exercised under the authority of Streets and Highways Code Section 130.

Section 1A.08 Authority for Placement of Traffic Control Devices

The following is added to this section:

Support:

California Vehicle Code (CVC) references are used throughout the California Supplement when the subject matter relates to State law.

Standard:

CVC 21400 provides that the Department of Transportation shall, after consultation with local agencies and public hearings, adopt rules and regulations prescribing uniform standards and specifications for all official traffic control devices placed pursuant to the provisions of the Code.

CVC 21401 provides that only those official traffic control devices that conform to the uniform standards and specifications promulgated by the Department of Transportation shall be placed upon a street or highway.

CVC 21350 and 21351 give basic authority to the Department of Transportation and local authorities, in their respective jurisdictions, to place and maintain such official traffic control devices.

Option:

Local authorities may adopt rules and regulations by ordinance or resolution for regulating traffic by means of official traffic control devices meeting the requirements of CVC Section 21400. Refer to CVC Section 21100 (d).

Standard:

The use of unauthorized traffic control devices is prohibited by CVC 21465. Prohibited traffic control devices constitute a public nuisance and shall be removed per CVC 21467. This does not modify or limit the authority of the Public Utilities Commission to erect or maintain traffic control devices as authorized by law. Refer to CVC 21468.

Private advertising is prohibited on any highway right-of-way by Section 5403 (a) of the Business and Professions Code. "Highway" in this context includes roads, streets, boulevards, lanes, courts, places, commons, trails, ways or other rights-of-way or easements used for or laid out and intended for the public passage of vehicles or of vehicles and persons per Section 5213 of the Business and Professions Code.

Support:

The California Public Utilities Commission is the state regulatory agency with statutory authority over highway-rail grade crossings and highway-light rail transit grade crossings. Refer to Public Utilities Code Section 1202(a).

Section 1A.09 Engineering Study and Engineering Judgement

The following is added to this section:

Support:

Refer to CVC 627 for definition and requirements of “Engineering and Traffic Survey”.

Section 1A.10 Interpretations, Experimentations, Changes and Interim Approvals

The following is added to this section:

Standard:

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

Support:

In addition to the requirements of the FHWA, experimental traffic control devices are subject to the laws, regulations and policies of the State of California. Consultation with the Department of Transportation is necessary prior to installation and experimentation on public travelways in California for any FHWA permission to experiment. For information, contact the Secretary of the California Traffic Control Devices Committee at (916) 654-4715.

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

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

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

Guidance:

Requests for experimentation, interpretation, or changes relating to the California Supplement should be sent to:

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

The following procedures apply to requests for experimentation:

Submission of Projects

Guidance:

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

Experimentation requests should contain the following information:

1. A statement indicating the nature of the problem.
2. A description of the proposed change, how it was developed, the manner in which it deviates from the standard, and how it is expected to be an improvement over existing standards.
3. Any illustration, photograph, or videos, which would help, explain the experimental device or use of this device.
4. Any supporting data as to how the experimental device was developed, if it has been tried, in what ways it was found to be adequate or inadequate, and how was this choice of device or application arrived at.

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

Procedure for Processing Requests

Support:

A. All requests for experimentation will be reviewed by the Secretary of the California Traffic Control Devices Committee to determine whether other related experimentation has been scheduled, in process, or already completed.
B. The Secretary of the California Traffic Control Devices Committee will list the experimentation proposal on the next Committee agenda for review and approval. The Committee's approval would also include the specific guidelines to be followed for the experimentation.
C. Action by the California Traffic Control Devices Committee on any request for experimental use of a non-conforming device could take several forms:
    1. Approval of the device for limited use on an experimental project.
    2. Approval of the device for limited use in a formal research project.
    3. Disapproval until such time as satisfactory research or other justification is submitted.
    4. Disapproval.
D. After action by the California Traffic Control Devices Committee, the Secretary of the California Traffic Control Devices Committee will notify the originating party of it decision. If approved, the originating parties will be requested to submit a status report on the experimental testing at appropriate intervals. When the results of experimentation are completed, a final report will be prepared and forwarded to the Secretary for Committee review.
E. The agency receiving approval for experimentation must agree to faithfully follow the specific guidelines for the experimentation, must forward reports as indicated, and must agree to terminate the experimentation upon notification.

Specific Guidelines for Experimental Proposal

Guidance:

A specific proposal should be submitted for each request. This proposal may be submitted with the initial request or could be a follow-up to specific comments by the California Traffic Control Devices

Committee. The proposal, after approval by the Committee, will become an integral part of the approved experimentation. Each proposal should include:

A. Scope: A detailed description of the experimentation, locations of installation, and number of experimental projects.
B. Work Plan: A description of the proposed plan of study; the variables that are to be measured; the criteria against which the devices is to be evaluated; observations, measures and data which will be collected; whether the experimentation will be carried out in the field or under laboratory conditions; how installations of the experimental device or application will be made; the indication if any adverse effects on safety or traffic operations can be anticipated, together with the means that may be taken to minimize them; and the factors which will be held constant or measured and controlled in order to ensure that the true effects of the device are measured.
C. Time Periods: Time periods for experimentation will normally not be less than six months nor more than two years.
D. Evaluation Procedures: The California Traffic Control Devices Committee will approve criteria, which will be used to evaluate experimental devices or applications. To permit meaningful comparisons with standard installations, advice from specialists such as human factor experts, statisticians, etc., could be included.
E. Reporting: A written status report must be forwarded to the sponsor 45 days prior to each public meeting. A final report must be completed within 90 days of the terminal date of the experimentation and forwarded to the Secretary of the California Traffic Control Devices Committee. Status reports will describe the progress of the work, any particular deviation from the work plan and anticipated time of conclusion. The final report will contain, as a minimum, the basic information on the problem, the preliminary investigations, the proposed solutions, the study procedures, the detailed analysis of the data, the results of the work, a discussion of the results, and whatever conclusions are drawn. If a change in the California Supplement is proposed, the recommended text (wording) for the California Supplement 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:

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:

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:

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.

Note: Authority and reference cited: CVC Section 21400.

Section 1A.11 Relationship to Other Publications

The following is added to this section:

Standard:

The latest edition of Department of Transportation's publication titled "Traffic Sign Specifications" shall be a part of this manual.

Support:

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

A. "California Vehicle Code" (CVC), 2003 Edition (Department of Motor Vehicles)
B. "California Building Standards Code" 2001 Edition (California Building Standards Commission)
C. "California Business and Professions Code" (State of California)
D. "California Code of Regulations" (State of California)
E. "California Education Code" (State of California)
F. "California Government Code" (State of California)
G. "California Health and Safety Code" (State of California)
H. "California Streets and Highways Code" (State of California)
I. "Construction Manual", 2001 Edition. (Department of Transportation)
J. "Flagging Instruction Handbook", 1999 Edition. (Department of Transportation)
K. "Manual for Encroachment Permits on California State Highways", 2002 Edition (Department of Transportation)
L. "High-Occupancy Vehicle Guidelines", 2003 Edition (Department of Transportation)
M. "Highway Design Manual", 2001 Edition (Department of Transportation)
N. "Historic Highway Bridges of California", (Department of Transportation)
O. "Maintenance Manual", 1998 Edition (Department of Transportation)
P. "Project Development Procedures Manual", 1999 Edition (Department of Transportation)
Q. "Plans, Specifications and Estimates Guide" (PS&E), 2001 Edition (Department of Transportation)
R. "Ramp Meter Design Manual", 2000 Edition (Department of Transportation)
S. "Signal and Lighting Design Guide", 1995 Edition (Department of Transportation)
T. "Standard Plans", 2002 Edition (Department of Transportation)
U. "Standard Specifications", 2002 Edition (Department of Transportation)
V. "Standard Special Provisions", 2002 Edition (Department of Transportation)
W. "Traffic Control Devices Handbook", 2001 Edition (Institute of Transportation Engineers – ITE)
X. "Traffic Engineering Metric Conversion Factors", 1993 Edition (American Association of State Highway and transportation Officials - AASHTO).
Y. "Traffic Manual", 1996 Edition (Department of Transportation)

Section 1A.13 Definitions of Words and Phrases in This Manual

The following is added to this section:

Standard:

The following words and phrases, when used in This California Supplement, shall have the following meanings:

1. **CVC – California Vehicle Code.**
2. **Department of Transportation – California Department of Transportation.**
3. **Divided Highway – A highway with separated roadbeds for traffic in opposing directions.**
4. **Markings – All lines, words, or symbols, except signs, officially placed within the roadway to regulate, warn or guide traffic.**

5. **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.**
6. **Shoulder – The portion of the roadway contiguous with the traveled way for accommodations of stopped vehicles, for emergency use, and for lateral support of base and surface courses.**
7. **State Highway – Any highway owned and operated by the Department of Transportation.**
8. **Traffic Sign Specifications (TSS) – Detailed drawings of signs approved by the Department of Transportation for use in California.**

Support:

The following terms are defined in the California Vehicle Code:

1. Alley - Section 110.
2. Amber - Section 112.
3. Authorized Emergency Vehicle - Section 165.
4. Automated Enforcement System - Section 210.
5. Axle - Section 230.
6. Bicycle - Section 231.
7. Bus - Section 233.
8. Business District - Section 235.
9. Clean Fuel Vehicle - Section 257.
10. Commercial Vehicle - Section 260.
11. Crosswalk - Section 275.
12. Department of Transportation - Section 291.
13. Disabled Person - Section 295.5.
14. Engineering and Traffic Survey - Section 627.
15. Freeway - Section 332.
16. Golf Cart - Section 345.
17. Hazardous Material - Section 353.
18. Highway - Section 360.
19. Intersection - Section 365.
20. Limit Line - Section 377.
21. Local Authorities - Section 385.
22. Motorcycle - Section 400.
23. Motor Vehicle - Section 415.
24. Official Traffic Control Device - Section 440.
25. Official Traffic Control Signal - Section 445.
26. Park or Parking - Section 463.
27. Pedestrian - Section 467.
28. Pickup Truck - Section 471.
29. Private Road or Driveway - Section 490.
30. Private School - Section 492.
31. Road - Section 527.
32. Roadway - Section 530.
33. Schoolbus - Section 545.
34. Sidewalk - Section 555.
35. Snowmobile - Section 557.
36. Stop or Stopping - Section 587.
37. Street - Section 590.
38. Street or Highway - Section 591.
39. Street or Highway – Highway Exclusion - Section 592.

40. Through Highway - Section 600.
41. Traffic - Section 620.
42. Trailer - Section 630.
43. U-Turn - Section 665.5.
44. Vehicle - Section 670.

MUTCD 2003
CALIFORNIA SUPPLEMENT

May 20, 2004

PART 2
SIGNS

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

PART 2. SIGNS

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CHAPTER 2A. GENERAL

Section 2A.03 Standardization of Application

The following is added to this section:

Guidance:

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

Section 2A.04 Excessive Use of Signs

The following is added to this section:

Support:

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

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

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

Section 2A.05 Classification of Signs

The following is added to this section:

Support:

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

Section 2A.06 Design of Signs

The following is added to this section:

Support:

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

Section 2A.07 Changeable Message Signs

Standard:

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

Section 2A.08 Retroreflectivity and Illumination
Standard:

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

Option:

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

Standard:

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

Table 2A-1 Illumination of Sign Elements
Standard:

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

Section 2A.11 Sign Colors
The following is added to this section:
Standard:

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

Support:

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

Section 2A.12 Dimensions
The following is added to this section:
Standard:

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

Section 2A.13 Symbols
The following is added to this section:
Support:

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

Standard:

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

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

Means of Illumination	Sign Element To Be Illuminated
Light behind the sign face	• Symbol or word message • Background • Symbol, word message, and background (through a translucent material)
Attached or independently mounted light source designed to direct essentially uniform illumination onto the sign face	• Entire sign face
Light emitting diodes (LEDs)	• Sign border on STOP sign • Sign border on warning signs
Other devices, or treatments that highlight the sign shape, color, or message: Luminous tubing Fiber optics Incandescent light bulbs Luminescent panels	• Symbol or word message • Entire sign face

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Section 2A.16 <u>Standardization of Location</u>

Guidance:

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

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

The following is added to this section:

Guidance:

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

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

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

Support:

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

Figure 2A-2 <u>Examples of Locations for Some Typical Signs at Intersections</u>

Support:

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

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

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

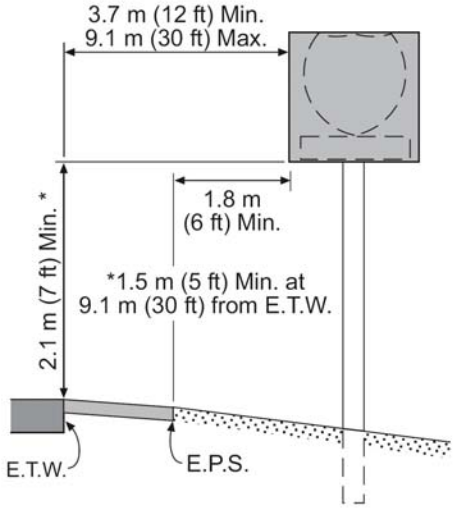
Figure 2A-1(CA). Heights and Lateral Locations of Signs for Typical Installations

NOTES

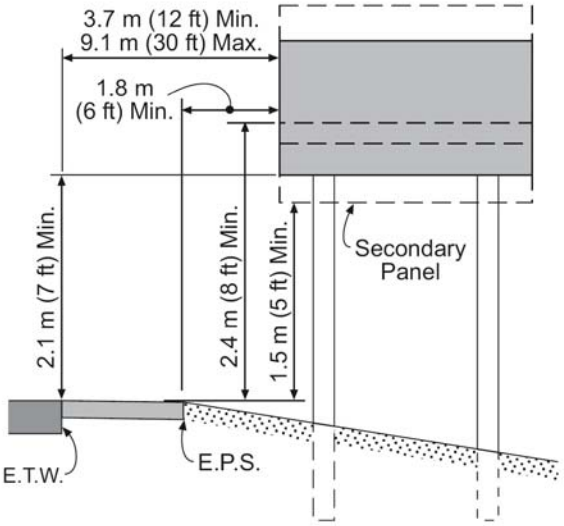
These sign positions are typical and should be considered a standard. When physical conditions require deviation from these typicals, they should be documented. When clear roadside recovery areas are provided, signs shall be placed as far from the traveled way as possible, up to 9.1 m (30 ft). When possible,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

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

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

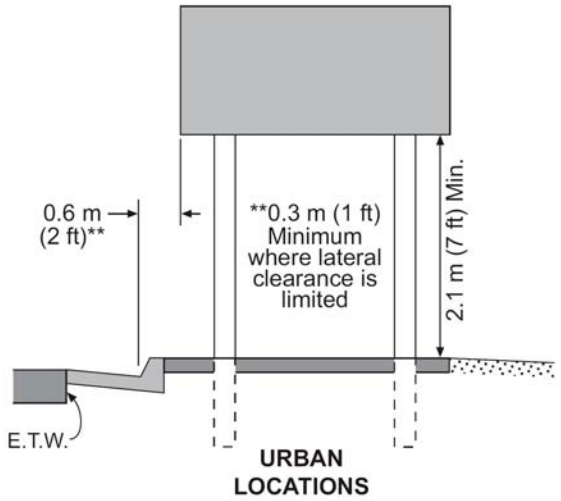


ROUTE SHIELDS
REGULATORY AND WARNING SIGNS

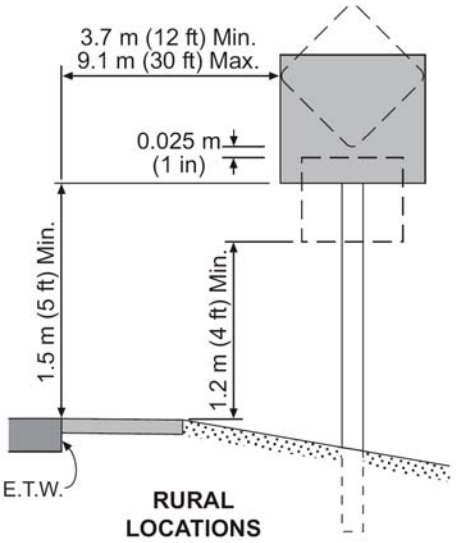


GUIDE SIGNS

FREEWAY AND EXPRESSWAY LOCATIONS



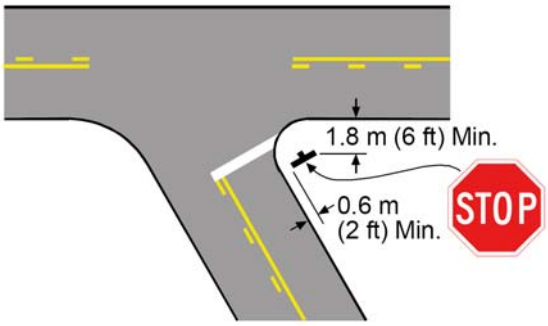
URBAN LOCATIONS



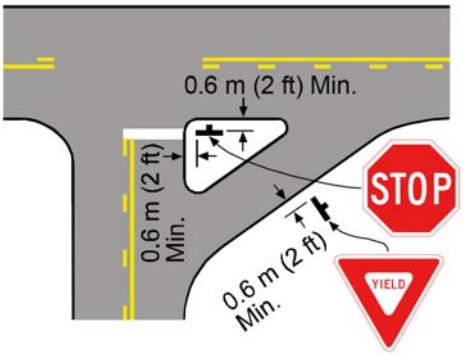
RURAL LOCATIONS

CONVENTIONAL HIGHWAYS AND INTERCHANGE AREAS

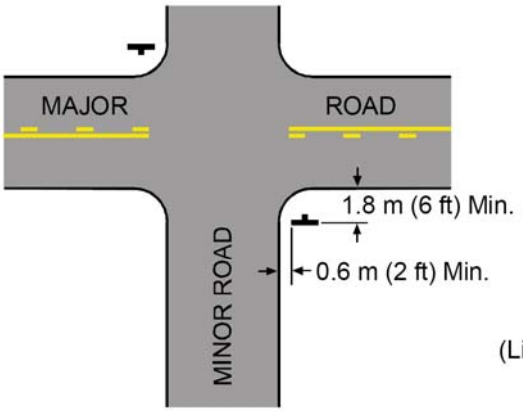
Figure 2A-2 (CA). Typical Locations for Signs at Intersections



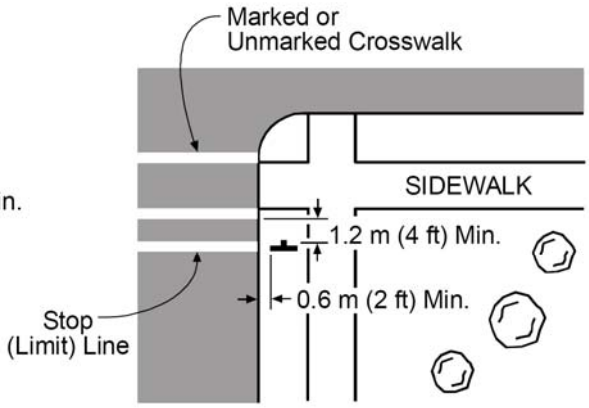
ACUTE ANGLE INTERSECTION



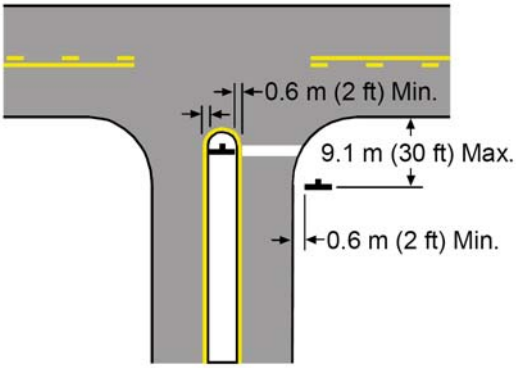
CHANNELIZED INTERSECTION



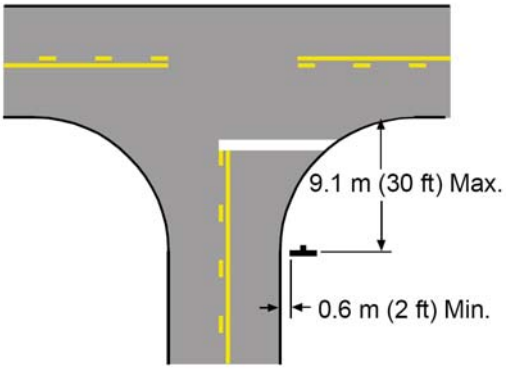
MINOR INTERSECTION



URBAN INTERSECTION



DIVISIONAL ISLAND



WIDE THROAT INTERSECTION

Section 2A.17 Overhead Sign Installations

Option:

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

N. "Exit Only" lanes and lane drops.

O. Necessity to have a sign message directly over the lane to which it refers.

The following is added to this section:

Support:

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

Guidance:

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

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

Option:

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

Standard:

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

Section 2A.18 Mounting Height

Standard:

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

The following is added to this section:

Support:

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

Guidance:

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

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

Option:

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

Support:

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

Section 2A.19 Lateral Offset

The following is added to this section:

Support:

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

Guidance:

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

Standard:

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

Guidance:

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

Standard:

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

Support:

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

Guidance:

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

Standard:

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

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

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

Guidance:

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

Section 2A.21 <u>Posts and Mountings</u>

The following is added to this section:

Support:

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

Guidance:

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

Standard:

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

Support:

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

Option:

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

Standard:

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

Section 2A.23 <u>Median Opening Treatments for Divided Highways with Wide Medians</u>

The following is added to this section:

Option:

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

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

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

Support:

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

Section 2A.101 <u>Signs Off the State Right-of-Way</u>

Support:

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

Guidance:

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

CHAPTER 2B. REGULATORY SIGNS

Section 2B.01 Application of Regulatory Signs

The following is added to this section:

Standard:

Orders, ordinances and resolutions by local authorities which affect State highways shall be approved by Department of Transportation.

Support:

Signs required for enforcement are normally placed by, and at the expense of, the authority establishing the regulation.

Section 2B.02 Design of Regulatory Signs

The following is added to this section:

Support:

Sign design details are contained in FHWA's "Standard Highway Signs" book and Department of Transportation's "Traffic Sign Specifications". See Section 1A.11 for information regarding these publications.

Table 2B-101 shows a list of California Regulatory Signs.

Figure 2B-101 shows California Regulatory Signs.

Section 2B.05 STOP Sign Applications

The following is added to this section:

Support:

A STOP (R1-1) sign is not a "cure-all" and is not a substitute for other traffic control devices. Often, the need for a STOP (R1-1) sign can be eliminated if the sight distance is increased by removing obstructions.

Through Highways

Option:

STOP (R1-1) signs may be installed either at or near the entrance to a State highway, except at signalized intersections, or at any location so as to control traffic within an intersection. Refer to CVC 21352 and 21355. See Section 1A.11 for information regarding this publication.

Support:

When STOP (R1-1) signs or traffic control signals have been erected at all entrances, a highway constitutes a through highway. Refer to CVC 600.

Authority to place STOP (R1-1) signs facing State highway traffic is delegated to the Department of Transportation's District Directors.

Option:

Local authorities may designate any highway under their jurisdiction as a through highway and install STOP (R1-1) signs in a like manner. Refer to CVC 21354.

Standard:

No local authority shall erect or maintain any STOP (R1-1) sign or other traffic control device requiring a stop, on any State highway, except by permission of the Department of Transportation. Refer to CVC 21353.

Support:

The Department of Transportation will grant such permission only when an investigation indicates that the STOP sign will benefit traffic.

Table 2B-101. List of California Regulatory Signs (Sheet 1 of 7)

California (CA) Code	MUTCD Code	Title of Sign	Supplement Section	MUTCD Section
R1	R1-1	STOP	2B.05	2B.04, 2B.05
R1-2	R1-2	YIELD	2B.08	2B.08
R1-3	R1-3	4-WAY	None	2B.04
R1-4	R1-4	ALL WAY	None	2B.04
R2	R2-1	Speed Limit	2B.13	2B.13
R2-4	None	Speed Zone Ahead	2B.13	None
R3	None	End Speed Limit	2B.13	None
R4	M4-4	TRUCK	2B.13, 2B.14, 2B.116	2D.20
R6-3	None	TRUCKS, 3 AXLES OR MORE 55 MAXIMUM	2B.13	None
R6-3A	None	TRUCKS 3 AXLES OR MORE RIGHT 2 LANES ONLY	2B.32	None
R6-4	None	ALL VEHICLES WHEN TOWING 55 MAXIMUM	2B.13	None
R6-4A	None	ALL VEHICLES WHEN TOWING RIGHT 2 LANES ONLY	2B.32	None
R7	R4-7	Keep Right	2B.33	2B.33
R8	R4-10	RUNAWAY VEHICLES ONLY	2B.107	2C.13
R10	R6-1	ONE WAY	2B.37	None
R10A	R6-2	ONE WAY	2B.37	None
R11	R5-1	DO NOT ENTER	2B.34	None
R11A	R5-1a	WRONG WAY	2B.35	None
R13	R10-11a	NO TURN ON RED	2B.45	2B.45
R13A	None	No Right Turn on Red	2B.45	None
R13B	None	No Left Turn on Red	2B.45	None
R15	R3-3	NO TURNS	2B.19	None
R16	R3-1	No Right Turn	2B.19	None
R17	R3-2	No Left Turn	2B.19	None
R18	R3-7	RIGHT (LEFT) LANE MUST TURN RIGHT (LEFT)	2B.21	2B.21
R18A	None	RIGHT (LEFT) LANE MUST EXIT	2B.21	None
R18B	None	RIGHT (LEFT) LANE FREEWAY ONLY	2B.21	None
R20	R12-5	Weight Limit	2B.36, 2B.49	None
R20A	None	Weight Limit	2B.49	None
R20B	R5-2	No Trucks	2B.36, 2B.49	2B.36
R20D Series	None	Truck Exclusion Plaques	2B.36, 2B.49	None
R20H	None	Truck Length Limit	2B.36	None
R20-1	None	No Trucks Variable Message	2B.36	None

Table 2B-101. List of California Regulatory Signs (Sheet 2 of 7)

California (CA) Code	MUTCD Code	Title of Sign	Supplement Section	MUTCD Section
R20-1A	None	NEXT RIGHT Plaque	2B.36	None
R21	None	Bridge Speed and Weight Limit	2B.36	None
R22	None	OK TO PARK ON BRIDGE	2B.39	None
R23	None	NO FISHING(JUMPING) FROM BRIDGE	2B.108	None
R24	None	PARK PARALLEL	2B.39	None
R25	None	PARK OFF PAVEMENT	2B.39	None
R26	None	NO PARKING ANY TIME	2B.39	None
R26(S)	None	NO STOPPING ANY TIME	2B.39	None
R26A	None	NO PARKING ANY TIME	2B.39	None
R26A(S)	None	NO STOPPING ANY TIME	2B.39	None
R26B	None	NO PARKING HERE TO CORNER	2B.39	None
R26C	None	NO PARKING HERE TO CORNER	2B.39	None
R26D	R8-3a	No Parking	2B.39	2B.39, 2B.40
R26E	R8-3d	No Parking Plaques	2B.39	2B.40
R26F	None	NO STOPPING FIRE LANE	2B.39	None
R26G	R7-9	NO PARKING BIKE LANE	None	9B.09
R26H	R7-9a	No Parking Bike Lane	None	9B.09
R26J	None	TOW-AWAY NO PARKING ANY TIME	2B.39	None
R27	None	NO PARKING ON BRIDGE	2B.39	None
R27A	None	NO PARKING ON BRIDGE	2B.39	None
R28	None	NO PARKING ANY TIME with Arrow	2B.39	None
R28(S)	None	NO STOPPING ANY TIME with Arrow	2B.39	None
R28A	None	NO PARKING ANY TIME with Arrow	2B.39	None
R28A(S)	None	NO STOPPING ANY TIME with Arrow	2B.39	None
R28B	None	NO PARKING VEHICLES OVER 6 FT HIGH	2B.39	None
R29	None	No Stopping/No Parking Specific Hours	2B.39	None
R30	None	No Parking Specific Hours	2B.39	None
R30A	None	No Parking Specific Hours	2B.39	None
R31	None	No Parking/Parking Specific Hours	2B.39	None
R31(S)	None	No Stopping/Parking Specific Hours	2B.39	None
R32	None	Limited Hour Parking Specific Hours	2B.39	None
R32A	None	Limited Minute Parking Specific Hours	2B.39	None
R32B	None	No Parking/Limited Hour Parking Specific Hours	2B.39	None
R33	None	NO LEFT TURN Specific Hours	2B.19	None
R33A	None	NO LEFT TURN Specific Hours	2B.19, 2B.26	None

Table 2B-101. List of California Regulatory Signs (Sheet 3 of 7)

California (CA) Code	MUTCD Code	Title of Sign	Supplement Section	MUTCD Section
R33B	None	NO LEFT TURN Specific Hours EXCEPT BUSES AND CARPOOLS	2B.26	None
R33C	None	NO LEFT TURN WHEN METERED EXCEPT BUSES AND CARPOOLS	2B.26	None
R34	R3-4	No U-Turn	2B.19	None
R34-2	R3-18	No U-Turn/No Left Turn	2B.19	None
R35	R14-1	TRUCK ROUTE	2B.51	2B.51
R36	None	Commercial Vehicle Weight Exclusion	2B.49	None
R37	None	Tow-Away No Stopping/No Parking Specific Hours	2B.39	None
R38	None	Tow-Away No Parking/Limited Hour Parking Specific Hours	2B.39	None
R38(S)	None	Tow-Away No Stopping/Limited Hour Parking Specific Hours	2B.39	None
R40	None	TWO WAY TRAFFIC AHEAD	2B.101	None
R43	R5-10c	PEDESTRIANS PROHIBITED	2B.36, 2E.50	2B.36
R44	R5-10a	PEDESTRIANS BICYCLES MOTOR-DRIVEN CYCLES PROHIBITED	2B.36, 2E.50, 9B.101	2B.36, 9B.08
R44A	None	Bike Path Exclusion	9B.07	None
R44B	None	BICYCLES MOTOR-DRIVEN CYCLES MUST EXIT	9B.101	None
R44C	None	BICYCLES MUST EXIT	9B.101	None
R45	R8-4	EMERGENCY PARKING ONLY	2B.39, 2B.42	2B.42
R47	None	$1000 FINE FOR LITTERING	2B.109	None
R47A	None	$1000 FINE FOR ANIMAL ABANDONMENT	2B.109	None
R48	None	SPEED ENFORCED BY RADAR	2B.13	None
R48-1	None	RADAR ENFORCED	2B.13	None
R48-2	None	SPEED ENFORCED BY AIRCRAFT	2B.13, 3B.20	None
R50	None	TURNOUT ¼ MILE	2B.102	None
R51	None	TURNOUT	2B.102	None
R52	None	SLOWER TRAFFIC USE TURNOUTS	2B.102	None
R52A	None	SLOWER TRAFFIC USE TURNOUTS TO ALLOW PASSING	2B.102	None
R53	R4-6	TRUCK LANE	2B.32, 3B.103	2B.32
R53A	None	END TRUCK LANE	2B.32, 3B.103	None
R53B	None	TRUCKS RIGHT LANE ONLY	2B.32, 3B.103	None
R53C	R4-5	TRUCKS USE RIGHT LANE	2B.32	2B.32
R53D	None	AUTOS WITH TRAILERS - TRUCKS - PROHIBITED	2B.36	None
R53E	None	END TRUCK LANE CONTROL	2B.32	None

Table 2B-101. List of California Regulatory Signs (Sheet 4 of 7)

California (CA) Code	MUTCD Code	Title of Sign	Supplement Section	MUTCD Section
R55	None	YIELD TO UPHILL TRAFFIC	2B.32, 3B.102	None
R56	R4-3	SLOWER TRAFFIC KEEP RIGHT	2B.13, 2B.32	2B.31, 2B.32
R57	None	BEGIN FREEWAY	2B.103	None
R58	None	END FREEWAY	2B.103	None
R59	R3-5	Mandatory Movement Lane Control	2B.20, 2B.21	2B.20, 2B.21
R60A	R3-6	Optional Movement Lane Control	2B.20, 2B.22	2B.20, 2B.22
R60B	None	Optional Movement Lane Control	2B.22	2B.22
R61 Series	None	Intersection Lane Control	2B.20	2B.20 thru 2B.23
R62A	R10-4	PUSH BUTTON FOR WALK SIGNAL	None	2B.45
R62B	R10-3	PUSH BUTTON FOR GREEN LIGHT	None	2B.45, 9B.10
R62C	None	Bike/Push Button for Green Light	9B.10	9B.10
R62D	R10-4b	Push Button for Walk Signal	None	2B.45
R62E	None	PUSH BUTTON FOR PEDESTRIAN WARNING LIGHTS – CROSS WITH CAUTION	2B.45	None
R63	R4-1	DO NOT PASS	2B.29	2B.29
R65	R8-8	DO NOT STOP ON TRACKS	2B.42, 8B.07, 10C.05	2B.42, 8B.07, 10C.05
R66	R10-7	DO NOT BLOCK INTERSECTION	2B.45	2B.45
R67	None	Two-Way Left Turn Lane	2B.24, 3B03	None
R68	None	PASSING LANE AHEAD	2B.32	None
R70	None	TRUCKS OK	2B.104	None
R72	S4-2	WHEN CHILDREN ARE PRESENT	2C.42, 7B.11	7B.11
R73 Series	None	Intersection Lane Control	2B.19, 2B.20	2B.20 thru 2B.23
R73-7	R10-12	LEFT TURN YIELD ON GREEN (Symbolic Green Ball)	4D.111	2B.45, 4D.06
R74	None	CHAIN INSTALLATION ONLY	2B.106	None
R75	None	CHAINS REQUIRED (X MILE (X MILES)) AHEAD	2B.106	None
R76	None	CHAINS REQUIRED	2B.106	None
R76-1	None	ON SINGLE AXLE DRIVE VEHICLE WITH TRAILER	2B.106	None
R77	None	NO EXCEPTIONS	2B.106	None
R78	None	END CHAIN CONTROL	2B.106	None
R79	None	AUTOS & PICKUPS SNOW TIRES OK – CARRY CHAINS	2B.106	None
R80-1	None	4-W DRIVE WITH SNOW TIRES OK – CARRY CHAINS	2B.106	None

Table 2B-101. List of California Regulatory Signs (Sheet 5 of 7)

California (CA) Code	MUTCD Code	Title of Sign	Supplement Section	MUTCD Section
R81	None	Bike Lane	2H.02, 9B.04	None
R81A	None	BEGIN	9B.04	None
R81B	None	END	9B.04	None
R82A	None	Specific Hours/Days Plaque	2B.32, 3B.103	None
R82B	None	Specific Hours/Days Plaque	2B.26	None
R82-1	None	CARPOOL LANE AHEAD ___ MILE	2B.26	None
R84-1	None	END CARPOOL LANE	2B.26	None
R84-2	None	CARPOOL LANE ENDS ___ MILE	2B.26	None
R86	None	LEFT LANE CARPOOLS ONLY Specific Hours/Days	2B.26	None
R86-2	None	LEFT LANE CARPOOLS ONLY	2B.26	None
R86-3	None	LEFT LANE CARPOOLS ONLY Specific Hours/Days	2B.26	None
R87-1	None	CARPOOLS ONLY ___ OR MORE PERSONS PER VEHICLE	2B.26	None
R87-2	None	Route Shield CARPOOLS ONLY ___ OR MORE PERSONS PER VEHICLE	2B.26	None
R88	None	LEFT (CENTER OR RIGHT) LANE DO NOT STOP (BUSES ONLY)	2B.26	None
R89	None	1 CAR (2 CARS) PER GREEN	2B.26	None
R89-1	None	1 CAR (2 CARS) PER GREEN EACH LANE	2B.26	None
R89-2	None	1 CAR (2 CARS) PER GREEN THIS LANE	2B.26	None
R89-3	None	RIGHT (LEFT) LANE THIS SIGNAL	2B.26	None
R90	R10-6	STOP HERE ON RED	2B.26, 2B.45	2B45, 8B.11, 8D.07, 10C.07
R90-1	None	ALL VEHICLES STOP ON RED	2B.26	None
R91	None	LEFT (RIGHT OR CENTER) CARPOOLS ___ OR MORE ONLY Specific Hours/Days	2B.26	None
R91-1	None	LEFT (RIGHT OR CENTER) CARPOOLS ___ OR MORE ONLY WHEN METERED	2B.26	None
R91-2	None	(HOV) NO TRUCKS OVER 5 TONS OR VEHICLES WITH TRAILERS	2B.26	None
R91-3	None	LEFT (RIGHT OR CENTER) CARPOOLS ___ OR MORE ONLY	2B.26	None
R91B	None	AUTOS/PICKUPS 2 SEATERS WITH 2 PERSONS OK	2B.26	None
R92	None	BUSES ONLY CARPOOLS OK Specific Hours/Days	2B.26	None
R93-2	None	CARPOOL IS ___ OR MORE PERSONS PER VEHICLE	2B.26	None
R93A	None	VEHICLES WITH DMV CLEAN AIR DECAL OK	2B.26	None

Table 2B-101. List of California Regulatory Signs (Sheet 6 of 7)

California (CA) Code	MUTCD Code	Title of Sign	Supplement Section	MUTCD Section
R94	None	Mandatory/Optional Carpool Movement Lane Control	2B.26	None
R95	R5-6	Bicycle Prohibition	9B.08	2B.36, 9B.08
R96	R9-3a	Pedestrian Prohibition	None	2B.44, 4D.03
R96B	R9-3b	USE CROSSWALK	None	2B.44
R98	R6-3a	Divided Highway Crossing (T)	None	2B.38
R98A	R6-3	Divided Highway Crossing (4-Leg)	None	2B.38
R99	None	Disabled Parking Only	2B.39	None
R99A	R7-8a, R7-8b	VAN ACCESSIBLE	2B.39	2B40
R100A	None	TOW-AWAY SPECIAL PLACARD OR LICENSE PLATE REQUIRED	2B.39	None
R100B	None	Disabled Tow-Away	2B.39	None
R101	None	PRIVATE ROAD (PRIVATE PROPERTY) VEHICLE CODE ENFORCED	2B.105	None
R102	None	Hazardous Waste Prohibited	2B.52	None
R102A	None	HAZARDOUS WASTE PROHIBITED	2B.52	None
R103	None	Hazardous Waste Permitted	2B.52	None
R103A	None	HAZARDOUS WASTE PERMITTED	2B.52	None
R104	None	Hazardous Material Prohibited	2B.52	None
R104A	None	HAZARDOUS MATERIAL PROHIBITED	2B.52	None
R105	None	Hazardous Material Permitted	2B.52	None
R105A	None	HAZARDOUS MATERIAL PERMITTED	2B.52	None
SR2	None	Rest Area Disclaimer	2B.110	None
SR5-1	None	KEEP RIGHT EXCEPT TO PASS	2B.29	None
SR6-1	None	WAIT HERE UNTIL SCALE CLEAR	2B.44	None
SR7-1	None	RELEASE BRAKES WHILE ON SCALE	2B.50	None
SR8-1	None	SET PARKING BRAKES	2B.50	None
SR9-1	None	LOADED	2B.50	None
SR10-1	None	EMPTY	2B.50	None
SR11-1	None	EMPTY 5 MPH	2B.50	None
SR12-1	None	LOADED 3 MPH	2B.50	None
SR13-1	None	Theft CHP Plaque	2B.50	None
SR15	None	Seat Belt	2B.54	2B.54
SR15A	None	SAFETY BELT LAW ENFORCED	2B.54	None
SR17	None	TRUCKS NOT GIVEN BYPASS SIGNAL MUST ENTER OPEN SCALES	2B.50	None
SR18	None	NO EXPLOSIVES OR FLAMMABLES	2B.52	None
SR19-1	None	EXPLOSIVES AND CORROSIVES PROHIBITED WITHOUT PERMIT	2B.52	None

Table 2B-101. List of California Regulatory Signs (Sheet 7 of 7)

California (CA) Code	MUTCD Code	Title of Sign	Supplement Section	MUTCD Section
SR20-1	None	SNOW NOT REMOVED BEYOND HERE	2B.39	None
SR22-1	None	DUMPING PROHIBITED	2B.119	None
SR23-1	None	NO HOUSEHOLD GARBAGE	2B.119	None
SR27-1	None	ONE LANE BRIDGE FOR TRUCKS AND BUSES	5C.06	None
SR28	R11-1	KEEP OFF MEDIAN	None	2B.47
SR29	R12-1	Weight Limit	2B.49	2B.49
SR39A	None	LEFT TURN ON GREEN ARROW ONLY – NO U TURN	2B.45	None
SR39A(U)	None	LEFT OR U TURN ON GREEN ARROW ONLY	2B.45	None
SR40	None	Width Limit	2B.50	None
SR41	None	ALL BUSES STOP AT SCALES	2B.50	None
SR42	None	ALL BUSES with Arrow	2B.50	None
SR43	None	GOLF CARTS OK DAYLIGHT HOURS	2B.111	None
SR44	None	Bus and Truck Registration	2B.117	None
SR45	R4-7a	KEEP RIGHT with Arrow	None	2B.33
SR45A	R4-7b	KEEP RIGHT with Arrow	None	2B.33
SR46	None	EMERGENCY ACCESS KEEP CLEAR	2B.112	None
SR47	None	OFF HIGHWAY VEHICLE COMBINED USE NEXT (X) MILES	2B.113	None
SR48	None	NO OFF HIGHWAY VEHICLES BEYOND THIS POINT	2B.113	None
SR49	None	TOW-AWAY NO PARKING WHEN SNOW REMOVAL CONDITIONS EXIST	2B.39	None
SR50-1	None	CARPOOL VIOLATION $___ MINIMUM FINE	2B.26	None
SR50-2	None	CARPOOL VIOLATION $___ MINIMUM FINE	2B.26	None
SR51	R1-2a	TO ONCOMING TRAFFIC	2B.08	None
SR52	R15-6	No Vehicles On Tracks	None	10C.12
SR53	None	SPECIAL DRIVING ZONE BEGINS HERE – DOUBLE FINE ZONE	2B.118	None
SR54	None	DOUBLE FINE ZONE	2B.118	None
SR55	None	SPECIAL DRIVING ZONE ENDS HERE	2B.118	None
SR56	None	Traffic Signal PHOTO ENFORCED	2B.40	None
SR57	None	ALL TRUCKS – 2 AXLE AND MORE – STOP AT SCALE	2D.46	None
SR58	None	RED LIGHT VIOLATION $ ___ FINE	2B.46	None
SR59	None	TRAFFIC FINES DOUBLED	7B.101	None

Figure 2B-101. California Regulatory Signs
(Sheet 1 of 8)

R2-4

R3

R6-3

R6-3A

R6-4

R6-4A

R13A

R13B

R18A

R18B

R20A

R20D-1

R20D-2

R20D-3

R20D-4

R20H

R20-1

R20-1A

R21

R22

R23

R24

R25

R26

R26(S)

Note: All sign codes are California (CA) Codes.

Figure 2B-101. California Regulatory Signs
(Sheet 2 of 8)

Note: All sign codes are California (CA) Codes.

Figure 2B-101. California Regulatory Signs
(Sheet 3 of 8)

R36

R37

R38

R38(S)

R40

R44A

R44B

R44C

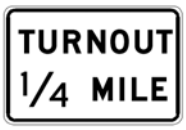
R47

R47A

R48

R48-1

R48-2



R50

R51

R52

R52A

R53A

R53B

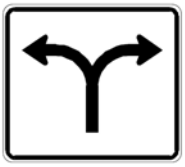
R53D

R53E

R55

R57

R58


R60B

Note: All sign codes are California (CA) Codes.

Figure 2B-101. California Regulatory Signs
(Sheet 4 of 8)

R61-1

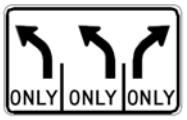
R61-3

R61-5

R61-7

R61-9

R61-11



R61-13

R61-15

R61-17

R61-19

R61-22

R61-24

R61-26

R61-28

R61-30

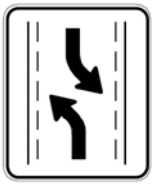
R61-32

R61-34

R61-36

R62C

R62E


R67

R68

R70


R73-1


R73-2

Note: All sign codes are California (CA) Codes.

Figure 2B-101. California Regulatory Signs
(Sheet 5 of 8)

R73-3

R73-4


R73-5

R73-6

R73-8

R74

R75

R76

R76-1

R77

R78

R79

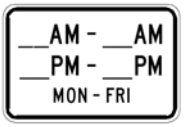
R80-1

R81

R81A

R81B

R82A



R82B

R82-1

R84-1

R84-2

R86

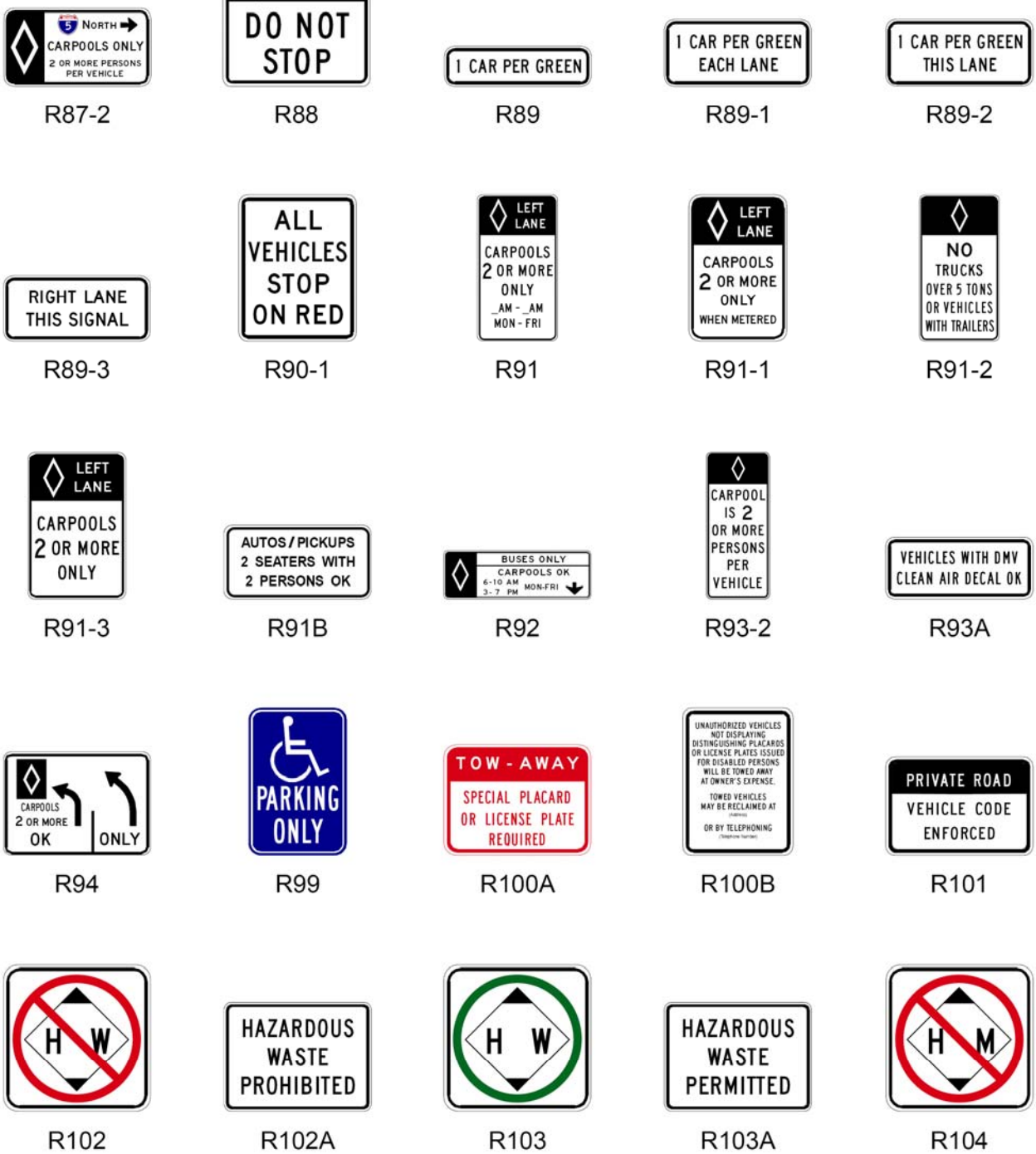
R86-2

R86-3

R87-1

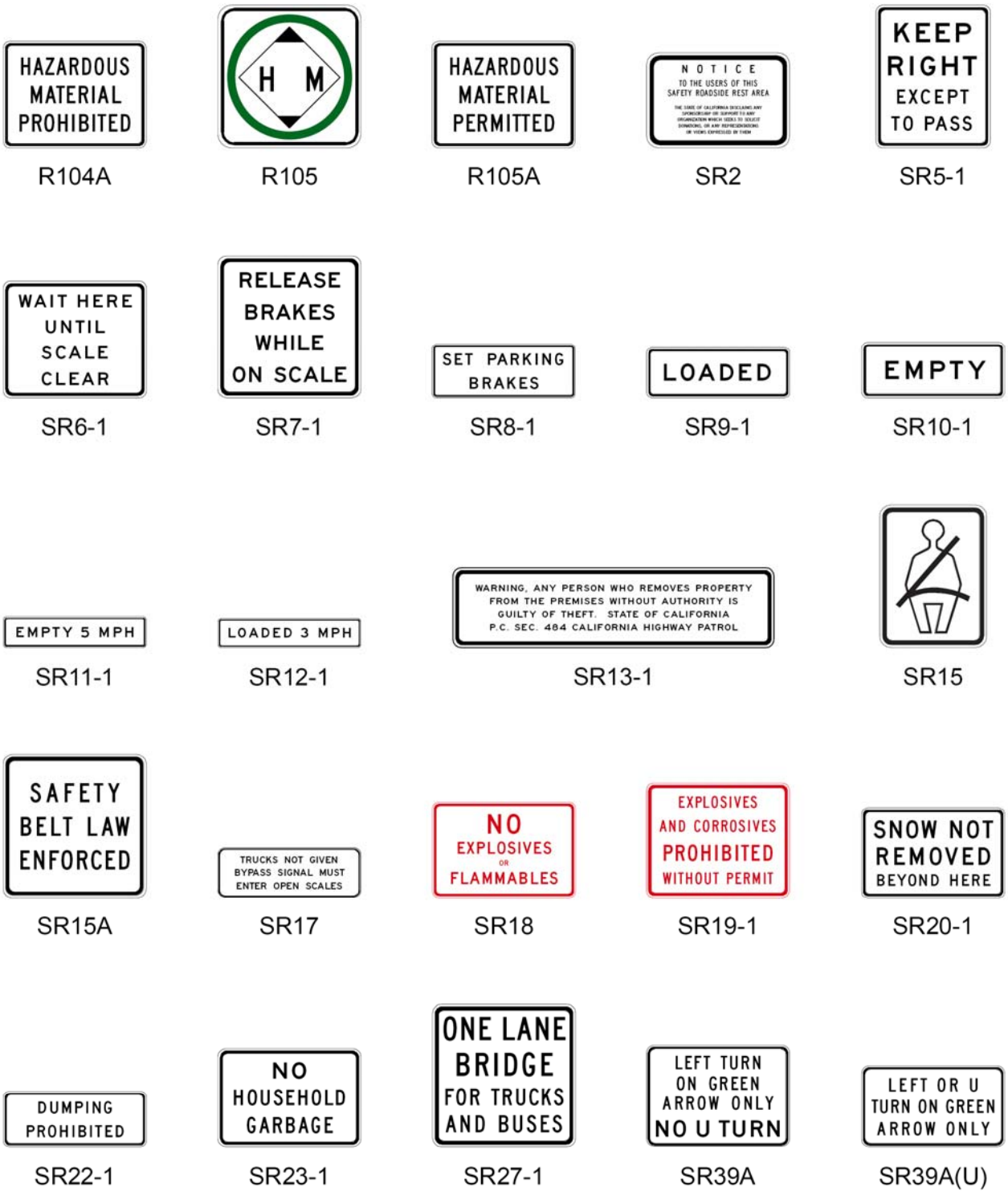
Note: All sign codes are California (CA) Codes.

Figure 2B-101. California Regulatory Signs
(Sheet 6 of 8)



Note: All sign codes are California (CA) Codes.

Figure 2B-101. California Regulatory Signs
(Sheet 7 of 8)



Note: All sign codes are California (CA) Codes.

Figure 2B-101. California Regulatory Signs
(Sheet 8 of 8)

SR40

SR41

SR42

SR43

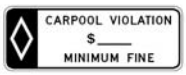
SR44

SR46

SR47

SR48

SR49

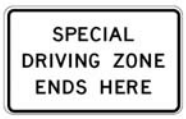


SR50-1

SR50-2

SR53

SR54



SR55

SR56

SR57

SR58

SR59

Note: All sign codes are California (CA) Codes.

Section 2B.06 STOP Sign Placement

The following is added to this section:

Standard:

When a required stop is to apply at the entrance to an intersection from a one-way street with a roadway of 9.1 m (30 ft) or more in width, stop signs shall be erected both on the left and the right sides of the one-way street at or near the entrance to the intersection. Refer to CVC 21355.

Section 2B.08 YIELD Sign (R1-2)

The following is added to this section:

Standard:

The TO ONCOMING TRAFFIC (R1-2a) sign when used, shall be mounted on the same post and immediately below a YIELD (R1-2) sign.

Guidance:

The width of the R1-2a sign should be equal to the width of the YIELD (R1-2) sign.

Figure 2B-1 STOP, YIELD, Speed Limit, FINES HIGHER, and Photo Enforcement Signs

Standard:

No sign shall have a metric unit or message, except per CVC 21351.3. Hence, the following signs shall not be used in California with metric messages unless specifically allowed per CVC 21351.3.

Speed Limit (R2-1) Metric version.

Truck Speed Limit (R2-2) Metric version.

Night Speed Limit (R2-3) Metric version.

The Truck Speed Limit (R2-2) sign shall not be used in California. See Section 2B.14.

Section 2B.10 YIELD Sign Placement

The following is added to this section:

Standard:

YIELD signs shall not be erected upon the approaches to more than one of the intersecting streets. Refer to CVC 21356.

Section 2B.12 In-Street Pedestrian Crossing Signs (R1-6, R1-6a)

Standard:

The In-Street Pedestrian Crossing (R1-6a) sign is deleted as a stop is not required in California per CVC 21950.

Figure 2B-2. Unsignalized Pedestrian Crosswalk Signs

Standard:

The In-Street Pedestrian Crossing (R1-6a) sign is deleted as a stop is not required in California per CVC 21950.

Section 2B.13 Speed Limit Sign (R2-1)

The following is added to this section:

Support:

Speed limits in California are governed by the California Vehicle Code (CVC), Sections 22348 through 22413; also, pertinent sections are found in Sections 627 and 40802 and others referenced in this section. See Section 1A.11 for information regarding this publication.

Refer to Section 2B.116 for additional information on Speed Limits and Zones. Refer to Part 6, Section 6C.01 for speed limit signs in temporary traffic control areas. Refer to Part 7 for speed limit signs in school areas.

Signs

Standard:

The Speed Limit (R2-1) sign shall be used to give notice of a prima facie or maximum speed limit except as provided under Prima Facie Speed Limits in CVC 22352.

When used, the TRUCKS, 3 AXLES OR MORE 55 MAXIMUM (CA Code R6-3) sign shall be installed approximately 230 m (750 ft) following each R2-1 sign.

The ALL VEHICLES WHEN TOWING 55 MAXIMUM (CA Code R6-4) sign shall be installed approximately 230 m (750 ft) following the R6-3 (CA Code) sign.

Guidance:

The R6-3 and R6-4 (CA Codes) signs should be placed on highway segments where speeds in excess of 90 km/h (55 mph) are permitted.

Option:

The existing AUTOS WITH TRAILERS, TRUCKS 55 MAXIMUM (CA Code R6-1) sign may remain in place until it is knocked down, damaged, stolen, vandalized, or otherwise reaches the end of its useful life.

The local California Highway Patrol office may be consulted to identify highway segments where enforcement is an issue. On these segments early replacement of existing R6-1 (CA Code) signs may be necessary.

Support:

Refer to CVC Section 22406 for types of vehicles subject to the 90 km/h (55 mph) maximum speed limit.

Option:

The Speed Zone Ahead (CA Code R2-4) sign may be used to inform the motorist of a reduced speed zone.

Standard:

The R2-4 (CA Code) sign shall always be followed by a Speed Limit (R2-1) sign installed at the beginning of the zone where the reduced speed limit applies.

The End Speed Limit (CA Code R3) sign shall only be used to mark the end of a speed zone.

The R3 (CA Code) sign shall not be used at a transition into a change in speed limits within a reduced zone.

Option:

The R3 (CA Code) sign may be used with the TRUCK (M4-4) plaque to mark the end of truck speed zones on descending grades.

Standard:

Speed limit signs shall be placed at the beginning of all restricted speed zones.

Option:

Where speed zones are longer than 1.6 km (1 mi), intermediate signs may be placed at approximate 1.6 km (1 mi) intervals. For three or more lanes in each direction, dual installation may be used.

Standard:

The Speed Limit (R2-1) and End Speed Limit (CA Code R3) signs, as appropriate shall be placed at the end of all restricted speed zones.

Freeways with 110 km/h (65 mph) and those segments where a speed limit of 110 km/h (70 mph) has been approved by the Department of Transportation, with approval by the California Highway Patrol, shall be posted as follows:

- **At the segment entrance, R2-1 signs shall be installed right of traffic off of the right shoulder.**
- **R2-1 signs shall also be installed off of the right shoulder only, throughout the segment, at a maximum of 40 km (25 mi) intervals.**

Option:

- The 40 km (25 mi) interval may be modified to include locations following entrance ramps.

Standard:

- **The R6-3 (CA Code) sign shall be installed approximately 230 m (750 ft) following each R2-1 sign, both at the beginning and throughout each 95 (60), 110 (65) or 110 (70) km/h (mph) segment.**
- **The R6-4 (CA Code) sign shall be installed approximately 230 m (750 ft) following each R6-3 (CA Code) sign.**

Option:

- The SLOWER TRAFFIC KEEP RIGHT (R4-3) signs may be installed at locations where there is a tendency of the motorists to drive in the left-hand lane(s) below the normal speed of traffic.

Standard:

- **Signs shall be placed in protected locations.**
- **At the end of the 110 (70)/110 (65) km/h (mph) segment, R2-1 signs shall be installed off of the right shoulder.**

Freeway segments where a 90 km/h (55 mph) speed limit has been approved by the Department of Transportation, with the approval of the California Highway Patrol, shall be posted as follows:

- **The beginning of the segment shall be posted with an R2-1 sign installed on the right shoulder and left shoulder where the median is of sufficient width to permit sign maintenance without lane closures.**

Guidance:

- Subsequent signs should then be posted on the right shoulder, on approximate 4.8 km (3 mi) intervals, with no more than 3 interchanges between signs.
- At the end of the segment, an R2-1 sign with the appropriate number for the next speed limit should be posted on the right shoulder.

Conventional highways with 90 km/h (55 mph) speed limits should be posted as follows:

Standard:

- **The beginning of the segment shall be posted with an R2-1 sign installed on the right shoulder.**

Guidance:

- Subsequent signs should then be posted on approximate 8 to 16 km (5 to 10 mi) intervals and immediately after locations where significant volumes of traffic enter the segment.
- At the end of the segment, an R2-1 sign with the appropriate number for the next speed limit should be posted on the right shoulder.

Conventional highways with 110 km/h (65 mph) speed limits should be posted as follows:

- The beginning of the segment should be posted with an R2-1 sign installed on the right shoulder.

- Subsequent signs should then be posted at 8 to 16 km (5 to 10 mi) intervals and after locations where significant volumes of traffic enter the segment.
- At the end of the segment, an R2-1 sign with the appropriate number for the next speed limit should be posted on the right shoulder.

Option:

Pavement markings with appropriate numerals (see Section 3B.19) may be used to supplement speed limit signs.

Standard:

The R2-1 and CA Code R6-3 and R6-4 signs giving maximum statewide speed limits for various types of vehicles shall be installed on all State highways near the points of entrance into California.

Guidance:

The R2-1 and CA Code R6-3 and R6-4 signs should be placed in a location to be most effectively viewed by the approaching motorists.

Speed Enforced Signs

Option:

The SPEED ENFORCED BY RADAR (CA Code R48) sign may be used where the California Highway Patrol has received authority to use radar and requests such signs.

Guidance:

One sign should be used in each direction at the beginning of the segment of roadway, and at intervening major route intersections, where radar enforcement is in effect.

Support:

The R48 (CA Code) sign is a stand-alone sign intended to alert motorists that speed is enforced by radar on a particular segment of roadway.

Option:

The RADAR ENFORCED (CA Code R48-1) sign may be used in combination with the Speed Limit (R2-1) sign on any roadway where law enforcement has the authority to use radar.

Guidance:

When used, the R48-1 (CA Code) sign should be placed below the R2-1 sign, at the beginning of the segment of roadway and at intervening major intersections, where radar enforcement is in effect.

Option:

The SPEED ENFORCED BY AIRCRAFT (CA Code R48-2) sign may be placed, when requested by the California Highway Patrol, on sections of highway regularly patrolled by aircraft.

Standard:

The R48-2 (CA Code) sign shall be used for both directions of travel.

Guidance:

The R48-2 (CA Code) sign should be placed at the beginning of the section and spaced at 40 km (25 mi) intervals. See Figure 3B-106.

Vehicle Speed Feedback Signs

Option:

A Vehicle Speed Feedback sign that displays to approaching drivers the speed at which they are traveling may be installed in conjunction with a Speed Limit (R2-1) sign.

Standard:

If a Vehicle Speed Feedback sign displaying approach speeds is installed, the legend shall be YOUR SPEED XX.

The numerals displaying the speed shall be white, yellow, yellow-green or amber color on black background.

When activated, lights shall be steady-burn conforming to the provisions of CVC Sections 21466 and 21466.5.

Vehicle Speed Feedback signs shall not alternatively be operated as variable speed limit signs.

Guidance:

To the degree practical, numerals for displaying approach speeds should be similar font and size as numerals on the corresponding Speed Limit (R2-1) sign.

Option:

When used, the Vehicle Speed Feedback sign may be mounted on either a separate support or on the same support as the Speed Limit (R2-1) sign.

In lieu of lights, legend may be retroreflective film for flip-disk systems.

The legend YOUR SPEED may be white on black plaque located above the changeable speed display.

Support:

Driver comprehension may improve when the Vehicle Speed Feedback Sign is mounted on the same support below the Speed Limit (R2-1) sign.

Vehicle Speed Feedback Signs are appropriate for use with advisory speed signs and with temporary signs in work zones.

Section 2B.14 Truck Speed Limit Sign (R2-2)

Standard:

The Truck Speed Limit (R2-2) sign shall not be used in California. The TRUCK (M4-4) plaque placed above the Speed Limit (R2-1) sign shall be used instead.

The following is added to this section:

Standard:

The TRUCK (M4-4) plaque shall be placed above the Speed Limit (R2-1) sign to indicate the truck speed limit. It shall also be placed above the End Speed Limit (CA Code R3) sign to mark the end of truck speed limits.

Support:

Refer to Section 2B.13 and 2B.116 for more details.

Section 2B.15 Night Speed Limit Sign (R2-3)

The following is added to this section:

Support:

Refer to CVC 22355.

Section 2B.16 Minimum Speed Limit Sign (R2-4)

The following is added to this section:

Support:

Refer to CVC 22400.

Figure 2B-3 Speed Limit and Turn Prohibition Signs

Standard:

No sign shall have a metric unit or message, except per CVC 21351.3. Hence, the following signs shall not be used in California with metric messages unless specifically allowed per CVC 21351.3.

Minimum Speed Limit (R2-4) Metric version.

Speed Limit and Minimum (R2-4a) Metric version.

Section 2B.18 Location of Speed Limit Signs

Standard:

Paragraph 3 ("Speed Limit signs…") is deleted.

The following is added to this section:

Standard:

Speed Limit (R2-1) signs shall be installed throughout segments of freeway with posted speed limits of 110 km/h (65 mph) or 110 km/h (70 mph) at a maximum of 40 km (25 mi) intervals.

Option:

The 40 km (25 mi) interval may be modified to include locations following entrance ramps.

Standard:

Speed Limit (R2-1) signs shall be installed throughout segments of conventional highways with a posted speed limit of 110 km/h (65 mph) at 8 km (5 mi) to 16 km (10 mi) intervals.

Speed Limit (R2-1) signs shall be installed throughout segments of freeway with a posted speed limit of 90 km/h (55 mph) at approximately 4.8 km (3 mi) intervals with no more than 3 interchanges between signs.

Speed Limit (R2-1) signs shall be installed throughout segments of conventional highways with a posted speed limit of 90 km/h (55 mph) at 8 km (5 mi) to 16 km (10 mi) intervals.

Section 2B.19 Turn Prohibition Signs (R3-1 through R3-4, and R3-18)

Standard:

This section is deleted for application and shall not be used in California. It is replaced with the following:

Support:

Motorists can make a semicircular or U-turn on a green signal or green arrow except where such turn is prohibited by signs. Refer to CVC 21451 and 21454.

Option:

Local authorities, by ordinance, may prohibit the making of any turning movement by any vehicle at any intersection or between any designated intersections. Refer to CVC 22113.

Standard:

No such ordinance shall be effective with respect to a State highway until approved by the Department of Transportation.

Option:

The Department of Transportation may restrict turning movements on State highways. Refer to CVC 21352.

Support:

A thorough investigation is necessary to determine whether or not the prohibited movements can be satisfactorily made at other locations without undue circuitry of travel.

Refer to CVC 22101 for Turn Prohibition signs.

Standard:

The NO TURNS (R3-3) sign shall be used in advance of an intersection to indicate that turns are prohibited.

Guidance:

On a two-way street, one sign should be used at the near right corner and one sign at the far right corner, facing approaching traffic. On a one-way street, signs should be placed on the near left and right corners facing approaching traffic.

Standard:

The No Right/Left Turn (R3-1/R3-2) sign shall be placed at an intersection to indicate that a right/left turn is prohibited.

Guidance:

Turn Prohibition signs should be placed where they will be most easily seen by drivers intending to turn.

Standard:

The No Right Turn (R3-1) sign shall be placed at the near right corner of the intersection or overhead.

Option:

If signals are present, the R3-1 sign may be installed adjacent to a signal face viewed by motorists in the right lane.

Standard:

On one-way roads, the No Left Turn (R3-2) sign shall be placed at the near left corner facing traffic approaching the intersection.

Option:

If signals are present, the R3-2 sign may be placed adjacent to a signal face viewed by motorists in the left lane.

Standard:

On two-way two lane roads (one lane each direction), the No Left Turn (R3-2) sign shall be placed on the near right corner and far left corner facing traffic approaching the intersection.

Option:

If signals are present, the R3-2 sign may be installed adjacent to the signal face viewed by motorists.

Guidance:

On two-way multi-lane roads, the No Left Turn (R3-2) sign should preferably be placed overhead over the left lanes, in the median adjacent to the left lanes, or at the far left corner facing approaching traffic where they will be most easily seen by drivers intending to turn.

Option:

When the movement restriction applies during certain time periods only, the following Turn Prohibition signing alternatives may be used and are listed in order of preference:

A. Changeable message signs or internally illuminated signs that are lighted and made legible only during the restricted hours.
B. A supplemental plate stating the applicable hours and days prohibited, mounted below the sign. The NO LEFT TURN Specific Hours (CA Code R33 and R33A) signs may be used if left turns are prohibited during certain time periods.

Standard:

The No U-Turn (R3-4) shall be used where U turns are prohibited except when Intersection Lane Control signs (CA Code R73 Series) are used at signalized intersections with separate left turn phases.

The No U-Turn/No Left Turn (R3-18) shall be used where both, left turns and U turns are prohibited.

Guidance:

The appropriate R3-4 or R3-18 sign should be placed as follows:

A. On undivided roads without traffic signals, place on the near right and far left corners of the intersection.
B. On undivided roads with traffic signals, place on the far right and far left corners of the intersection, or on the signal mast arm.
C. On divided roads at both signalized and unsignalized intersections, place in the median on the near and far side of the intersection, and on the signal mast arm at signalized intersections.

Section 2B.20 <u>Intersection Lane Control Signs (R3-5 through R3-8)</u>

The following is added to this section:

Option:

Where all approach lanes are required to turn in the same direction, the Mandatory Movement lane Control (R3-5, R3-5a) signs may be ground mounted.

Where there is only one approach lane, the Optional Movement Lane Control (R3-6) signs may be ground mounted.

The Advance Intersection Lane Control (R3-8) signs may be overhead or ground mounted.

Guidance:

The Intersection Lane Control (R3-5 through R3-8) signs should be used to indicate the movements for specific lanes at an intersection. The arrows should be selected according to lane requirements.

Option:

The Intersection Lane Control (CA Code R73 Series) signs may be used to indicate the types of movements permitted at intersections. The R73 Series (CA Code) signs may also be used in lieu of the No U-Turn (R3-4) sign to indicate that U-turns are prohibited, when they are prohibited, at signalized intersections with separate left turn phases.

Advance Intersection Lane Control (R3-8, R3-8a, and R3-8b) signs may be installed at the intersection.

Support:

The R73-1 through R73-4 and R73-8 (CA Codes) signs are typical for overhead mounting either on an overhead mast arm or on lightweight structures. The R73-5 and R73-6 (CA Code) signs are standard for ground mounted installations. See Figure 2B-102.

Section 2B.21 Mandatory Movement Lane Control Signs (R3-5, R3-5a, and R3-7)

The following is added to this section:

Support:

Refer to CVC 22101 for Mandatory Movement Lane Control signs.

Option:

The Mandatory Movement Lane Control (R3-5) sign may be used to indicate the type of movement permitted at a major intersection where ground mounted signing is not adequate.

Standard:

The RIGHT (LEFT) LANE MUST TURN RIGHT (LEFT) (R3-7) sign shall be used when a turning movement is required, except when a clearly marked additional lane is provided for the mandatory turn. When the additional lane is provided, a pavement arrow marking shall be placed at the beginning of the additional lane.

Guidance:

Signs or markings should be repeated in advance of mandatory turn lanes when necessary to prevent entrapment and to help motorists select the appropriate lane before reaching the end of the line of waiting vehicles.

The R3-7 sign should be erected on the appropriate side of the road, 45 to 90 m (150 to 300 ft) in advance of the turn.

Option:

The THRU TRAFFIC MERGE LEFT (RIGHT) (W4-1a) sign may be used in advance of the R3-7 sign.

Standard:

The RIGHT (LEFT) LANE MUST EXIT (CA Code R18A) sign shall be used to indicate a freeway lane drop. The R18A (CA Code) sign shall be placed at the beginning of the 200 mm (8 in) solid white line approaching the exit ramp. The R18A (CA Code) signs shall not be used at freeway to freeway connectors. See Figure 3B-10 (CA) in Part 3 for details.

Guidance:

The RIGHT (LEFT) LANE FREEWAY ONLY (CA Code R18B) sign should be used on non-freeway facilities to indicate that a particular lane only leads to a freeway entrance and on to the freeway. The sign should be used in conjunction with, and at the beginning of, the 200 mm (8 in) solid white lines indicating that traffic in that lane has a mandatory movement leading to a freeway.

Standard:

The Mandatory Movement Lane Control (R3-5) signs shall be used where a right or left turn at an intersection is mandatory. On one-way roads, dual installation shall be made. Also refer to Section 3B.19.

Section 2B.22 Optional Movement Lane Control Sign (R3-6)

The following is added to this section:

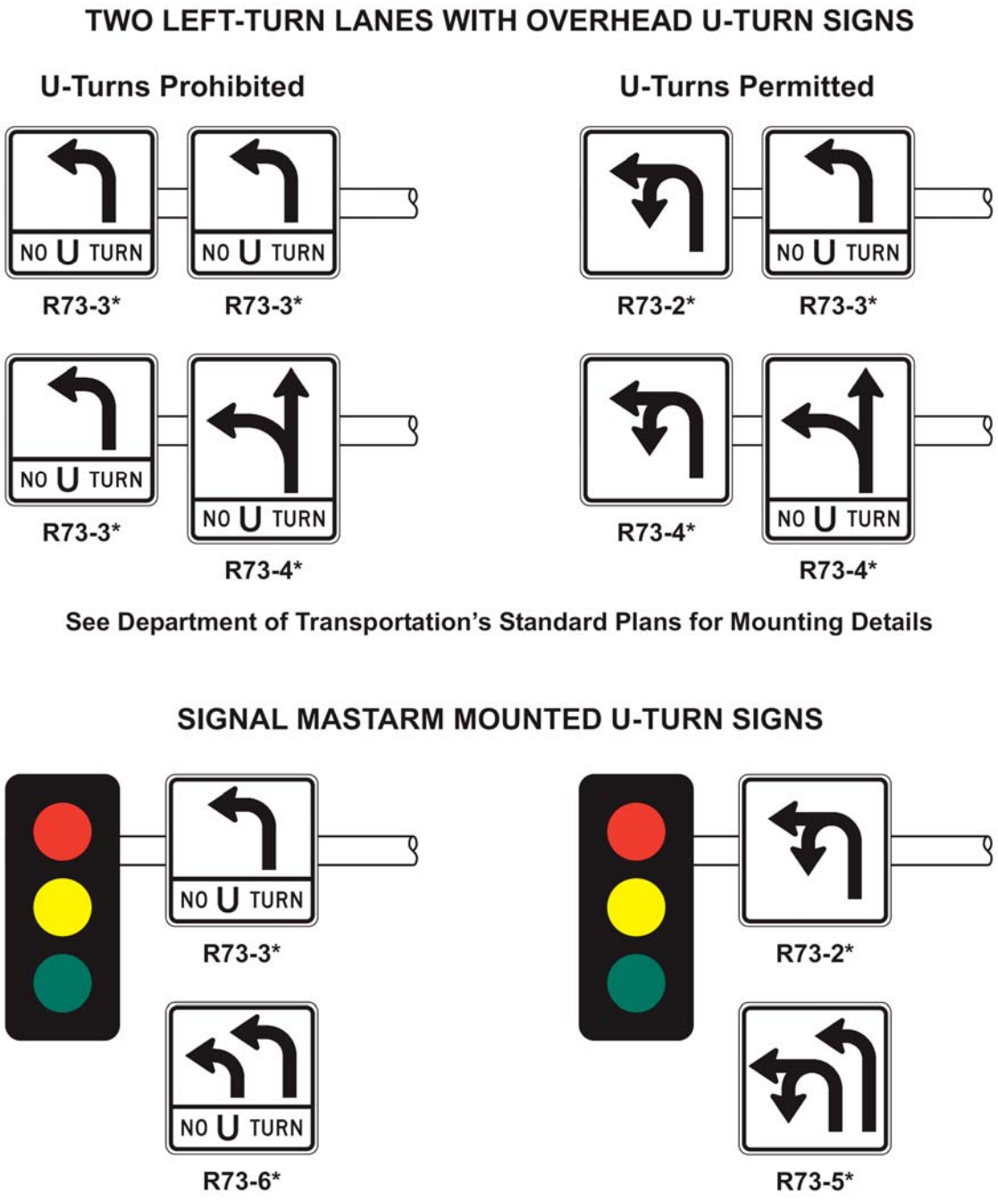
Option:

The Optional Movement Lane Control (R3-6 and CA Code R60B) signs may be used to indicate the type of movement permitted at a major intersection where ground mounted signing is not adequate.

Guidance:

The R3-6 signs should not be used at signalized intersections with separate left turn phases. The R3-6 signs should be installed on pole mounted mast-arms over the lane to which they apply.

Figure 2B-102. U-Turn Signs for Signalized Intersections with Separate Turn Phase



Section 2B.23 Advanced Intersection Lane Control Signs (R3-8 Series)

Guidance:

Paragraph 1 ("Advance Intersection…") is deleted and replaced with the following:

Advance Intersection Lane Control (R3-8, R3-8a, and R3-8b) signs should be used to indicate the configuration of all lanes ahead where there are optional lanes, mandatory turn lanes without turning bays or unshadowed turn lanes,

The following is added to this section:

Option:

Advance Intersection Lane Control (R3-8, R3-8a, and R3-8b) signs may be installed at the intersection.

Section 2B.24 Two-Way Left Turn Only Signs (R3-9a, R3-9b)

Option:

In Paragraph 1 ("Two-Way Left Turn…") the word "should" is changed to "may".

The following is added to this section:

Option:

The Two-Way Left Turn Lane (CA Code R67) sign may be installed in locations to indicate that a lane near the center of the highway is set aside for use by vehicles making left turns in both directions from or into the highway.

Support:

See Figures 3A-108 and 3B-7 (CA) for pavement marking applications for Two-Way Left Turn Lanes

Section 2B.26 Preferential Only Lane Signs (R3-10 through R3-15)

Standard:

This section is deleted for application and shall not be used in California. It is replaced with the following:

Support:

For State highways, see Department of Transportation's High Occupancy Vehicle (HOV) Guidelines and Ramp Meter Design Manual. See Section 1A.11 for information regarding these publications.

Refer to CVC 21655.5 for Exclusive- or Preferential-Use Lanes for High Occupancy Vehicles.

Option:

The NO TURN ON RED (R10-11a) sign may be used to restrict right turns onto ramp. The R10-11a sign may be used in combination with the Specific Hours/Days (CA Code R82B) Plaque.

Guidance:

The NO LEFT TURN Specific Hours (CA Code R33A) sign should be installed on local streets (with concurrence of local agency) whenever left turns are restricted during peak hours. The NO LEFT TURN Specific Hours EXCEPT BUSES AND CARPOOLS (CA Code R33B) should be installed on local streets (with concurrence of local agency) whenever left turns are restricted to buses and carpools only during peak hours. The NO LEFT TURN WHEN METERED EXCEPT BUSES AND CARPOOLS (CA Code R33C) should be installed on local streets (with concurrence of local agency) whenever left turns are restricted to buses and carpools only during periods of ramp metering.

Standard:

The CARPOOL LANE AHEAD ___ MILE (CA Code R82-1) sign shall be used to indicate the distance to the beginning of an HOV facility.

The Specific Hours/Days Plaque (CA Code R82B) shall be used to designate the period of HOV operation for part time HOV facilities.

Support:

The R82B (CA Code) sign is generally used with the CARPOOL LANE AHEAD ___ MILE (CA Code R82-1) sign.

Standard:

The END CARPOOL LANE (CA Code R84-1) sign shall be used to designate the end of a HOV lane for contiguous, buffered, or barriered HOV facilities.

Support:

The R84-1 (CA Code) sign is located at the end of the HOV lane and generally downstream from the CARPOOL LANE ENDS ___ MILE (CA Code R84-2) sign.

Standard:

The CARPOOL LANE ENDS ___ MILE (CA Code R84-2) sign shall be used to indicate the distance to the end of an HOV lane.

Support:

The R84-2 (CA Code) sign is located in advance of the END CARPOOL LANE (CA Code R84-1) sign.

Standard:

The LEFT LANE CARPOOLS ONLY Specific Hours/Days (CA Code R86) sign shall be used when the left lane is designated as a carpool only lane during specified times and reverts to mixed flow operation.

Support:

The R86 (CA Code) sign is generally located at the beginning of the HOV lane. The R86 (CA Code) sign is also used in tandem with the CARPOOL IS ___ OR MORE PERSONS PER VEHICLE (CA Code R93-2) sign and repeated as a package.

Standard:

The LEFT LANE CARPOOLS ONLY (CA Code R86-2) sign shall be used when the left lane is designated for carpools only on a full time basis.

Support:

The R86-2 (CA Code) sign is generally located at the beginning and at ingress/egress points of the HOV facility. The R86-2 (CA Code) sign is used in tandem with the CARPOOL IS ___ OR MORE PERSONS PER VEHICLE (CA Code R93-2) sign and repeated as a package.

Option:

The R86-2 (CA Code) sign may also be used by itself as needed between long intervals without onramps or at ingress/egress locations.

Standard:

The LEFT LANE CARPOOLS ONLY Specific Hours/Days (CA Code R86-3) sign shall be used when the left lane is designated as a carpool only lane during specified times and reverts to mixed flow operation.

Support:

The R86-3 (CA Code) sign is generally located at the beginning of the HOV lane. The R86-3 (CA Code) sign is also used in tandem with the CARPOOL IS ___ OR MORE PERSONS PER VEHICLE (CA Code R93-2) sign and repeated as a package.

Standard:

The CARPOOLS ONLY ___ OR MORE PERSONS PER VEHICLE (CA Code R87-1) sign shall be used near the beginning of the HOV facility and at ingress/egress locations to restrict the lane to high occupancy vehicles and to indicate occupancy requirements for buffered or barriered HOV facilities.

Option:

The R87-1 (CA Code) sign may also be used at the beginning of contiguous HOV facilities.

Standard:

The Route Shield CARPOOLS ONLY ___ OR MORE PERSONS PER VEHICLE (CA Code R87-2) sign shall be used to restrict the HOV drop ramps for high occupancy vehicles only and to indicate the number of persons required per vehicle.

Guidance:

The LEFT (CENTER OR RIGHT) LANE DO NOT STOP (BUSES ONLY) (CA Code R88) sign should be used to indicate that the HOV lane is not required to stop. The R88 (CA Code) sign should be placed on the same side as the HOV lane, upstream of the meter.

Support:

The 1 CAR (2 CARS) PER GREEN (CA Code R89) or 1 CAR (2 CARS) PER GREEN EACH LANE (CA Code R89-1) or 1 CAR (2 CARS) PER GREEN THIS LANE (CA Code R89-2) sign is used under the lower signal head at freeway ramp meter locations, to indicate the number of vehicles allowed for each green. When used on a signal mast arm, they are placed to the right of the signal head that applies.

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

Guidance:

The STOP HERE ON RED (R10-6) sign should be placed on the Type 1 standards near the limit line at a three-lane ramp meter.

Option:

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

Support:

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

Guidance:

The ALL VEHICLES STOP ON RED (CA Code R90-1) sign should be placed when converting a non-metered HOV bypass lane to a metered operation.

Option:

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

Support:

The LEFT (RIGHT OR CENTER) CARPOOLS ___ OR MORE ONLY Specific Hours/Days (CA Code R91) sign is used to clearly indicate the lane, number of persons per vehicle, hours and days a designated lane is restricted for use by high occupancy vehicles only.

Option:

An alternate 2 line message may be used in place of the time and day, on lines 6 and 7 of the R91 (CA Code) sign.

Guidance:

When used, the R91 (CA Code) sign should be placed near a diamond symbol pavement marking.

Support:

The LEFT (RIGHT OR CENTER) CARPOOLS ___ OR MORE ONLY WHEN METERED (CA Code R91-1) sign is used to clearly indicate the lane and number of persons per vehicle required to use the designated high occupancy vehicle lane.

Option:

An alternate 1 line message may be used in place of WHEN METERED on line 6 of the R91-1 (CA Code) sign.

The (HOV) NO TRUCKS OVER 5 TONS OR VEHICLES WITH TRAILERS (CA Code R91-2) sign may be placed adjacent to the HOV lane, as needed, where incidences of trucks or vehicles with trailers in the HOV lanes have commonly occurred and on surface streets approaching HOV drop ramps.

Guidance:

When used, the R91-1 (CA Code) sign should be placed near a diamond symbol pavement marking.

Support:

The LEFT (RIGHT OR CENTER) CARPOOLS ___ OR MORE ONLY with Specific Hours/Days (CA Code R91) or WHEN METERED (CA Code R91-1) allows SOVs (Single Occupancy Vehicles) in the lane during non metering periods of the ramp metering operation.

The LEFT (RIGHT OR CENTER) CARPOOLS ___ OR MORE ONLY (CA Code R91-3) sign is used to clearly indicate the lane and number of persons per vehicle required to use the designated high occupancy vehicle lane.

Guidance:

When used, the R91-3 (CA Code) sign should be placed near a diamond symbol pavement marking.

Support:

The R91-3 (CA Code) sign prohibits SOVs from using the HOV lane at all times.

The AUTOS/PICKUPS 2 SEATERS WITH 2 PERSONS OK (CA Code R91B) sign is placed below the R91 (CA Code) signs where carpools are 3 or more persons per vehicle. Refer to Section 30101.8 of the Streets & Highways Code.

Option:

The BUSES ONLY CARPOOLS OK Specific Hours/Days (CA Code R92) may be used in addition to ground mounted signs.

Standard:

The CARPOOL IS ___ OR MORE PERSONS PER VEHICLE (CA Code R93-2) sign shall be placed near the beginning of HOV facilities.

Support:

The R93-2 sign is also used in tandem with the LEFT LANE CARPOOLS ONLY (CA Code R86-2) sign and repeated as a package.

Standard:

If used, the VEHICLES WITH DMV CLEAN AIR DECAL OK (CA Code R93) sign shall be placed below the R91, R91-1, R91-3 or R93-2 (CA Codes) sign. Refer to CVC 21655.9.

Option:

The Mandatory/Optional Carpool Movement Lane Control (CA Code R94) sign may be installed on local streets when one of the mandatory turn lanes (left or right) is designated as a HOV only lane.

Option:

The CARPOOL VIOLATION $___ MINIMUM FINE (CA Code SR50-1) sign may be used to supplement the CARPOOL VIOLATION $___ MINIMUM FINE (CA Code SR50-2) sign on HOV facilities where violation rates are particularly high.

Support:

The SR50-1 (CA Code) sign is normally a retrofit situation where the sign can be “piggybacked” onto an existing overhead sign where the support is structurally adequate to support the additional sign.

Guidance:

The CARPOOL VIOLATION $___ MINIMUM FINE (CA Code SR50-2) sign should be placed near the beginning of all HOV facilities and may be placed at ingress/egress locations for buffered or barriered HOV facilities.

Option:

The SR50-2 (CA Code) sign may be repeated at 3.2 km (2 mile) intervals or as needed at locations experiencing high violation rates.

Section 2B.27 <u>Preferential Only Lanes for High-Occupancy Vehicles (HOVs)</u>

Standard:

This section is deleted for application and shall not be used in California. See Section 2B.26.

Section 2B.28 Preferential Only Lane Sign Applications and Placement

Standard:

This section is deleted for application and shall not be used in California. See Section 2B.26.

Section 2B.29 DO NOT PASS Sign (R4-1)

Standard:

In Paragraph 1 ("The DO NOT PASS…") second sentence, the word "may" is changed to "shall".

The following is added to this section:

Standard:

When used, the DO NOT PASS (R4-1) sign shall be positioned at the actual point where the passing restriction begins, and at intervals within, a section of highway through which conditions indicate that passing needs to be restricted.

Support:

Typical examples of where the R4-1 sign could be applied are shown in Figures 3B-12 (CA) and 3B-107.

Option:

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

The KEEP RIGHT EXCEPT TO PASS (CA Code SR5-1) sign may be used at the beginning of a passing lane to encourage slower traffic to keep in the right lane, except when passing slower vehicles. Refer to CVC 21659.

Section 2B.32 Slow Moving Traffic Lane Signs (R4-5, R4-6)

Standard:

In Paragraph 2 ("If an extra lane…") last sentence, the word "should" is changed to "shall".

The following is added to this section:

Option:

The TRUCKS 3 AXLES OR MORE RIGHT 2 LANES ONLY (CA Code R6-3A) sign may be used on divided highways having four or more lanes for traffic in one direction where this type of vehicle, unless designated, is restricted to the two right lanes. See CVC 21655 and 22348(c).

The ALL VEHICLES WHEN TOWING RIGHT 2 LANES ONLY (CA Code R6-4A) sign may be used on divided highways having four or more lanes for traffic in one direction where this type of vehicle, unless designated, is restricted to the two right lanes. See CVC 21655 and 22348(c).

Standard:

The END TRUCK LANE (CA Code R53A) sign shall be placed at the end of a truck lane.

The END TRUCK LANE CONTROL (CA Code R53E) sign shall be placed at the end of a segment of roadway in which trucks are restricted to a particular lane.

The TRUCKS RIGHT LANE ONLY (CA Code R53B) sign shall be used when a climbing lane is provided and it is necessary to prohibit trucks from passing slower moving vehicles. Signs shall be placed at the beginning of the restriction and at approximately 0.4 km (0.25 mi) intervals. When the restriction is necessary during certain hours, the Specific Hours/Day Plaque (CA Code R82A) shall be placed below the R53B (CA Code) sign.

Option:

The TRUCKS USE RIGHT LANE (R4-5) sign may be placed to advise trucks that they must use the right lane except to pass slow moving vehicles as provided in CVC 21654.

Standard:

The YIELD TO UPHILL TRAFFIC (CA Code R55) sign shall be used facing downhill traffic where a climbing lane has been provided and where a one-direction no passing marking has been placed to allow downhill traffic to pass. Refer to CVC 21661. See Section 3B.102 and 3B.103 for further details.

The SLOWER TRAFFIC KEEP RIGHT (R4-3) sign shall be used at the beginning of passing lanes. Refer to CVC 21654. See Figure 3B-12 (CA) for application of signing and markings for lane reductions.

The PASSING LANE AHEAD (CA Code R68) sign shall be used to inform motorists on a two-lane highway that an additional lane is available ahead for passing slower traffic

Figure 2B-8. Passing, Keep Right, and Truck Lane Signs
Standard:

No sign shall have a metric unit or message, except per CVC 21351.3. Hence, the TRUCK LANE (R4-6) sign shall not be used in California with metric messages unless specifically allowed per CVC 21351.3.

Section 2B.33 Keep Right and Keep Left Signs (R4-7, R4-8)
Guidance:

In Paragraph 1 ("The Keep Right…") first sentence, the word "may" is changed to "should".

Section 2B.34 DO NOT ENTER Sign (R5-1)
Standard:

This section and Figure 2B-10 are deleted and replaced with the following:

The DO NOT ENTER (R5-1) sign and WRONG WAY (R5-1a) sign shall be used at the exit end of a one-way road or ramp to inform motorists that an entrance thereto is prohibited.
Option:

The WRONG WAY (R5-1a) sign may be used on streets and highways under local jurisdiction.
Standard:

The R5-1 and the R5-1a signs shall be placed in the head-on position to a wrong-way movement.
Guidance:

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

See section 2E.50 for wrong-way traffic control at interchange ramps and Figures 2B-13 (CA), 2B-14(CA) and 3B-12 (CA) for examples of signs and lane reduction markings.

Section 2B.35 WRONG WAY Sign (R5-1a)
Standard:

This section is deleted for application and shall not be used in California. Refer to Section 2B.34 for the WRONG WAY (R5-1a) sign.

Figure 2B-10. Example of Wrong-Way Signing for a Divided Highway with a Median Width of 9 m (30 ft) or Greater
Standard:

Figure 2B-10 is deleted and replaced with Figure 2B-13 (CA).

Section 2B.36 Selective Exclusion Signs
The following is added to this section:
Support:

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

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

Guidance:

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

Option:

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

Standard:

The R5-2 signs shall be placed at each end of the affected portion of a highway section. They shall be placed at a distance of not more than 150 m (500 ft) from the ends of an affected bridge or structure.

The Bridge Speed and Weight Limit (CA Code R21) sign shall be used to specify the maximum speed permitted on a bridge or structure for vehicles over a specified weight. The R21 (CA Code) sign shall not be erected more than 150 m (500 ft) in advance of the bridge or structure.

Option:

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

The Truck Length Limit (CA Code R20H) sign may be used at locations where a semi-truck over 20 m (65 ft) in length and a semi-truck with trailer over 23 m (75 ft) in length is prohibited.

The No Trucks Variable Message (CA Code R20-1) sign may be used with an advance guide sign where there is a truck restriction.

Standard:

The NEXT RIGHT (CA Code R20-1A) Plaque shall be used below the R20-1 (CA Code) sign when no advance guide sign is available.

Option:

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

Restrictions on Use of Freeways

Support:

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

Standard:

Restrictions on use of a freeway shall be by the order of Department of Transportation, District Director.

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

Support:

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

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

Standard:

The PEDESTRIANS BICYCLES MOTOR-DRIVEN CYCLES PROHIBITED (R5-10a) sign shall be used on a freeway at or near the beginning of the section of freeway to which the prohibition applies and on the right side of freeway entrance ramps.

Guidance:

Prior to placement of the R5-10a sign on State highways, an order signed by the Department of Transportation's District Director should be on file.

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

Option:

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

Standard:

The PEDESTRIANS PROHIBITED (R5-10c) sign shall be used at all freeways exit ramps to inform the public that pedestrians are prohibited.

Guidance:

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

Option:

Dual installations may be used where pedestrian problems exist.

Support:

See 2E.50 for additional details.

Section 2B.37 <u>ONE WAY Signs (R6-1, R6-2)</u>

Standard:

This section is deleted for application and replaced with the following:

Option:

Authorities in charge of any highway may designate, by ordinance or resolution, any roadway, part of a roadway, or specific lanes for one-way traffic. Refer to CVC 21657.

Standard:

No such ordinance shall be effective with respect to a State highway until approved by the Department of Transportation.

Option:

If, by local ordinance, a State highway through a city has been made one of a pair of one-way streets, the Commission may adopt the additional street into the State Highway System. Refer to Streets and Highways Code Section 111.5. See Section 1A.11 for information regarding this publication.

Standard:

The ONE WAY (R6-1) sign shall be used on one-way streets, divided highways, and ramp terminals to indicate streets or roadways upon which vehicular traffic is required in one direction only.

The R6-1 signs shall be placed on the far right and in the median on the left side of traffic entering the highway where the median is more than 9 m (30 ft) wide as shown in Figure 2B-13 (CA).

On State highways where medians are less than 9 m (30 ft) wide, raised or unpaved, the R6-1 signs shall be placed in the median as shown in Figure 2B-14 (CA).

Option:

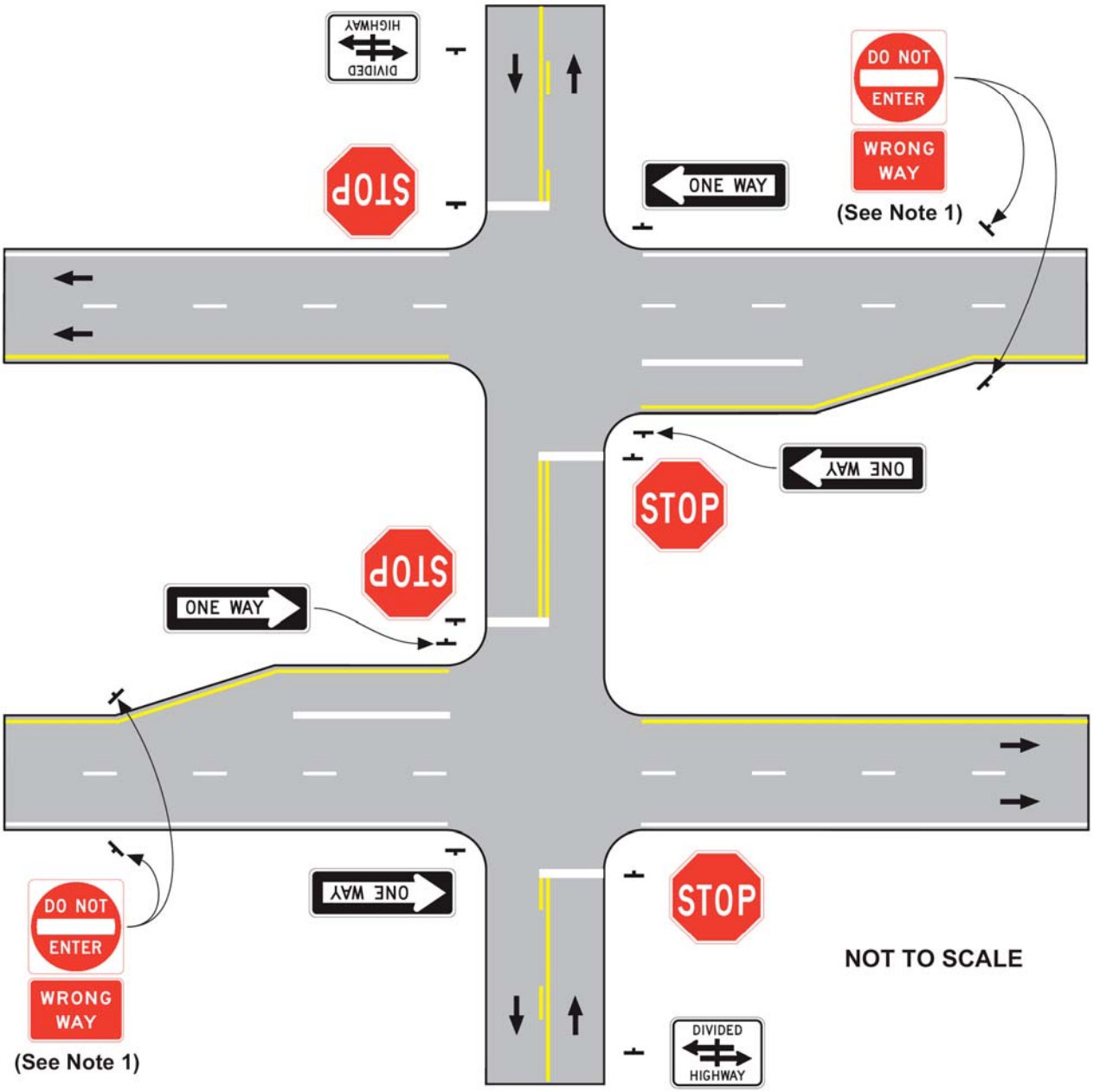
On streets and highways under local jurisdiction where medians are less than 9 m (30 ft) wide, raised or unpaved, the R6-1 signs may be placed in the median.

Guidance:

The appropriate height of the R6-1 signs when placed in the median should be 0.45 m (1.5 ft).

The R6-1 signs should also be placed parallel to the one-way street at the appropriate far corner to a wrong-way turn. They should also be placed opposite the exits from alleys and other public ways.

Figure 2B-13 (CA). Examples of ONE WAY Signing for Divided Highways with Medians of 9 m (30 ft) or Greater



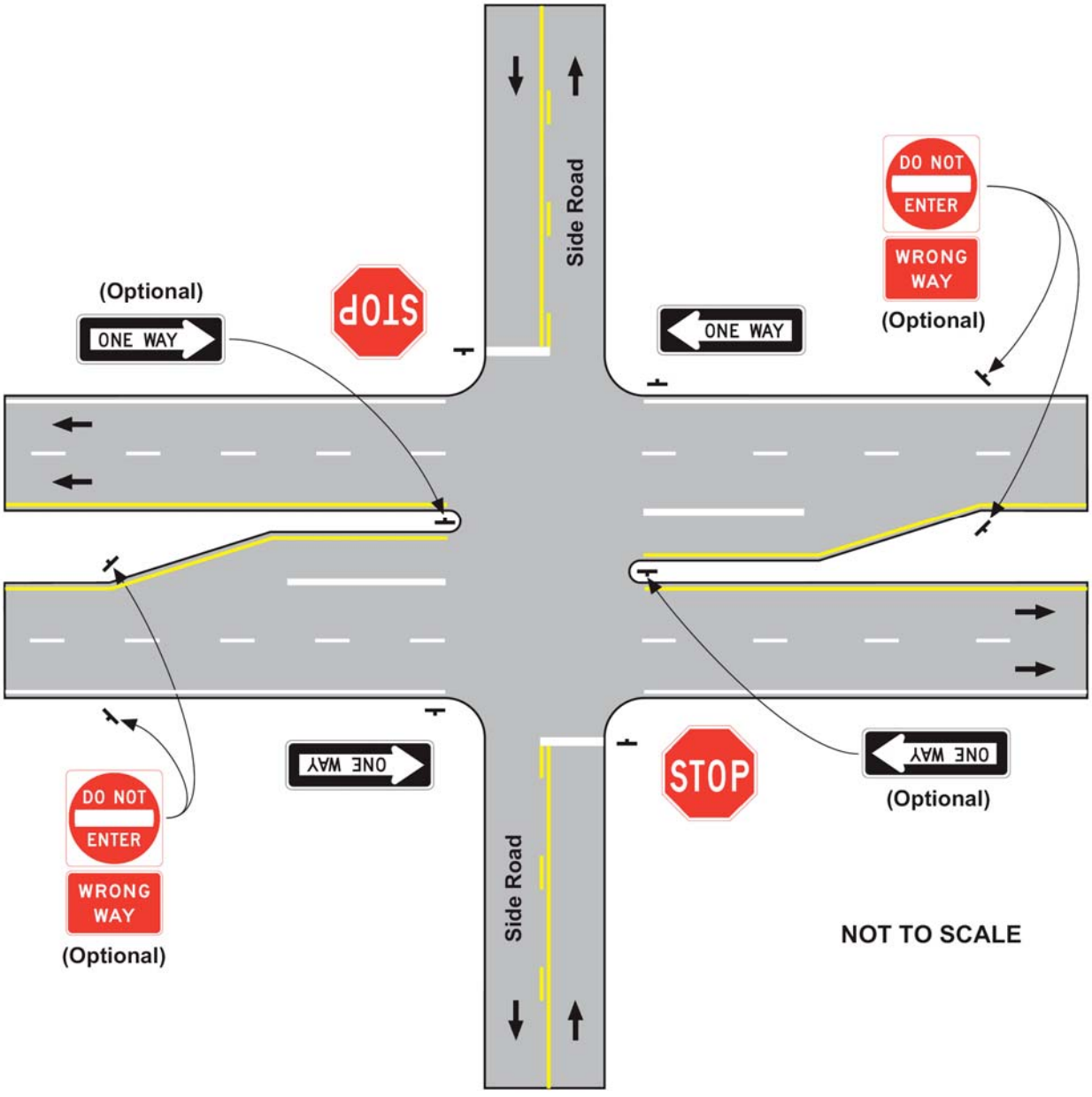
NOTE:

1. When used, the DO NOT ENTER (R5-1) and WRONG WAY (R5-1a) signs should be placed in a location that is directly in the view of a driver who would be making a wrong way entry from the cross street. The R5-1a sign is optional on local streets and highways.

LEGEND

→ Direction of Travel ⊢ Sign Location

Figure 2B-14 (CA). Examples of ONE WAY Signing for Divided Highways with Medians Less Than 9 m (30 ft)



LEGEND

→ Direction of Travel ⊢ Sign Location

Standard:

At intersections and ramps, the R6-1 signs shall be placed as provided in Section 2E.50.

Option:

The ONE WAY (R6-2) sign may be used as an alternative to the R6-1 sign where space is limited and the R6-2 sign is more appropriate.

Figure 2B-13. Examples of ONE WAY Signing for Divided Highways with Medians of 9 m (30 ft) or Greater

Standard:

Figure 2B-13 is deleted and replaced with Figure 2B-13 (CA).

Figure 2B-14. Examples of ONE WAY Signing for Divided Highways with Medians Less Than 9 m (30 ft)

Standard:

Figure 2B-14 is deleted and replaced with Figure 2B-14 (CA).

Figure 2B-15. Examples of ONE WAY Signing for Divided Highways with Medians Less Than 9 m (30 ft) and Separated Left-Turn Lanes

Standard:

Figure 2B-15 is deleted. Contact Department of Transportation's Division of Traffic Operations for further guidance regarding this figure.

Section 2B.39 Parking, Standing, and Stopping Signs (R7 and R8 Series)

The following is added to this section:

Support:

Refer to CVC 22500 through 22522 for Parking, Standing, and Stopping signs.

Parking Regulations

Option:

Parking on freeway which have full control of access and no crossing at grade may be prohibited under CVC 21960.

Parking on other State highways may be restricted or prohibited under CVC 22505 and 22506.

Support:

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

The delegation of maintenance activities to local authorities is usually exercised under the authority of Streets and Highways Code Section 130. Under a proposal to delegate maintenance and parking regulation authority under CVC Section 22506, the Department retains the authority to regulate parking under the three conditions specified in CVC Section 22505(a). The District Director of Transportation is authorized to make this delegation of authority.

Policy on Parking Restrictions

Guidance:

No Parking Permitted at Any Time – Parking should be prohibited at locations where the prohibition would reduce the risk of collisions or where parking would unduly interfere with the movement of traffic.

Option:

Major factors that may be considered include:

1. Narrow roadway width.
2. Restricted visibility at intersections for pedestrian and vehicular traffic.
3. Narrow shoulder width.

4. Conversion of a parking lane to a through lane or right-turn lane.

Support:

Limited Time Parking - The Department of Transportation does not issue orders for limited time parking.

Option:

Limited time parking restrictions may be initiated by local authorities and approved by the Department. Parking prohibitions between certain hours may also be initiated by local authorities.

Standard:

Before time limit parking regulations are approved in rural areas, assurance shall be obtained from the enforcement agency that the regulation will be enforced.

Signs

Guidance:

The PARK PARALLEL (CA Code R24) sign should only be used where diagonal parking is prevalent, in violation of CVC 22502.

Option:

The OK TO PARK ON BRIDGE (CA Code R22) sign may be used to inform motorists that parking is permitted on a bridge. Refer to CVC 22500(k).

The PARK OFF PAVEMENT (CA Code R25) sign may be used where it is likely that vehicles may stop on the traveled way and interfere with through traffic. It may also be used as a temporary sign in snow areas where parking is permitted.

The NO PARKING ANY TIME with arrow (CA Code R28) or without arrow (CA Code R26) signs may be used to inform motorists of a parking prohibition at a specific location. The NO PARKING ANY TIME with arrow (CA Code R28A) or without arrow (CA Code R26A) signs may be used where a larger size is desirable.

CVC Section 21718 prohibits the stopping, parking or leaving of any vehicle upon a freeway. Large NO PARKING ANY TIME (CA Code R26) or EMERGENCY PARKING ONLY (R8-4) signs may be installed on freeways which have full control of access and no crossing at grade to inform traffic that stopping, parking or leaving of any vehicle upon a freeway is prohibited.

The TOW-AWAY NO PARKING ANY TIME (CA Code R26J) sign may be used to inform motorists of a parking prohibition and tow-away zone at a specific location.

The NO PARKING HERE TO CORNER (CA Code R26B) sign may be used to prohibit parking at a specific location. The NO PARKING HERE TO CORNER (CA Code R26C) sign may be used where a larger size is desirable.

The No Parking (R8-3a) sign may be used to inform motorists of a parking prohibition at a specific location. The No Parking plaques (CA Code R26E) may be placed below the R8-3a sign to indicate specific parking exceptions or restrictions.

The NO STOPPING FIRE LANE (CA Code R26F) sign may be used to inform motorists of a designated fire lane. Refer to CVC 22500.1.

Standard:

The NO STOPPING ANY TIME (CA Code R26(S)) sign shall be used to inform motorists of a No Stopping Zone at a specific location.

Option:

The NO STOPPING ANY TIME (CA Code R26A(S)) sign may be used where a larger size is desirable.

The NO PARKING ON BRIDGE (CA Code R27) sign may be used only where parking is prevalent in violation of CVC 22500(k). The NO PARKING ON BRIDGE (CA Code R27A) sign may be used where a larger size is desirable.

The NO STOPPING ANY TIME with arrow (CA Code R28(S)) sign may be used to inform motorists of no stopping zones. Use only where the beginning and ending points of the prohibition are not otherwise indicated. The NO STOPPING ANY TIME with arrow (R28A(S)) sign may be used where a larger size is desirable.

Standard:

The NO PARKING VEHICLES OVER 6 FT HIGH (CA Code R28B) sign shall be used to inform motorists of a parking prohibition, which applies only to vehicles greater than 1.8 m (6 ft) in height.

Option:

The R28B (CA Code) sign may be installed within 30 m (100 ft) of an intersection to improve the visibility of the motorists in accordance with CVC 22507.

Standard:

The No Stopping/No Parking Specific Hours (CA Code R29) sign shall be used to inform motorists of a stopping and parking prohibition during certain hours at a specific location.

The No Parking Specific Hours (CA Code R30 and R30A) signs shall be used to inform motorists of a parking restriction during certain hours at a specific location.

Option:

The No Parking/Parking Specific Hours (CA Code R31 and R32B) and No Stopping/Parking Specific Hours (CA Code R31(S)) signs may be used to inform motorists of a stopping/parking prohibition during certain hours and a parking time limit during other hours at a specific location. The R31(S) (CA Code) sign is used for stopping prohibitions, generally during peak traffic hours.

The Limited Hour/Minute Parking Specific Hours (CA Code R32 and R32A) signs may be used to inform motorists of a parking time limit with specific hours and/or minutes during certain hours at a specific location.

The Tow-Away No Stopping/No Parking Specific Hours (CA Code R37) sign may be used to inform motorists of no stopping and parking prohibitions and tow-away zone at a specific location.

The Tow-Away No Parking/Limited Hour Parking Specific Hours (CA Code R38) sign may be used to inform motorists of a parking restriction and tow-away zone at a specific location.

The Tow-Away No Stopping/Limited Hour Parking Specific Hours (CA Code R38(S)) sign may be used for stopping prohibitions, generally during peak hours.

The Disabled Parking Only (CA Code R99) sign may be used in on-street and off-street parking facilities to designate stalls for vehicles with a special identification license plate or a distinguishing placard for disabled persons.

Support:

The R99 (CA Code) sign, blue pavement markings and handicapped symbol, are required for enforcement of these parking areas. Refer to CVC 22511.7 and 22511.8.

Standard:

The VAN ACCESSIBLE (R7-8a or R7-8b) sign shall be mounted below the Disabled Parking Only (CA Code R99) sign of the disabled person parking space designated as the van accessible space as provided in the California Building Standards Code Section 3107.1(c).

Option:

The TOW-AWAY SPECIAL PLACARD OR LICENSE PLATE REQUIRED (CA Code R100A) sign may be used with the R99 (CA Code) sign to inform motorists that their vehicle will be towed away if they do not have a special identification license plate or a distinguishing placard for disabled persons.

Standard:

The Disabled Tow-Away (CA Code R100B) sign shall be placed immediately adjacent to, and visible from, the stall or space, or at each entrance to an off street parking facility to inform motorists that their vehicle will be towed away if they park in designated stalls or spaces without a special identification license plate or a distinguishing placard for disabled persons. Refer to CVC 22511.8 and 22511.9.

Option:

The TOW-AWAY NO PARKING WHEN SNOW REMOVAL CONDITIONS EXIST (CA Code SR49) sign may be used to prohibit or restrict the parking or standing of vehicles on designated streets or highways, or portions thereof, for the purpose of snow removal. Refer to CVC 22510.

Guidance:

The SNOW NOT REMOVED BEYOND HERE (CA Code SR20-1) sign should be erected at the beginning of the snow season and removed in the spring when the road is opened. The SR20-1 (CA Code) sign should be placed at a location that will provide a motorist the opportunity to turn around.

Section 2B.41 Placement of Parking, Standing, and Stopping Signs

The following is added to this section:

Support:

Refer to Section 2A.14 for legibility distance.

Section 2B.42 Emergency Restriction Signs (R8-4, R8-7, R8-8)

Guidance:

In Paragraph 2 ("The DO NOT STOP…), the word "may" is changed to "should".

The following is added to this section:

Standard:

The EMERGENCY PARKING ONLY (R8-4) sign shall be used at the beginning of freeways below the BEGIN FREEWAY (CA Code R57) sign. Refer to CVC 21960.

Section 2B.44 Pedestrian Crossing Signs (R9-2, R9-3)

The following is added to this section:

Support:

Refer to CVC 21106.

Section 2B.45 Traffic Signal Signs (R10-1 through R10-21)

Standard:

The NO TURN ON RED (R10-11a, R10-11b) signs are deleted, a symbolic NO TURN ON RED (R10-11) or No Right Turn on Red (CA Code R13A) or No Left Turn on Red (CA Code R13B) signs shall be used instead.

For consistency, the STOP HERE ON RED (R10-6a) sign is deleted, only STOP HERE ON RED (R10-6) sign shall be used.

Paragraph 12 ("Where turns on red …") which includes the RIGHT (LEFT) ON RED ARROW AFTER STOP (R10-17a) sign is deleted as it compromises the meaning of the right red arrow. A circular red signal face should be used, instead of correcting the condition with this sign.

Paragraph 16 ("A U-TURN YIELD …") which includes the U-TURN YIELD TO RIGHT TURN (R10-16) sign is deleted as this condition should not be practiced. The actual movement conflict should be eliminated rather than try to correct it with this sign.

Guidance:

In Paragraph 12 ("A NO TURN ON RED…"), Item E is deleted.

The following is added to this section:

Support:

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

Refer to CVC 22101 for the No Turn on Red (R10-11 Series) signs.

Option:

A supplemental sign, to the NO TURN ON RED (R10-11a) sign, may be used on the near right or left at intersections that are extremely wide or skewed.

Guidance:

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

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

Standard:

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

Option:

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

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

Figure 2B-19. Traffic Signal Signs

Standard:

The STOP HERE ON RED (R10-6a) sign is deleted. See Section 2B.45.

The NO TURN ON RED (R10-11a, R10-11b) signs are deleted. See Section 2B.45.

The U-TURN YIELD TO RIGHT TURN (R10-16) sign is deleted. See Section 2B.45.

The RIGHT (LEFT) ON RED ARROW AFTER STOP (R10-17a) sign is deleted. See Section 2B.45.

Section 2B.46 Photo Enforced Signs (R10-18, R10-19)

The following is added to this section:

Standard:

The Traffic Signal PHOTO ENFORCED (CA Code SR56) sign shall be placed at all traffic signals where an automated traffic enforcement system is being used or at all major entrances to the city, including, at a minimum, freeways, bridges, and state highways.

Option:

The RED LIGHT VIOLATION $ ___ FINE (CA Code SR58) sign may be used in advance of signalized intersections where a local agency has adopted an ordinance setting a specific fine amount for red light violations within it's jurisdiction. The SR58 (CA Code) sign may be placed on State highways when requested by the local agency.

Section 2B.48 ROAD CLOSED Sign (R11-2) and LOCAL TRAFFIC ONLY Signs (R11-3 Series, R11-4)

Guidance:

In Paragraph 3 ("The Road Closed…") second sentence ("These signs shall be…"), the word "shall" is changed to "should".

Standard:

In Paragraph 4 ("The word message…"), the message BRIDGE OUT shall not be used in California. The message BRIDGE CLOSED shall be used instead.

Figure 2B-20. Road Closed and Weight Limit Signs

Standard:

No sign shall have a metric unit or message, except per CVC 21351.3. Hence, the following signs shall not be used in California with metric messages unless specifically allowed per CVC 21351.3.

Weight Limit (R12-1) Metric version.

AXLE WEIGHT LIMIT X t (R12-2) Metric version.
NO TRUCKS OVER XXXX kg EMPTY WT (R12-3) Metric version.
WEIGHT LIMIT X t PER AXLE, X t GROSS (R12-4) Metric version.
Weight Limit symbol (R12-5) Metric version.
METRIC (R12-6) Plaque.

The Weight Limit (R12-2, R12-3 and R12-4) signs shall not be used in California. See Section 2B.49.

Section 2B.49 Weight Limit Signs (R12-1 through R12-5)

Standard:

This section is deleted for application and shall not be used in California. It is replaced with the following:

Support:

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

Also refer to Section 2B.36.

Standard:

The Weight Limit (R12-1, R12-5 and CA Code R20A) signs shall be used to specify restrictions of trucks on a bridge, structure or highway.

Support:

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

Standard:

The weight limit signs shall be placed at each end of the affected portion of a highway section. They shall be placed at a distance of not more than 150 m (500 ft) from the ends of an affected bridge or structure.

Option:

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

The Commercial Vehicle Weight Exclusion sign (CA Code R36) may be used to indicate vehicles over ___ tons are prohibited from certain streets and highways.

Guidance:

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

Option:

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

Section 2B.50 Weigh Station Signs (R13 Series)

The following is added to this section:

Option:

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

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

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

The LOADED (CA Code SR9-1) sign may be used at Weigh Stations to designate the lane loaded trucks are to use when passing through the scales.

The EMPTY (CA Code SR10-1) sign may be used at Weigh Stations to designate the lane empty trucks are to use when passing through the scales.

The EMPTY 5 MPH (CA Code SR11-1) sign may be used at Weigh Stations to control the speed of empty trucks when passing through scales.

The LOADED 3 MPH (CA Code SR12-1) sign may be used at Weigh Stations to control the speed of loaded trucks when passing through scales.

The Theft CHP Plaque (CA Code SR13-1) may be used at Weigh Stations to advise scale users that removing any property from the Weigh Station without authorization from the California Highway Patrol is a violation of the Penal Code.

Guidance:

The TRUCKS NOT GIVEN BYPASS SIGNAL MUST ENTER OPEN SCALES (CA Code SR17) sign should be used in advance of a truck weigh station that is equipped with a mainline bypass system and weigh-in-motion scales to electronically weigh and verify compliance of commercial trucks as they approach the weigh station.

The Width Limit (CA Code SR40) sign should be placed at truck weigh stations to direct over width vehicles around the station, if the weigh station lacks adequate width. The California Highway Patrol should be contacted to determine where these signs are needed. Refer to CVC 35790.

Standard:

The ALL BUSES STOP AT SCALES (CA Code SR41) and ALL BUSES with Arrow (CA Code SR42) signs shall be used as a temporary sign for Critical Item Bus Inspections on state highways.

Option:

The Weigh Station Repair Service Plaque (CA Code S21) sign may be installed at commercial vehicle inspection facilities on State highways where needed at the request of the California Highway Patrol

Figure 2B-21 Truck Signs

Standard:

The Hazardous Material (R14-2, R14-3) signs shall not be used in California. See Section 2B.52.

The National Network (R14-4, R14-5) signs shall not be used in California. See Section 2B.53.

Section 2B.51 TRUCK ROUTE Sign (R14-1)

The following is added to this section:

Support:

Refer to CVC 21101 through 21104 and 35701 through 35715.

Generally, the Department of Transportation is not unilaterally authorized to prohibit truck travel on State highways. Various sections in the California Vehicle Code allow cities and counties to restrict, by ordinance, commercial vehicles subject to the specific conditions in those sections.

Standard:

Generally, no such local ordinance shall be effective with respect to any State highway until the ordinance has been approved by the Department of Transportation. This approval shall be made by the Director, Department of Transportation.

The proposed local ordinance shall designate an unrestricted alternate route, or routes, for use by the prohibited vehicles. Such proposed local ordinances shall not be approved unless the alternate route, or routes, are considered suitable by the Department of Transportation.

An investigation of designated alternate routes shall be made with special attention being given to the following features:

1. **Geometrics.**
2. **Increase in distance of travel and comparisons in time of travel.**
3. **Railroad grade crossings.**
4. **Present traffic and practical capacity of proposed alternates.**

5. **Structural adequacy of pavement for heavy truck traffic.**
6. **Heavy grades.**
7. **Proximity to schools or school routes.**
8. **Developed residential areas.**

Section 2B.52 Hazardous Material Signs (R14-2, R14-3)

Standard:

This section is deleted for application and shall not be used in California. It is replaced with the following:

Standard:

The Hazardous Waste Prohibited (CA Code R102) sign shall be used to identify those routes, either State or local, upon which the transportation of hazardous waste has been prohibited, as provided in CVC 31303 and 31304.

Option:

On those highways where hazardous waste is permitted, the R102 (CA Code) signs may be placed in advance of their intersection or interchange with the prohibited route.

Guidance:

The R102 (CA Code) signs should be placed on the prohibited route for both directions of travel after entry from the above intersection or interchange.

Standard:

The HAZARDOUS WASTE PROHIBITED (CA Code R102A) sign shall be positioned below the R102 (CA Code) sign.

Guidance:

The R102A (CA Code) sign should be of equal width to the R102 (CA Code) sign.

Option:

The Hazardous Waste Permitted (CA Code R103) sign may be used to guide drivers around routes where the transportation of hazardous waste is permitted.

Standard:

The HAZARDOUS WASTE PERMITTED (CA Code R103A) sign shall be positioned below the R103 symbol sign.

Guidance:

The R103A (CA Code) sign should be of equal width to the R103 (CA Code) sign.

Option:

The Hazardous Material Prohibited (CA Code R104) sign may be used to identify those routes, either State or local, upon which the transportation of Hazardous Material has been prohibited. On those highways where Hazardous Material is prohibited, the R105 (CA Code) signs may be placed in advance of their intersection or interchange with the prohibited route.

Guidance:

The R104 (CA Code) signs should be placed on the prohibited route for both directions of travel after entry from the above intersection or interchange.

Standard:

The R104 (CA Code) sign shall be used to identify those routes upon which the transportation of Hazardous Materials has been prohibited, as provided in CVC 31303 and 31304.

The HAZARDOUS MATERIAL PROHIBITED (CA Code R104A) sign shall be positioned below the R104 (CA Code) sign.

Guidance:

The R104A (CA Code) sign should be of equal width to the R104 (CA Code) sign.

Option:

The Hazardous Material Permitted (CA Code R105) sign may be used to guide drivers around routes where the transportation of Hazardous Material is prohibited.

Standard:

The HAZARDOUS MATERIAL PERMITTED (CA Code R105A) sign shall be positioned below the R105 (CA Code) sign.

Guidance:

The R105A (CA Code) sign should be of equal width to the R105 (CA Code) sign.

The NO EXPLOSIVES OR FLAMMABLES (CA Code SR18) sign should be placed on highways, structures, tunnels, etc. where vehicles transporting explosives or flammable materials are prohibited. The SR18 (CA Code) sign should be placed at a location that will provide a motorist the opportunity to turn around.

The EXPLOSIVES AND CORROSIVES PROHIBITED WITHOUT PERMIT (CA Code SR19-1) sign should be placed on highways, structures, tunnels, etc. where vehicles transporting explosives or corrosive materials are prohibited without a permit. The SR18 (CA Code) sign should be placed at a location that will provide a motorist the opportunity to turn around.

Section 2B.53 National Network Signs (R14-4, R14-5)

Standard:

This section is deleted for application and shall not be used in California. See section 2D.45.

Section 2B.54 Other Regulatory Signs

The following is added to this section:

Guidance:

The Seat Belt (R16-1) sign should be placed in each direction on all freeways and other major state routes at approximate 80 km (50 mi) intervals.

Standard:

The SAFETY BELT LAW ENFORCED (CA Code SR15A) sign shall be placed below each installation of the Seat Belt (R16-1) sign.

Option:

The Seat Belt (R16-1) and SAFETY BELT LAW ENFORCED (CA Code SR15A) sign combination may also be used on local arterials.

Section 2B.101 TWO WAY TRAFFIC AHEAD Sign (CA Code R40)

Standard:

The TWO WAY TRAFFIC AHEAD Sign (CA Code R40) shall be used to inform motorists that they are leaving a one-way street and entering a two-way street.

Guidance:

The R40 (CA Code) sign should be placed on both sides of the one-way street approximately 60 m (200 ft) in advance of the intersection where the two-way traffic begins. Refer to Section 2C.34.

Section 2B.102 Turnout Signs (CA Code R50, R51, R52 and R52A)

Support:

Refer to CVC 21656 for Turning out of Slow-Moving Vehicles.

The TURNOUT ¼ MILE (CA Code R50) sign is used to give advance notice of turnouts for slow moving vehicles.

Standard:

The TURNOUT (CA Code R51) sign shall be placed at the entrance to a turnout.

The SLOWER TRAFFIC USE TURNOUTS (CA Code R52) or SLOWER TRAFFIC USE TURNOUTS TO ALLOW PASSING (CA Code R52A) sign shall be used in advance of the first turnout on a route and at other locations as needed.

Support:

The R52 and R52A (CA Codes) signs are not intended to be used in advance of each individual turnout. See Section 3B.105 for more details.

Section 2B.103 Begin/End Freeway Signs (CA Code R57 and R58)

Standard:

The BEGIN FREEWAY (CA Code R57) sign shall be used to mark the beginning of a section of freeway on which parking is prohibited.

Support:

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

Standard:

The END FREEWAY (CA Code R58) sign shall be used to mark the end of a freeway.

Section 2B.104 TRUCKS OK Sign (CA Code R70)

Option:

The TRUCKS OK sign (CA Code R70) may be used to allow trucks to legally use other than the right lane or lanes, such as in advance of freeway branch connections, lane drop, etc.

Support:

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

Section 2B.105 PRIVATE ROAD (PRIVATE PROPERTY) VEHICLE CODE ENFORCED Sign (CA Code R101)

Standard:

The PRIVATE ROAD VEHICLE CODE ENFORCED (CA Code R101) sign shall be used at the entrance to a privately owned and maintained road when enforcement of vehicle provisions apply, as provided in CVC 21107.7.

The alternate message PRIVATE PROPERTY shall be used at each entrance to a privately owned and maintained off-street parking facility when enforcement of vehicle code provisions apply, as provided in CVC 21107.8.

Section 2B.106 Chain Control Signs (CA Codes R74, R75, R76, R76-1, R77, R78, R79 and R80-1)

Option:

The CHAIN INSTALLATION ONLY (CA Code R74) sign may be erected where parked vehicles interfere with normal winter operations.

Guidance:

The R74 (CA Code) sign should be turned or covered at the end of the chain requirement season.

Standard:

The CHAINS REQUIRED (X MILE (X MILES)) AHEAD (CA Code R75) sign shall be used to give advance notice that chains are required ahead.

The CHAINS REQUIRED (CA Code R76) sign shall be used at the beginning of chain control areas and intermittently as needed.

Support:

The R76 (CA Code) sign is installed in combination with the Speed Limit (R2-1), CA Code R79 and R80 signs.

Option:

The ON SINGLE AXLE DRIVE VEHICLE WITH TRAILER (CA Code R76-1) sign may be used when road conditions are such that only single drive vehicles with trailers need chains.

Standard:

When used, the R76-1 (CA Code) sign shall be mounted below the CHAINS REQUIRED (CA Code R76) sign.

The NO EXCEPTIONS (CA Code R77) sign shall be used with the Speed Limit (R2-1) and CHAINS REQUIRED (CA Code R76) signs when chains are required with no exceptions.

The END CHAIN CONTROL (CA Code R78) sign shall be used to advise the motorist that the chain control area has ended.

The AUTOS & PICKUPS SNOW TIRES OK – CARRY CHAINS (CA Code 79) sign shall be used with the Speed Limit (R2-1) and CHAINS REQUIRED (CA Code R76) signs when chains are required but autos and pickups with snow tires are excepted from using chains.

The 4-W DRIVE WITH SNOW TIRES OK – CARRY CHAINS (CA Code R80-1) sign shall be used with the Speed Limit (R2-1) and CHAINS REQUIRED (CA Code R76) signs when chains are required.

Support:

Vehicles with four wheel drive and snow tires on all four wheels are exempt from using chains.

Section 2B.107 RUNAWAY VEHICLES ONLY Sign (R4-10)

Standard:

The RUNAWAY VEHICLES ONLY (R4-10) sign shall be installed near the entrance of runaway truck ramps to discourage other motorists from entering. The NO STOPPING ANY TIME (CA Code R26A(S)) signs shall be placed as required to keep motorists from stopping in the path of runaway trucks.

Section 2B.108 NO FISHING (JUMPING) FROM BRIDGE Sign (CA Code R23)

Option:

The NO FISHING (JUMPING) FROM BRIDGE sign (CA Code R23) may be used when fishing or jumping from a bridge is prevalent and where investigation has shown that fishing or jumping is unsafe or interferes with the orderly movement of traffic.

Section 2B.109 $1000 Fine Signs (CA Code R47 and R47A)

Option:

The $1000 FINE FOR LITTERING (CA Code R47) sign may be used to inform the public that it is unlawful to dispose of litter on the highway.

Support:

Refer to Streets and Highway Code Section 101.6 and CVC 23111 through 23113 and 42001.7.

The $1000 FINE FOR ANIMAL ABANDONMENT (CA Code R47A) sign is used to inform the public that the abandonment or dumping of any animal is a criminal offense.

Guidance:

The R47A (CA Code) sign should be placed on all major state highways, as close as practicable, following the Welcome to California (CA Code G10B) sign.

Section 2B.110 Rest Area Disclaimer Sign (CA Code SR2)

Guidance:

The Rest Area Disclaimer (CA Code SR2) sign should be posted in a conspicuous location, as directed by Department of Transportation's District Landscape Architect, at all State Safety Roadside Rest Areas.

Section 2B.111 GOLF CARTS OK DAYLIGHT HOURS Sign (CA Code SR43)

Standard:

The GOLF CARTS OK DAYLIGHT HOURS (CA Code SR43) sign shall be placed on roadways which local authorities have designated for combined use in accordance with CVC 21115.

Option:

The ordinance number may be included on the sign.

Section 2B.112 EMERGENCY ACCESS KEEP CLEAR Sign (CA Code SR46)

Option:

The EMERGENCY ACCESS KEEP CLEAR (CA Code SR46) sign may be used where there is traffic back up due to a controlled intersection or cross street that affects access to the driveway of any emergency service facility such as fire, police or ambulance. Refer to CVC 22500(d) and 22526.

Standard:

The SR46 (CA Code) sign shall be used in conjunction with KEEP CLEAR pavement markings (see Section 3B.19) that delineate the limits of the keep clear area.

Option:

The SR46 (CA Code) signs may be placed on both ends of the keep clear area.

Guidance:

However, if only one sign is used, it should be placed on the upstream side.

Section 2B.113 Off Highway Vehicle Signs (CA Code SR47 and SR48)

Guidance:

The OFF HIGHWAY VEHICLE COMBINED USE NEXT (X MILES) (CA Code SR47) sign should be used to inform motorists of the length of an Off Highway Vehicle Combined Use segment of the highway.

The NO OFF HIGHWAY VEHICLES BEYOND THIS POINT (CA Code SR48) sign should be placed at the end of an Off Highway Vehicle Combined Use segment of the highway.

Section 2B.114 Daylight Headlight Signs (CA Code S30 Series)

Guidance:

When used, the DAYLIGHT HEADLIGHT SECTION (CA Code S30-1) sign should be placed approximately 150 m (500 ft) in advance of a daylight headlight section.

When used, the TURN ON HEADLIGHTS NEXT X MILES (CA Code S30-2) sign should be placed at the beginning of a daylight headlight section.

When used, the END DAYLIGHT HEADLIGHT SECTION (CA Code S30-3) sign should be placed at the end of a daylight headlight section.

When used, the TURN ON HEADLIGHTS (CA Code S30-4) sign should be placed at the entrances from major side roads to a daylight headlight section.

When used, the CHECK HEADLIGHTS (CA Code S30-5) sign should be placed approximately 150 m (500 ft) beyond the end of a daylight headlight section.

Section 2B.115 Safety Corridor Sign (CA Code S33)

Option:

The Safety Corridor (CA Code S33) signs may be installed on conventional State highways at the written request of an official Corridor Safety Task Force.

Standard:

The S33 (CA Code) signs shall not be installed on freeways.

Guidance:

When used, one S33 (CA Code) sign should be posted at each end of the corridor. The S33 (CA Code) sign specifications should be as follows:

1. Size no larger than 2.5 m (8 ft) wide and 1.25 m (4 ft) high.
2. White background with black text having a primary safety message.

Standard:

A logo and any secondary message (along with colors) shall be agreed upon by the Task Force. The logo and secondary message shall not cover more than 25 percent of the sign's surface area.

The Department of Transportation shall purchase and install the S33 (CA Code) signs.

Support:

The Task Force is to advise the Department of Transportation, in writing, as to how long the signs are to remain on the highway.

Guidance:

This time period should not exceed three years.

Section 2B.116 Speed Limits and Zones

Support:

Speed limits in California are governed by the California Vehicle Code (CVC), Sections 22348 through 22413; also, pertinent sections are found in Sections 627 and 40802 and others referenced in this section. See Section 1A.11 for information regarding this publication.

Refer to Section 2B.13 for speed limit signs. Refer to Part 6 (Section 6C.01) for speed limit signs in temporary traffic control areas. Refer to Part 7 for speed limit signs in school areas.

Basic Speed Law and Prima Facie Speed Limits – See CVC 22350 & 22352

Support:

The basic speed law states "No person shall drive a vehicle upon a highway at a speed greater than is reasonable or prudent having due regard for weather, visibility, the traffic on, and the surface and width of, the highway, and in no event at a speed which endangers the safety of persons or property."

Standard:

Prima facie speed limits are specific limits and shall apply unless changed based upon an engineering and traffic survey and signs are posted that display the new speed limit.

Option:

Prima facie speed limits may be preempted by the basic speed law, when roadway, traffic or weather conditions warrant a lower speed.

Use of Metric System Designations – See CVC 21351.3

Option:

Dual units for speed limits on signs may be placed on local streets and roads in both Metric and English units.

Guidance:

If used, dual unit speed limits should be rounded to the nearest 10 km/h for Metric and 5 mph for English units for posting on signs on local streets and roads.

Support:

Refer to AASHTO's Traffic Engineering Metric Conversion Factors. See Section 1A.11 for information regarding this publication.

Standard:

Metric speed limits shall not be placed on State highways. For use in this Supplement, 70 mph shall be shown as a metric equivalent of 110 km/h, neither of which shall be used on any local street or road.

Legal Authority for Establishing Speed Limits

Support:

Delegation of legal authority to set speed limits on State highways is given to Department of Transportation's District Directors. The District Director of each transportation district is authorized to issue orders regulating the speed of traffic, up to 110 km/h (65 mph) on State highways. The Director of the

Department of Transportation retains the authority to approve variable, minimum, and maximum speeds up to 110 km/h (70 mph) on State freeways.

20 km/h (15 mph) - See CVC 22352.a.1

Standard:

The following speed limits shall apply, unless changed, based upon an engineering and traffic survey:

- **At a railroad grade crossing with an obstructed view.**
- **At an uncontrolled highway intersection with an obstructed view.**
- **On an alley.**

20 & 30 km/h (15 & 20 mph) - See CVC 22358.3 & 22358.4

Standard:

The following speed limits shall apply, unless changed upon the basis of an engineering and traffic survey:

- **Based upon an engineering and traffic survey where the prima facie speed of 40 km/h (25 mph) is more than is reasonable or safe.**
- **Due to a narrow street not exceeding 7.6 m (25 ft), other than a State highway, in a business or residential area or in a public park.**
- **Near a school or senior center facility.**

40 km/h (25 mph) - See CVC 22352.a.2 & 22357.1

Standard:

The following speed limits shall apply, unless changed, based upon an engineering and traffic survey:

- **On any highway other than a State highway in any business or residence district.**
- **In a school zone.**
- **When passing a facility primarily used by senior citizens and contiguous to a street other than a State highway.**
- **Adjacent to a children's playground in a public park, but only during particular hours or days when children are expected to use the facilities. This limit is effective when signs giving notice of the speed limit are posted.**

40 to 100 km/h (25 to 60 mph) on State highways - See CVC 22354 & 22354.5

Option:

The following speed limits may apply:

- Whenever the Department of Transportation determines based upon an engineering and traffic survey that the limit of 110 km/h (65 mph) is more than is reasonable or safe upon a State highway, the Department may determine and post a prima facie speed limit of 100, 90, 80 70, 60, 60, 50, 40 km/hr (60, 55, 50, 45, 40, 35, 30, 25 mph) whichever is found most appropriate to facilitate the orderly movement of traffic and is reasonable and safe.
- Local city council or county board of supervisors may conduct a public hearing on proposed increases or decreases to posted speed limits and the Department shall take into consideration the results of the public hearing.

40 to 110 km/h (30 to 65 mph) on Local Streets & Roads - See CVC 22357

Option:

The following speed limits may apply:

- Whenever a local authority determines based upon an engineering and traffic survey that a speed greater than 40 km/h (25 mph) would facilitate the orderly movement of vehicular traffic and would be reasonable and safe upon any street other than a State highway otherwise subject to a prima facie limit of 40 km/h (25 mph), the local authority may by ordinance post a prima facie speed limit of 50, 60, 60, 70, 80, 90, or 100 km/h (30, 35, 40, 45, 50, 55, or 60 mph), or 110 km/h (65 mph), whichever is found most appropriate to facilitate the orderly movement of traffic and is reasonable and safe.

30 to 80 km/h (20 to 50 mph) for Trucks - See CVC 22407

Option:

The following speed limits may apply:

- Whenever the Department of Transportation or local authority determines based upon engineering studies and a traffic survey that the speed of 90 km/h (55 mph) is more than is reasonable or safe for vehicles mentioned in CVC 22406 with specified weight requirements, the department or local authority, with respect to highways under their respective jurisdiction, may determine and post a speed limit of 80, 70, 60, 60, 50, 40 or 30 km/h (50, 45, 40, 35, 30, 25 or 20 mph), whichever is found most appropriate to facilitate the orderly movement of traffic and is reasonable and safe when appropriate signs are posted upon the highway.

90 km/h (55 mph) – See CVC 22349.b & .c and 22406

Option:

The following speed limits may apply:

- On a two-lane, undivided highway.
- On any highway if driving any of the following vehicles:
  a. A motortruck or truck tractor having three or more axles or any motortruck or truck tractor drawing any other vehicle.
  b. A passenger vehicle or bus towing any other vehicle.
  c. A schoolbus transporting any school pupil.
  d. A farm labor vehicle when transporting passengers.
  e. A vehicle transporting explosives.
  f. A trailer bus.

110 km/h (65 mph) Maximum Speed Limit - See CVC 22349(a) & CVC 22349

Option:

The following speed limits may apply:

- On any highway, or portion thereof, posted at 110 km/h (65 mph) based upon an engineering and traffic survey.

110 km/h (70 mph) Maximum Freeway Speed Limit - See CVC 22356

Option:

The following speed limits may apply:

- Whenever the Department of Transportation, after consultation with the California Highway Patrol (CHP), determines based upon an engineering and traffic survey on existing freeway segments that are otherwise subjected to a maximum speed limit of 110 km/h (65 mph), or upon the basis of appropriate design standards and projected traffic volumes in the case of newly constructed freeway segments, that a speed greater than 110 km/h (65 mph) would facilitate the orderly movement of vehicular traffic and would be reasonable and safe, the Department, with the approval of the CHP, may declare and post a higher maximum speed of 110 km/h (70 mph) for vehicles not subject to CVC 22406.

Variable Speed Limits on Freeways - See CVC 22355

Option:

The following speed limits may apply:

- Whenever the Department of Transportation determines based upon an engineering and traffic survey that the safe and orderly movement of traffic upon any freeway segment will be facilitated by the establishment of variable speed limits.
- The Department may erect, regulate, and control signs upon the state highway which is a freeway, or any portion thereof, which, if used, signs shall be designed to permit display of different speeds at various times of the day or night.
- Such signs need not conform to the standards & specifications per CVC 21400, but if used, shall be of sufficient size and clarity to give adequate notice of the applicable speed limit.

Minimum Speed Limits on State Highways - See CVC 22400

Option:

The following speed limits may apply:

- Whenever the Department of Transportation determines based upon an engineering and traffic survey that slow speeds on any part of a state highway consistently impede the normal and reasonable movement of traffic, the Department may determine and declare a minimum speed limit. Appropriate signs giving notice shall then be installed on that segment.
- A motorist can be cited for stopping or impeding the normal and reasonable movement of traffic unless the stop is necessary for safe operation and in compliance with the law.

Engineering and Traffic Survey

Support:

CVC Section 627 defines the term "Engineering and traffic survey" and lists its requirements.

Standard:

An engineering and traffic survey shall include, among other requirements deemed necessary by the department, consideration of all of the following:

(1) Prevailing speeds as determined by traffic engineering measurements.

(2) Accident records.

(3) Highway, traffic, and roadside conditions not readily apparent to the driver.

Guidance:

The Engineering and Traffic Survey should contain sufficient information to document that the required three items of CVC Section 627 are provided and that other conditions not readily apparent to a motorist are properly identified.

Prevailing speeds are determined by a speed zone survey. A speed zone survey should include:

- The intent of the speed measurements is to determine the actual speed of unimpeded traffic. The speed of traffic should not be altered by concentrated law enforcement, or other means, just prior to, or while taking the speed measurements.
- Only one person is required for the field work. Speeds should be read directly from a radar or other electronic speed measuring devices; or,
- Devices, other than radar, capable of accurately distinguishing and measuring the unimpeded speed of free flowing vehicles may be used.
- A location should be selected where prevailing speeds are representative of the entire speed zone section. If speeds vary on a given route, more than one speed zone section may be required, with separate measurements for each section. Locations for measurements should be chosen so as to minimize the effects of traffic signals or stop signs.
- Speed measurements should be taken during off-peak hours between peak traffic periods on weekdays. If there is difficulty in obtaining the desired quantity, speed measurements may be taken during any period with free flowing traffic.
- The weather should be fair (dry pavement) with no unusual conditions prevailing.
- The surveyor and equipment should not affect the traffic speeds. For this reason, an unmarked car is recommended, and the radar speed meter located as inconspicuously as possible.
- In order for the sample to be representative of the actual traffic flow, the minimum sample should be 100 vehicles in each survey. In no case should the sample contain less than 50 vehicles.
- Short speed zones of less than 0.8 km (0.5 mi) should be avoided, except in transition areas.
- Speed zone changes should be coordinated with changes in roadway conditions or roadside development.
- The speed limit should be established at the nearest 10 km/h (5 mph) increment to the 85^{th} percentile speed. However, in matching existing conditions with the traffic safety needs of the community, engineering judgement may indicate the need for a further reduction of 10 km/h (5 mph).

- Speed zoning should be in 20 km/h (10 mph) increments except in urban areas where 10 km/h (5 mph) increments are preferable.
- Speed zoning should be coordinated with adjacent jurisdictions.

Support:

Physical conditions such as width, curvature, grade and surface conditions, or any other condition readily apparent to the driver, in the absence of other factors, would not require special downward speed zoning. Refer to CVC 22358.5.

Option:

When qualifying an appropriate speed limit, State and local authorities may also consider the following findings:

1. Residential density, if any of the following conditions exist on the particular portion of highway and the property contiguous thereto, other than a business district:

    a. Upon one side of the highway, within 0.4 km (0.25 mi), the contiguous property fronting thereon is occupied by 13 or more separate dwelling houses or business structures.
    b. Upon both sides of the highway, collectively, within a distance of 0.4 km (0.25 mi) the contiguous property fronting thereon is occupied by 16 or more separate dwelling houses or business structures.
    c. The portion of highway is larger than 0.4 km (0.25 mi) but has the ratio of separate dwelling houses or business structures to the length of the highway described in either subparagraph a or b.
2. Pedestrian and bicyclist safety.

Option:

The following two methods of conducting engineering and traffic surveys may be used to establish speed limits:

1. State Highways - The engineering and traffic survey for State highways is made under the direction of the Department of Transportation's District Traffic Engineer. The data includes:
    a. One copy of the Standard Speed Zone Survey Sheet (See Figure 2B-103) showing:
        - A north arrow
        - Engineer's station or post mileage
        - Limits of the proposed zones
        - Appropriate notations showing type of roadside development, such as "scattered business," "solid residential," etc. Schools adjacent to the highway are shown, but other buildings need not be plotted unless they are a factor in the speed recommendation or the point of termination of a speed zone.
        - Collision rates for the zones involved
        - Average daily traffic volume
        - Location of traffic signals, signs and markings
        - If the highway is divided, the limits of zones for each direction of travel
        - Plotted 85th percentile and pace speeds at location taken showing speed profile
    b. A report to the District Director that includes:
        - The reason for the initiation of speed zone survey.
        - Recommendations and supporting reasons.
        - The enforcement jurisdictions involved and the recommendations and opinions of those officials.
        - The stationing or reference post in kilometers (mileage) at the beginning and ending of each proposed zone and any intermediate equations. Location ties must be given to readily identifiable physical features.
2. City and County Through Highways, Arterials, Collector Roads and Local Streets.

a. The short method of speed zoning is based on the premise that a reasonable speed limit is one that conforms to the actual behavior of the majority of motorists, and that by measuring motorists' speeds, one will be able to select a speed limit that is both reasonable and effective. Other factors that need to be considered include but are not limited to: the most recent two-year collision record, roadway design speed, safe stopping sight distance, superelevation, shoulder conditions, profile conditions, intersection spacing and offsets, commercial driveway characteristics, and pedestrian traffic in the roadway without sidewalks.
b. Determination of Existing Speed Limits - Figures 2B-105 & 2B-106 show samples of data sheets which may be used to record speed observations. Specific types of vehicles may be tallied by use of letter symbols in appropriate squares.

In most situations, the short form for local streets and roads will be adequate; however, the procedure used on State highways may be used at the option of the local agency.

Guidance:

The factors justifying a reduction below the 85th percentile speed for the posted speed limit are the same factors mentioned above. Whenever such factors are considered to establish the speed limit, they should be documented on the speed zone survey or the accompanying engineering report.

The establishment of a speed limit of more than 10 km/h (5 mph) below the 85th percentile speed should be done with great care as studies have shown that establishing a speed limit at less than the 85th percentile generally results in an increase in accident rates; in addition, this may make violators of a disproportionate number of the reasonable majority of drivers.

Support:

Generally, the most decisive evidence of conditions not apparent to the motorist surface in accident histories.

Speed limits are established at or near the 85th percentile speed, which is defined as that speed at or below which 85th percent of the traffic is moving. The 85th percentile speed is often referred to as the critical speed. Pace speed is defined as the 16 km/h (10 mph) increment of speed containing the largest number of vehicles (See Figure 2B-104). The lower limit of the pace is plotted on the Speed Zone Survey Sheets as an aid in determining the proper zone limits. Speed limits higher than the 85th percentile are not generally considered reasonable and prudent. Speed limits below the 85th percentile do not ordinarily facilitate the orderly movement of traffic and require constant enforcement to maintain compliance. Speed limits established on the basis of the 85th percentile conform to the consensus of those who drive highways as to what speed is reasonable and prudent, and are not dependent on the judgement of one or a few individuals.

The majority of drivers comply with the basic speed law. Speed limits set at or near the 85th percentile speed provide law enforcement officers with a limit to cite drivers who will not conform to what the majority considers reasonable and prudent. Further studies show that establishing a speed limit at less than the 85th percentile (Critical Speed) generally results in an increase in accident rates.

Option:

When roadside development results in traffic conflicts and unusual conditions which are not readily apparent to drivers, as indicated in collision records, speed limits somewhat below the 85th percentile may be justified. Concurrence and support of enforcement officials are necessary for the successful operation of a restricted speed zone.

Guidance:

Speed zones of less than 0.8 km (0.5 mi) and short transition zones should be avoided.

Speed Traps

Support:

Refer to CVC 40802 for Speed Traps.

Standard:

A speed trap shall not apply to a local street, road, or school zone.

A section of highway shall be defined as a speed trap if the prima facie speed limit is not justified by an engineering and traffic survey within five years, and the enforcement of the speed limit involves the use of radar or any other electronic device that measures the speed of moving objects.

This time provision shall be extended to seven years when using radar and all of the following criteria are met:

- **The arresting officer has successfully completed a minimum of 24 hours of certified radar operator course training.**
- **The radar used to measure the speed meets or exceeds the minimal operational standards of the National Traffic Highway Safety Administration, and has been calibrated within three years of the alleged violation.**

This time provision shall be extended to seven years when using laser or other electronic device (other than radar) and all of the following criteria are met:

- **The arresting officer has successfully completed a minimum of 24 hours of certified radar operator course training.**
- **The arresting officer has successfully completed a minimum of 2 hours of additional approved certified training.**
- **The radar used to measure the speed meets or exceeds the minimal operational standards of the National Traffic Highway Safety Administration, and has been calibrated within three years of the alleged violation.**

Option:

This time provision for an engineering and traffic survey may be extended to ten years when all of the above conditions are met and no significant changes in roadway or traffic conditions have occurred, including changes in adjoining property or land use, roadway width, or traffic volume as determined by a registered engineer.

Truck Speed Zone on Descending Grades

Guidance:

Highway descending grades, if used for posting TRUCK SPEED LIMIT signs for trucks travelling downhill, should have recorded incident history of runaway commercial vehicles. Descending grades shorter than 1.6 km (1 mi) should be avoided for posting signs because deceleration of vehicles due to braking action can generally provide sufficient control on descending grades of less than 1.6 km (1 mi).

Support:

To establish a downhill truck speed limit, a physical profile showing length and gradient and a downhill speed profile for three or more axle commercial vehicles with a gross rating of 4,536 kg (10,000 lbs.) or more will be provided.

Standard:

Speed profiles for truck speed limits shall be prepared on the same form as other speed surveys. An analysis of collisions involving trucks shall be prepared.

Guidance:

Posted speeds should be on the low side of the scale, generally within the pace of loaded commercial vehicles.

Standard:

If warranted, the Department of Transportation's District Director shall issue a standard speed zone order.

Support:

Posting of the regulation will be by placement of a standard 900 x 1150 mm (36 x 45 in) Speed Limit (R2-1) sign with a TRUCK (M4-4) plate above.

Standard:

A standard End Speed Limit (CA Code R3) sign with TRUCK (M4-4) plate shall be posted at the end of the truck zone when appropriate.

Speed Zones in Temporary Traffic Control Areas

Support:

For signing and establishing speed zones in temporary traffic control areas, refer to Section 6C.01 in Part 6.

Section 2B.117 Bus and Truck Registration Sign (CA Code SR44)

Guidance:

The Bus and Truck Registration (CA Code SR44) sign should be placed at all Border Inspections Stations to relay this information to Interstate carriers.

Section 2B.118 Double Fine Zone Signs (CA Code SR53, SR54 and SR55)

Standard:

The SPECIAL DRIVING ZONE BEGINES HERE – DOUBLE FINE ZONE (CA Code SR53) sign shall be placed at the beginning of those portions of highways designated and identified as Safety Enhancement – Double Fine Zones per CVC 42010.

The SPECIAL DRIVING ZONE ENDS HERE (CA Code SR55) sign shall be placed at the end of those portions of highways designated and identified as Safety Enhancement – Double Fine Zones per CVC 42010.

Guidance:

The DOUBLE FINE ZONE (CA Code SR54) sign should be placed at major intersections to those portions of highways designated and identified as Safety Enhancement – Double Fine Zone, per CVC 42010, to advise motorists upon entering the highway that they are in a double fine zone.

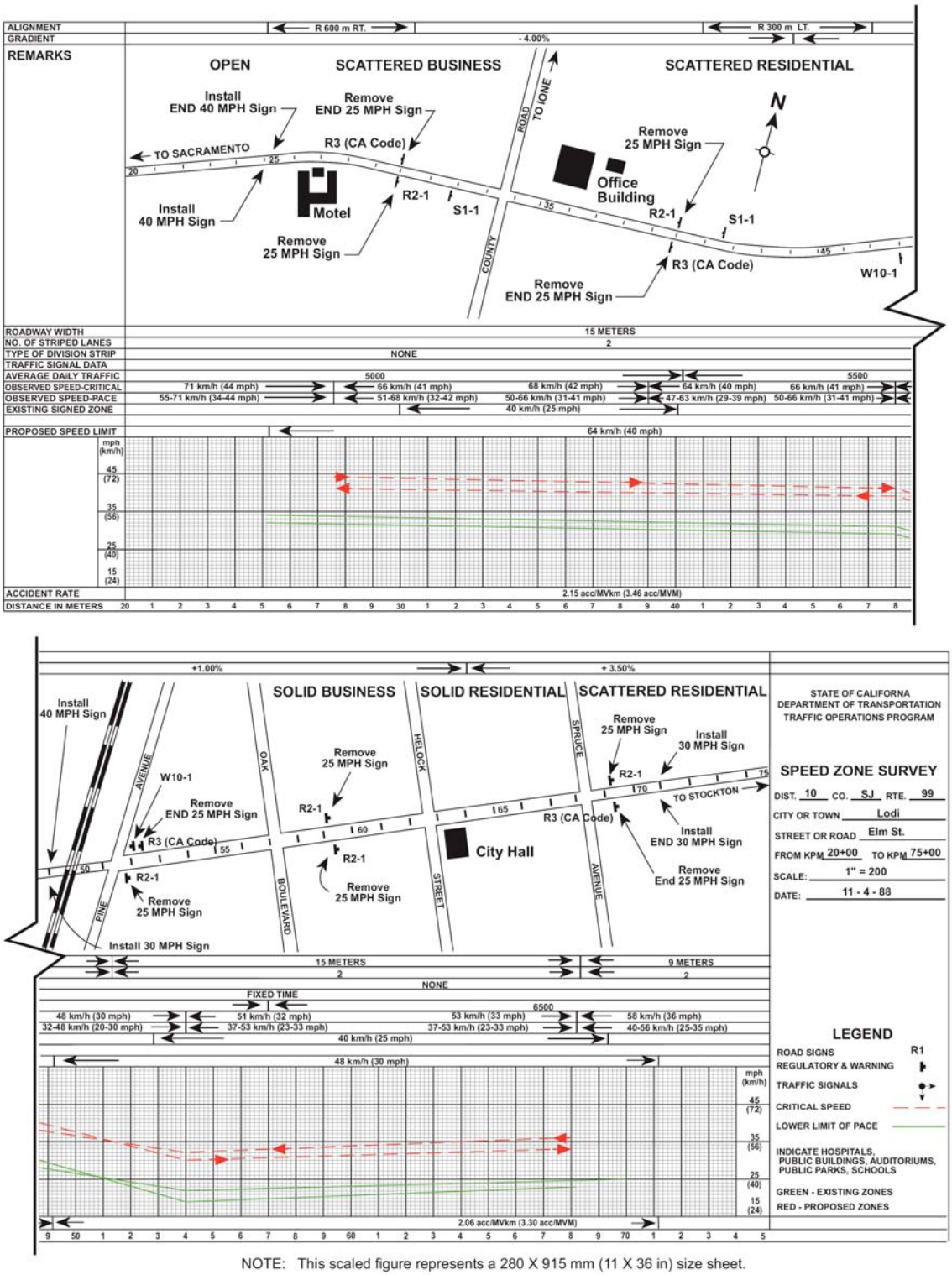
Section 2B.119 Garbage Prohibition Signs (CA Code SR22-1 and SR23-1)

Option:

The DUMPING PROHIBITED (CA Code SR22-1) sign may be placed at State highway facilities where unauthorized dumping of materials or garbage is prevalent.

The NO HOUSEHOLD GARBAGE (CA Code SR23-1) sign may be placed at State highway facilities where refuse containers provided for motorist convenience are being used to dispose of excessive amounts of household garbage.

Figure 2B-103. Example of Speed Zone Survey Sheet



NOTE: This scaled figure represents a 280 X 915 mm (11 X 36 in) size sheet.

Figure 2B-104. Example of Cumulative Speed Curve Sheet

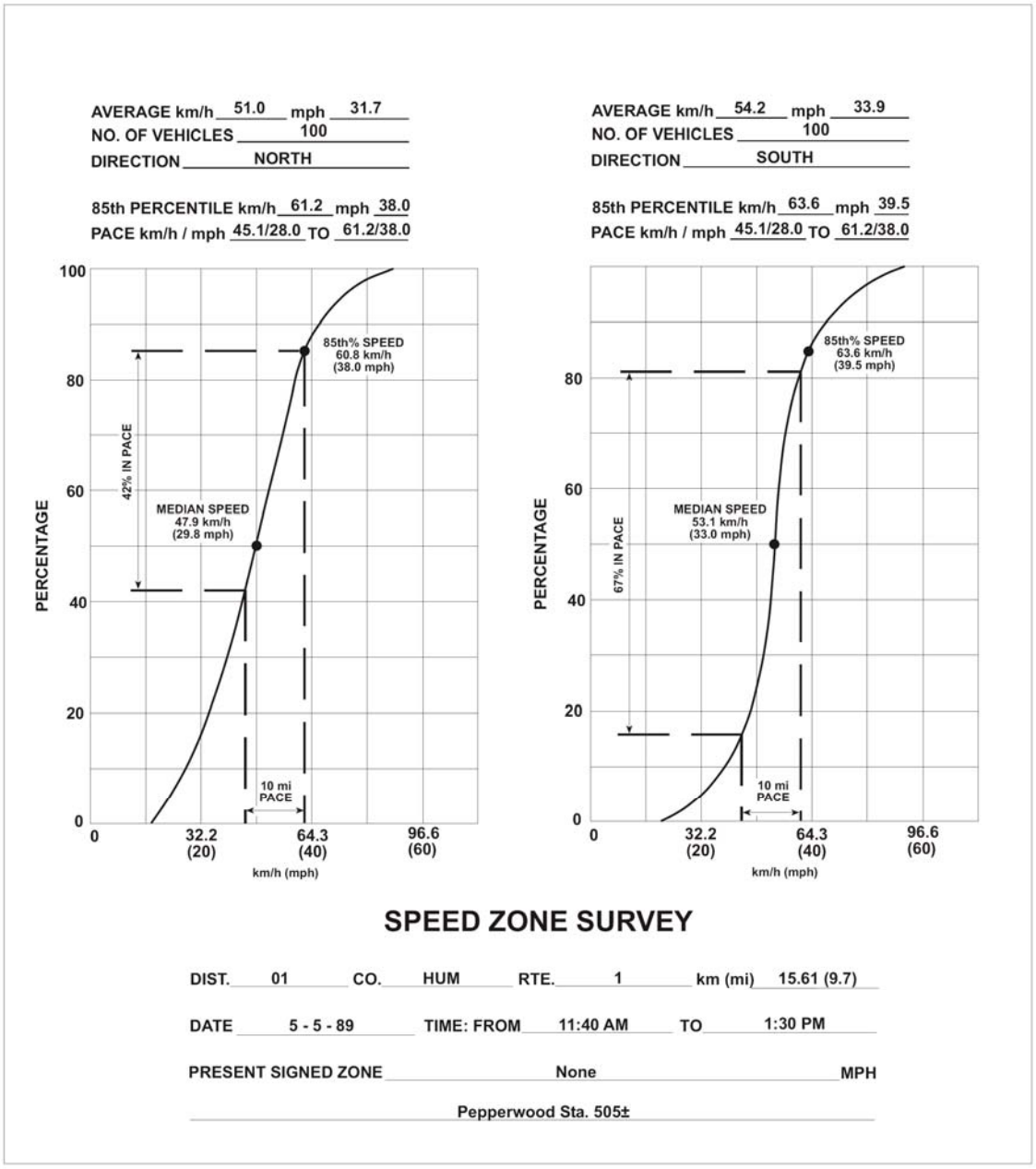
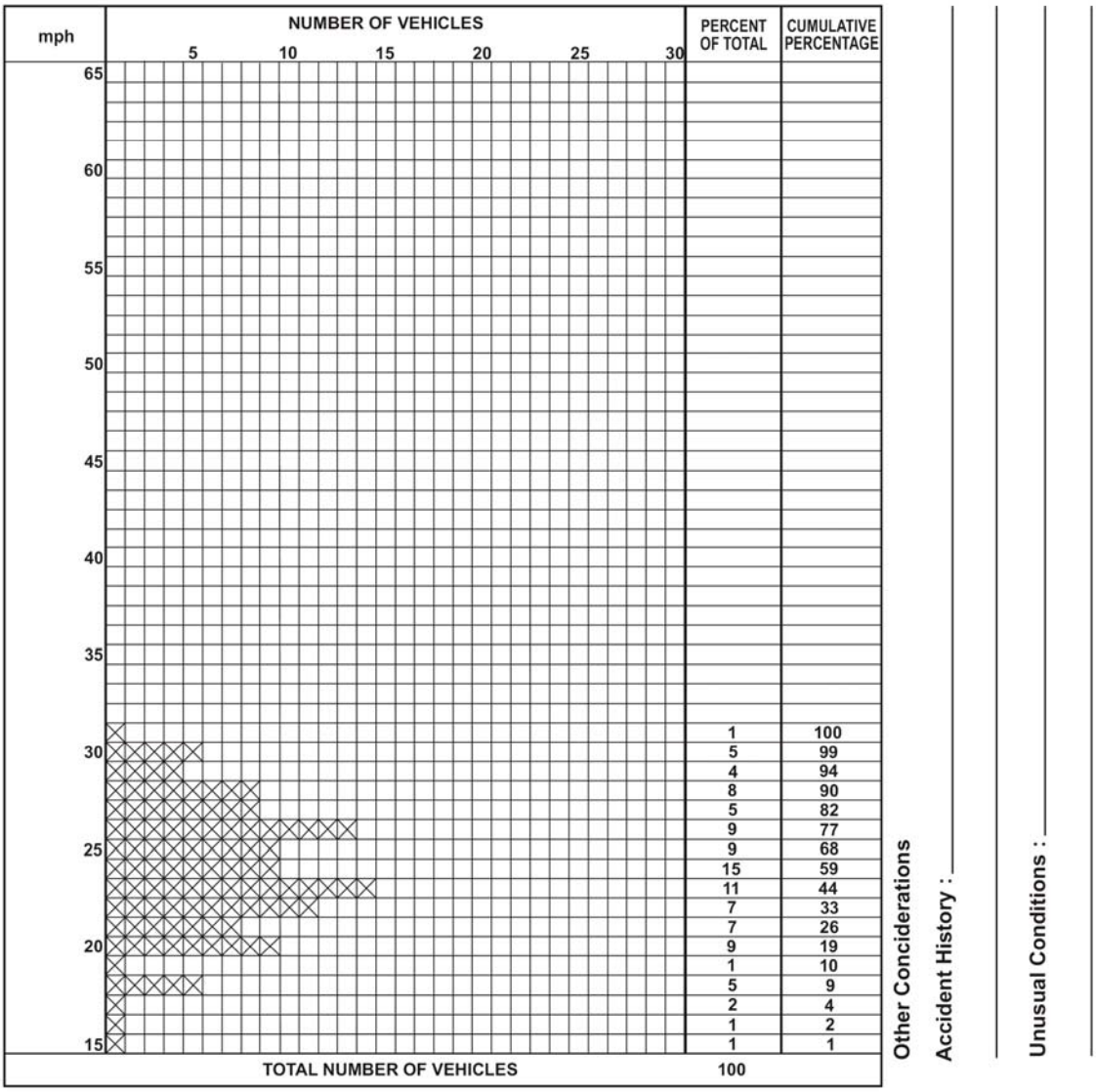


Figure 2B-105. Example of Vehicle Speed Survey Sheet for City and County Through Highways, Arterials, and Collector Roads

Jurisdiction _____ Date _____

Location _____ Weather _____

Recorder _____ Begin Time _____ End Time _____



Signed _____ Date _____ Title _____

Figure 2B-106. Example of Vehicle Speed Survey Sheet (For 40 MPH and Under)

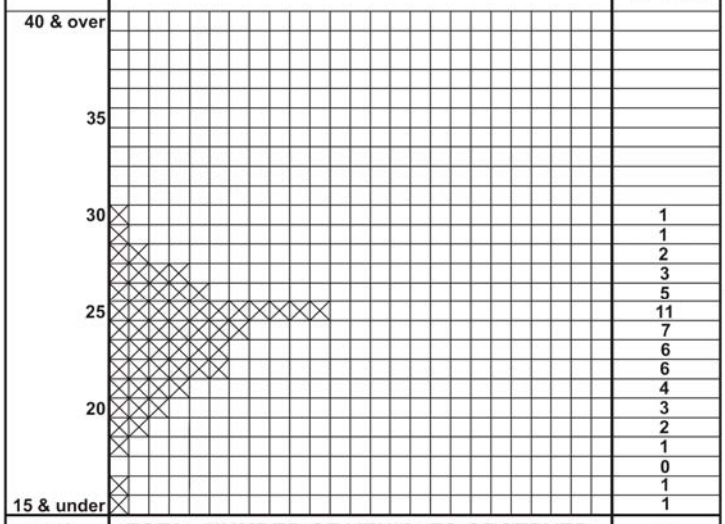
Jurisdiction : _____

Residential Area or Subdivision : _____

VEHICLE SPEED DATA

Location : _____ Weather : _____

Record : _____ Date : _____ Begin Time : _____ End Time : _____



mph	NUMBER OF VEHICLES	TOTAL OF EACH SPEED
40 & over		
35		
30		1
		1
		2
		3
		5
25		11
		7
		6
		6
		4
20		3
		2
		1
		0
15 & under		1
		1
mph	TOTAL NUMBER OF VEHICLES OBSERVED	54

CRITICAL SPEED CALCULATION

Total 54 divided by 6 = 9
Count this number of vehicles down from the highest speed observed to determine the critical speed

← CRITICAL SPEED = 26 mph

Other Considerations :

Accident History : _____

_____

_____

Unusual Conditions : _____

_____

_____

Date : _____ Signed : _____ Title : _____

CHAPTER 2C. WARNING SIGNS

Section 2C.02 Application of Warning Signs

The following is added to this section:

Option:

Warning signs may be supplemented with a yellow flashing beacon.

Section 2C.03 Design of Warning Signs

The following is added to this section:

Support:

Sign design details are contained in FHWA's "Standard Highway Signs" book and Department of Transportation's "Traffic Sign Specifications". See Section 1A.11 for information regarding these publications.

Table 2C-101 shows a list of California Warning Signs.

Figure 2C-101 shows California Warning Signs.

The use of educational plaques to supplement symbol signs is described in Section 2A.13.

Section 2C.05 Placement of Warning Signs

The following is added to this section:

Standard:

Warning signs shall be installed in accordance with the general requirements for sign placement as described in Sections 2A.16 to 2A.21 and as shown in Figure 2A-1 (CA).

Section 2C.06 Horizontal Alignment Signs (W1-1 through W1-5, W1-11, W1-15)

Guidance:

In Paragraph 6 ("An Advisory Speed…"), the first sentence ("An Advisory Speed…") is deleted and replaced with the following:

An Advisory Speed (W13-1) plaque (see Section 2C.46) should be used to indicate the speed for the change in horizontal alignment when the advisory speed is less than the applicable speed limit.

The following is added to this section:

Standard:

The advisory speed shall be determined in accordance with Section 2C.101.

Guidance:

The Winding Road (W1-5) sign should be used where there is a series of turns or curves which requires driving caution, and where curve or turn signs would be too numerous to be effective. This sign should be erected in advance of the second curve of the winding section of highway. The first curve should be marked with a curve or turn sign and an Advisory Speed (W13-1) plaque. Where the winding road is 1.6 km (1 mi) or more in length, a Next Distance (W7-3a) plaque should supplement the W1-5 sign. Where any of the curves has an advisory speed that is 15 km/h (10 mph) or more below that of the first curve then it should be posted with a curve or turn sign and an Advisory Speed (W13-1) plaque.

Option:

The WINDING LEVEE ROAD (CA Code SW22-1) sign may be used to warn road users of the roadway alignment where the use of curve warning signs have been determined not to be appropriate.

The Speed/Distance (CA Code SW22-1A) plaque may be installed below the SW22-1 (CA Code) sign. The Next Distance (W7-3a) plaque may be used when there is no advisory speed.

Standard:

If used, the Speed/Distance (CA Code SW22-1A) plaque shall be installed below the SW22-1 (CA Code) sign.

Table 2C-101. List of California Warning Signs (Sheet 1 of 5)

California (CA) Code	MUTCD Code	Title of Sign	Supplement Section	MUTCD Section
W1	W1-4	Reverse Curve	2C.06	2C.06
W2	W1-3	Reverse Turn	2C.06	2C.06
W3	W1-1	Turn	2C.06	2C.06
W4 Series	W1-1a	Combination Turn/Advisory Speed	2C.07	2C.07
W4 Series	W1-2a	Combination Curve/Advisory Speed	2C.07	2C.07
W5	W1-2	Curve	2C.06	2C.06
W6	W13-1	Advisory Speed Plaque	2C.06, 2C.46, 2C.101	2C.06, 2C.46, 5C.10, 8B.17
W7	W2-4	T-Symbol	2C.37	2C.37
W7A	W2-2	Side Road	2C.37	2C.37
W8	W2-5	Y-Symbol	2C.37	2C.37
W9	W2-1	Cross Road	2C.37	2C.37
W10	W10-2	Highway-Rail Grade Crossing Advance Warning (Cross Road)	8B.04, 10C.15	8B.04, 10C.15
W10A	W10-3	Highway-Rail Grade Crossing Advance Warning (Side Road)	8B.04, 10C.15	8B.04, 10C.15
W10B	W10-4	Highway-Rail Grade Crossing Advance Warning (T-Intersection)	8B.04, 10C.15	8B.04, 10C.15
W11	W4-2	Lane Ends	2C.33	2C.33
W11-1	None	(HOV) Lane Reduction	2C.119	None
W14	W1-5	Winding Road	2C.06	2C.06
W15	W5-1	ROAD NARROWS	6F.26	2C.15
W17	W3-1	Stop Ahead	2C.29	2C.29, 5C.04, 8B.08, 10C.04
W18	W8-4	SOFT SHOULDER	None	2C.26, 6F.42
W19	W8-3	PAVEMENT ENDS	None	2C.25, 5C.08
W20	None	Weight Limit	2B.49	None
W20A	None	Weight Limit	2B.49	None
W23	W5-2	NARROW BRIDGE	2C.16	2C.16, 5C.05
W25	W6-1	Divided Highway (Road)	2C.18	2C.18
W26	W6-2	Divided Highway (Road) Ends	2C.19	2C.19
W28	W3-2	Yield Ahead	2C.29	2C.29, 5C.04, 8B.08, 10C.04
W29	W7-1	Hill	None	2C.12, 5C.07
W29-1	W7-1b	Combination Hill/Grade	None	2C.12
W29A	W7-3	___ % GRADE Plaque	None	2C.12, 2C.48
W29B	W7-3b	___ % GRADE (X MILES) Plaque	None	2C.12, 2C.48
W29C	W7-2b	TRUCKS USE LOWER GEAR Plaque	None	2C.48
W30	W7-4	RUNAWAY TRUCK RAMP (X MILE)	2C.13	2C.13

Table 2C-101. List of California Warning Signs (Sheet 2 of 5)

California (CA) Code	MUTCD Code	Title of Sign	Supplement Section	MUTCD Section
W30A	W7-4b	RUNAWAY TRUCK RAMP Arrow	2C.13	2C.13
W30B	None	DEEP GRAVEL	2C.13	None
W30C	None	RIGHT(LEFT) EXIT	2C.13	None
W31	None	END	2C.21	None
W31A	None	ROAD ENDS ___ FT	2C.21	None
W32	W8-2	DIP	None	2C.23
W33	W8-8	ROUGH ROAD	2C.102	None
W34	W12-2	Low Clearance	2C.22	2C.22
W34A	None	Distance Ahead Plaque	2B.49, 2C.22, 2C.45	None
W34B	W12-2P	___ FT ___ IN Plaque	2C.22	2C.22
W34C	None	CAUTION VERTICAL CLEARANCE __' __" Arrow	2C.22	None
W36	W5-3	ONE LANE BRIDGE	2C.17	2C.17, 5C.06
W37	W8-1	BUMP	None	2C.23
W38	None	SLIDE AREA	2C.105	None
W41	W3-3	Signal Ahead	2C.29, 4D.20, 4K.102	2C.29
W41A	W3-3a	SIGNAL AHEAD	2C.29	2C.29
W42	W8-5	Slippery When Wet	None	2C.27
W43	None	ICY	2C.103	None
W44	W6-3	Two-Way Traffic	2C.34, 3B.07, 5E.03, 6F.30	2C.19, 2C.34, 6F.30
W44-1	W6-4	Opposing Traffic Lane Divider	6F.70	6F.70
W44A	None	TWO WAY TRAFFIC Plaque	2C.34	None
W45	W11-7	Equestrian	2C.41	2C.41
W46	W10-1a	EXEMPT	8B.05, 10C.10	8B.05, 10C.10
W46A	None	EXEMPT 2W-5.1-C	8B.05	None
W47	W10-1	Highway-Rail Grade Crossing Advance Warning	8B.04, 10C.15	8B.04, 10C.15
W48	None	Number of Tracks	8B.04, 10C.15	None
W49	None	DRAW BRIDGE	2C.104	None
W50	None	ROCK SLIDE AREA	2C.105	None
W50-1	None	Rock Slide Area	2C.105	None
W51	None	SLOW TRUCKS	2C.106	None
W53A	W14-2	NO OUTLET	None	2C.21, 5C.11
W54A	W11-2	Pedestrian Crossing	2C.41	2C.41
W55	None	FLOODED	2C.107	None
W55B	None	SUBJECT TO FLOODING	2C.107	None

Table 2C-101. List of California Warning Signs (Sheet 3 of 5)

California (CA) Code	MUTCD Code	Title of Sign	Supplement Section	MUTCD Section
W56	W1-7	Two-Direction Large Arrow	2C.38	2C.38
W57	W1-6	One-Direction Large Arrow	2C.09	2C.09, 6F.64
W58	W12-1	Double Arrow	None	2C.20
W59	W4-1	Merge	2C.31	2C.31
W59-1	None	(HOV) Merge	2C.119	None
W60	W4-3	Added Lane	2C.32	2C.32
W61 Series	None	Lane Drop Panels	2E.20	2E.20
W62	W11-5	Farm Equipment	2C.40	2C.40
W63	S1-1	School Advance Warning	7B.08, 7B.09, 7B.101	7B.07, 7B.08, 7B.09
W64	S3-1	SCHOOL BUS STOP AHEAD	7B.10	7B.07, 7B.10
W65	S4-3	SCHOOL Plaque	7B.08	7B.07, 7B.09, 7B.11
W65-1	S5-2	END SCHOOL ZONE	None	7B.13
W67	W11-4	Cattle Crossing	2C.41	2C.41
W68	W11-3	Deer Crossing	2C.41	2C.41
W69	None	END FREEWAY (X MILE)	2C.108	None
W70	None	CROSS TRAFFIC AHEAD	2C.108	None
W71	W7-3a	Next Distance Plaque	2C.06, 2C.45	2C.45, 5C.09, 6F.49
W72	W13-2	Advisory Exit Speed	2C.36	2C.36
W72A	W13-3	Advisory Ramp Speed	2C.36	2C.36
W72B	None	(HOV) Advisory Exit(Ramp) Speed	2C.119	None
W73	None	RIGHT(LEFT) LANE EXITS AHEAD	2C.109	None
W73A	None	RIGHT(LEFT) LANE TURNS RIGHT(LEFT) AHEAD	2C.109	None
W74	W4-1a	THRU TRAFFIC MERGE LEFT (RIGHT)	2B.21, 2C.109	None
W74-1	None	(HOV) THRU TRAFFIC MERGE LEFT (RIGHT)	2C.119	None
W75	W9-2	LANE ENDS MERGE LEFT (RIGHT)	2C.33	2C.33
W75-1	None	(HOV) LANE ENDS MERGE LEFT (RIGHT)	2C.119	None
W79	W11-1	Bicycle Crossing	2C.40, 9C.04	2C.40, 9B.17
W79A	W16-1	SHARE THE ROAD	2C.40	2C.51, 9B.18
W81	W1-8	Chevron Alignment	2C.10	2C.10, 5C.02
W82	None	Light Rail Transit (Trolley) Crossing	10C.101	None
W82-1	None	Light Rail Transit (Trolley) Crossing /LOOK BOTH WAYS	10C.101	None
W83	None	PASS WITH CARE	2C.34	None
SW1	W4-4P	CROSS TRAFFIC DOES NOT STOP	None	2C.50

Table 2C-101. List of California Warning Signs (Sheet 4 of 5)

California (CA) Code	MUTCD Code	Title of Sign	Supplement Section	MUTCD Section
SW4-1	None	WATCH DOWNHILL SPEED	2C.48	None
SW17-1	None	TRAILERS-CAMPERS-GUSTY WIND AREA NEXT ___ MILES	2C.120	None
SW21B	W11-8	Emergency Vehicle	2C.40	2C.40, 4F.02
SW22-1	None	WINDING LEVEE ROAD	2C.06	None
SW22-1A	None	Speed/Distance Plaque	2C.06	None
SW26	None	SIGNAL/STOP AHEAD Arrow	2C.29	None
SW27	W10-12	Skewed Crossing Sign	8B.19	8B.19, 10C.19
SW28	None	STEEL BRIDGE DECK	2C.121	None
SW32	None	DRIFTING SAND	2C.110	None
SW35	None	FLASH FLOOD AREA	2C.107	None
SW36	None	END FREEWAY	2C.108	None
SW37	None	TUNNEL	2C.111	None
SW38	None	DEAF CHILDREN NEAR	2C.112	None
SW40	W8-6	TRUCK CROSSING	2C.40	2C.40, 5C.09, 6F.34
SW41	None	SNOW SLIDE AREA	2C.105	None
SW44	None	Downward Arrow	2C.113	None
SW45	None	GROOVED PAVEMENT	2C.114	None
SW46	None	WATCH FOR SNOW SLIPPERY	2C.115	None
SW47	None	OFF HIGHWAY VEHICLES	2C.116	None
SW48	None	TRACTOR-SEMIS OVER (X FEET) KINGPIN TO REAR AXLE NOT ADVISED	2C.117	None
SW48-1	None	NEXT RIGHT	2C.117	None
SW49	None	PLAYGROUND	2C.42	None
SW50	None	SENIOR CITIZEN FACILITY	2C.118	None
SW51	W11-6	Snowmobile	2C.40	2C.41
SW52	None	EMERGENCY VEHICLES	2C.40	2C.40
SW54	None	(HOV) Lane Selection (Left or Right Arrow)	2C.119	None
SW54-1	None	(HOV) Lane Selection (Left or Right and Vertical Arrow)	2C.119	None
SW54A	None	CARPOOL IS 2 OR MORE PER VEHICLE	2C.119	None
SW54B	None	CARPOOL IS 2 OR MORE PER VEHICLE Specific Hours/Days	2C.119	None
SW54C	None	CARPOOL IS 2 OR MORE PER VEHICLE WHEN METERED	2C.119	None
SW55	W14-3	NO PASSING ZONE	None	2B.29, 2C.35, 6F.72
SW56	W11-11	Golf Cart	2C.40	2C.40

Table 2C-101. List of California Warning Signs (Sheet 5 of 5)

California (CA) Code	MUTCD Code	Title of Sign	Supplement Section	MUTCD Section
SW58	None	WATCH FOR SNOW REMOVAL EQUIPMENT	2C.115	None
SW59	None	Migrating Bears	2C.41	2C.41

Figure 2C-101. California Warning Signs
(Sheet 1 of 3)

Note: All sign codes are California (CA) Codes.

Figure 2C-101. California Warning Signs
(Sheet 2 of 3)

Note: All sign codes are California (CA) Codes.

Figure 2C-101. California Warning Signs
(Sheet 3 of 3)

SW41


SW44

SW45

SW46

SW47

SW48

SW48-1

SW49

SW50

SW52


SW54


SW54-1

SW54A

SW54B

SW54C

SW58


SW59

Note: All sign codes are California (CA) Codes.

Figure 2C-1. Horizontal Alignment Signs
Standard:

No sign shall have a metric unit or message, except per CVC 21351.3. Hence, the following signs shall not be used in California with metric messages unless specifically allowed per CVC 21351.3.

Combination Turn/Advisory Speed (W1-1a) Metric version.

Combination Curve/Advisory Speed (W1-2a) Metric version.

Section 2C.07 Combination Horizontal Alignment/Advisory Speed Signs (W1-1a, W1-2a)
Guidance:

In Paragraph 2 ("When used,…") first sentence, the phrase "and shall be installed" is changed to "and should be installed".

The following is added to this section:
Support:

The combination Turn/Advisory Speed (W1-1a) sign (see Figure 2C-1), or combination Curve/Advisory Speed (W1-2a) sign (see Figure 2C-1) (CA Code W4 Series) is used at problem locations where the Horizontal Alignment (W1-1 through W1-5) signs have not proven to be effective.
Standard:

When used, combination Turn/Advisory Speed (W1-1a) sign (see Figure 2C-1), or combination Curve/Advisory Speed (W1-2a) sign (see Figure 2C-1) (CA Code W4 Series) shall be used in the head-on position and/or at the beginning of the turn or curve.
Guidance:

When used, the square shape should be used in the head-on position for combination Turn/Advisory Speed (W1-1a) sign (see Figure 2C-1), or combination Curve/Advisory Speed (W1-2a) sign (see Figure 2C-1) (CA Code W4 Series).

When used, the diamond shape should be used in the beginning of the turn or curve for the combination Turn/Advisory Speed (W1-1a) sign (see Figure 2C-1), or combination Curve/Advisory Speed (W1-2a) sign (see Figure 2C-1) (CA Code W4 Series).

Existing pavement markings should also be evaluated.
Standard:

The advisory speed shall be determined in accordance with Section 2C.101.

Section 2C.09 One-Direction Large Arrow Sign (W1-6)
The following is added to this section:
Guidance:

CA Type N-1 (OM1-3) object marker should be used below and on the same post as the W1-6 sign. See Chapter 3C.

Section 2C.10 Chevron Alignment Sign (W1-8)
Standard:

In Paragraph 3 ("If used, Chevron…"), the phrase "If used, Chevron Alignment signs …" is changed to "If used, a minimum of three Chevron Alignment signs…".
Guidance:

In Paragraph 5 ("Spacing of Chevron Alignment signs…"), the phrase "at least two in view" is changed to "at least three in view".

Figure 2C-2. Vertical Grade Signs
Standard:

No sign shall have a metric unit or message, except per CVC 21351.3. Hence, the following signs shall not be used in California with metric messages unless specifically allowed per CVC 21351.3.

Supplemental Distance Plaque (W7-3a) Metric version.
Combination Distance/Grade Plaque (W7-3b) Metric version.

Section 2C.13 Truck Escape Ramp Signs (W7-4 Series)
Guidance:
In Paragraph 1 ("Where applicable…"), the last sentence ("No Parking (R8-3)…") is replaced with the following:
NO STOPPING ANYTIME (CA Code R26A(S)) signs should be placed to keep motorists from stopping in the path of runaway trucks.
The following is added to this section:
Standard:
The DEEP GRAVEL (CA Code W30B) sign shall be placed on all truck escape ramps.
Guidance:
The W30B (CA Code) sign should be placed near the outside edge of the paved ramp prior to the beginning of the gravel bed. See Figure 3D-103 for Runaway Truck Ramp sign and marking details.
The RIGHT (LEFT) EXIT (CA Code W30C) sign should be used to indicate a right or left exit to a truck escape ramp.
Support:
Erect the W30C (CA Code) sign below and on the same post with the first W7-4 sign.

Figure 2C-3. Miscellaneous Warning Signs
Standard:
No sign shall have a metric unit or message, except per CVC 21351.3. Hence, the following signs shall not be used in California with metric messages unless specifically allowed per CVC 21351.3.
Low Clearance (W12-2) Metric version.
Low Clearance (W12-2P) Metric version.

Section 2C.16 NARROW BRIDGE Sign (W5-2)
Guidance:
In Paragraph 1 ("A NARROW BRIDGE (W5-2)…"), the phrase "4.9 to 5.5m (16 to 18 ft)" is changed to "4.9 to 8.5m (16 to 28 ft)".
The following is added to this section:
Support:
See Figure 3D-104 for narrow bridge sign and marking details.

Section 2C.17 ONE LANE BRIDGE Sign (W5-3)
The following is added to this section:
Support:
See Figure 3D-104 for narrow bridge sign and marking details.

Section 2C.18 Divided Highway (Road) Sign (W6-1)
Standard:
Paragraph 2 ("The Word message…") is deleted.
The following is added to this section:
Support:
See Figure 3B-12 (CA) for signing and marking applications for lane reductions.

Section 2C.19 Divided Highway (Road) Ends Sign (W6-2)

Standard:

Paragraph 3 ("The Word message…") is deleted.

The following is added to this section:

Support:

See Figure 3B-12 (CA) for signing and marking applications for lane reductions.

Section 2C.21 DEAD END/NO OUTLET Signs (W14-1, W14-1a,W14-2, W14-2a)

The following is added to this section:

Standard:

The NOT A THROUGH STREET (ROAD) sign (CA Code W53) is deleted and replaced with the DEAD END (W14-1) sign.

Option:

The existing W53 (CA Code) signs may remain in place until maintenance is required or existing inventory is depleted.

Option:

The END sign (CA Code W31) may be used where a street or highway ends.

Support:

Install in a head-on position in combination with an end-of-roadway marker. See Chapter 3C.

See Figure 3C-1 and 3C-101 for examples of object markers and more details.

Option:

The ROAD ENDS -------- FT sign (CA Code W31A) may be used in advance of the END sign (CA Code W31).

Section 2C.22 Low Clearance Signs (W12-2 and W12-2P)

The following is added to this section:

Standard:

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

For clearance 4.7 m (15.5 ft) or less, in addition to the W12-2P, two advance Low Clearance signs shall be installed on the right side of the roadway. The first W12-2 sign shall be placed in advance of the nearest intersecting street or highway or wide point in the road at which a motorist can detour or safely turn around.

Guidance:

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

Standard:

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

Support:

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

Standard:

The W12-2 sign shall display the same clearance as shown on the W12-2P sign.

Guidance:

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

Standard:

The __ FT __ IN plaque (W12-2P) shall be used to warn motorists of structural clearance 4.7 m (15.5 ft) or less.

Guidance:

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

Standard:

The W12-2P plaque shall not encroach over the shoulder area.

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

The CAUTION, VERTICAL CLEARANCE ___' ___" Arrow sign (CA Code W34C) shall be used on all blind approaches to structures with clearances 4.7 m (15.5 ft) or less.

Support:

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

Guidance:

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

Standard:

The W34C (CA Code) sign shall display the same clearance as shown on the W12-2P sign.

Section 2C.26 Shoulder Signs (W8-4, W8-9, and W8-9a)

The following is added to this section:

Support:

The low shoulder condition (elevation difference up to 75 mm (3 in) between shoulder and the travel lane) is not treated as a permanent condition on State highways.

Standard:

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

Option:

The black on orange background LOW SHOULDER (W8-9) sign may be used on State highways to warn of a shoulder condition where there is an elevation difference of less than 75 mm (3 in) between the shoulder and the travel lane. See Section 6F.42.

Section 2C.29 Advance Traffic Control Signs (W3-1, W3-2, W3-3, W3-4)

Standard:

In Paragraph 5 ("Word messages…"), the word message signs, STOP AHEAD (W3-1a) and YIELD AHEAD (W3-2a) are deleted.

Paragraphs 10 ("The BE PREPARED TO STOP…") and 11 ("When the warning beacon…") are deleted. A warning beacon or WHEN FLASHING plaque shall not be used to supplement the BE PREPARED TO STOP sign. Studies indicate that these devices are generally not effective as warning devices for motorists approaching signalized intersections. The non-use of a warning beacon or WHEN FLASHING plaque also addresses the situation when a warning beacon is inoperative for any reason.

The following is added to this section:

Guidance:

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

Option:

The STOP AHEAD pavement markings may be placed in accordance with Section 3B.19.

The SIGNAL AHEAD sign (W3-3a) may be used for overhead mastarm and overhead structure mounted locations.

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

Guidance:

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

Figure 2C-5. Advisory Speed and Speed Reduction Signs
Standard:

No sign shall have a metric unit or message, except per CVC 21351.3. Hence, the following signs shall not be used in California with metric messages unless specifically allowed per CVC 21351.3.

Speed Reduction (W3-5a) Metric version.
Speed (W13-1) Metric version.
Exit Speed (W13-2) Metric version.
Ramp Speed (W13-3) Metric version.
Curve Speed (W13-5) Metric version.

Section 2C.31 Merge Signs (W4-1, W4-5)
The following is added to this section:
Guidance:

When installed at freeway entrance ramps, the W4-1 sign should be installed in advance of the paved gore area.

Section 2C.32 Added Lane Signs (W4-3, W4-6)
The following is added to this section:
Guidance:

When installed at freeway entrance ramps, the sign should be installed in advance of the paved gore area.

Section 2C.33 Lane Ends Signs (W4-2, W9-1, W9-2)
Standard:

For consistency, the LANE ENDS MERGE LEFT (RIGHT) (W9-2) sign is deleted, only Lane Ends (W4-2) symbol sign shall be used.
The following is added to this section:
Guidance:

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

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

See Figure 3B-12 (CA) for signing and marking applications for lane reductions.

Section 2C.34 Two-Way Traffic Sign (W6-3)
The following is added to this section:
Guidance:

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

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

Standard:

The TWO WAY TRAFFIC (CA Code W44A) plaque, if used, shall be positioned below the W6-3 sign.

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

Support:

See Figure 3B-12 (CA) for signing and marking applications for lane reductions.

Typical example of W6-3 sign application is shown in Figure 3B-104.

Section 2C.36 Advisory Exit, Ramp, and Curve Speed Signs (W13-2, W13-3, W13-5)

Standard:

The Advisory Curve Speed (W13-5) sign is deleted.

This section is deleted and replaced with the following:

Guidance:

The Advisory Exit Speed (W13-2) sign should be placed on the right of exit ramps just beyond the neutral area (gore) to advise motorists of the speed at which the exit ramp can be comfortably negotiated. Consideration should also be given to the speed at which traffic can enter the surface street at the end of the ramp if a stop is not required.

Support:

The W13-2 sign is not necessary for an exit ramp that has tangent alignment and terminates at a stop sign or a signal.

Guidance:

The Advisory Ramp Speed (W13-3) sign should be placed on the right of the freeway to freeway connector ramps just beyond the neutral area (gore) where the ramps cannot be comfortably negotiated by motorists at approach speeds.

Where additional warning is needed for ramp curvature beyond the neutral area (gore), a curve warning sign and an advisory speed should be posted.

Standard:

The advisory speed shall be determined in accordance with Section 2C.101.

Section 2C.37 Intersection Warning Signs (W2-1 through W2-6)

The following is added to this section:

Option:

A bulb shape may be placed on the appropriate leg of the Cross Road (W2-1), Side Road (W2-2 or W2-3), T-Symbol (W2-4), or Y-Symbol (W2-5) advance intersection signs to indicate a “Dead End” condition. See Section 2C.21 for DEAD END (W14-1) sign.

Section 2C.38 Two-Direction Large Arrow Sign (W1-7)

The following is added to this section:

Guidance:

CA Type N-1 (OM1-3) object marker should be used below and on the same post as the W1-7 sign. Refer to Chapter 3C.

Figure 2C-8. Intersection Warning Signs

Standard:

The W25-1 and W25-2 signs are deleted. See Section 2C.39.

Section 2C.39 Traffic Signal Signs (W25-1, W25-2)

Standard:

This section is deleted. The “yellow trap” should be eliminated rather than trying to correct it with these signs. See Part 4 of This Supplement.

Section 2C.40 Vehicular Traffic Signs (W8-6, W11-1, W11-5, W11-5a, W11-8, W11-10, W11-11, W11-12, W11-14)

Standard:

The last Paragraph ("The Emergency Vehicle…") is deleted. See Standard topic below.

The following is added to this section:

Guidance:

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

Standard:

The Emergency Vehicle (W11-8) sign or the EMERGENCY VEHICLES sign (CA Code SW52) shall be used for all types of emergency vehicles.

Option:

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.

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.

Section 2C.41 Nonvehicular Signs (W11-2, W11-3, W11-4, W11-6, W11-7, W11-9)

The following is added to this section:

Support:

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

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

Standard:

The Pedestrian Crossing symbol (W11A-2) sign (CA Code W54) is deleted. The Pedestrian Crossing (W11-2) sign and a diagonal downward pointing arrow (W16-7P) plaque combination shall be used instead.

Option:

The existing W11A-2 signs may remain in place until maintenance is required or existing inventory is depleted.

Guidance:

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

Option:

The Migrating Bears (CA Code SW59) sign 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:

If used, the NEXT XX MILES supplemental plaque should be placed at approximately 8 km (5 mi) intervals, or when intersecting major traffic generators.

Section 2C.42 Playground Sign (W15-1)

The following is added to this section:

Guidance:

The PLAYGROUND sign (CA Code SW49) should not be used alone.

Option:

The SW49 (CA Code) sign may be used in combination above the Speed Limit (R2-1 (25)) sign or WHEN CHILDREN ARE PRESENT (S4-2) sign on any street or road, other than a state highway, with a

speed limit greater than 25 mph that is adjacent to a children's playground within a public park. Refer to CVC 22357.1.

Section 2C.45 Distance Plaques (W16-2 series, W16-3 series, W16-4, W7-3a)

The following is added to this section:

Option:

The Distance Ahead (CA Code W34A) plaque may be used to inform the road user of the distance to the condition indicated by the warning sign.

Guidance:

When the distance is in miles, the mileage shown should be to the nearest 1/4 mile for a distance of less than 1 mile and to the nearest mile for distances over one mile. The text "MILE" should be used for a distance of one mile or less. The text "MILES" should be used for distances over one mile.

Section 2C.46 Advisory Speed Plaque (W13-1)

The following is added to this section:

Standard:

If used, the speed shown on the W13-1 plaque shall not be in excess of the posted or maximum speed limit. The advisory speed shall be determined in accordance with Section 2C.101.

The Advisory Speed Plaque shall not be used in conjunction with any sign other than a warning sign, nor shall it be used alone. When used, it shall be positioned below the warning sign.

Section 2C.48 Hill-Related Plaques (W7-2 Series, W7-3 Series)

The following is added to this section:

Option:

The WATCH DOWNHILL SPEED (CA Code SW4-1) sign may be used on long downhill grades to remind motorists to maintain the posted speed.

Section 2C.101 Advisory Speed on Curve and Turn Warning Signs

Guidance:

In determining the need for curve or turn warning signs, consideration should be given to driver expectancy based on the driving environment. If the curve can be driven at legal speed without discomfort, there is normally no need for a sign. A curve warning sign should be considered in advance of any curve that produces a reading of 16 degrees on a Ball Bank Indicator at speeds lower than the approach speed. If a curve warning sign is needed, it should be supplemented with an advisory speed message.

A mechanical or electronic Ball Indicator should be used to determine the advisory speed for curves.

Support:

This speed is shown on the Horizontal Alignment signs (see Section 2C.06), Combination Horizontal Alignment/Advisory Speed Signs (see Section 2C.07), Advisory Exit, Ramp, and Curve Speed Signs (see Section 2C.36) and Advisory Speed Plaque (see Section 2C.46).

Option:

The Advisory Speed (W13-1) plaque may also be used with a number of other warning signs.

Support:

See the sign policy for the Advisory Speed (W13-1) plaque in Section 2C.46 for more details.

One method of determining the advisory speed is to drive the curve at several selected uniform speeds and plot the Ball Bank Indicator readings as shown in Figure 2C-102.

Guidance:

A minimum of three speed runs should be made in each direction.

Support:

The limiting Ball Bank Indicator value for comfort is 16°.

Standard:

The speeds shown on the sign shall be in mph.

Guidance:

The speed shown on the sign should be in 5 mph increments to the lowest appropriate speed found for the condition.

Option:

The comfortable speed on horizontal curves chart shown in Figure 2C-103 may be used to check calculations or analyze curves on projects that are in the design stage.

Section 2C.102 ROUGH ROAD Sign (W8-8)

Option:

The ROUGH ROAD (W8-8) sign may be used in advance of a section of rough road where a reduction in speed may be necessary for a motorist's comfort. It may be desirable to supplement this sign with an Advisory Speed (W13-1) plaque. Where the rough road is 1.6 km (1 mi) or more in length, the W8-8 sign may be supplemented with a Next Distance (W7-3a) plaque.

Section 2C.103 ICY Sign (CA Code W43)

Option:

The ICY sign (CA Code W43) may be used in advance of locations where an icy condition requires extra caution.

Guidance:

The W43 (CA Code) sign should be used on mountain roads, which may be continuously in the shade and where ice forms during the greater part of the winter. This sign should be covered or removed at the end of the winter season or when the icy condition no longer exists. The sign should be located in advance of the beginning of the icy sections.

Section 2C.104 DRAW BRIDGE Sign (CA Code W49)

Standard:

The DRAW BRIDGE sign (CA Code W49) shall be used in advance of all movable bridges to give motorists time to stop when the bridge is open.

Guidance:

Where physical conditions prevent a motorist driving at the legal speed limit from having a continuous view of at least one signal indication before reaching the stop line, an auxiliary device should be provided in advance of movable bridge signals and gates.

Option:

This device may be either a supplemental signal or the mandatory DRAW BRIDGE sign to which has been added a flashing yellow beacon interconnected with movable bridge control.

Section 2C.105 Slide Area Signs (CA Code W38, W50, W50-1 and SW41)

Option:

The SLIDE AREA sign (CA Code W38) may be used in advance of where slides on the highway could be expected.

The SNOW SLIDE AREA sign (CA Code SW41) may be used in areas of known snow slide or avalanche activity.

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

Guidance:

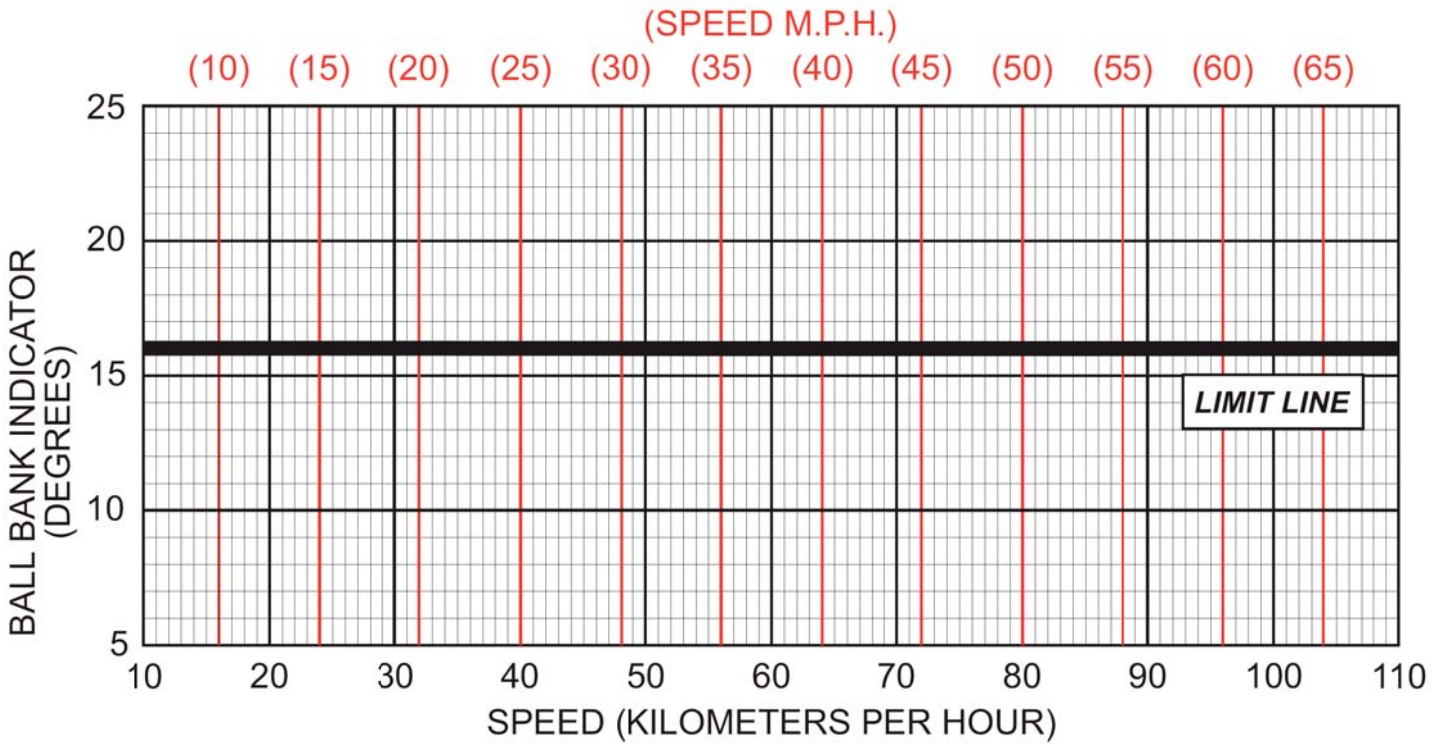
The Rock Slide Area word message (CA Code W50) or symbol (CA Code W50-1) signs should be used where rocks from hillsides or cut slopes frequently fall on the traveled way.

Figure 2C-102. Determination of Comfortable Speed From Ball Bank Indicator Readings

Driver_____
Observer_____
Vehicle_____
Date_____

Type of Pavement_____
Condition of Pavement_____
Min. Sight Dist. Thru Curve_____
Approach Speed
(Estimated or Observed)_____

Co._____Rte._____PM_____
Sta._____To_____
Direction_____
Weather_____



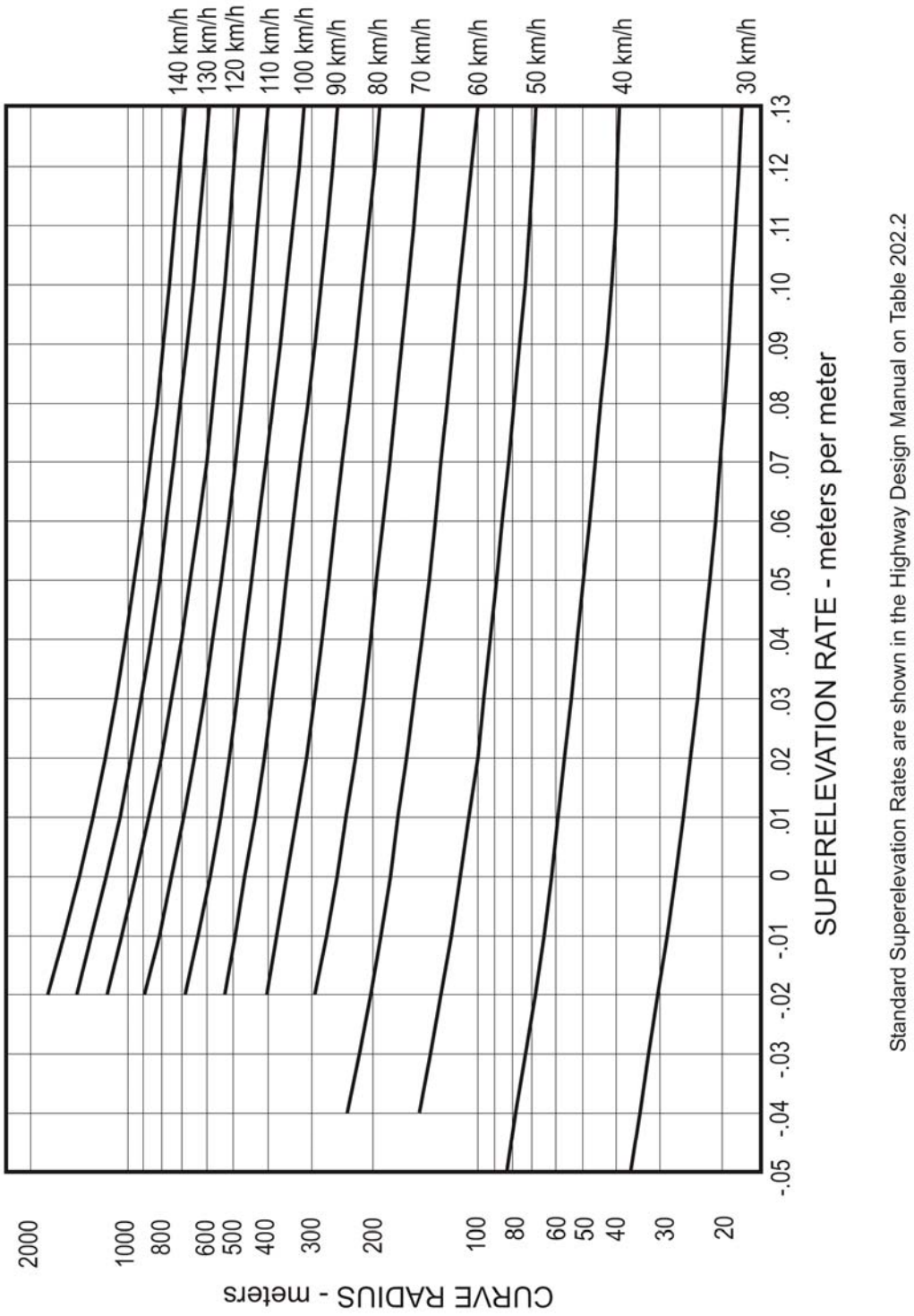


Figure 2C-103. Comfortable Speed on Horizontal Curves
(Metric Units)

Standard Superelevation Rates are shown in the Highway Design Manual on Table 202.2

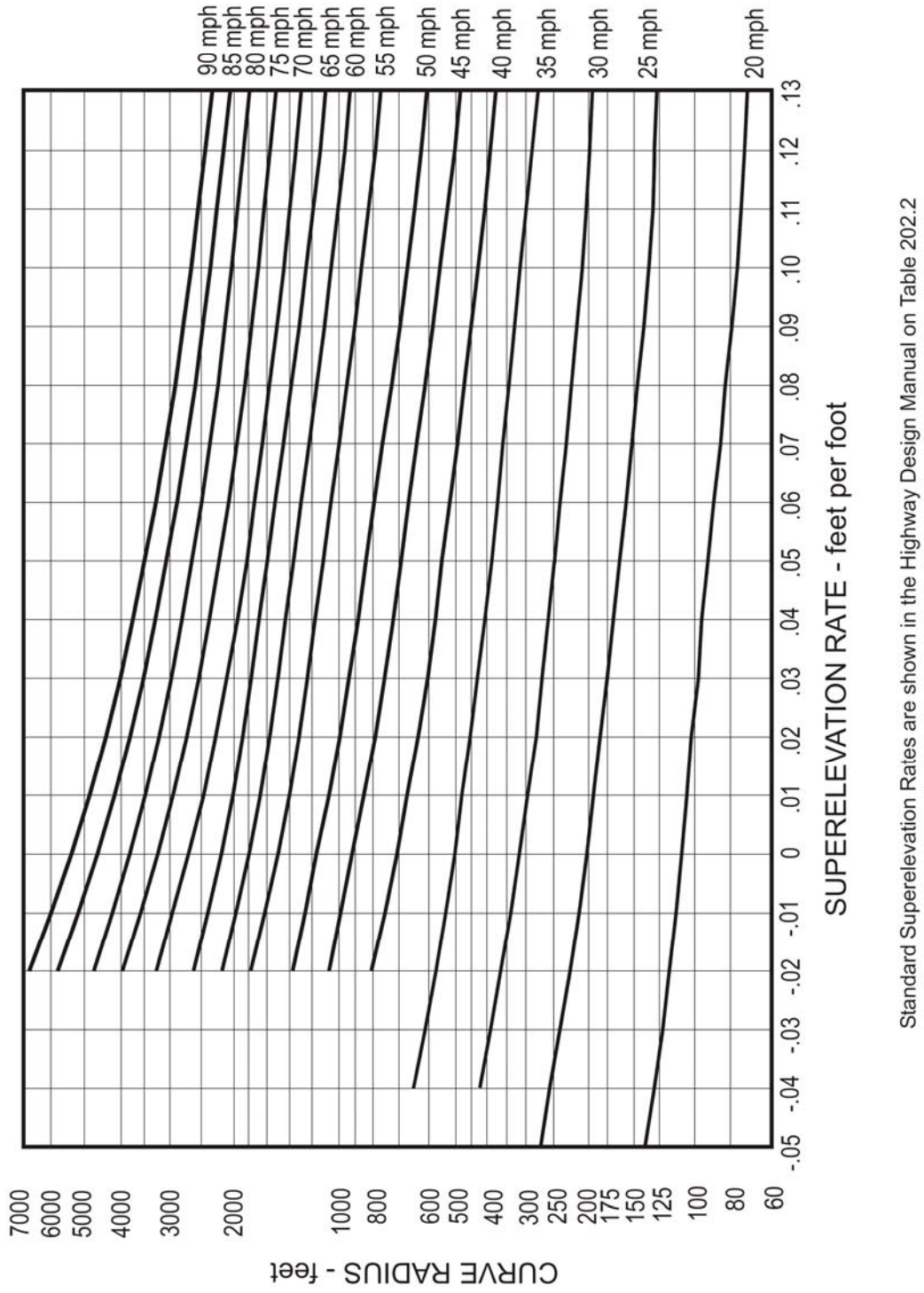


Figure 2C-103. Comfortable Speed on Horizontal Curves
(English Units)

Standard Superelevation Rates are shown in the Highway Design Manual on Table 202.2

Section 2C.106 SLOW TRUCKS Sign (CA Code W51)

Option:

The SLOW TRUCKS sign (CA Code W51) may be used to inform drivers that slow moving trucks substantially interfere with the flow of traffic. The Next Distance (W7-3a) plaque may be used with the W51 (CA Code) sign.

Section 2C.107 Flood Signs (CA Codes W55, W55B and SW35)

Guidance:

The FLOODED sign (CA Code W55) should be used in advance of locations where the highway is flooded.

Standard:

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

Option:

The SUBJECT TO FLOODING sign (CA Code W55B) may be used for signing in advance of locations where it is anticipated that the highway may periodically flood. A Next Distance (W7-3a) plaque may supplement this sign.

The FLASH FLOOD AREA sign (CA Code SW35) may be used in advance of depressions in the highway alignment that are subject to flash flooding.

Section 2C.108 END FREEWAY and CROSS TRAFFIC AHEAD Signs (CA Codes W69, W70 and SW36)

Guidance:

The END FREEWAY _____ MI sign (CA Code W69) should be used at locations where traffic leaving the freeway comes into a lower standard roadway. At problem locations dual installations with yellow flashing beacons or overhead installations should be considered. The W69 (CA Code) sign should also be used at transitions from freeways to expressways.

Option:

The END FREEWAY sign (CA Code SW36) may be used at locations where traffic leaving the freeway comes into a lower standard roadway. It may also be used where additional emphasis is needed for the W69 (CA Code) sign.

Guidance:

The CROSS TRAFFIC AHEAD sign (CA Code W70) should be used at locations where traffic leaves a freeway section and enters an expressway section to warn motorists that crossing at grade may be expected.

Option:

Where two sections of freeway are connected by a section of expressway of a relatively short distance, the Next Distance (W7-3a) plaque may be installed below the W70 (CA Code) sign.

Section 2C.109 Lane Drop Signs (CA Code W73, W73A and MUTCD Code W4-1a)

Standard:

The RIGHT (LEFT) LANE EXITS AHEAD sign (CA Code W73), shall be placed between the THRU TRAFFIC MERGE LEFT (RIGHT) sign (W4-1a) and the RIGHT (LEFT) LANE MUST EXIT sign (CA Code R18A), at locations where overhead Exit Only signs (E11-1 Series) are not in place for lane drops at freeway exit ramps.

Guidance:

On expressways, the RIGHT(LEFT) LANE TURNS RIGHT(LEFT) AHEAD sign (CA Code W73A) should be used in advance of the RIGHT(LEFT) LANE MUST TURN RIGHT(LEFT) sign (R3-7).

Option:

On expressways, the THRU TRAFFIC MERGE LEFT (RIGHT) sign (W4-1a) may be used in advance of the RIGHT(LEFT) LANE MUST TURN RIGHT(LEFT) sign (R3-7).

Guidance:

On conventional highways, the RIGHT(LEFT) LANE TURNS RIGHT(LEFT) AHEAD sign (CA Code W73A) and/or the THRU TRAFFIC MERGE LEFT (RIGHT) sign (W4-1a) should be used in advance of the RIGHT(LEFT) LANE MUST TURN RIGHT(LEFT) sign (R3-7).

Support:

See Figure 3B-12 (CA) for signs and lane reduction markings.

Standard:

The THRU TRAFFIC MERGE LEFT (RIGHT) sign (W4-1a) shall be used on freeways and expressways to inform motorists that the outside or inside lane is being dropped at the next exit, and through traffic must merge into the adjacent lane.

Guidance:

The W4-1a sign should not be used for a lane reduction.

Option:

The W4-1a signs may also be used on conventional highways.

Support:

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

Section 2C.110 DRIFTING SAND Sign (CA Code SW32)

Option:

The DRIFTING SAND Sign (CA Code SW32) may be used to warn traffic of drifting sand on the roadway.

Section 2C.111 TUNNEL Sign (CA Code SW37)

Option:

The TUNNEL Sign (CA Code SW37) may be used to warn road user that there is a tunnel ahead.

Section 2C.112 DEAF CHILDREN NEAR Sign (CA Code SW38)

Option:

The DEAF CHILDREN NEAR sign (CA Code SW38) may be used on city streets or county roads to indicate that a deaf child is near. Refer to CVC 21351.7.

Section 2C.113 Downward Arrow Sign (CA Code SW44)

Option:

The Downward Arrow sign (CA Code SW44) may be used where object markers (see Chapter 3C) may be ineffective, with the downward arrow either left or right, to mark obstructions in the roadway where traffic is permitted to pass on one side only.

Section 2C.114 GROOVED PAVEMENT Sign (CA Code SW45)

Option:

The GROOVED PAVEMENT sign (CA Code SW45) may be used to alert motorcyclists and other road users of a roadway surface which has been grooved longitudinally to improve its wet weather traction.

Guidance:

Use of this sign should be limited to locations where experience indicates it is necessary to inform motorists of the existence of this type of surface.

Section 2C.115 Snow Signs (CA Code SW46 and SW58)

Option:

The WATCH FOR SNOW SLIPPERY sign (CA Code SW46) may be used to warn road users of conditions where snow may be on the roadway surface, but chains are not yet required. The SW46 (CA

Code) sign may be placed in advance of areas where such conditions may exist, and intermittently as needed where such conditions may exist for long sections of highways.

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

Guidance:

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

Option:

The WATCH FOR SNOW REMOVAL EQUIPMENT (CA Code SW58) sign may be used on highways leading to snow areas.

Support:

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

Guidance:

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

Section 2C.116 OFF HIGHWAY VEHICLES Sign (CA Code SW47)

Option:

The OFF HIGHWAY VEHICLES sign (CA Code SW47) 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:

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

Section 2C.117 TRACTOR-SEMIS OVER ___ FEET KINGPIN TO REAR AXLE NOT ADVISED Sign (CA Code SW48)

Option:

The TRACTOR-SEMIS OVER ___ FEET KINGPIN TO REAR AXLE NOT ADVISED sign (CA Code SW48) may be used on certain specified conventional highways and freeways that have restricted turning radii.

Standard:

At freeway offramps to restricted conventional highways, the freeway sign shall be installed with a NEXT EXIT (CA Code SW 48-1) sign.

Guidance:

The SW48 (CA Code) sign should be located far enough in advance of the restricted area to allow the vehicle operator time to select an alternate route.

Option:

The NEXT RIGHT (CA Code SW48-1) sign or Next Distance (W7-3a) plaque may supplement the SW48 (CA Code) sign, as appropriate. Alternate messages for the SW 48-1 (CA Code) sign may be SECOND EXIT, SECOND RIGHT, NEXT LEFT or SECOND LEFT.

Section 2C.118 SENIOR CITIZEN FACILITY Sign (CA Code SW50)

Guidance:

The SENIOR CITIZEN FACILITY sign (CA Code SW50) should not be used alone.

Option:

The SW50 (CA Code) sign may be used in combination, above the Speed Limit (R2-1 (25,20 or 15)) sign on any street or road, other than a State highway, with a speed limit greater than 40 km/h (25 mph) that is adjacent to a senior citizen facility. Refer to CVC 22352 and 22358.4.

Section 2C.119 HOV Signs (CA Code W11-1, W59-1, W72B, W74-1, W75-1, SW54, SW54-1, SW54A, SW54B and SW54C)

Guidance:

The HOV Lane Reduction (CA Code W11-1) sign should be used to warn of a reduction in the number of HOV lanes.

The HOV Merge sign (CA Code W59-1) should be used in advance of locations where HOV lanes converge. This includes HOV drop ramps where high speeds and volumes prevail and merging or weaving must be accomplished in a relative short distance.

The HOV Advisory Exit (Ramp) Speed (CA Code W72-B) sign when used, should be placed on the left of an HOV drop ramp or freeway to freeway connector to advise motorists of the speed at which the drop ramp or freeway to freeway connector can be comfortably negotiated.

The HOV THRU TRAFFIC MERGE LEFT (RIGHT) sign (CA Code W74-1) should be used to inform motorists that the outside or inside lane of an HOV facility with two or more directional HOV lanes is being dropped at the next exit and through HOV traffic must merge into the adjacent HOV lane. This sign should not be used for a lane reduction.

The HOV LANE ENDS MERGE LEFT (RIGHT) sign (CA Code W75-1) should be used on an HOV facility to warn of the reduction in the number of HOV lanes.

Option:

The HOV Lane Selection signs (CA Codes SW54 and SW54-1) may be used as an advance warning that motorists will have to choose whether or not to be in a carpool lane. These signs may be used where geometrics make entrapment likely or where there is a history of vehicles being entrapped in a carpool lane.

Guidance:

The SW54 and SW54-1 (CA Codes) signs should not be used at the entrance of a carpool lane.

SW54B or SW54C (CA Codes) signs so that motorists can determine if they are eligible to use the carpool lane.

Section 2C.120 TRAILERS-CAMPERS-GUSTY WIND AREA NEXT ___ MILES Sign (CA Code SW17-1)

Option:

The TRAILERS-CAMPERS-GUSTY WIND AREA NEXT ___ MILES (CA Code SW17-1) sign may be used where known or potential wind collision problems exist.

Section 2C.121 STEEL BRIDGE DECK Sign (CA Code SW28)

Guidance:

The STEEL BRIDGE DECK (CA Code SW28) sign should be placed in advance of a bridge that has a roadway surface fabricated in steel to alert the road user of a potential change in vehicle handling characteristics.

CHAPTER 2D. GUIDE SIGNS – CONVENTIONAL ROADS

Section 2D.02 Application

The following is added to this section:

Support:

Guide signs are not intended to replace maps or for adequate trip planning by road users.

Table 2D-101 shows a list of California Guide Signs.

Figure 2D-101 shows California Guide Signs.

Section 2D.03 Color, Retroreflection, and Illumination

The following is added to this section:

Overhead Guide Sign Illumination Policy

Guidance:

Fixed-lighting should be used to illuminate signs unless retroreflective luminance from headlights provides effective nighttime legibility. The type of fixed-lighting chosen should provide effective and reasonably uniform illumination of the sign face and message.

Standard:

In conjunction with the requirement for retroreflective backgrounds, the Overhead Guide Sign Illumination policy shall apply to all existing and new overhead guide signs.

Support:

In all applications of the policy, engineering judgement must be exercised. The purpose of the policy is to provide for uniform application of signs statewide. The intent is to make signs conspicuous (target value) and legible to motorists. The policy is consistent with federal requirements.

A. Existing Overhead Signs

Guidance:

1. Currently lighted signs with opaque backgrounds should remain lighted.

Option:

2. Currently unlighted opaque signs may be lighted. Retrofit-walkways for fixed –lighting systems need to be checked for proper clearance to the roadway.

Standard:

3. **Signs with opaque backgrounds shall be replaced with new signs with retroreflective backgrounds, legends and borders when the old signs have reached the end of their useful life or are replaced for other reasons.**

Guidance:

4. Fixed-lighting should be used to illuminate signs with retroreflective backgrounds, legends and borders unless retroreflective luminance from headlights provides effective nighttime legibility

B. New Overhead Signs

Standard:

1. **Signs shall have retroreflective backgrounds, legends and borders.**

Guidance:

2. Fixed-lighting should be used to illuminate signs unless retroreflective luminance from headlights provides effective nighttime legibility.

Standard:

3. **Basic components for fixed-lighting systems shall be provided even if lights are not planned initially.**

Guidance:

4. Signs should be designed and mounted as if lights were installed, as it could be necessary to provide fixed-lighting for the sign at some future date.

C. Fixed-lighting Systems

Guidance:

Energy conservation systems should be considered for fixed-lighting.

D. Engineering Considerations

Guidance:

The following criteria should be considered in determining which signs should be lighted:

1. Signs skewed or otherwise positioned relative to traffic so as to render retroreflective luminance from headlights ineffective.
2. Signs that for some other reason are not legible when illuminated by vehicle headlights.
3. Signs adjacent to other signs requiring or having fixed-lighting.
4. Signs in advance of ramps in urban areas with heavy traffic during the evening peak period.

E. Energy Conservation Measures for Guide Signs

Guidance:

All non-action guide sign lighting (Interchange Sequence (CA Code G23 Series) signs) should be turned off, except in special situations where motorist safety could be affected.

Following are some situations where engineering judgement should be used to determine if illumination should be maintained:

1. Locations prone to heavy fog or poor visibility.
2. Signs in work zones or in the proximity of work zones.
3. Non-action guide signs adjacent to other signs that must be lighted.

All G21 Series, G24 Series, G83 Series, G85 Series and G86 Series (CA Codes) and other action guide signs should remain lighted on highways.

When illuminated, lights should be replaced with energy efficient fixtures on highways.

Standard:

New overhead guide sign structure designs shall include appropriate conduit, pull boxes, and fixture attachment points for the future installation of sign lighting, if and when needed.

Section 2D.04 Size of Signs

The following is added to this section:

Support:

Sign design details are contained in FHWA's "Standard Highway Signs" book and Department of Transportation's "Traffic Sign Specifications". See Section 1A.11 for information regarding these publications.

Section 2D.06 Size of Lettering

The following is added to this section:

Standard:

Design layouts for conventional road guide signs showing interline spacing, edge spacing, and other specification details shall be as shown in the "Standard Highway Signs" book and Department of Transportation's "Traffic Sign Specifications". See Section 1A.11 for information regarding these publications.

Section 2D.08 Arrows

Standard:

In Paragraph 8 ("The width across…"), the second sentence ("For short downward…") is deleted. Use Figure 2D-2 (CA) instead.

Table 2D-101. List of California Guide Signs (Sheet 1 of 9)

California (CA) Code	MUTCD Code	Title of Sign	Supplement Section	MUTCD Section
G1 Series	None	Destination	2D.34	2D.34, 2D.35, 2E.27
G5	None	Distance	2D.37, 2E.36	2D.36, 2D.37, 2E.36
G7	D3	Street Name	2D.38	2D.38
G7-2	W16-8	Advance Street Name Plaque	None	2C.45
G8 Series	None	Destination & Street Name with Arrow	2D.34, 2D.37, 2D.38, 2E.27	2D.35, 2D.38, 2E.27
G9-2	None	Unincorporated Community	2D.48	2D.48
G9-5	None	City Limit	2D.48	2D.48
G10	None	County Line	2D.48	2D.48
G10B	None	Welcome To California	2D.48	None
G11-3	I-3	River Name	2D.48	2D.48
G11 Series	None	Inventory Markers	2D.101	None
G11 Series	None	Memorial Bridge	2D.49	None
G13 Series	None	Historical Landmark	2H.101	None
G14	None	Advance Historical Landmark	2H.101	None
G15	None	POINT OF HISTORICAL INTEREST	2H.102	None
G16	None	Mountain Pass Elevation	2D.48	None
G17	None	Elevation	2D.48	None
G20 Series	None	Advance Lane Assignment	2D.29	2D.29
G20-9	None	HOV Advance Lane Assignment	2E.102	None
G21 Series	None	Advance Lane Assignment	2D.29	2D.29
G22	None	Advance Turn	2D.103	None
G23 Series	None	Interchange Sequence	2E.37	2E.37
G24 Series	None	Pull-Through	2E.11	2E.11
G25	M1-6	County Route Marker	None	2D.10, 2D.11
G26-1	None	U. S. Route Shield	2D.11	None
G26-2	None	U. S. Route Marker	2D.11, 2D.27	2D.10, 2D.11, 2D.27
G27-1	M1-1	Interstate Route Shield	2D.11	2D.11
G27-2	None	Interstate (CALIFORNIA) Route Marker	2D.11, 2D.27	2D.10, 2D.11, 2D.27
G28-1	None	State Route Shield	2D.11	None
G28-2	None	State Route Marker	2D.11, 2D.27	2D.10, 2D.11, 2D.27
G30 Series	None	Scenic Route	2D.104	None
G31	M1-2	Off-Interstate Business Loop Marker	2D.27	2D.10, 2D.11, 2D.27
G32	M6-4	Directional Arrow Auxiliary	None	2D.26

Table 2D-101. List of California Guide Signs (Sheet 2 of 9)

California (CA) Code	MUTCD Code	Title of Sign	Supplement Section	MUTCD Section
G33 Series	M6 Series	Directional Arrow Auxiliary	None	2D.12, 2D.26
G33-1	None	Directional Arrow Auxiliary	2D.26	None
G34	M6-1	Directional Arrow Auxiliary	None	2D.12, 2D.26
G35	M6-4	Directional Arrow Auxiliary	None	2D.12, 2D.26
G36	M6-3	Directional Arrow Auxiliary	None	2D.12, 2D.26
G37	M6-6	Directional Arrow Auxiliary	None	2D.12, 2D.26
G38	M6-6	Directional Arrow Auxiliary	None	2D.12, 2D.26
G43	M6-2	Directional Arrow Auxiliary	None	2D.12, 2D.26
G44	M6-2	Directional Arrow Auxiliary	None	2D.12, 2D.26
G45	M5-1	Advance Turn Arrow Auxiliary	None	2D.12, 2D.25
G46	M5-1	Advance Turn Arrow Auxiliary	None	2D.12, 2D.25
G47	M3-1	NORTH	2D.15	2D.12, 2D.15
G48	M3-3	SOUTH	2D.15	2D.12, 2D.15
G49	M3-2	EAST	2D.15	2D.12, 2D.15
G50	M3-4	WEST	2D.15	2D.12, 2D.15
G51	M4-7	TEMPORARY	None	2D.12, 2D.23
G53	M4-1	ALTERNATE	None	2D.12, 2D.17
G55	M4-3	BUSINESS	None	2D.12, 2D.19
G56	M2-1	JCT	None	2D.12, 2D.13
G57	M4-6	END	None	2D.12, 2D.22
G58	None	NEXT RIGHT/LEFT	2D.105	None
G59	M4-5	TO	None	2D.12, 2D.21
G60	D4-1	Parking Area	None	2D.40
G66-1	D9-7	Gas	2D.45	2D.45
G66-4	D9-8	Food	2D.45	2D.45
G66-7	D9-9	Lodging	2D.45	2D.45
G66-10	D9-3a	Trailer Camping	2D.45	2D.45
G66-11	None	Methanol Fuel	2D.45	None
G66-11A	None	METHANOL	2D.45	None
G66-12	D9-11	Diesel Fuel	2D.45	2D.45
G66-12A	None	DIESEL	2D.45	None
G66-13	D9-6	International Symbol of Accessibility for the Handicapped	None	2D.45
G66-14	D9-13	Emergency Medical Services	2D.45	2D.45
G66-15	D9-2	Hospital	2D.45	2D.45
G66-17	D9-1	Telephone	2D.45	2D.45
G66-18	D9-1a	Telephone with Arrow	2D.45	2D.45

Table 2D-101. List of California Guide Signs (Sheet 3 of 9)

California (CA) Code	MUTCD Code	Title of Sign	Supplement Section	MUTCD Section
G66-19	D9-1b	Telephone ¼ Mile	2D.45	2D.45
G66-21	None	ELECTRIC VEHICLE CHARGING STATION	2D.45	None
G66-21A	None	Distance with Arrow	2D.45	None
G66-22A	None	Compressed Natural Gas	2D.45	None
G66-22B	None	Liquefied Natural Gas	2D.45	None
G66-55	None	STAA Truck Service	2D.45	None
G66-56	None	STAA Truck Terminal Access	2D.45	None
G66-56A	None	NEXT EXIT OK	2D.45	None
G66-57	None	Highway Patrol	2D.45	None
G66-58	None	BRAKE CHECK AREA	2D.45	None
G66-59	None	BRAKE CHECK AREA with Arrow	2D.45	None
G66-60	None	BRAKE CHECK AREA (X MILE)	2D.45	None
G66-61	None	Sheriff	2D.45	None
G66-62	None	Police	2D.45	None
G68	None	DIVIDED ROAD (X MILES) AHEAD	2D.106	None
G69	None	PASSING LANE (X MILES) or AHEAD	2D.107	None
G70-2	None	Single Line EXIT XX	2E.28	None
G70-3	None	Single Line EXIT XXXX	2E.28	None
G70-4	None	Two Line EXIT XX	2E.28	None
G70-5	None	Two Line EXIT XXXX	2E.28	None
G71	D7-1	National/State Park (X MILE)	None	2H.09
G72	None	National/State Park with Arrow	None	2H.09
G76	None	ROUTE ___ BUSINESS	2D.19	None
G77 Series	None	Interchange Guide	2D.29	2D.29
G78 Series	None	Interchange Guide	2D.29	2D.29
G79	D5-1	REST AREA (X MILE)	2D.42	2D.42, 2E.52
G79A	None	NEXT REST (X MILE)	2D.42	2E.52
G80	D5-2	REST AREA	2D.42	2D.42, 2E.52
G80A	D5-2	REST AREA	2D.42	2D.42, 2E.52
G80B	None	PATROLLED BY HIGHWAY PATROL	2D.42	None
G81-21	None	TOURIST INFORMATION	2E.53	2E.53
G81-24	None	TOURIST INFORMATION	2E.53	2E.53
G81-52	None	LP GAS	2D.45	None
G81-60	D12-1	Radio-Weather (Traffic) Information	2E.56	2E.56
G81-61	None	EMERGENCY CALL 9-1-1	2D.48	None
G81-62	None	EMERGENCY CALL 9-1-1	2D.48	None

Table 2D-101. List of California Guide Signs (Sheet 4 of 9)

California (CA) Code	MUTCD Code	Title of Sign	Supplement Section	MUTCD Section
G81-63	None	VENDING MACHINES	2D.42	None
G81-64	D12-1	Radio-Weather (Traffic) Information	2E.56	2E.56
G81-64A	None	WHEN FLASHING	2E.56	None
G81-65	None	Radio-Recreation Information	2E.56	2E.56
G82	None	FREEWAY with Arrow	2D.29	None
G83 Series	None	Advance Guide	2E.30	2E.30
G83-3	None	HOV Advance Guide	2E.102	None
G83-4	None	Exit Numbered Advance Guide	2E.28	None
G83-5	None	Exit Numbered Advance Guide	2E.28	None
G84	E5-1	EXIT with Arrow	2E.28	2E.34
G84-1	None	HOV EXIT with Arrow	2E.102	None
G84-2	None	EXIT (XX) with Arrow	2E.28	None
G84-3	None	EXIT (XXXX) with Arrow	2E.28	None
G85 Series	None	Exit Direction	2E.33	2E.33
G85 Series	None	HOV Exit Direction	2E.102	None
G85-10	None	Exit Numbered Exit Direction	2E.28	None
G85-11	None	Exit Numbered Exit Direction	2E.28	None
G86 Series	None	Supplemental Destination	2D.34, 2E.32	2D.34, 2E.32
G86 Series	None	HOV Supplemental Destination	2E.102	None
G86-11	None	Historic District Supplemental Destination	2H.09	2H.09
G86-12	None	Exit Numbered Supplemental Destination	2E.28	None
G86-13	None	Exit Numbered Supplemental Destination	2E.28	None
G87	E9	NEXT X EXITS	None	2E.39
G90	D9-17	NEXT SERVICES XX MILES	None	2E.51
G92	None	FREEWAY ENTRANCE	2E.50	None
G92-1	None	CARPOOL LANE ENTRANCE	2E.102	None
G93	D11-1	Bike Route	2H.02, 9B.20	9B.19, 9B.20
G93A	M4-11	BEGIN	None	9B.21
G93B	M4-12	END	None	9B.21
G93C	None	Bike PARKING	None	9B.22
G94	I-5	Airport	2D.48	2D.48
G94-1	None	Conventional Airport	2D.48	None
G95	D4-2	PARK & RIDE with Arrow	None	2D.41
G95A	None	PARK & RIDE	2D.41	2D.41
G95B	None	PARK & RIDE NEXT RIGHT	2D.41	2D.41
G95B-1	None	Park & Ride Courtesy Plaque	2D.41	None
G95D	None	BUS SERVICE Plaque	2D.41	None

Table 2D-101. List of California Guide Signs (Sheet 5 of 9)

California (CA) Code	MUTCD Code	Title of Sign	Supplement Section	MUTCD Section
G95E	None	Park & Ride Plaque	2D.41	None
G95F	None	Train Station NEXT RIGHT	8B.101	None
G95G	None	Specific Train Station NEXT RIGHT	8B.101	None
G96	None	Light Rail Station	None	10C.20
G96A	None	TROLLEY Plaque	None	10C.20
G97	I-7	Train Station	8B.101	2D.48
G97-1	I-12	Light Rail Station	None	10C.20
G97A	None	AMTRAK	8B.101	None
G200-3	RG-010	Automobile	2H.02	2H.04
G200-4	RG-190	Truck	2H.02	2H.04
G200-6	RG-140	Lookout Tower	2H.02	2H.04
G200-7	RG-120	Lighthouse	2H.02	2H.04
G200-9	RG-030	Dam	2H.02	2H.04
G200-10	RG-090	Fish Hatchery	2H.02	2H.04
G200-11	RG-040	Deer Viewing Area	2H.02	2H.04
G200-13	RG-050	Drinking Water	2H.02	2H.04
G200-14	RG-100	Information	2H.02	2H.04
G200-15	RG-170	Ranger Station	2H.02	2H.04
G200-18	RM-090	Lodging	2H.02	2H.04
G200-19	RM-050	Food	2H.02	2H.04
G200-20	RM-070	Grocery Store	2H.02	2H.04
G200-25	RM-150	Telephone	2H.02	2H.04
G200-27	RM-100	Mechanic	2H.02	2H.04
G200-28	RM-080	Handicapped	2H.02	2H.04
G200-29	RA-010	Airport	2H.02	2H.04
G200-32	RM-060	Gas	2H.02	2H.04
G200-33	RM-030	Ferry	2H.02	2H.04
G200-34	RA-080	Parking	2H.02	2H.04
G200-36	RM-170	Viewing Area	2H.02	2H.04
G200-38	RM-010	Camping (Tent)	2H.02	2H.04
G200-40	RM-020	Camping (Trailer)	2H.02	2H.04
G200-41	RM-160	Trailer Sanitary Station	2H.02	2H.04
G200-44	RM-120	Picnic Area	2H.02	2H.04
G200-46	RS-040	Skiing (Cross Country)	2H.02	2H.04
G200-47	RS-050	Skiing (Downhill)	2H.02	2H.04
G200-48	RS-020	Ski Jumping	2H.02	2H.04
G200-49	RS-060	Sledding	2H.02	2H.04

Table 2D-101. List of California Guide Signs (Sheet 6 of 9)

California (CA) Code	MUTCD Code	Title of Sign	Supplement Section	MUTCD Section
G200-50	RS-010	Skating (Ice)	2H.02	2H.04
G200-51	RS-030	Skiing (Bobbing)	2H.02	2H.04
G200-52	RS-070	Snowmobiling	2H.02	2H.04
G200-53	RW-060	Marina	2H.02	2H.04
G200-54	RW-080	Ramp (Launch)	2H.02	2H.04
G200-55	RW-070	Motorboating	2H.02	2H.04
G200-56	RW-100	Sailboating	2H.02	2H.04
G200-57	RW-090	Rowboating	2H.02	2H.04
G200-58	RW-110	Skiing (Water)	2H.02	2H.04
G200-59	RW-120	Surfing	2H.02	2H.04
G200-60	RW-040	Diving (Scuba)	2H.02	2H.04
G200-61	RW-130	Swimming	2H.02	2H.04
G200-62	RW-030	Diving	2H.02	2H.04
G200-63	RW-050	Fishing	2H.02	2H.04
G200-64	RL-110	Trail (Horse)	2H.02	2H.04
G200-65	RL-150	Trail (Trail Bike)	2H.02	2H.04
G200-66	RL-090	Trail (Bicycle)	2H.02	2H.04
G200-67	RL-140	Trail (Recreational Vehicle)	2H.02	2H.04
G200-68	RL-100	Trail (Hiking)	2H.02	2H.04
G200-69	RL-050	Playground	2H.02	2H.04
G200-70	RL-010	Amphitheater	2H.02	2H.04
G200-71	RL-160	Tramway	2H.02	2H.04
G200-77	RS-090	Winter Recreation Area	2H.02	2H.04
G200-78	RS-080	Snowshoeing	2H.02	2H.04
G200-79	RW-020	Canoeing	2H.02	2H.04
G200-80	None	Golf Course	2H.02	None
G200-81	None	Wildlife Viewing	2H.02	None
G200-81A	None	WILDLIFE VIEWING	2H.02	None
G200-82	None	Botanical Management Area	2H.02	None
G200-82A	None	BOTANICAL MANAGEMENT AREA	2H.02	None
G200-84	RM-140	Rest Room	2H.02	2H.04
SG1	None	Named State Highway	2D.49	None
SG2	None	EL CAMINO REAL	2H.103	None
SG2A	None	HISTORIC EL CAMINO REAL	2H.103	None
SG6	D8-1	Weigh Station Advance	None	2D.44
SG7	D8-2	Weigh Station Exit Direction	None	2D.44
SG8	None	NO PICKUPS	2D.44	None

Table 2D-101. List of California Guide Signs (Sheet 7 of 9)

California (CA) Code	MUTCD Code	Title of Sign	Supplement Section	MUTCD Section
SG9	D8-3	Weigh Station Gore	None	2D.44
SG19	None	Carpool Information	2E.57	2E.57
SG20	None	Park & Ride Facility/Carpool Information	2D.41	None
SG25	None	Call Box	2D.45	None
SG25A	None	Call Box Adoption Plaque	2D.45	None
SG26	None	Caltrans Facility Entrance	2D.108	None
SG28	None	Coastal Access	2D.48	None
SG29	E2-1A	NEXT EXIT XX MILES	None	2E.31
SG30	None	SNO-PARK X MILE	2H.02	None
SG31	None	SNO-PARK NEXT RIGHT	2H.02	None
SG32	None	SNO-PARK with Arrow	2H.02	None
SG33	None	SNO-PARK with Arrow	2H.02	None
SG34	None	SNO-PARK	2H.02	None
SG35	None	PERMIT REQUIRED	2H.02	None
SG35-1	None	PERMIT REQUIRED NOV 1 TO MAY 30	2H.02	None
SG38	None	CDF FIRE STATION NEXT RIGHT	2D.45	None
SG39	None	CDF FIRE STATION with Arrow	2D.45	None
SG41	None	END CALL BOXES	2D.45	None
SG42-1	None	Single-Exit Interchange (One Service) Mainline	2F.07	None
SG42-2	None	Single-Exit Interchange (One Service) Mainline	2F.07	None
SG42-3	None	Double-Exit Interchange Mainline	2F.08	None
SG42-4	None	Specific Service Ramp	2F.101	None
SG42-5	None	Specific Service Ramp	2F.101	None
SG42-6	None	Single-Exit Interchange (Two Services) Mainline	2F.07	None
SG42-7	None	Single-Exit Interchange (Two Services) Mainline	2F.07	None
SG42-8	None	Specific Service Ramp	2F.101	None
SG42-9	None	Single-Exit Interchange (One Service) Mainline	2F.07	None
SG42-10	None	Single-Exit Interchange (One Service) Mainline	2F.07	None
SG42-11	None	Double-Exit Interchange Mainline	2F.08	None
SG42-12	None	Specific Service Ramp	2F.101	None
SG43	M1-10	EISENHOWER INTERSTATE SYSTEM	2D.11	None
SG44-1	None	Tourist Oriented Directional Signs (TODS)	2G.07	None
SG44-2	None	Tourist Oriented Directional Signs (TODS)	2G.07	None

Table 2D-101. List of California Guide Signs (Sheet 8 of 9)

California (CA) Code	MUTCD Code	Title of Sign	Supplement Section	MUTCD Section
SG45	None	Bicycle Route Number Marker	9B.20	9B.20
SG45A	D1-1b & c	Destination Plaques for Bicycle Route Signs	None	9B.21
SG45B	M7 Series	Arrow Plaques for Bicycle Route Signs	None	9B.21
SG47A	None	CALIFORNIA WELCOME CENTER X MILES	2E.53	None
SG47B	None	CALIFORNIA WELCOME CENTER NEXT RIGHT	2E.53	None
SG47C	None	CALIFORNIA WELCOME CENTER with Arrow	2E.53	None
SG47D	None	CALIFORNIA WELCOME CENTER X MILES with Arrow	2E.53	None
SG65	I1-1	Traffic Signal Speed	2D.47	2D.47
S1-1	None	STATE PROPERTY	2D.108	None
S2	None	Inventory Marker (Survey)	2D.101	None
S3-1	None	FREEWAY – ACCESS RIGHTS RESTRICTED ON THIS SECTION OF THE HIGHWAY	2D.108	None
S8	None	STATE PROPERTY – NO DUMPING – NO PARKING – NO TRESPASSING	2D.108	None
S9	None	Fire Hydrant Street Name	2D.45	None
S10	None	Fire Hydrant with Distance and Arrow	2D.45	None
S12	None	OHV TRAIL	2H.02	None
S16-8	None	El Camino Real Adopt-A-Highway	2H.02	None
S17	None	Bicycle Route Name Marker	9B.20	None
S18	None	Historic Route	2H.103	None
S19	None	Opposite Sex Attendant	2D.42	None
S20	None	STATE PROPERTY – ANY PERSON REMOVING OR MOLESTING SAME WILL BE PROSECUTED	2D.108	None
S21	None	Weigh Station Repair Service Plaque	2B.44	None
S22	None	NO LOITERING, CAMPING, VENDING OR PARKING OF VEHICLES 30 FEET OR LONGER	2D.41	None
S23	None	Rest Area/Vista Point 8 Hour Parking	2D.42	None
S24	None	NO SOLICITING	2D.42	None
S25	None	Historic Route 99	2H.103	None
S26	None	Rattlesnakes Caution	2D.42	None
S27	None	Caltrans CONSTRUCTION FIELD OFFICE	2D.108	None
S28	None	USING RECLAIMED WATER	2D.48	None
S29	None	Historic Bridge– 2 Lines	2H.104	None

Table 2D-101. List of California Guide Signs (Sheet 9 of 9)

California (CA) Code	MUTCD Code	Title of Sign	Supplement Section	MUTCD Section
S29-1	None	Historic Bridge– 3 Lines	2H.104	None
S29-2	None	Advance Historic Bridge	2H.104	None
S30-1	None	DAYLIGHT HEADLIGHT SECTION	2B.114	None
S30-2	None	TURN ON HEADLIGHTS NEXT X MILES	2B.114	None
S30-3	None	END DAYLIGHT HEADLIGHT SECTION	2B.114	None
S30-4	None	TURN ON HEADLIGHTS	2B.114	None
S30-5	None	CHECK HEADLIGHTS	2B.114	None
S32	None	Adopt-A-Highway	2D.48	None
S32A	None	Adopt-A-Highway Symbol	2D.48	None
S32-1	None	Litter Removal	2D.48	None
S32-2	None	Wildflower Planting	2D.48	None
S32-3	None	Tree Planting	2D.48	None
S32-4	None	Graffiti Removal	2D.48	None
S32-5	None	Vegetation Control	2D.48	None
S33	None	Safety Corridor	2B.115	None
S34	None	Highway Patrol PARKING ONLY	2D.42	None
S35	None	PLEASE DON’T DRINK AND DRIVE	2D.48	None
S35-1	None	IN MEMORY OF XXX – 1 PERSON	2D.48	None
S35-2	None	IN MEMORY OF XXX – 2 PERSONS	2D.48	None
S35-3	None	IN MEMORY OF XXX – 3 PERSONS	2D.48	None

Figure 2D-101. California Guide Signs
(Sheet 1 of 10)

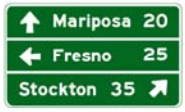
G1-1

G1-4

G1-7

G1-10

G1-13



G1-16

G1-19

G5

G8-1

G8-4

G8-7

G8-10

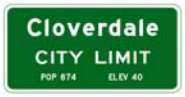
G8-13

G8-16

G8-19

G8-22

G9-2

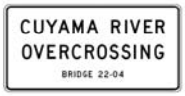


G9-5

G10

G10B

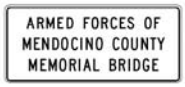
G11-1



G11-2

G11-4.1

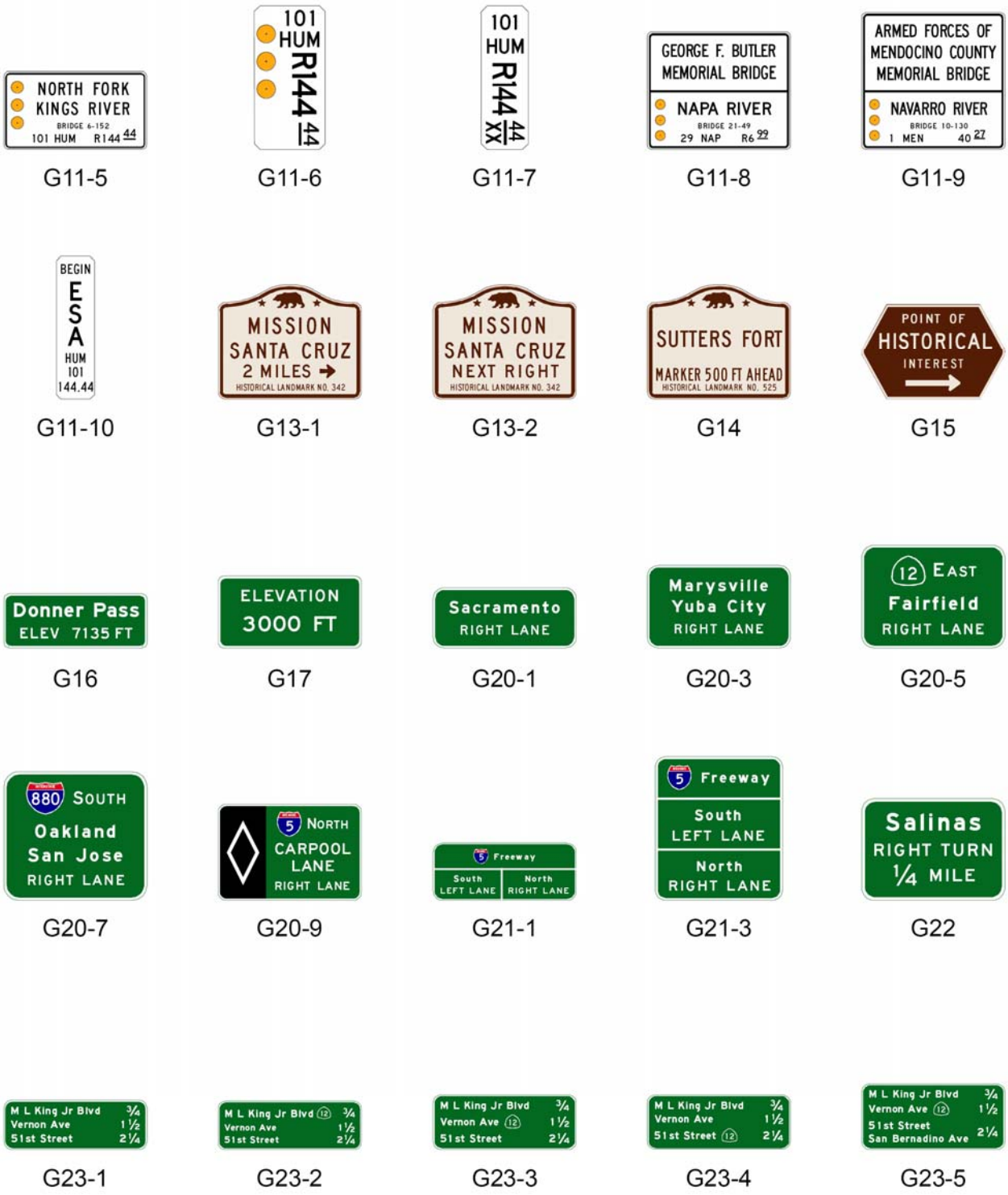
G11-4A



G11-4B

Note: All sign codes are California (CA) Codes.

Figure 2D-101. California Guide Signs
(Sheet 2 of 10)



Note: All sign codes are California (CA) Codes.

Figure 2D-101. California Guide Signs
(Sheet 3 of 10)

G23-6

G24-1

G24-3

G24-4

G24-5

G24-6

G26-1

G26-2

G27-2

G28-1

G28-2

G30


G30A


G30B


G33-1

G58

G66-11

G66-11A

G66-12A

G66-21

G66-21A

G66-22A

G66-22B

G66-55

G66-56

Note: All sign codes are California (CA) Codes.

Figure 2D-101. California Guide Signs
(Sheet 4 of 10)

Note: All sign codes are California (CA) Codes.

Figure 2D-101. California Guide Signs
(Sheet 5 of 10)

Note: All sign codes are California (CA) Codes.

Figure 2D-101. California Guide Signs
(Sheet 6 of 10)

Note: All sign codes are California (CA) Codes.

Figure 2D-101. California Guide Signs
(Sheet 7 of 10)


G200-81

G200-81A


G200-82

G200-82A

SG1

SG2

SG2A

SG8

SG19

SG20

SG25

SG25A

SG26

SG28

SG30

SG31

SG32

SG33

SG34

SG35

SG35-1

SG38

SG39

SG41

SG42-1

Note: All sign codes are California (CA) Codes.

Figure 2D-101. California Guide Signs
(Sheet 8 of 10)

Note: All sign codes are California (CA) Codes.

Figure 2D-101. California Guide Signs
(Sheet 9 of 10)

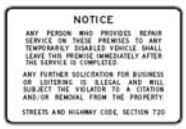
S16-8

S17

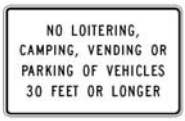
S18

S19

S20



S21



S22

S23

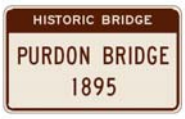
S24

S25

S26

S27

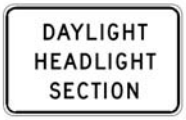
S28



S29

S29-1

S29-2



S30-1

S30-2

S30-3

S30-4

S30-5

S32


S32A


S32-1


S32-2

Note: All sign codes are California (CA) Codes.

Figure 2D-101. California Guide Signs
(Sheet 10 of 10)

S32-3

S32-4

S32-5

S33

S34

S35

S35-1

S35-2

S35-3

Note: All sign codes are California (CA) Codes.

Figure 2D-2. Arrows for Use on Guide Signs
Standard:

This figure is deleted. It is replaced with Figure 2D-2 (CA).

Section 2D.09 Numbered Highway Systems

The following is added to this section:

Support:

The California Legislature designates all State highway routes and assigns route numbers. General descriptions and route numbers are listed in Chapter 2, Article 3, of the California Streets and Highways Code. The route numbers are used for all administrative purposes.

It is the intent of the Legislature that the numbers on the route guide signs is the same as the designated route number. The routes are described with a general directional convention from south to north and from west to east. The direction and Legislative Route number are used in the State Highway Log, which is distributed annually by the Department of Transportation's Division of Traffic Operations.

A specific location on any State highway is described by Post Mile designation. Post Miles information is available in the State Highway Log and is shown on Post Mile Maps distributed by the Department of Transportation's Division of Transportation System Information. Note that California has adopted a policy of metrication of all engineering plans and specifications. However, a decision has not yet been made to use metric kilometer posts in the Highway Log.

California has three route sign systems on State highways. Each system uses distinctive route signs and shields to inform motorists and to facilitate public travel. These route sign systems are shown on the State Highway Map published by the Department of Transportation. Route numbers in one system will not be duplicated on another system. However, to inform the traveling public, route signs from the State Sign system are posted on the other sign route systems to provide guidance when a break occurs in the State Sign Route.

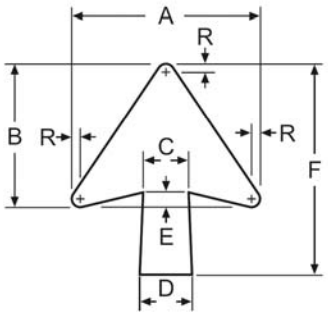
1. Interstate System: A network of planned Interstate freeways of national importance are owned and operated by the State. The American Association of State Highway and Transportation Officials (AASHTO) developed the numbering of Interstate routes with the concurrence of the states. Renumbering of a route requires the approval of AASHTO, which assures conformity with established numbering procedures. Renumbering is a system action that must be approved by the Federal Highway Administrator.
2. United States Numbered Highway Routes: A network of highways of national importance that was created in 1926. These State highways are not necessarily freeways. An U. S. Numbered Route has no connection with Federal control. However, the U. S. Routes are eligible for federal-aid funding according to the route's functional classification. The AASHTO Special Committee on U. S. Route Numbering has full authority for numbering U. S. Routes, with the concurrence of the states.
3. State Sign Routes: State maintained highways, other than the above-signed routes, are distinctively signed to serve intra-State and interstate travel.

State Business Routes and Interstate Loops are established by Department of Transportation's District Directors.

A Business Route generally is a local street or road in a city or urban area, designated by the same route number as the through Interstate, U.S., or State highway to which it is connected, with the words "Business Route" attached to the identifying route shields. The Business Route designation provides guidance for the traveling public to leave the main highway at one end of a city or urban area, patronize local businesses, and continue on to rejoin the main route at the opposite end of the city or urban area. The Department of Transportation's Division of Transportation System Information is responsible for approval of Business Route designations.

U.S. and Interstate Business Routes require AASHTO approval.

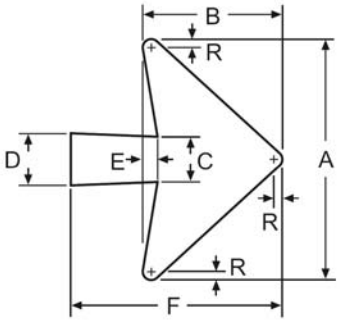
Figure 2D-2 (CA). Arrows for Use on Guide Signs (Sheet 1 of 3)



One Line Horizontal, Vertical or Diagonal Arrow

Letter Sizes	Dimensions in Inches						
	A	B	C	D	E	F	R
4 U.C.,4 Cap	5-5/8	4-5/8	1-9/16	1-3/4	7/16	6	5/16
5 Cap	7-1/16	5-3/8	1-11/16	2	9/16	8-1/2	3/8
6 U.C.	8-7/16	6-7/16	2-1/16	2-3/8	11/16	9-1/2	1/2
6 Cap	11-1/4	8-5/8	2-3/4	3-9/16	7/8	12-3/4	5/8
8 U.C.	11-1/4	8-5/8	2-3/4	3-9/16	7/8	12-3/4	5/8
8 Cap	15-1/8	11-9/16	3-3/4	4-5/16	1-5/16	17	13/16
10.67U.C.	15-1/8	11-9/16	3-3/4	4-5/16	1-5/16	17	13/16
10 Cap	15-1/8	11-9/16	3-3/4	4-5/16	1-5/16	17	13/16
12 Cap	18-1/4	14	4-1/2	5-1/8	1-1/2	20	7/8
13.3 U.C.	18-1/4	14	4-1/2	5-1/8	1-1/2	20	7/8
16 U.C.	22-1/4	17	5-3/8	6-3/16	1-3/4	25	1

Letter Sizes	Dimensions in Millimeters						
	A	B	C	D	E	F	R
100 U.C.,100 Cap	143	117	40	44	11	152	8
125 Cap	179	137	43	51	14	216	10
150 U.C.	214	164	52	60	17	241	13
150 Cap	286	219	70	90	22	324	16
200 U.C.	286	219	70	90	22	324	16
200 Cap	384	294	95	110	33	432	21
265 U.C.	384	294	95	110	33	432	21
250 Cap	384	294	95	110	33	432	21
300 Cap	464	356	114	130	38	508	22
330 U.C.	464	356	114	130	38	508	22
400 U.C.	565	432	137	157	44	635	25

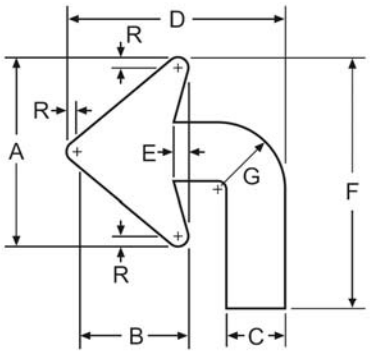


Two Line Horizontal Arrow

Letter Sizes	Dimensions in Inches						
	A	B	C	D	E	F	R
4 U.C.,4 Cap	7-1/8	4-1/8	1-9/16	1-3/4	7/16	6	5/16
5 Cap	9	5-1/4	1-11/16	2	9/16	8-1/2	3/8
6 U.C.	10-11/16	6-3/16	2-1/16	2-3/8	11/16	9-1/2	1/2
6 Cap	14-1/4	8-1/4	2-3/4	3-9/16	7/8	12-3/4	5/8
8 U.C.	14-1/4	8-1/4	2-3/4	3-9/16	7/8	12-3/4	5/8
8 Cap	18-3/4	10-7/8	3-3/4	4-5/16	1-5/16	17	13/16
10.67 U.C.	18-3/4	10-7/8	3-3/4	4-5/16	1-5/16	17	13/16
10 Cap	23-13/16	13-13/16	4-1/2	5-1/8	1-1/2	20	7/8
12 Cap	23-13/16	13-13/16	4-1/2	5-1/8	1-1/2	20	7/8
13.3 U.C.	23-13/16	13-13/16	4-1/2	5-1/8	1-1/2	20	7/8
16 U.C.	28-1/2	16-1/2	5-3/8	6-3/16	1-3/4	25	1

Letter Sizes	Dimensions in Millimeters						
	A	B	C	D	E	F	R
100U.C.,100Cap	181	105	40	44	11	152	8
125 Cap	229	133	43	51	14	216	10
150 U.C.	271	157	52	60	17	241	13
150 Cap	362	210	70	90	22	324	16
200 U.C.	362	210	70	90	22	324	16
200 Cap	476	276	95	110	33	432	21
265 U.C.	476	276	95	110	33	432	21
250 Cap	605	351	114	130	38	508	22
300 Cap	605	351	114	130	38	508	22
330 U.C.	605	351	114	130	38	508	22
400 U.C.	724	419	137	157	44	635	25

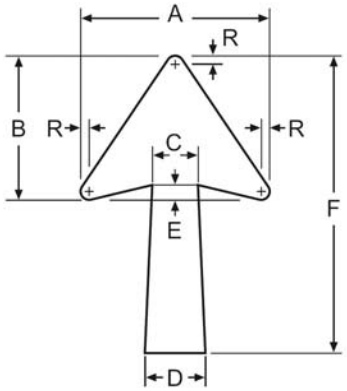
Figure 2D-2 (CA). Arrows for Use on Guide Signs (Sheet 2 of 3)



Advance Arrow

Letter Sizes	Dimensions in Inches							
	A	B	C	D	E	F	G	R
6 U.C.	8-7/16	5-7/16	2-5/8	9-3/4	5/8	11-1/4	3R	1/2
6 Cap	11-1/4	7-1/4	3-1/2	13	7/8	15	4R	5/8
8 U.C.	11-1/4	7-1/4	3-1/2	13	7/8	15	4R	5/8

Letter Sizes	Dimensions in Millimeters							
	A	B	C	D	E	F	G	R
150 U.C.	214	138	67	248	16	286	76R	13
150 Cap	286	184	89	330	22	381	102R	16
200 U.C.	286	184	89	330	22	381	102R	16

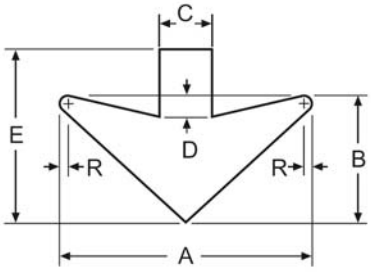


Two Line Vertical or Diagonal Arrow

NOTE:
The angle for a diagonal arrow is measured from the vertical.

Letter Sizes	Dimensions in Inches						
	A	B	C	D	E	F	R
4 U.C.,4 Cap	5-5/8	4-3/8	1-9/16	1-15/16	7/16	9-1/8	5/16
5 Cap	7-1/16	5-3/8	1-11/16	2-3/16	9/16	11	3/8
6 U.C.	8-7/16	6-7/16	2-1/16	2-11/16	11/16	13-1/4	1/2
6 Cap	11-1/4	8-5/8	2-3/4	3-9/16	7/8	17-3/4	5/8
8 U.C.	11-1/4	8-5/8	2-3/4	3-9/16	7/8	17-3/4	5/8
8 Cap	15-1/8	11-9/16	3-3/4	5	1-5/16	25	13/16
10.67 U.C.	15-1/8	11-9/16	3-3/4	5	1-5/16	25	13/16
10 Cap	18-1/4	14	4-1/2	6	1-1/2	30	7/8
12 Cap	18-1/4	14	4-1/2	6	1-1/2	30	7/8
13.3 U.C.	18-1/4	14	4-1/2	6	1-1/2	30	7/8
16 U.C.	22-1/4	17	5-3/8	7	1-3/4	35	1

Letter Sizes	Dimensions in Millimeters						
	A	B	C	D	E	F	R
100 U.C.,100 Cap	143	111	40	49	11	232	8
125 Cap	179	137	43	56	14	279	10
150 U.C.	214	164	52	68	17	337	13
150 Cap	286	219	70	90	22	451	16
200 U.C.	286	219	70	90	22	451	16
200 Cap	384	294	95	127	33	635	21
265 U.C.	384	294	95	127	33	635	21
250 Cap	464	356	114	152	38	762	22
300 Cap	464	356	114	152	38	762	22
330 U.C.	464	356	114	152	38	762	22
400 U.C.	565	432	137	178	44	889	25



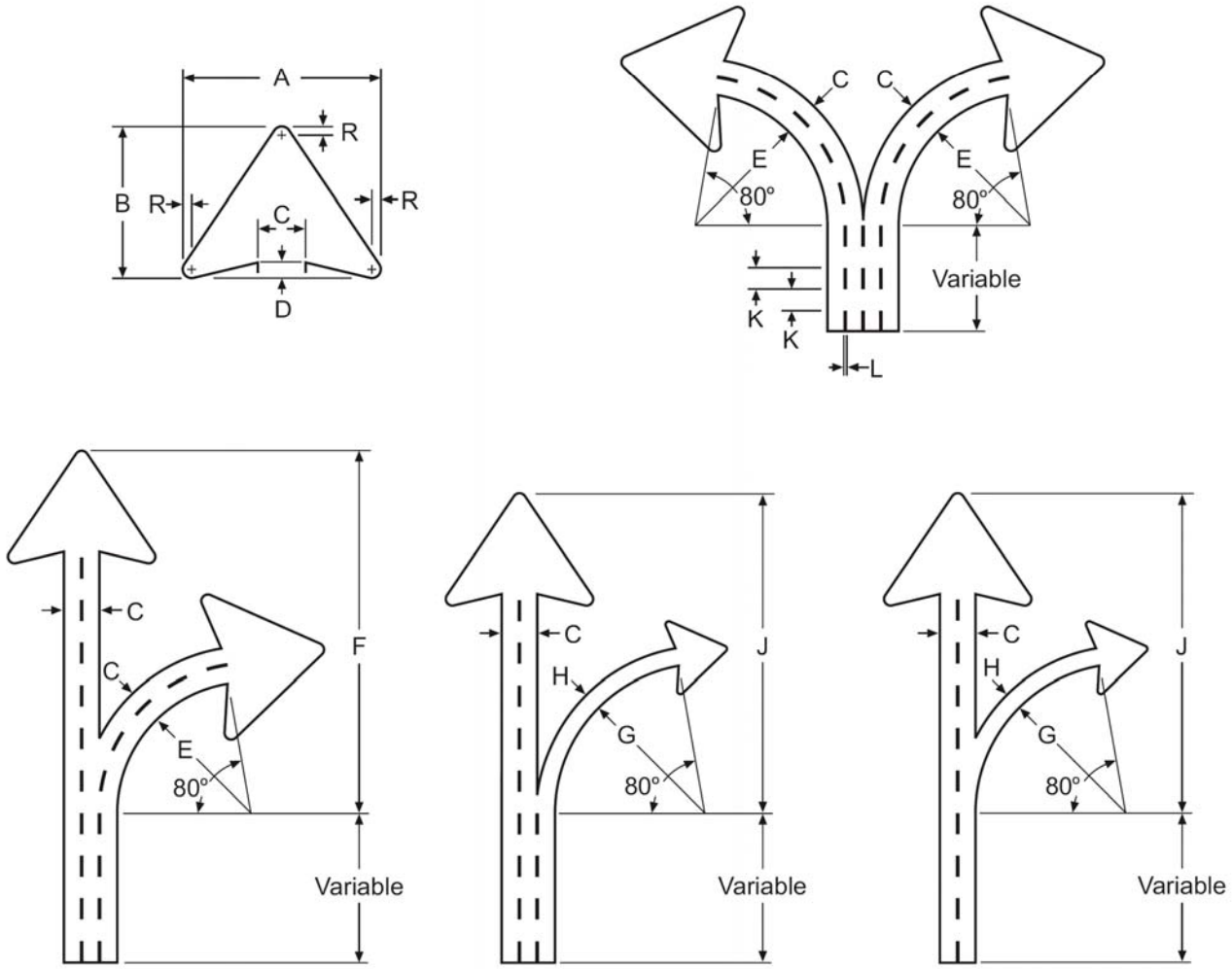
Vertical Down Arrow

Dimensions in Inches					
A	B	C	D	E	R
24	12	5	2	16-1/2	3/4
32	16	6-1/2	3	22	1

Dimensions in Millimeters					
A	B	C	D	E	R
610	305	127	51	419	19
813	406	165	76	559	25

Figure 2D-2 (CA). Arrows for Use on Guide Signs (Sheet 3 of 3)

Arrows for Diagrammatic Signs



Letter Sizes	Dimensions in Inches											
	A	B	C	D	E	F	G	H	J	K	L	R
13.3 U.C.	29	19	6-1/2	2-1/4	24	66	27-1/2	3-1/4	60	4	5/8	1-3/8
16 U.C.	35	22-3/4	8	2-3/4	29-1/2	84	33-1/2	4	72	4-3/4	3/4	1-5/8
20 U.C.	43-3/4	28-1/2	10	3-1/2	37	102	42	5	90	6	1	2

Letter Sizes	Dimensions in Millmeters											
	A	B	C	D	E	F	G	H	J	K	L	R
330 U.C.	737	483	165	57	610	1676	699	83	1524	102	16	35
400 U.C.	889	578	203	70	749	2134	851	102	1829	121	19	41
500 U.C.	1111	724	254	89	940	2591	1067	127	2286	152	25	51

Option:

Applications may be made by memorandum.

Standard:

Applications for Business Route designation and signing shall be made by written request from the local government agency to the Department of Transportation's Division of Transportation System Information. Applications shall include a written request for the route from those local agencies within and whose boundaries the route traverses.

Guidance:

A sketch, preferably on letter size stationary, showing the highway relocation and the business route or loop, should be included.

Standard:

Submission for AASHTO approval shall be made by Department of Transportation, Headquarters. Continuous business route signing shall be provided through the bypassed area and back to the highway. If a business route is approved prior to relinquishment, Department of Transportation shall install BUSINESS (M4-3) auxiliary signs or Off-Interstate Business Loop (M1-2) markers. After relinquishment, they shall be installed by the local agency involved.

Section 2D.11 Design of Route Signs

Guidance:

In Paragraph 3 ("A 600 x 600 mm…"), the word "shall" at both occurrences is deleted and replaced with "should". Route shield sizes shown in Table 2D-102 are lower than what is required per this Standard.

Standard:

Paragraphs 7 ("U.S. Route signs…") and 8 ("A 600 x 600 mm…") are deleted. The U. S. Route Shield (CA Code G26-1) or U. S. Route Marker (CA Code G26-2) shall be used instead with sizes as shown in Table 2D-102.

Paragraph 10 ("State Route signs…") is deleted. The State Route Shield (CA Code G28-1) or State Route Marker (CA Code G28-2) shall be used instead with sizes as shown in Table 2D-102.

The following is added to this section:

Support:

The Route Shields are used on the face of guide signs. The Route Markers are used as stand-alone installations.

Guidance:

The U. S. Route Shield (CA Code G26-1), Interstate Route Shield (M1-1) or the State Route Shield (CA Code G28-1) should be used when they are placed on the face of a guide sign. These Route Shields should not be used for stand-alone installations.

The U. S. Route Marker (CA Code G26-2), Interstate CALIFORNIA Route Marker (CA Code G27-2) or the State Route Marker (CA Code G28-2) should be used for stand-alone installations as route markers. These Route Markers should not be used on the face of guide signs.

Support:

For Route Shield sizes, see Table 2D-102.

For Route Shield and Marker sketches, see Figure 2-3 (CA) Sheet 4 of 15.

The design details for Route Shields and Markers are contained in Department of Transportation's "Traffic Sign Specifications". See Section 1A.11 for information regarding these publications.

Option:

The EISENHOWER INTERSTATE SYSTEM (M1-10) sign may be placed on Interstate Highways on the right near the State boundary facing traffic entering the State and at rest areas and vista points on the Interstate Highway System.

Figure 2D-3. Route Signs

Standard:

The U. S. Route (M1-4) sign is deleted. The U. S. Route Marker (CA Code G26-2) shall be used instead. See Section 2D.11.

The State Route (M1-5) sign is deleted. The State Route Marker (CA Code G28-2) shall be used instead. See Section 2D.11.

Section 2D.15 Cardinal Direction Auxiliary Signs (M3-1 through M3-4)

The following is added to this section:

Option:

Cardinal Direction auxiliary signs may be placed to the right of the route shield, if used on the face of a guide sign.

Support:

For application of Cardinal Direction auxiliary signs in freeway entrance sign packages, refer to Section 2E.50 of this Supplement.

Section 2D.19 BUSINESS Auxiliary Sign (M4-3)

The following is added to this section:

Option:

The ROUTE ___ BUSINESS (CA Code G76) sign may be used to direct motorists to an established U. S. or State numbered business route or an interstate business loop from a State highway.

Guidance:

The G76 (CA Code) sign should be installed below an advance ground-mounted directional sign.

Option:

The G76 (CA Code) sign may be placed separately in advance of the business route if it is necessary. A NEXT RIGHT/LEFT message may be used. Refer to Section 2D.09 of this Supplement for establishing business routes.

Section 2D.26 Directional Arrow Auxiliary Signs (M6 Series)

The following is added to this section:

Option:

The Directional Arrow auxiliary (CA Code G33-1) sign may be used in lieu of the Directional Arrow auxiliary (M6 Series) signs.

Section 2D.27 Route Sign Assemblies

The following is added to this section:

Standard:

The larger shields shall be used on freeways and expressways.

Option:

The smaller shields may be used on conventional highways, in interchange areas, at entrances to State highways and for all trailblazer assemblies.

Guidance:

The sign assemblies should be placed on the right.

Standard:

On freeways, shields shall be installed beyond the end of the acceleration lane of all entrances to freeway to freeway interchanges and at intermediate locations at 4.8 to 8 km (3 to 5 mi) intervals.

Guidance:

On conventional highways, they should be installed at important urban and rural intersections and at intermediate locations at 4.8 to 8 km (3 to 5 mi) intervals in rural areas.

Table 2D-102. Route Shield Sizes for Guide Signs

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

Exceptions:

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

The Off-Interstate Business Loop Marker (M1-2) should not be placed on the interstate route itself. The ROUTE ___ BUSINESS (CA Code G76) plaque should be used for advance signing on the interstate route.

Section 2D.29 Advance Route Turn Assembly

Standard:

In Paragraph 3 ("Where a multiple-lane…"), the word "should" is changed to "shall".

The following is added to this section:

Support:

See Figures 2E-27 (CA) through 2E-38 (CA) in Chapter 2E for typical freeway signing.

Standard:

The Advance Lane Assignment (CA Code G20 Series or G21 Series) or Interchange Guide (CA Code G77 Series) signs shall be used on multilane cross streets approaching a freeway interchange to indicate the proper lane for the desired freeway entrance. The principal message shall be route and cardinal direction.

Option:

Names of major or control cities may be used in addition to cardinal directions.

Guidance:

The Advance Lane Assignment (CA Code G21 Series) signs are available in a stacked format for use where space is limited. When stacked format is used, the top message should indicate the first freeway entrance.

The Interchange Guide (CA Code G77) sign should be used on two-lane cross streets at interchange areas to direct motorists from the cross street to the freeway ramp entrances.

Option:

The G77 (CA Code) sign may also be used at an exit ramp split to direct motorists to the cross street.

The Interchange Guide (CA Code G78 Series) signs may be used to direct motorists to a single cardinal direction or destination.

Support:

The G78 Series (CA Code) signs are ordinarily used as a follow-up to the G77 (CA Code) sign.

The FREEWAY with Arrow (CA Code G82) may be used to direct motorists to a freeway from a business route or from a community served by a single freeway.

The G82 (CA Code) sign is available with the freeway name and with vertical, diagonal, or horizontal arrows on either side of the message.

Option:

The G82 (CA Code) signs may be placed at appropriate locations to guide traffic to the freeway.

Section 2D.32 Trailblazer Assembly

The following is added to this section:

Option:

CVC 21350 provides that the State may, with the consent of the local authorities, place and maintain along city streets and county roads, appropriate signs directing traffic to State highways.

Guidance:

Cooperation with local authorities should be sought in placing trailblazer signs.

Standard:

Permission shall be obtained from the appropriate local agency for all signs placed outside the State highway right-of-way.

Support:

For all signs placed outside of the State right of way refer to Section 2A.101.

Option:

In metropolitan areas, the freeway name may be used only if it is well known, in common use, and its deletion would be confusing to motorists.

Standard:

The format shall include the appropriate route shield.

Section 2D.34 Destination Signs (D1 Series)

The following is added to this section:

Support:

Refer to Section 2E.12 for the designation of destinations and control cities.

Standard:

If there are more eligible destinations at a given intersection than can be accommodated (under the limitations mentioned in this section) they shall compete for signs on the basis of traffic volumes to these destinations.

Guidance:

Destinations should be signed to by the route requiring the least amount of time to travel from the nearest State highway.

Standard:

Criteria for supplemental destination signs shall be as shown in Table 2D-103.

Signs shall not be provided for privately owned, profit making enterprises regardless of their size.

Option:

If unusual operational or safety issues become apparent that would be mitigated by signing to the private enterprise, signs on State highways may be used with the approval of the Department of Transportation's Division of Traffic Operations.

Standard:

Signs to shopping centers shall not be allowed.

When a street or facility name change is made on an existing sign on a State highway primarily for the benefit of the requestor, with no, or only minor, improvement of traffic flow, the costs of materials and labor for said change, plus the current overhead assessment rate as determined by the Accounting Service Center to cover administrative overhead, shall be paid by the requestor. Such changes shall require approval of the Department of Transportation's District Director.

Option:

Street name changes on signs on State highways which are clearly in the best interest of the motorists and the State may also be approved by the Department of Transportation's District Director.

Standard:

New signs, if warranted, shall be installed at State expense.

Option:

Signs to a public or nonprofit facility may be installed and maintained on conventional State highways in a "city street" configuration, by local governmental bodies under an encroachment permit.

Standard:

Deviations from the signing policies shall not be allowed unless a documented engineering study describes a substantial traffic problem that would be alleviated by increased signing.

Supplemental Signing for City Civic Center Areas

Option:

Signs to City Civic Center areas may be installed on state highways for incorporated cities.

Standard:

The city shall be incorporated and contiguous with the State highway right-of-way.

Table 2D-103. Criteria for Supplemental Destination Signs

Type of Destination	Specific Criteria	Major Metropoitan Areas	Urbanized Areas	Rural Areas
Post Secondary School, Public or Private	Minimum Enrollment (Single Campus Locations, See Note 5). Maximum Miles from a Freeway (See Note 6).	1,000 2	1,000 4	1,000 5
Museum, Zoo, Stadium or Sports Arena	Public Owned and Non-Profit. Minimum Annual Attendance. Maximum Miles from Highway (See Note 2).	1,000,000 2	500,000 2	200,000 3
Convention Center	Public Owned and Non-Pofit. Minimum Annual Attendance. Maximum Miles from Highway (See Note 2).	500,000 3	250,000	–
Military Base	Number of Employees and Permanent Garrison. Maximum Miles from Highway.	5,000 2	5,000 4	5,000 7
National Guard Armory	Only Emergency Center in the Area. Easy Access to Primary Evacuation Route. (See Note 2).	–	–	–
Fairgrounds	Publicly Owned and Operated. Temporary Sign Only, Unless There are Year Round Activities. Minimum Annual Attendance. Maximum Miles from Highway (See Note 2).	500,000 2	200,000 4	200,000 5
Federal or State Hospitals and Prisons	Maximum Miles from Highway (See Note 2).	1	3	5
Government Centers	Number of Employees. Maximum Miles from Highway (See Note 2).	5,000 2	2,000 3	1,000 5
California Welcome Centers	Easy Access from Nearest State Highway. (See Notes 2 and 7)	–	–	–
Airports	Maximum Miles from Highway (See Note 2).	1	3	5
Rail and Light Rail Stations	Easy Access from Nearest State Highway. (See Note 2).	–	–	–

NOTES: 1. Meeting the above criteria does not guarantee placement of a sign. Limitations on the spacing between sign and the number of messages permitted, specified in Sections 2A.16, 2D.07 and 2D.35, shall be observed and eligible destinations must compete for signing on the basis of traffic service.

2. Follow-up signing, if necessary, shall be installed by local agencies before signs are placed on the State Highway.

3. If a stadium is located at a school campus for which signs are already provided, separate stadium sign will not be placed.

4. Definitions of Area Classifications:
   A. MAJOR METROPOLITAN AREA - An urbanized area, population density of at least 1,000 inhabitants per 2.6 km^2 (1 mi^2), not necessarily related to county boundaries, with a total population of at least 1,000,000 and an included central city with a population of at least 250,000.
   B. URBANIZED AREA - An urbanized area with a total population of at least 50,000 and an included central city with no minimum population.
   C. RURAL AREA - All areas outside of an urbanized area.

5. Minimum enrollment is 1,000 or more full-time students or average 1,000 or more different part-time students for each week the school is in session during the normal school year. A part-time student is defined as one who is attending one or more classes at the institution in a given week. A part-time student attending more than one class is counted as one student.

6. No signs to school will be erected until funds from private sources covering the cost of the signs and their installation. If a school, which previously had signs, relocates to contribute to the improvement of the school (as determined by the California Department of Transportation), signs will be erected at the new location at no cost to the school.

7. The California Department of Transportation will charge the Welcome Center directly for the cost of the signs and their installation on the State highway. Cost for sign installation on local roads is the responsibility of the Welcome Center and the local agency.

The city shall adopt a resolution requesting installation of signs on specific State highways for the purpose of guiding motorists to the city's civic center area, otherwise commonly referred to as downtown, central business district, city center, or city hall. The resolution shall include the appropriate wording for the legend on the sign.

The route from State highways to City hall shall not be more than 4.8 km (3 mi).

Option:

When requested by resolution, signs may be placed on all State highways, which are within 4.8 km (3 mi) of City hall.

Standard:

Only one sign shall be installed in each direction of travel for each State highway so requested. If any portion of the route from a State highway to the Civic Center area is under the jurisdiction of another city, both cities shall agree (in writing) that signs can be installed on the State highway.

Guidance:

Trailblazer signs should be in place on local streets and roads prior to installation of signs on State highways.

Option:

The legend may be "(city name) Civic Center," "Downtown (city name)," "(city name) Central Business District," "(city name) City Center," "(city name) City Hall," or a very similar message.

Standard:

Only one legend shall be selected and used on all corresponding State highways for a particular Civic Center area.

Guidance:

Signs should be roadside signs. Where possible, signs should be supplemental plaques mounted on existing roadside Supplemental Destination (CA Code G86 Series) signs and NEXT X EXITS (E9) signs.

Option:

When this is not reasonable, signs may be separate roadside signs.

Signs may be mounted overhead if there is no reasonable roadside alternative.

Standard:

The city shall have the signs installed under an encroachment permit and shall pay all costs for fabrication, and installation of the signs. The Department of Transportation shall maintain these signs.

Signs shall comply with applicable Department of Transportation policies, specifications and standards.

<u>Signing for Indian Reservations and Rancherias</u>

Standard:

Indian Reservations and Rancherias shall be signed in a like manner as cities and unincorporated communities for supplemental destination and miscellaneous guide signs. Only the official name of the federally recognized Indian Tribe, Reservation, or Rancheria shall be used on signs. The signs shall be white with retroreflective legend and border on green retroreflective background.

The signs and sign messages shall conform to the requirements of the California Outdoor Advertising Act, which prohibits advertising displays within the right-of-way of any State highway.

Section 2D.36 <u>Distance Signs (D2 Series)</u>

Guidance:

In last Paragraph (“On a route continuing…”), the word “may” is changed to “should”.

The following is added to this section:

Support:

Refer to Section 2E.12 for the designation of destinations and control cities.

Section 2D.37 Location of Distance Signs

The following is added to this section:

Guidance:

The Distance (CA Code G5 Series) signs should be placed at approximate 16 km (10 mi) intervals, unless the destinations have changed. Distances to the same destinations should not be shown more frequently than at 8 km (5 mi) intervals.

Option:

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

Section 2D.38 Street Name Sign (D3-1)

Standard:

In Paragraph 11 ("In business districts…") last sentence ("They should be…"), the word "should" is changed to "shall".

The following is added to this section:

Standard:

Street Name signs shall be placed, clearly visible to traffic approaching from all directions, at all signalized intersections. Refer to CVC 21366.

Option:

If structurally adequate luminaire poles are available, the street name signs may be mounted on them at a height of approximately 4.6 m (15 ft). Refer to Department of Transportation's Standard Plans publication. See Section 1A.11 for information regarding this publication.

Section 2D.39 Advance Street Name Signs (D3-2)

Standard:

In Paragraph 4 ("On arterial highways…"), the word "should" is changed to "shall".

The following is added to this section:

Option:

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

Section 2D.41 PARK & RIDE Sign (D4-2)

The following is added to this section:

Option:

The PARK & RIDE (CA Code G95A) sign may be used below the Advance Guide (CA Code G83 Series) signs on freeways and expressways for directions to ride sharing parking lots.

The PARK & RIDE NEXT RIGHT (CA Code G95B) sign may be used as a separate installation on freeways and expressways where it is not possible to use the G95A (CA Code) sign.

Guidance:

The Park & Ride Courtesy Plaque (CA Code G95B-1) when used, should be used in conjunction with, and mounted below the PARK & RIDE NEXT RIGHT (CA Code G95B) sign.

Standard:

The following criteria shall be met in order for a private concern to qualify for this type of signing:

1. **The parking area must have reasonably convenient access to the major transportation facility that it is intended to serve.**
2. **The Park and Ride Facility must be accessible 24 hours a day, 7 days a week.**
3. **A minimum of 50 spaces must be contributed.**
4. **If needed, "Follow-Up" signing shall be provided between the exit point of the major transportation system and the Park and Ride Facility by placing a PARK & RIDE (D4-2) sign**

at the appropriate locations prior to the installation of the G95B and G95B-1 (CA Codes) signs on the major transportation system.

Option:

The BUS SERVICE Plaque (CA Code G95D) may be placed below the G95A or G95B (CA Codes) signs at locations where bus service is available at a particular Park and Ride Facility.

The Park & Ride Plaque (CA Code G95E) may be used below the existing Advance Guide (CA Code G83 Series) signs on freeways and expressways for direction to ridesharing parking lots.

Guidance:

If both transit and carpool parking are available, the local transit logo or symbol should be used to the left of the standard carpool symbol shown. If transit parking only, the local transit symbol or logo should be used in lieu of the carpool symbol.

Option:

The Park & Ride Facility/Carpool Information (CA Code SG20) sign may be used to identify park and ride facilities provided for the use of car-poolers and transit users.

The NO LOITERING, CAMPING, VENDING OR PARKING OF VEHICLES 30 FEET OR LONGER (CA Code S22) sign may be placed at fringe and transportation corridor parking facilities constructed, maintained, or operated by Department of Transportation for the purpose of ridesharing. Refer to CVC Section 22518.

Section 2D.42 Rest Area Signs (D5 Series)

The following is added to this section:

Option:

The alternate message VISTA POINT may be used on D5-1 signs in advance of a vista point.

When several rest areas are provided (or planned) on the same route, generally within one hour's drive, a NEXT REST (X MILE) Plaque (CA Code G79A) may be placed below the REST AREA (X MILE) (D5-1) sign.

The PATROLLED BY HIGHWAY PATROL (CA Code G80B) sign may be used below the REST AREA (D5-2) sign where the California Highway Patrol has made an agreement with the Department of Transportation to patrol a specific rest area.

Support:

Until all of a planned series of roadside rests are constructed, it will be appropriate to sign to rest areas greater than one hour's drive ahead.

Guidance:

The REST AREA (D5-2) sign should be placed, as a supplement to REST AREA (X MILE) (D5-1) sign, at the beginning of the deceleration lane leading to a roadside rest area. The sign should be used in lieu of an EXIT with Arrow (E5-1) sign at roadside rests.

Option:

The Opposite Sex Attendant (CA Code S19) sign may be used for the use of restroom facilities at Safety Roadside Rest Areas to indicate that it is permissible for a disabled person to be accompanied in the restroom by his or her attendant, who may be a person of the opposite sex, to assist the disabled person. Refer to Streets and Highways Code Section 223.5.

The Highway Patrol PARKING ONLY (CA Code S34) sign may be used in a Safety Roadside Rest Area to designate a parking stall(s) dedicated for California Highway Patrol Vehicles only. The S34 (CA Code) sign may be supplemented with a “CHP” pavement marking.

Guidance:

When used, the pavement marking should be located so that it is visible when a vehicle is parked in the space.

Option:

The Rattlesnakes Caution (CA Code S26) sign may be used in locations such as vista points and rest areas where pedestrians are present and rattlesnakes have been known to habitat the area.

The Rest Area/Vista point 8 Hour Parking (CA Code S23) sign may be used to discourage extended stays in roadside rests or vista points.

The NO SOLICITING (CA Code S24) sign may be used to prohibit the vending of merchandise, foodstuff, or services and the soliciting of money within any roadside rest areas or vista points. Refer to Streets and Highways Code 225.5. See Section 1A.11 for information regarding this publication.

The VENDING MACHINES (CA Code G81-63) sign may be placed below the REST AREA X MILE (D5-1) sign at those rest areas which provide vending machine services to the motorists on a 24 hour basis.

Guidance:

The G81-63 (CA Code) sign should be installed similar to the General Service (CA Code G66 Series) signs in Section 2D.45, below the D5-1 sign.

Section 2D.43 Scenic Area Signs (D6 Series)

The following is added to this section:

Option:

The REST AREA (X MILE) (D5-1) and REST AREA with Arrow (D5-2) signs may also be used with the message VISTA POINT, where appropriate.

Section 2D.44 Weigh Station Signing (D8 Series)

The following is added to this section:

Option:

The NO PICKUPS (CA Code SG8) sign may be used at problem locations to warn motorists that pickups are not allowed at weigh stations.

The ALL TRUCKS – 2 AXLE AND MORE – STOP AT SCALE (CA Code SR57) sign may be placed in combination, below the Weigh Station Exit Direction (D8-2) sign to inform operators of small trucks to stop at the weigh station.

On State highways, an extinguishable message sign may be used in lieu of the OPEN/CLOSED supplemental panel.

Section 2D.45 General Service Signs (D9 Series)

Standard:

In Paragraph 1 ("On conventional roads…") and Paragraph 7 ("General Service signs…"), the word "Gas" is changed to "Fuel". In California, the generic term FUEL is used for GAS.

The following is added to this section:

Option:

General Service signs may be placed where appropriate, on freeways and expressways and for bypassed communities reasonably accessible from the highway.

Guidance:

General Service signs should be considered only when there is an easy for the road user to return to the freeway from the service facility.

Support:

General Service signs are not normally used on conventional highways except in rural areas where the service facilities are not visible from the highway or where commercial services are infrequent and the road users may need the information to enable them to plan their stops. Service signing is intended to be a service to the road user and not to be advertising for individual businesses. When private advertising for a service is provided, there is no need to place General Service signs.

In urban areas, commercial services (such as fuel, food and lodging) are generally within sight and available to the road user at reasonably frequent intervals along the route. However, they can be desirable or necessary where services are infrequent or in areas that are predominately residential or industrial where such services are not readily apparent. Also, if the visibility of the private advertising signs have impaired or eliminated either by sound-walls or other items constructed on State right-of-way, or by landscaping or other vegetation that cannot be trimmed or removed, the location can qualify for General Service signing.

Standard:

The following criteria shall apply to General Service signs:

1. **The business shall be with in 300 m (1,000 ft) of the intersection.**
2. **Only Fuel, Food and Lodging symbol signs (G66) shall be used.**
3. **All other qualifying criteria for Fuel, Food and Lodging listed below shall be met.**
4. **New installations shall be mounted on existing sign supports.**

Support:

Except for the conditions stated above, General Service signing will not normally be provided in urban areas except for signs directing to a hospital and camping.

Standard:

General Service signs shall have a white retroreflective symbol or legend and border on a blue retroreflective background. Letter and numeral sizes shall conform to the minimum requirements of Table 2E-1 (CA) through 2E-4 (CA). Approved symbol signs shall be used in lieu of word messages, but symbol and word service message shall not be intermixed.

Follow-up signing, if necessary, shall be placed by local jurisdictions before General Service signs are placed on the State highway.

Guidance:

Whenever possible, General Service signs should be placed below the ground mounted Advance Guide (CA Code G83 Series) signs. No more than four symbols should be mounted beneath a single advance directional sign.

Option:

If there are no ground mounted Advance Guide (CA Code G83 Series) signs available, the General Service signs may be placed as separate installations with a Directional Arrow Auxiliary (M6 Series) sign or NEXT RIGHT/LEFT (CA Code G58) plaque.

Guidance:

To avoid misleading the road user, those services that are more than 0.8 km (0.5 mi) from the access point on the major route to the service, should have a distance plaque installed below the service sign.

Support:

Accordingly, it would be a disservice to the traveler to lead them off on to a minor road to a business providing a service when that same service can be obtained in a shorter distance by remaining on the major road.

Guidance:

General Service signing should only be provided at locations where the road user can return to the freeway or expressway and continue in the same direction of travel.

Only services that fulfill the needs of the road user should be shown on General Service signs.

Standard:

Symbol signs shall be used for all new installations of the General Service signs and for all routine maintenance replacements.

Guidance:

The symbols should be placed below the first ground mounted Advance Guide (CA Code G83 Series) sign.

Option:

Where it is not possible to place them below an existing guide sign, they may be used individually on conventional highways or at the terminus of exit ramps.

Guidance:

If placed separately, the NEXT RIGHT/LEFT (CA Code G58) auxiliary sign should be used with the symbol sign.

Fuel (Gasoline and Diesel) Signs (D9-7, D9-11, CA Codes G66-11, G66-11A, G22A, G22B and G81-52)

Standard:

1. **The maximum distance to a service station shall be 0.8 km (0.5 mi) and have reasonably direct access from and return to the highway.**

Option:

2. Service may be signed to in bypassed communities, if the distance to the service is less than the distance to the next service on the through route.

Standard:

3. **Fuel, oil, compressed air, air gauge, radiator water, drinking water, telephone and restrooms shall be available during all service hours.**

Guidance:

4. The station should be open at least 12 hours a day.

Standard:

5. **Where gasoline is available, the Gas (D9-7) symbol sign shall be used.**
6. **Where gasoline and diesel is available, the Diesel Fuel (D9-11) symbol sign (with a superimposed "D") shall be used.**

Option:

7. The DIESEL (CA Code G66-12A) plaque may be used in addition to other appropriate service signs.
8. Where liquefied petroleum gas is available; a LP GAS (CA Code G81-52) plaque may be used below either D9-7 or D9-11 sign.
9. Where methanol fuel is available, the Methanol Fuel (CA Code G66-11) symbol sign and METHANOL (CA Code G66-11A) plaque may be used in addition to other appropriate service signs.
10. The Compressed Natural Gas (CA Code G66-22A) sign may be used for Compressed Natural Gas Refueling Stations within 4.8 km (3 mi) of a State highway and be available to the public at least 16 hours a day.
11. The Liquefied Natural Gas (CA Code G66-22B) sign may be used for Liquefied Natural Gas Refueling Stations within 4.8 km (3 mi) of a State highway and be available to the public at least 16 hours a day.

Standard:

12. **Follow-up signing, if necessary, shall be placed by local agencies before signs are placed on the State highway.**

Electric Vehicle Charging Station Signs (CA Codes G66-21)

Option:

The ELECTRIC VEHICLE CHARGING STATION (CA Code G66-21) sign may be used for Electric Vehicle Charging Stations within 4.8 km (3 mi) of a State highway and be available to the public at least 16 hours a day.

Standard:

Follow-up signing, if necessary, shall be placed by local agencies before signs are placed on the State highway.

Option:

The Distance with Arrow (CA Code G66-21A) plaque may be used to supplement the G66-21 (CA Code) sign to provide distance and directional information to the motorist.

Food or Lodging Signs (D9-8 and D9-9)

Standard:

To qualify for food signs, single establishments shall be open to serve at least two meals a day. Both food and lodging establishments shall score at least 10 points in the following categories, including at least one point in Category 4, to qualify for signs.

1. **Maximum distance from the highway exit to the first service facility:**
   0 – 1.6 km (1 mi) 3 Points
   1.6 –3.2 km (1 – 2 mi) 2 Points
   3.2 – 8 km (2 – 5 mi) 1 Point
   More than 8 km (5 mi) 0 Points
2. **Number of traffic control devices (signals or stop signs) between the exit and the facility:**
   0 - 1 Devices 3 Points
   2 – 3 Devices 2 Points
   4 – 4 Devices 1 Point
   More than 5 0 Points
3. **Number of seats available in food facilities:**
   50 or more 3 Points
   30 – 49 2 Points
   15 – 29 1 Point
   Less than 15 0 Points
4. **Number of rooms available with private baths at lodging facilities:**
   30 or more 3 Points
   10 – 30 2 Points
   2 – 10 1 Point
   Less than 2 0 Points
5. **Distance to the next highway exit served by a food or lodging establishment:**
   0 – 1.6 km (1 mi) 3 Points
   1.6 –3.2 km (1 – 2 mi) 2 Points
   3.2 – 8 km (2 – 5 mi) 1 Point
   More than 8 km (5 mi) 0 Points

Guidance:

6. Judgement factors include comfort, appearance, scope of service provided, etc., should be scored 0 to 3 points by the inspecting official.

Camping Signs (D9-3 and D9-3a)

Option:

The Camping (D9-3 and D9-3a) signs may be placed for campgrounds providing individual service and utility hookups for one-night stops for travel trailers, campers and other recreational vehicles.

Standard:

To qualify for Camping (D9-3 and D9-3a) signs, the facility shall meet all the following criteria:

1. **It shall be licensed for private operation or be operated by a governmental agency.**
2. **It shall be accessible to and capable of handling all types of recreational vehicles.**
3. **It shall be open to the public for 24 hours each day during the time the signs are in place.**
4. **It shall be no more than 16 km (10 mi) from the highway exit designated by the sign.**
5. **It shall be equipped to handle a minimum of 25 travel trailers, campers, and other recreational vehicles for overnight stops, including individual service, utility hook-ups and individual sewer connections or a central sewer holding tank.**

6. **Follow-up signing shall be installed and maintained by local agencies where required for the logical direction of traffic.**

Hospital Sign (D9-2 and D9-13)

Option:

Hospitals, as defined in Section 70005 of Title 22 of the California Administrative Code and licensed by the Department of Health Services, which provide 24 hour inpatient care, in urban and rural areas which are located in close proximity to a highway and provide specified medical services, may qualify for the Hospital (D9-2) symbol sign.

The D9-2 signs may be provided for hospitals in urban areas within 1.6 km (1 mi) of a highway, accept emergency cases and have a medical doctor in attendance 24 hours a day.

The D9-2 signs may be provided for hospitals in rural areas within 4.8 km (3 mi) of a highway, accept emergency cases and have a doctor on call 24 hours a day.

Exceptions to the distance requirement may be made in areas where hospitals are a great distance apart.

Telephone Signs (D9-1, D9-1a and D9-1b)

Option:

The Telephone (D9-1, D9-1a and D9-1b) signs are placed where a telephone is available 24 hours a day and is located in a remote are where it would not be expected.

STAA Truck Service and Terminal Access Signs (CA Codes G66-55 and G66-56)

Option:

The STAA Truck Service (CA Code G66-55) and STAA Truck Terminal Access (CA Code G66-56) signs may be placed by the Department of Transportation on the National Network of Highways to identify locations where STAA trucks may leave the National Network to access services and terminals per CVC 35401.5(c) and (d). The G66-55 and G66-56 (CA Codes) signs may also be used on Terminal Access routes to indicate turns and access ending points.

Support:

More information on the National Network and State Terminal Access routes is available from the Office of Truck Services in Department of Transportation's Division of Traffic Operations. Some of this information can also be accessed on the Internet at the following web site:
http://www.dot.ca.gov/hq/traffops/trucks/

STAA Definitions

Support:

- **STAA** - Surface Transportation Assistance Act of 1982, federal funding authorization that declared, among other things;
  1. Semitrailers up to and including 14.6 m (48 ft) in length are exempt from state kingpin to rear axle (KPRA) and overall combination length limits,
  2. Semitrailers over 14.6 m (48 ft) long and up to and including 16.2 m (53 ft) in length are exempt from state overall length limits. (These semitrailers are subject to state KPRA limits in California.),
  3. Double trailers in combination where each does not exceed 8.7 m (28.5 ft) in length are exempt from any state overall length limits.
  4. Federal length rules apply to these combination vehicles only when operating on a federally declared system of highways called the National Network and the state and local determined terminal access and service access highways.

  Note: Tour buses up to 13.7 m (45 ft) long (motorcoaches) were added to the federal regulations under the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). Motorhomes (housecars) up to 13.7 m (45 ft) in length were legalized in California in October 2001. Although highway restrictions apply to both these vehicle types, they may operate beyond the STAA Network. However, the Motorcoach and Motorhome Network map defines highway access restrictions imposed at the limits of turning performance (i.e., the 13.7 m (45 ft) vehicles would need to cross centerlines).

- **National Network** – federally designated state highways for STAA vehicles as defined and listed in the Federal Code of Regulations, Title 23, Part 658 (23CFR658) and 658.23 Appendix A.
- **Terminal Access** – state and local agency highways designated for "reasonable access" to/from the National Network by STAA vehicles as provided for in the CVC 35401.5(c) and (d). All transitions (egress) from National Network to Terminal Access highways, critical decision points (all turns) and Terminal Access end points should be so designated with a G66-56 (CA Code) sign.
- **STAA Network** – the California network of Terminal Access and National Network highways. A map and Truck Route List identifying the STAA Network (includes State highway system only, does not include local streets and roads) are available from Office of Truck Services in Department of Transportation's Division of Traffic Operations.
- **Service Access (SA) –** state and local agency highways identified for service use by STAA vehicles. Service access is limited to 1.6 km (1 mi) off the STAA network and must be "identified." Identification may include a map indicating service access for STAA vehicles, an approved list, or by G66-55 (CA Code) signs.
- **STAA trucks** – are truck tractor-semitrailer combinations, or doubles with a long length configuration such that the vehicles may operate legally only on the STAA Network and SA routes.

STAA Truck Service (CA Code G66-55) Sign

Option:

The STAA Truck Service (CA Code G66-55) Sign may be placed on the STAA Network to identify locations where STAA trucks may exit the network to obtain services as provided for by CVC 35401.5(c) and (d).

Standard:

STAA trucks shall not exit the STAA Network to obtain services unless the G66-55 (CA Code) sign indicates egress.

STAA Truck Service (CA Code G66-55) signs shall be provided as follows:

1. **Access – All the following requirements shall be met:**
   - **Fuel, food, lodging and/or repair facilities shall be located within 1.6 km (1 mi) of the point of ingress and egress from the designated system.**
   - **Ramps, intersections and streets shall have adequate turning radii and lane widths to safely accommodate STAA trucks.**
   - **The service being made accessible shall have parking provisions for STAA trucks, or alternative parking within 1.6 km (1 mi) shall be identified.**
2. **Facilities – Two of the four services - fuel, food, lodging & repair - shall be provided:**
   - **Fuel (Diesel) - Fuel is available at least 12 hours during the working day.**
   - **Food - Conforms to requirements for Food (D9-8) signs in this section.**
   - **Lodging - Conforms to requirements for Lodging (D9-9) signs in this section.**
   - **Repair Services - Oil, tire repair, engine and brake services are available.**
3. **Concurrence:**
   - **The proposal for G66-55 (CA Code) signing has written concurrence by the local jurisdiction(s) having responsibility for maintenance of the roadways within 1.6 km (1 mi) of ingress/egress.**
4. **Sign Placement:**
   - **The G66-55 (CA Code) sign on the STAA Network shall be displayed in advance of the ramp or intersection.**
   - **Although no follow-up signing is required, trailblazer signs may be used where applicable.**

STAA Truck Terminal Access (CA Code G66-56) Sign

Option:

STAA Truck Terminal Access (CA Code G66-56) signs may be placed to identify Terminal Access routes leading from the National Network, as trailblazers and to indicate the end of a Terminal Access route.

STAA trucks can exit the National Network onto Terminal Access routes only where indicated by a G66-56 (CA Code) sign. (Note: In California, no signs indicate the National Network highways.) Highways may be designated Terminal Access only if the curves, ramps, and intersections meet the geometric criteria for STAA trucks, including adequate turning radii and lane width.

Standard:

STAA Truck Terminal Access (CA Code G66-56) signs shall be provided as follows:

1. **On State Highways:**
   - **State route segments under consideration for Terminal Access shall meet all geometric criteria for STAA trucks.**
   - **The end of any Terminal Access route segment shall be signed as such.**
   - **Trail-blazing signs shall be placed at decision points indicating direction(s) a STAA truck may proceed.**
   - **The G66-56 (CA Code) sign shall be placed in advance of the ramp or intersection where a STAA truck may exit the designated system.**
2. **On Local Highways:**
   - **Signing of egress from a State Terminal Access route to a local Terminal Access route shall be done only if requested by the local jurisdiction and the entire segment including the State highway ramp or intersection meets all geometric criteria for STAA trucks.**
   - **If the route passes through more than one local jurisdiction, the city or county where the terminal is located shall acquire concurrence from all affected jurisdictions before requesting access from the STAA Network. Per CVC 35401.5(d)(1)(2) "The denial of a request for access to terminals and services shall be only on the basis of safety and an engineering analysis of the proposed access route. If a written request for access has been properly submitted and has not been acted upon within 90 days of receipt by the Department or the appropriate local agency, the access shall be deemed automatically approved."**
   - **Local agency shall place G66-56 (CA Code) signs at every critical decision point on the Terminal Access route, including a G66-56 (CA Code) sign with END Auxiliary (M4-6) sign.**
   - **The State shall place a G66-56 (CA Code) sign on the State route in advance of the ramp or intersection to the local Terminal Access highway.**
   - **Local agencies should furnish Terminal Access route information to the Office of Truck Services for web publication. An example is available on the Internet at the following web site: http://www.dot.ca.gov/hq/traffops/trucks/trucksize/truckmap/county-sac.pdf.**

NEXT EXIT OK Sign (CA Code G66-56A)

Option:

The NEXT EXIT OK (CA Code G66-56A) sign may be used below the appropriate G66-55 or G66-56 (CA Codes) signs.

Law Enforcement Signs (CA Codes G66-57, G66-61 and G66-62)

Option:

The Highway Patrol (CA Code G66-57) signs may be placed for California Highway Patrol offices located within 1.6 km (1 mi) of a highway.

The Sheriff (CA Code G66-61) sign may be placed for a sheriff office located within 1.6 km (1 mi) of a highway.

The Police (CA Code G66-62) sign may be placed for a police station located within 1.6 km (1 mi) of a highway.

Emergency Services Signs

Option:

Emergency Service signs, such as DRINKING WATER, RADIATOR WATER; etc. may be placed when appropriate.

Brake Check Area Signs (CA Code G66-58, G66-59 and G66-60)

Support:

The Brake Check Area (CA Code G66-58, G66-59 and G66-60) signs are provided to give notice to motorists, particularly truck operators, of an area provided to allow vehicle operators to stop and check the condition and adjustment of their brakes. These areas are generally provided just prior to a significant downgrade.

Call Box Signs (CA Code SG25, SG25A and SG41)

Support:

The Call Box (CA Code SG25) sign is used to designate call boxes on the county SAFE (Service Authority for Freeway Emergencies) Call Box System. The special sign sizes are intended for use only on scenic highways, within designated coastal zones and National or State parks, to keep signing compatible with scenic values.

The call box identification number is established by using the route number to the left of the hyphen. The first two numbers to the right of the hyphen are the post mile numbers (or three numbers if applicable); the last number locates the call box within the post mile.

For northbound and eastbound routes, this number will be 2 for the call box in the first quarter mile; 4 for the call box between one quarter and one half mile; 6 for the call box between one half and three quarter mile; and 8 for the call box between three quarter and one mile, within a given post mile. 0 will be used for infills or for call boxes at the post mile.

For southbound and westbound routes, this number will be 3 for the call box in the first quarter mile; 5 for the call box between one quarter and one half mile; 7 for the call box between one half and three quarter mile; and 9 for the call box between three quarter and one mile, within a given post mile. 1 will be used for infills or for call boxes at the post mile.

Option:

- A letter code may precede the post mile (R for realignment, etc.).

Standard:

- **Call boxes located in the median shall be designated by the letter "M" following the post mile.**
- **Call boxes located on a transition or connector shall be designated by the letter "T" following the post mile.**
- **Call boxes located at a park and ride lot shall be designated by the letter "A" following the post mile.**
- **Call boxes located on a carpool lane shall be designated by the letter "P" following the post mile.**
- **Call boxes located on a split (i.e. Cypress) shall be designated by the letter "S" following the post mile.**

Option:

The Call Box Adoption Plaque (CA Code SG25A) may be used to inform motorists on highways, that have the SAFE Call Box System, that a particular call box location or segment of highway has been adopted by an individual, organization or company.

Standard:

When used, the SG25A (CA Code) sign shall be placed below the SG25 (CA Code) sign.

Option:

The END CALL BOXES (CA Code SG41) sign may be used to inform motorists of the end of the SAFE Call Box System for a particular segment of highway.

CDF Fire Station Signs (CA Code SG38 and SG39)

Option:

The CDF FIRE STATION NEXT RIGHT (CA Code SG38) sign may be used on freeways in rural areas to give advance notice of an exit to a California Department of Forestry Fire Station which is within 0.8 km (0.5 mi) of the exit and is open 24 hours each day of the year.

The CDF FIRE STATION with Arrow (CA Code SG39) sign may be used in rural areas on expressways, conventional highways and freeway ramp terminals in advance of the turn off to a California Department of Forestry Fire Station which is within 0.8 km (0.5 mi) of the exit and is open 24 hours each day of the year.

Fire Hydrant Signs (CA Code S9 and S10)

The Fire Hydrant Street Name (CA Code S9) or Fire Hydrant with Distance and Arrow (CA Code S10) sign may be used to mark the location of off right-of-way fire hydrants adjacent to freeways. A public entity may place blue reflective pavement markers on a State highway after first obtaining an encroachment permit from Department of Transportation. Refer to Health and Safety Code Section 13060.In many locations the off right-of-way fire hydrants may be out of view from the freeway. Some fire districts may want to install the S9 and S10 (CA Code) signs to identify the hydrant. These S9 and S10 (CA Code) sign installations are optional and at the discretion of the Department of Transportation District Engineer.

Figure 2D-12. General Information Signs

Standard:

No sign shall have a metric unit or message, except per CVC 21351.3. Hence, the following signs shall not be used in California with metric messages unless specifically allowed per CVC 21351.3.

Traffic Signal Speed (I1-1) Metric version.

Section 2D.46 Reference Location Signs (D10-1 through D10-3) and Intermediate Reference Location Signs (D10-1a through D10-3a)

Option:

Paragraph 2 ("Reference Location…") is deleted and replaced with the following:

Reference Location (D10-1 to D10-3) signs (see Figure 2D-13) may be installed along any section of a highway route to assist road users in estimating their progress and to provide a means for identifying the location on the highway.

Standard:

Reference Location signs shall not be in kilometers. No sign shall have a metric unit or message, except per CVC 21351.3. Hence, the reference posts shall not be used in California with metric messages unless specifically allowed per CVC 21351.3.

The following is added to this section:

Standard:

In California, reference posts shall be mileage based.

Reference posts shall be mounted so that the bottom of the sign is a minimum of 0.6 m (2 ft) above the near roadway edge. For lateral position, see Section 2A.16, 2A.19 and Figure 2A-1 (CA).

The placement and location of reference posts on State highways shall conform to the database maintained by Department of Transportation's Division of Traffic Operations for reference posts. This database is different from the TASAS Highway database.

Figure 2D-13. Reference Location Signs

Standard:

No sign shall have a metric unit or message, except per CVC 21351.3. Hence, the following signs shall not be used in California with metric messages unless specifically allowed per CVC 21351.3.

Reference Location (D10-1) Metric version.

Intermediate Reference Location (D10-1a) Metric version.

Reference Location (D10-2) Metric version.
Intermediate Reference Location (D10-2a) Metric version.
Reference Location (D10-3) Metric version.
Intermediate Reference Location (D10-3a) Metric version.

Section 2D.47 Traffic Signal Speed Sign (I 1-1)

The following is added to this section:

Option:

The local authorities may set traffic signal timing for speeds in slight variance from the posted speed limits.

Guidance:

The Traffic Signal Speed (I1-1) sign should not display a speed above the posted speed limit because of the enticement to exceed that posted speed limit. Refer to CVC 22401.

Section 2D.48 General Information Signs (I Series)

Standard:

In Paragraph 5 ("Adequate Trailblazer…") and Paragraph 6 ("Location and placement…"), the word "airport" is changed to "transportation or general information facility".

The following is added to this section:

Unincorporated Community and City Limit (CA Code G9-2 and G9-5) Signs

Standard:

The Unincorporated Community (CA Code G9-2) and City Limit (CA Code G9-5) signs shall be used to mark the limits of cities and to identify unincorporated towns. The G9-5 (CA Code) sign shall be placed on the right, at the outer city limits of incorporated cities, facing traffic entering the named city. The G9-2 (CA Code) sign shall be used similarly for unincorporated towns.

Option:

The population may be obtained from:

A. Federal census
B. California Dept. of Finance
C. County Board of Supervisors
D. County Planning Commission

The elevation shown may be that of the courthouse, post office, railroad station, or benchmark in the central district of the city.

Standard:

See Section 101.1 of the Streets and Highways Code, which makes these changes mandatory, and Section 101.2 and 101.4, which provides that the Department of Transportation, under certain conditions, shall replace any city limit signs.

Guidance:

If a city or community desires to install a distinctive type city limits or "Welcome" sign on conventional highways at its city limits in place of the standard G9-5 (CA Code) sign, the following criteria should be followed:

Standard:

1. **The signs shall be installed by local authorities at no expense to the State, and an approved encroachment permit will be obtained prior to installation. They shall be maintained by the permittee to the satisfaction of the permitter.**
2. **Such signs shall be installed in accordance with current Department practices.**
3. **Signs shall be of reasonable size and proportional to other guide signs in the area.**
4. **Signs shall be positioned so they do not obstruct the view of official traffic control devices.**
5. **No moving or flashing displays or advertising of any kind will be permitted.**

6. **No sign shall encroach over the highway.**

Option:

7. Political jurisdiction logos may be displayed on the city limit signs, but the predominant characteristics of the sign will be white legend on a green rectangular shaped background. Distinctive type city limit signs not conforming to the above may remain in place until normal replacement is required.

County Line (CA Code G10) Sign

Guidance:

The County Line (CA Code G10) sign should be used at the point where the county boundary line crosses the State highway. The G10 (CA Code) sign should be placed on the right facing traffic entering the named county.

Welcome to California (CA Code G10B) Sign

Guidance:

The Welcome to California (CA Code G10B) sign should be used to indicate the California State line. The sign should be placed on the right near the State boundary facing traffic entering the State.

River Name (I-3) Sign

Option:

The River Name (I-3) sign may be used to identify bridges or structures across rivers and creeks and provide motorist orientation that is not otherwise included in the primary signing.

Guidance:

The I-3 sign should be used on freeways to identify major river crossings.

Elevation (CA Code G16 and G17) Signs

Option:

The Mountain Pass Elevation (CA Code G16) sign may be used at the summit to inform the public of a mountain pass name and elevation.

Guidance:

The G16 (CA Code) sign should be placed facing traffic in each direction on the right.

Option:

The Elevation (CA Code G17) sign may be used to inform motorists of changes in elevation. Feet will be shown in multiples of 1,000 feet above sea level, and multiples of 100 feet below sea level.

Guidance:

The G17 (CA Code) sign should be placed facing traffic in each direction on the right.

EMERGENCY CALL 9-1-1 (CA Code G81-61 and G81-62) Signs

Option:

The EMERGENCY CALL 9-1-1 (CA Code G81-61) sign may be placed below all new Unincorporated Community (CA Code G9-2), City Limit (CA Code G9-5) and County Line (CA Code G10) signs. The G81-61 (CA Code) may also be placed below the existing G9-2, G9-5 and G10 (CA Codes) signs when they are changed for other purposes, such as updating population figures. The G81-61 (CA Code) sign panel may be shorter than the G9-2, G9-5 and G10 (CA Codes) sign panel under which it is placed.

Guidance:

The G81-61 (CA Code) sign panel should not be longer than the G9-2, G9-5 and G10 (CA Codes) sign panel under which it is placed.

Standard:

The letter size used in the G81-61 (CA Code) sign shall not exceed that of the words "City Limit" on the G9-5 (CA Code) sign or the words "County Line" on the G10 (CA Code) sign.

Option:

The EMERGENCY CALL 9-1-1 (CA Code G81-62) sign may be installed on all State highways at state entry points.

Guidance:

The G81-62 (CA Code) sign should be installed as a separate installation in an appropriate location following the Welcome To California (CA Code G10B) sign.

Option:

The G81-62 (CA Code) sign (particularly the smaller version) may be used in place of the G81-61 (CA Code) sign in installations requiring a shorter sign panel.

Conventional Airport (CA Code G94-1) Sign

Support:

The Conventional Airport (CA Code G94-1) sign typifies smaller conventional type aircraft.

Guidance:

The G94-1 (CA Code) sign should be used in lieu of the Airport (I-5) sign to direct to airports, which do not accommodate large commercial jet aircraft.

Coastal Access (CA Code SG28) Sign

Option:

The Coastal Access (CA Code SG28) sign may be used to identify only those improved coastal access points selected by the Coastal Commission in accordance with the agreement between the California Coastal Commission and Department of Transportation dated April, 30, 1980.

Adopt-A-Highway Program Signs (CA Code S32 Series)

Support:

Refer to Streets and Highways Code Section 91.5 and Department of Transportation's Maintenance Manual. See Section 1A.11 for information regarding this publication.

Option:

The Adopt-A-Highway (CA Code S32) sign may be installed at each end of a section of State highway that is being maintained by agreement with Department of Transportation through the provisions of either funds or services.

Standard:

The Adopt-A-Highway Symbol (CA Code S32A) sign shall be installed on the Adopt-A-Highway (CA Code S32) sign.

Support:

The 250 x 300 mm (10 x 12 in) symbol size is used on the 900 x 750 mm (36 x 30 in) size S32 (CA Code) sign and the 400 x 450 mm (15 x 18 in) symbol size is used on the 1350 x 1050 mm (54 x 42 in) size S32 (CA Code) sign.

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

Standard:

When used, the Litter Removal (CA Code S32-1), Wildflower Planting (CA Code S32-2), Tree Planting (CA Code S32-3), Graffiti Removal (CA Code S32-4) or Vegetation Control (CA Code S32-5) signs shall be placed below the S32 (CA Code) sign.

USING RECLAIMED WATER (CA Code S28) Sign

Standard:

The USING RECLAIMED WATER (CA Code S28) sign shall be placed to identify locations where reclaimed water is being used for irrigating landscaped areas and other maintenance operations. Refer to Department of Transportation's Maintenance Manual Chapter 8, Section 8.47. See Section 1A.11 for information regarding this publication.

Victims Memorial Program Signs (CA Code S35 Series)

Support:

Refer to Streets and Highways Code Section 101.10.

Option:

The PLEASE DON'T DRINK AND DRIVE (CA Code S35) sign may be placed on any state highway upon request from an immediate family member of a person who was killed by a driver intoxicated with drugs or alcohol, in memory of the victim.

Standard:

The IN MEMORY OF XXX – 1 PERSON (CA Code S35-1), IN MEMORY OF XXX – 2 PERSONS (CA Code S35-2) or IN MEMORY OF XXX – 3 PERSONS (CA Code S35-3) sign shall be placed below the S35 (CA Code) sign.

The following conditions shall be satisfied to qualify for a S35 (CA Code) sign on a state highway:

1 **At least one of the deceased victim's immediate family members requests a memorial sign. An immediate family member is a spouse, child, stepchild, brother, stepbrother, sister, stepsister, mother, stepmother, father or stepfather.**
2 **The accident occurred on or after January 1, 1991.**
3 **Either (a) or (b) is true:**
   a. **The intoxicated driver was convicted of second degree murder, or gross vehicular manslaughter, or vehicular manslaughter.**
   b. **The intoxicated driver died or could not be prosecuted because of mental incompetence.**
4 **Note: An intoxicated driver who died does NOT qualify as a victim.**

The placement of the S35 (CA Code) sign on state highways shall be per the following requirements:

1. **Signs will be installed in accordance with applicable Caltrans policies and standards for signs. This includes posts, hardware, materials, vertical, longitudinal, and lateral positioning.**
2. **Caltrans will NOT install or maintain a memorial sign if there is written opposition from any immediate family member.**
3. **Only one sign will be installed in one direction of travel on the right side of the state highway in close proximity to where the accident occurred at a location where it is safe and practical to do so.**
4. **Caltrans will maintain the sign for 7 years or until the condition of the sign has deteriorated to a point where it is no longer serviceable, whichever occurs first.**
5. **Only one sign will be installed per accident. Multiple victim names may appear on the sign.**
6. **A sign will NOT be installed in the median of any state highway.**

Section 2D.49 <u>Signing of Named Highways</u>

Standard:

Paragraph 2 ("Such memorial names…") and Paragraph 3 ("If the installation…") are deleted and shall not be applicable in California.

The following is added to this section:

Guidance:

Route numbers and cardinal directions should be used in signing to freeways in metropolitan areas.

Option:

At freeway to freeway interchanges, overhead signing by freeway name may be included in primary directional signs only when the freeway name is well recognized and space permits. At other than freeway to freeway interchanges, Interchange Guide (CA Code G77 and G78 series) signs including both the freeway name and appropriate route shield may be used to direct to the named freeway.

Ground-mounted freeway name signs in rural areas may be installed beyond major freeway interchanges and at approximate 16 km (10 mi) intervals.

Guidance:

Freeway names should not be used on signs directing to freeways in rural areas.

Option:

The Legislature, by legislative action, may designate names for State highways and bridges. The Legislature may request memorial named highway facilities to be designated with signs instead of a plaque and specify that the signs are to be furnished and installed "at no cost to the State".

Support:

The Department of Transportation is authorized to expend reasonable sums for plaques.

Standard:

When highway facilities are named by the Legislature, the following guidelines shall apply according to the type of facility:

1. ***Bridges.*** **One sign shall be placed at the approach ends of the bridge, underpass, tunnel or other structure with the name of the memorialized individual. Normally this would consist of an additional plate attached to the existing Memorial Bridge (CA Code G11 series) sign. The color and size of the plate shall match the sign. The memorial name shall be smaller so that it does not dominate the G11 (CA Code) sign.**
2. ***Freeways and Highways.*** **One sign shall be placed at each terminal. Signs shall be white on green.**
3. ***Rest Areas.*** **One sign shall be placed in advance of each named rest area. Normally a one line message would be placed above the REST AREA (X MILE) (D5-1) sign. The sign shall be white on blue.**
4. ***Interchanges.*** **One bronze plaque shall be installed at each legislatively named interchange. Memorial name signs shall not be erected at interchanges.**
5. ***Vista Points.*** **One bronze plaque shall be installed at each legislatively named vista point. Memorial name signs shall not be installed in advance of vista points.**

Guidance:

The size, color, and retroreflectorization of memorial named signs should match existing signs associated with the facility.

Standard:

Standard letter size, type and stroke widths shall be used.

Support:

The word "memorial" is not normally included on the sign.

Guidance:

Bronze plaques normally should bear the name in 25 mm (1 in) letters. However, the plaque should be no larger than 750 x 750 mm (30 x 30 in).

When the highway is a State facility, the following procedure should be followed when legislation includes a provision that either memorial signs or plaques be purchased and installed at no cost to the State.

The District Director will:

1. Contact the sponsor of the legislation to determine appropriate wording for the signs or plaques.
2. Prepare an estimate of cost for the signs or plaque installation, and submit the estimate to the sponsor.
3. After receipt of the funds from the sponsor, purchase and install the signs or plaque.
4. Notify the author and sponsor when the memorial signs or plaque are ready so that a dedication can be arranged.
5. Maintain all signs and plaques within the right-of-way.

The sponsor will:

1. Collect donations from individuals who appreciated the services provided by the memorialized individual.
2. Submit advance payment for the signs or plaque and installation to the department.
3. Arrange for suitable public dedication.

Support:

When legislation does not include the "at no cost to the State" provision, signs and plaques will continue to be furnished and installed at State expense.

Existing named highway facilities that have been designated with a bronze plaque are exempt from the above provisions and no signs are required.

Option:

The Memorial Bridge (CA Code G11-4A and G11-4B) signs may be placed above an existing Inventory Marker (CA Code G11-1, G11-2, G11-4 or G11-5) when an appropriate authority has requested that a highway facility be designated as a memorial facility.

The Memorial Bridge and Inventory Marker (CA Code G11-8 and G11-9) combination signs may be placed when an appropriate authority has requested that a highway facility be designated as a memorial facility.

Guidance:

The Inventory Markers should be placed at each end of a structure, with the bottom of the sign even with the top of the bridge rail.

Support:

The official name and number of structures on State highways are determined by the Department of Transportation’s Office of Structures Design.

Option:

The Named State Highway (CA Code SG1) sign may be used to identify a named State highway when required by legislation or when determined necessary to provide traveler information.

Section 2D.50 Trail Signs

The following is added to this section:

Support:

Refer to Chapter 2H for trail signs.

Section 2D.101 Inventory Markers

Option:

The Inventory Markers (CA Code G11-1, G11-2, G11-4 and G11-5) may be used at major rivers or creeks to identify bridges or structures.

The Inventory Markers (CA Code G11-6) may be used to identify bridges or structures at locations where the official name and number is not needed for motorist orientation.

The Inventory Markers (CA Code G11-10) may be used to mark the limits of an environmentally sensitive area within the State highway right of way.

The Memorial Bridge and Inventory Marker (CA Code G11-8 and G11-9) combination signs may be placed when an appropriate authority has requested that a highway facility be designated as a memorial facility.

Guidance:

The Inventory Markers should be placed at each end of a structure, with the bottom of the sign even with the top of the bridge rail.

Support:

The official name and number of structures on State highways are determined by the Department of Transportation’s Office of Structures Design.

Option:

The Inventory Marker (Survey) (CA Code S2) may be used as an accessory or witness marker to aid in the protection, location and identification of Department of transportation’s survey monuments that are to be perpetuated.

Support:

The S2 (CA Code) marker is to be placed on a metal guide post, which is driven 0.3 to 0.45 m (12 to 18 in) away from the monument.

Kilometer (Mile) Post Markers (CA Code G11-7) on State Highways:

Support:

Refer to Department of Transportation's TASAS Manual for more details on this topic. See Section 1A.11 for information regarding this publication.

This section, regarding Kilometer (Mile) Post Markers, is for future application. It will apply after the field conversion of existing markers and conversion of the Highway Data Base.

The existing markers in the field are in English units (miles). The markers in the field are not to be mixed, metric and English, nor is a dual system contemplated. Installation of new markers, replacement of missing markers and correction (relocation) of existing markers will be done in English units (miles). The previous policies of calculation, lateral placement, and spacing for two lane roads and divided roads and rural and urban will remain effective until such time as a full field conversion program is applied.

The kilometer (mile) post markers in the field are used by traffic officers, maintenance forces and others to locate specific incidents or features with reference to the kilometer (mile) post marker system. The kilometer (mile) post marker is integral to the kilometer (mile) post marker system and shall not be used for additional marker functions. Other types of markers shall not be used as kilometer post markers. The kilometer (mile) post marker shall indicate the route, county, and kilometer post marker of the installation; only kilometer (mile) post markers shall contain the route and county designation.

Placement

Support:

A - Rural Areas.

1. Two-Lane Roads - Markers are placed 1.6 km (1 mi) apart on both sides of the highway, staggered by 0.8 km (0.5 mi).
2. Divided Roads - Markers are placed 1.6 km (1 mi) apart on both sides of the highway at the same kilometer (mile) post marker location.

B - Urban Areas.

1. Two-Lane Roads - Markers are placed 0.8 km (0.5 mi) apart on each side of the highway, staggered by 0.4 km (0.25 mi).
2. Divided Roads - Markers are placed 0.8 km (0.5 mi) apart on each side of the highway at the same kilometer (mile) post marker location.
3. See sub-heading 'D' below.

Option:

C - Maximum Spacing.

When a regular marker falls within 0.4 km (0.25 mi) of a landmark (bridge, etc.), the 1.6 km (1 mi) or 0.8 km (0.5 mi) marker may be omitted. The intent is to have kilometer (mile) post markers spaced no farther apart than 1.6 km (1 mi) on rural highways, or 0.8 km (0.5 mi) on urban highways. This is a maximum spacing. Additional markers may be placed in areas where it is desired to have additional highway reference points.

D - Incorporated or Suburban Areas.

Kilometer (mile) post markers may be omitted in communities with city-street characteristics of curb, gutter, sidewalks and local development. In these areas, intersecting streets would be used as reference points in lieu of markers.

Support:

E - Kilometer (Mile) Post Marker at County Lines.

At county lines, the county names and kilometer post marker information are delineated on separate markers and mounted side-by-side on separate posts, facing both directions of traffic.

F - Kilometer (Mile) Post Marker Equation.

1. Kilometer (Mile) post marker equation with a difference in value of 0.03 km (0.02 mi) or more shall be posted on the highway.
2. Each side of the equation is shown on separate markers and mounted side-by-side on separate posts, both facing the direction of traffic.
3. Current kilometer (mile) post marker letter prefix and suffix codes are listed in the State Highway Log. They are also defined in the TASAS Manuals. All prefix letters shall be shown on the kilometer (mile) post markers. The suffix letter E identifies a kilometer (mile) post marker equation. In the field, the letter E is replaced with BK (Back) and AH (Ahead) on separate markers, placed side-by-side.

Kilometer (Mile) Post Markers for Structures

1. Kilometer (Mile) Post Markers.

Standard:

Kilometer (Mile) post marker or G11 (CA Code) signs shall be mounted on, or placed at bridge abutments and at the beginning of bridge rails.

Support:

On skewed structures the kilometer (mile) post marker will not necessarily be identical on each side of the highway. The kilometer (mile) post marker on each side of the highway is the kilometer (mile) point of the centerline opposite the marker location.

2. Highway Log Kilometer (Mile) Post Marker Values.

Support:

a. Overcrossing and Underpass.

The Highway Log kilometer (mile) post marker for an overcrossing or underpass is measured from the structure centerline where it intersects the highway centerline. The Post Marker will reflect that value, plus or minus the structure width, and direction of travel. This rule applies to all structures crossing over the highway regardless of the skew.

b. Undercrossings, Overheads and Bridges.

Single Structure: The Highway Log kilometer (mile) post marker value is measured along the highway centerline. A post marker value is assigned to the paving notch at the end of the structure and the paved roadbed in each direction of travel.

Divided or Separated Structures on Divided Highways: The Highway Log kilometer (mile) post marker value is measured along the centerline of each roadbed. The post marker value is assigned to the paving notch at the end of the structure and the paved roadbed in each direction of travel. Depending on the width of the median and the skew, two kilometer (mile) post marker values may be assigned to each end.

Placement

Standard:

The preparation of plans for placement of kilometer (mile) post markers on State highways shall be the responsibility of the Department of Transportation's District Traffic Branch.

Support:

Dimensions, lettering and positioning standards are included in the Department of Transportation's Standard Plans and Traffic Sign Specifications publications. See Section 1A.11 for information regarding these publications.

Standard:

Kilometer (Mile) post markers shall not be reflectorized. If a kilometer (mile) post marker should fall within a line of guide markers, it shall be placed in a manner that will not interfere with the guide marker pattern. Kilometer (mile) post markers shall not to be used as guide markers, clearance markers, culvert markers, etc.

Installation and Verification

Standard:

Kilometer (Mile) post markers shall be placed a minimum of 0.6 m (2 ft) and not more than 3.6 m 12 ft) beyond the edge of shoulder on the right side of the highway facing traffic.

Guidance:

Generally, they should be placed in such a position as to minimize interference with maintenance.

Standard:

When installed behind guardrail, the marker shall be placed so that the entire legend is legible from the road.

Option:

Stenciling of the kilometer (mile) post marker on concrete median barriers may be in addition to, but not in place of the regular kilometer (mile) post markers. This is an additional aid for maintenance and accident investigation.

Standard:

All markers shall be located to an accuracy of 15 m (50 ft) on the ground. The value shown on the marker shall be to the nearest 0.015 km (0.001 mi) or 15 m (50 ft), and shall reflect the kilometer (mile) point of the centerline opposite the marker location.

The Department of Transportation's District Traffic Branch shall have the responsibility to verify the accuracy of the placement of kilometer (mile) post markers on State highways. Any markers found to be more than 15 m (50 ft) from the intended location shall be relocated.

Section 2D.102 Bypassed Communities

Standard:

Section 100.9 of the Streets and Highways Code provides that appropriate directional signs shall be installed directing to bypassed cities and business districts. This law requires that all signs, except route shields, be left in place on the old highway, regardless of its status as a business route.

Guidance:

When relinquishing any bypassed highway, the city or county concerned should be advised regarding continued maintenance of such signs by the local agencies.

Section 2D.103 Advance Turn Sign (CA Code G22)

Option:

The Advance Turn (CA Code G22) sign may be used to give advance notice of a turnoff on expressways and high speed two-lane roads.

Guidance:

The G22 (CA Code) sign should not be used on freeways. The G22 (CA Code) sign should be placed on the right approximately 0.4 to 0.8 km (0.25 to 0.5 mi) in advance of the turnoff.

Option:

A route shield may be used on the G22 (CA Code) sign.

Section 2D.104 Scenic Route Signs (CA Code G30 Series)

Support:

A scenic route is defined as 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. Refer to California Streets and Highway Codes 260 through 263.8.

Standard:

The Scenic Route (CA Code G30) sign shall be used to identify routes, which have been designated as official State Scenic Highways. The G30 (CA Code) sign shall be installed on the right at the beginning of the scenic route.

Guidance:

The Scenic Route (CA Code G30A and G30B) signs, when used, should be used on State and county routes, respectively, and placed below and on the same post with the route shield signs.

Option:

The Begin plate (CA Code G30C) may be placed above the Scenic Route sign, and the End plate (CA Code G30D) may be placed below the scenic route signs.

Section 2D.105 NEXT RIGHT/LEFT Auxiliary Sign (CA Code G58)

Option:

The NEXT RIGHT/LEFT (CA Code G58) auxiliary sign may be used on freeways, expressways or conventional highways in conjunction with, and placed below a route sign.

The NEXT RIGHT/LEFT (CA Code G58) auxiliary sign may also be used in conjunction with the General Service (Section 2D.45), Recreational and Cultural Interest Area (Chapter 2H) signs.

Section 2D.106 DIVIDED ROAD (X MILES) AHEAD Sign (CA Code G68)

Option:

The DIVIDED ROAD (X MILES) AHEAD (CA Code G68) sign may be used to indicate the distance to the next section of divided highway.

Guidance:

The mileage shown should be to the nearest one-fourth mile, and to the nearest mile for distances over one mile.

Option:

The G68 (CA Code) sign may be used on a two-lane highway in advance of a divided section of highway to encourage passing in the divided section.

Section 2D.107 PASSING LANE (X MILES) or AHEAD Sign (CA Code G69)

Option:

The PASSING LANE (X MILES) or AHEAD (CA Code G69) sign may be used to inform motorists on a two-lane highway that an additional lane is available ahead for passing slower traffic.

Support:

See Section 3B.05 of this Supplement for signing and marking of passing and truck lanes.

Section 2D.108 State Property Signs (CA Codes SG26, S1-1, S3-1, S8, S20 and S27)

Option:

The Caltrans Facility Entrance (CA Code SG26) sign may be placed at Department of Transportation's facilities where necessary to identify the facility and serve a public need.

The STATE PROPERTY (CA Code S1-1) sign may be used to identify materials placed on or near the Department of Transportation's right-of-way for maintenance or construction purposes.

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

The STATE PROPERTY – NO DUMPING – NO PARKING – NO TRESPASSING (CA Code S8) sign may be used to identify state property where dumping, parking or trespassing is prohibited.

The STATE PROPERTY – ANY PERSON REMOVING OR MOLESTING SAME WILL BE PROSECUTED (CA Code S20) sign may be used to identify State owned property and materials placed there for future maintenance or construction purposes.

Standard:

The Department of Transportation's CONSTRUCTION FIELD OFFICE (CA Code S27) sign shall be placed to identify a facility where offices are provided for the construction projects resident

engineer and staff. Refer to Department of Transportation's Construction Manual, Chapter 1, Section 402. See Section 1A.11 for information regarding this publication.

CHAPTER 2E. GUIDE SIGNS – FREEWAYS AND EXPRESSWAYS

Section 2E.08 Memorial Highway Signing

Standard:

Paragraph 1 ("Freeways and expressways…") and Paragraph 2 ("If the installation…") are deleted and shall not be applicable in California.

The following is added to this section:

Support:

Section 2D.49 also applies to freeways and expressways.

Section 2E.11 Pull-Through Signs

The following is added to this section:

Support:

See Figures 2E-27 (CA), 2E-28 (CA) and 2E-30 (CA) through 2E-33 (CA) for typical freeway signing and use of the Pull-Through (CA Code G24 Series) signs.

Section 2E.12 Designation of Destinations

The following is added to this section:

Guidance:

Each Department of Transportation District should determine its list of control cities in cooperation with adjacent districts and states to achieve continuity of signing for through traffic on State highways. Any given route should have the same control cities (in both directions of travel).

Section 2E.13 Size and Style of Letters and Signs

The following is added to this section:

Standard:

All capital letters shall be Standard Alphabet Series D 2000.

Support:

Standard Alphabets for traffic control devices are contained in FHWA's "Standard Highway Signs" book. See Section 1A.11 for information regarding this publication.

Sections 2D.04, 2D.05 and 2D.06 also apply to freeways and expressways.

Section 2E.15 Sign Borders

The following is added to this section:

Support:

Sign border details are contained in FHWA's "Standard Highway Signs" book and Department of Transportation's "Traffic Sign Specifications". See Section 1A.11 for information regarding these publications.

Section 2E.19 Diagrammatic Signs

The following is added to this section:

Support:

Refer to Section 3B.05 for lane drop markings.

Section 2E.20 Signing for Interchange Lane Drops

Guidance:

In Paragraph 3 ("The Exit Direction…") first sentence, the word "shall" is changed to "should". Separate Exit Only or Only (CA Code W61 Series) panels should be used instead of making these panels part of the sign face at the bottom as shown in Figures 2E-8 and 2E-10.

The following is added to this section:

Standard:

The Exit Only panels (CA Code W61A, B, C, D, E and H) shall be used on overhead directional signs to identify lane/lanes that enter or exit a freeway.

The Only panels (CA Code W61F, G and H) shall be used on overhead directional signs to identify lane/lanes that become a freeway to freeway connector.

Support:

Typical examples are shown in Figures 3B-8 (CA) and 3B-10 (CA).

Section 2E.21 Changeable Message Signs

The following is added to this section:

Department of Transportation's Policy regarding the use of CMS signs for child abduction (AMBER) alert messages on State Highways

Support:

A primary mission of Department of Transportation is the safe and orderly movement of traffic. It is the policy of Department of Transportation to display only real-time information that conveys current traffic safety and congestion information on highway Changeable Message Signs (CMS).

Standard:

An exception to Department of Transportation policy on the use of CMS signs shall be made only for AMBER Alerts. Only credible real-time information, where it is crucial to the safety of the victim to disseminate the information to the public in the near term, shall be displayed on these CMS signs.

Support:

Law enforcement activates an Amber Alert when circumstances meets the following criteria: the missing child is of a pre-determined age; the law enforcement agency believes the child has been kidnapped; the agency believes the missing child is under threat of serious bodily harm or death.

Standard:

The California Highway Patrol (CHP) shall consult with the investigating agency prior to requesting any CMS sign activation. The Department of Transportation shall only respond to AMBER alert requests from the CHP. The Department of Transportation's District Traffic Management Center (TMC) staff and local CHP staff shall jointly agree upon the most appropriate CMS sign message content(s). The TMC staff shall also consult with CHP staff regarding the length of time to display messages (initially 2-3 hours), and extent of roadway system to display the messages (i.e. radius and/or directions and specific routes).

Guidance:

TMC personnel should discuss with the requester the limitations on message content, the number of signs that can be deployed within a given time period, conflicts with other necessary sign messages etc.

Support:

There is a concern that messages that are too general in describing vehicles might result in inappropriate vigilantism. The preferred response is to display a radio frequency (thus referring the public elsewhere for details) - Department of Transportation's Highway Advisory Radios (HAR) or appropriate commercial radio. Alternatively, a license plate number (or partial number) might be displayed along with a vehicle description. The display of any contact phone number is discouraged.

Nothing in this policy suggests a requirement to pre-empt true motorists safety messages, e.g. unexpected "end of queue" motorist alerts, severe weather advisories (fog, smoke), road closure and detour information etc.

Option:

It may be necessary to turn off an AMBER alert sign that creates a traffic hazard.

Support:

This policy primarily applies to the use of permanently installed overhead CMS signs. Should the use of mobile CMS signs be necessary and appropriate at a specific location(s); Department of Transportation can expect CHP assistance with mobile sign deployment as needed.

Guidance:

The TMCs should notify the Department of Transportation's HQ Communications Center when responding to an AMBER alert request. The TMCs should monitor and save traffic data in order to determine if unintended consequences of displaying such a message occurred on the highway.

Standard:

A joint debriefing of Department of Transportation and CHP personnel shall follow every event. In all cases, messages shall maintain the credibility of the CMS system.

Section 2E.23 Lateral Offset

Guidance:

In Paragraph 2 ("Where practical…"), the phrase "3 m (10 ft)" is changed to "3.7 m (12 ft)".

The following is added to this section:

Support:

Also refer to Section 2A.19 for more information on this topic.

Section 2E.27 Interchange Guide Signs

Guidance:

In Paragraph 1 ("The signs at…") first sentence, the word "shall" is changed to "should".

The following is added to this section:

Support:

Also refer to Section 2D.29.

Guidance:

The exits should be identified on signs by street names and/or route markers.

Community names should not be included on street name exit signs. If the interchange provides more than one exit to the street, cardinal directions should be included on the sign.

Option:

The Destination and Street Name with Arrow (CA Code G8 Series) signs may be used in freeway interchange areas.

Support:

Typical use of the G8 Series (CA Code) signs in freeway interchange areas is shown in Figures 2E-27 (CA), 2E-28 (CA) and 2E-30 (CA) through 2E-33 (CA) for typical freeway signing.

Section 2E.28 Interchange Exit Numbering

Standard:

In California, interchange exit numbering shall be reference post numbering as opposed to consecutive numbering mentioned in Paragraph 3 ("There are two…").

The following is added to this section:

Standard:

The Department of Transportation shall utilize mileage based interchange exit numbering to identify the location of each interchange exit on the California Freeway System. The following web site shall provide the statewide listing of freeway exit numbers indexed by route and direction:

http://www.dot.ca.gov/hq/traffops/signtech/calnexus/index.htm

The placement and location of interchange exit numbering on State highways shall conform to the database maintained by Department of Transportation's Division of Traffic Operations for reference posts. This database is different from the TASAS Highway database.

Interchange numbering shall be used in signing each freeway interchange exit. Each freeway interchange exit shall include a minimum of two numbered exit signs:

1. **One Advance Guide (CA Code G83 Series) sign with exit number.**
2. **One Exit Gore (E5-1 or CA Codes G84-2 or G84-3) sign with exit number and arrow or, if not available, an exit number shall be installed on an adjacent Exit Direction (CA Code G85-10 or G85-11) sign at the gore.**

To the extent practical, interchange exit numbers shall be displayed with each Advance Guide sign, Exit Direction sign, and Gore sign on freeways.

Exit numbers shall not include the cardinal initials corresponding to the directions of the cross route.

Guidance:

The exit number signs should take advantage of existing roadside and overhead signs. Where possible, add-on plaques or panels should be used. In areas where maximum wind loads or existing legends do not permit placement of an add-on plaque or panel, a new sign should be installed.

Support:

For new sign installations or if the existing sign is due for replacement, consider ordering a new sign with the exit number included as part of the sign.

Standard:

Rest areas, vista points, weigh stations, HOV facility exits or HOV to HOV system connector ramps are not considered interchange exits and shall not be signed with exit numbers.

Support:

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

Option:

A multiple exit number add-on sign (such as E1-5 with message EXITS 33 A-B in Figure 2E-15) may be placed at the mainline diverge.

Guidance:

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

Standard:

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

Support:

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

Option:

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

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

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

The two line EXIT XXXX panel (G70-5) may be used as an alternate to the single line EXIT XXXX panel (G70-3) when an existing sign cannot accommodate the single line format. It may be attached to an

existing Advance Guide sign, Exit Direction sign, or Supplemental Guide sign that identifies an interchange that has been assigned a three or four digit exit number/suffix.

Guidance:

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

Option:

The Exit Numbered Advance Guide (CA Code G83-4) sign with separate borders may be used for new sign installations or as an alternate to retrofitting an existing Advance Guide sign when the existing Advance Guide sign cannot accommodate an add-on plaque or panel.

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

Standard:

If used, the G83-4 and G83-5 (CA Codes) signs shall be placed on freeways to give motorists advance notice of the exit point to the principal destination served by the next interchange that has been assigned an exit number/suffix, and the distance to that interchange.

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

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

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

Guidance:

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

Standard:

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

Option:

The Exit Numbered Exit Direction (CA Code G85-10) sign with separate borders may be used for new sign installations or as an alternate to retrofitting an existing Exit Direction sign when the existing Exit Direction sign cannot accommodate an add-on plaque or panel.

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

Standard:

If used, the G85-10 and G85-11 (CA Codes) signs shall be placed on freeways to direct motorists to the exit ramp of an interchange that has been assigned an exit number/suffix.

Guidance:

The G85-10 and G85-11 (CA Codes) signs should be placed in the area at the beginning of the deceleration lane of the exit ramp.

Option:

The Exit Numbered Supplemental Guide (CA Code G86-12) sign with separate borders may be used for new sign installations or as an alternate to retrofitting an existing Supplemental Guide sign (CA Code G86 Series) when the existing Supplemental Guide sign cannot accommodate an add-on plaque or panel.

The Exit Numbered Supplemental Guide (CA Code G86-13) sign with a single border may be used as an alternate to the G86-12 (CA Code) sign when the sign message requires additional space on the sign.

The G86-12 and G86-13 (CA Codes) signs may be placed on freeways to give motorists advance notice of the exit point to the principal destination served by the next interchange that has been assigned an exit number/suffix.

Section 2E.30 Advance Guide Signs
Standard:

In Paragraph 4 ("When used…") the second sentence ("The legend on…"), third sentence ("If the interchange…") and Paragraph 5 ("Where interchange…") first sentence are deleted. Use the following instead:

Where the distance between interchanges is less than 3.2 km (2 mi), the Advance Guide (CA Code G83 Series) sign shall be placed at the first available location with the mileage adjusted to the nearest 0.4 km (1/4 mi). The word EXIT (with distance) on the bottom line shall be used if the sign is the advance notice for an interchange with distance destinations.

Guidance:

In all other cases, the word EXIT should be omitted.

For major and intermediate interchanges (see Section 2E.29), two and preferably three Advance Guide signs should be used. At minor interchanges, only one Advance Guide sign should be used.

If only one Advance Guide sign is used, it should be placed 1.6 km (1 mi) in advance of the exit.

If two Advance Guide signs are used, they should be placed 1.6 km (1 mi) and 3.2 km (2 mi) in advance of the exit.

If three Advance Guide signs are used, they should be placed 0.8 km (0.5 mi), 1.6 km (1 mi) and 3.2 km (2 mi) in advance of the exit.

Support:

See Figures 2E-27 (CA), 2E-28 (CA) and 2E-30 (CA) through 2E-33 (CA) for typical freeway signing.

Section 2E.32 Other Supplemental Guide Signs

The following is added to this section:

Support:

Section 2D.34 also applies to freeways and expressways.

Refer to Section 2D.41 for Park & Ride signs.

Option:

The Supplemental Destination (CA Code G86 Series) signs may be omitted at low traffic volume interchanges or at major interchanges that are spaced 0.8 km (0.5 mi) or less apart. They may also be omitted where interchanges are 1.6 km (1 mi) or less apart and Interchange Sequence (CA Code G23 Series) signs are used.

Section 2E.33 Exit Direction Signs

The following is added to this section:

Support:

See Figures 2E-27 (CA), 2E-28 (CA) and 2E-30 (CA) through 2E-33 (CA) for typical freeway signing.

Figure 2E-21. Exit Gore Signs
Standard:

The E5-2 sign shall not be used in California. See Section 2E.28.

Section 2E.36 Distance Signs
Standard:

In Paragraph 1 ("If used…") second sentence ("The top line…"), the phrase "near or" is deleted.

The following is added to this section:
Guidance:
The Distance (CA Code G5 Series) signs should be placed at approximate 16 km (10 mi) intervals, unless the destinations have changed.

Section 2E.37 Interchange Sequence Signs
Standard:
The last Paragraph ("Interchange numbers…") in this section is deleted. See Section 2E.28.
The following is added to this section:
Support:
See Figures 2E-27 (CA), 2E-28 (CA) and 2E-30 (CA) through 2E-33 (CA) for typical freeway signing.
Standard:
If a destination name is used, it shall be followed by the word EXIT (for instance, SACRAMENTO EXIT).
Option:
When two exit names are required at an interchange with a cross street named differently on opposite sides of a freeway, both names may be shown with a single distance; and, four messages may be used on the sign at these locations.
The Interchange Sequence (CA Code G23 Series) signs may include four lines where two exit names are required for a single interchange.

Section 2E.38 Community Interchanges Identification Signs
Standard:
This section is deleted. Use Interchange Sequence (Section 2E.37 and Figure 2E-24) and NEXT X EXITS (Section 2E.39 and Figure 2E-26) signs, instead.

Figure 2E-25. Community Interchanges Identification Sign
Standard:
This sign is deleted and shall not be used in California. See Section 2E.38.

Section 2E.40 Signing by Type of Interchange
Standard:
MUTCD Figures 2E-27 through 2E-38 are deleted and replaced with Figures 2E-27 (CA), 2E-28 (CA) and 2E-30 (CA) through 2E-33 (CA).

Figure 2E-27. Examples of Freeway-to-Freeway Interchange Guide Signs
Standard:
MUTCD Figure 2E-27 is deleted and replaced with Figure 2E-27 (CA).

Figure 2E-28. Examples of Guide Signs for Full Cloverleaf Interchange
Standard:
MUTCD Figure 2E-28 is deleted and replaced with Figure 2E-28 (CA).

Figure 2E-29. Examples of Guide Signs for Full Cloverleaf Interchange With Collector-Distributor Roadways
Standard:
MUTCD Figure 2E-29 is deleted. Contact Department of Transportation's Division of Traffic Operations for further guidance regarding this figure.

Figure 2E-30. Examples of Partial Cloverleaf Interchange Guide Signs
Standard:

MUTCD Figure 2E-30 is deleted and replaced with Figure 2E-30 (CA).

Figure 2E-31. Examples of Diamond Interchange Guide Signs
Standard:

MUTCD Figure 2E-31 is deleted and replaced with Figure 2E-31 (CA).

Figure 2E-32. Examples of Diamond Interchange Guide Signs in an Urban Area
Standard:

MUTCD Figure 2E-32 is deleted and replaced with Figure 2E-32 (CA).

Section 2E.43 Cloverleaf Interchange with Collector-Distributor Roadways
Standard:

The last Paragraph ("Exits from the…") is deleted. Refer to Sections 2E.28 and 2E.30. It is replaced with the following:

Option:

The Advance Guide signs may include two place names and their corresponding exit numbers.

Figure 2E-33. Examples of Minor Interchange Guide Signs
Standard:

MUTCD Figure 2E-33 is deleted and replaced with Figure 2E-33 (CA).

Figure 2E-34. Example of Crossroad Signing for One-Lane Approach
Standard:

MUTCD Figure 2E-34 is deleted. Contact Department of Transportation's Division of Traffic Operations for further guidance regarding this figure.

Figure 2E-35. Example of Minor Interchange Crossroad Signing
Standard:

MUTCD Figure 2E-35 is deleted. Contact Department of Transportation's Division of Traffic Operations for further guidance regarding this figure.

Figure 2E-36. Examples of Multi-lane Crossroad Signing for Diamond Interchange
Standard:

MUTCD Figure 2E-36 is deleted. Contact Department of Transportation's Division of Traffic Operations for further guidance regarding this figure.

Figure 2E-37. Examples of Multi-lane Crossroad Signing for Partial Cloverleaf Interchange
Standard:

MUTCD Figure 2E-37 is deleted. Contact Department of Transportation's Division of Traffic Operations for further guidance regarding this figure.

Figure 2E-38. Examples of Multi-lane Crossroad Signing for Cloverleaf Interchange
Standard:

MUTCD Figure 2E-38 is deleted. Contact Department of Transportation's Division of Traffic Operations for further guidance regarding this figure.

Figure 2E-27 (CA). Examples of Freeway-to-Freeway Interchange Guide Signs

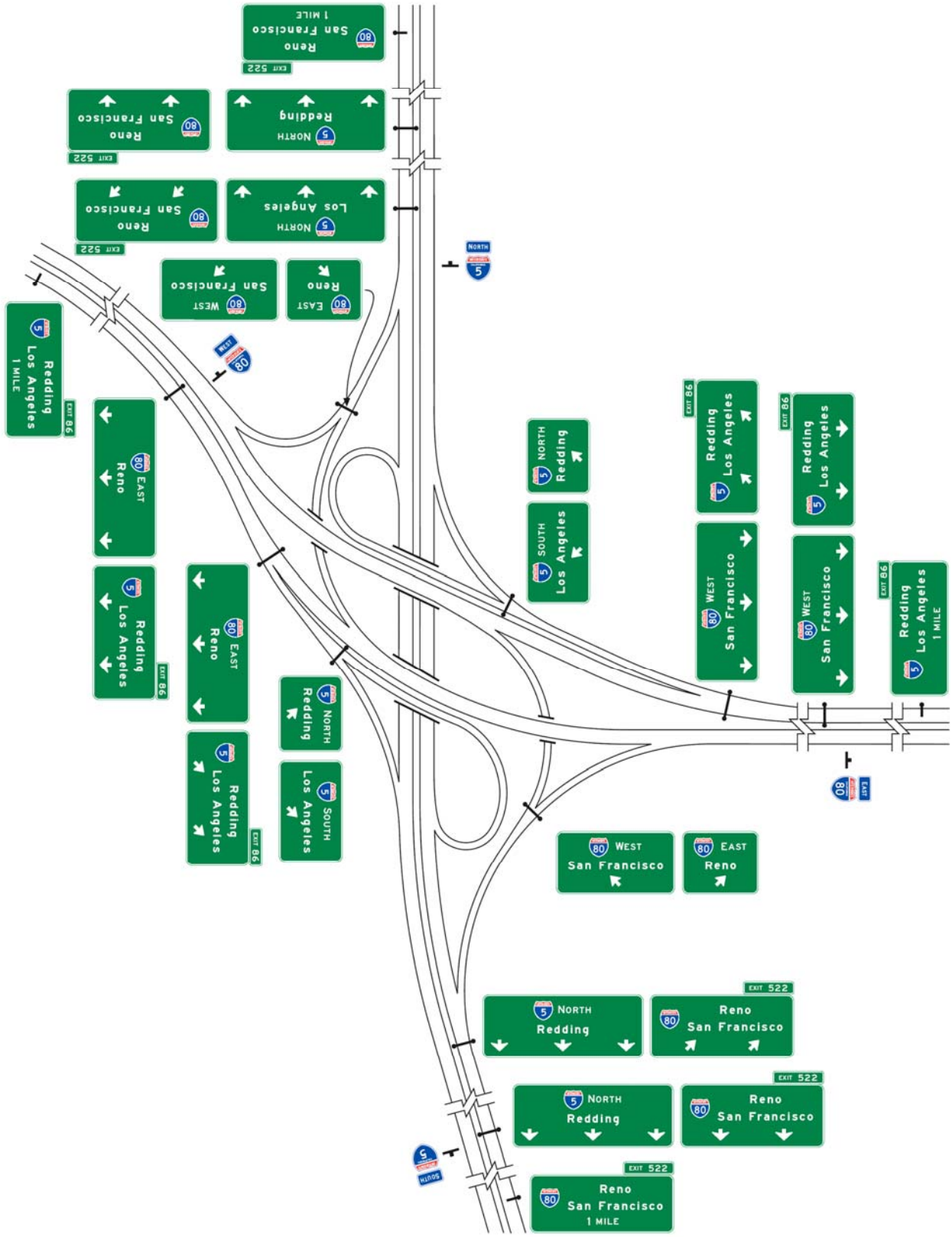


Figure 2E-28 (CA). Examples of Guide Signs for Full Cloverleaf Interchanges

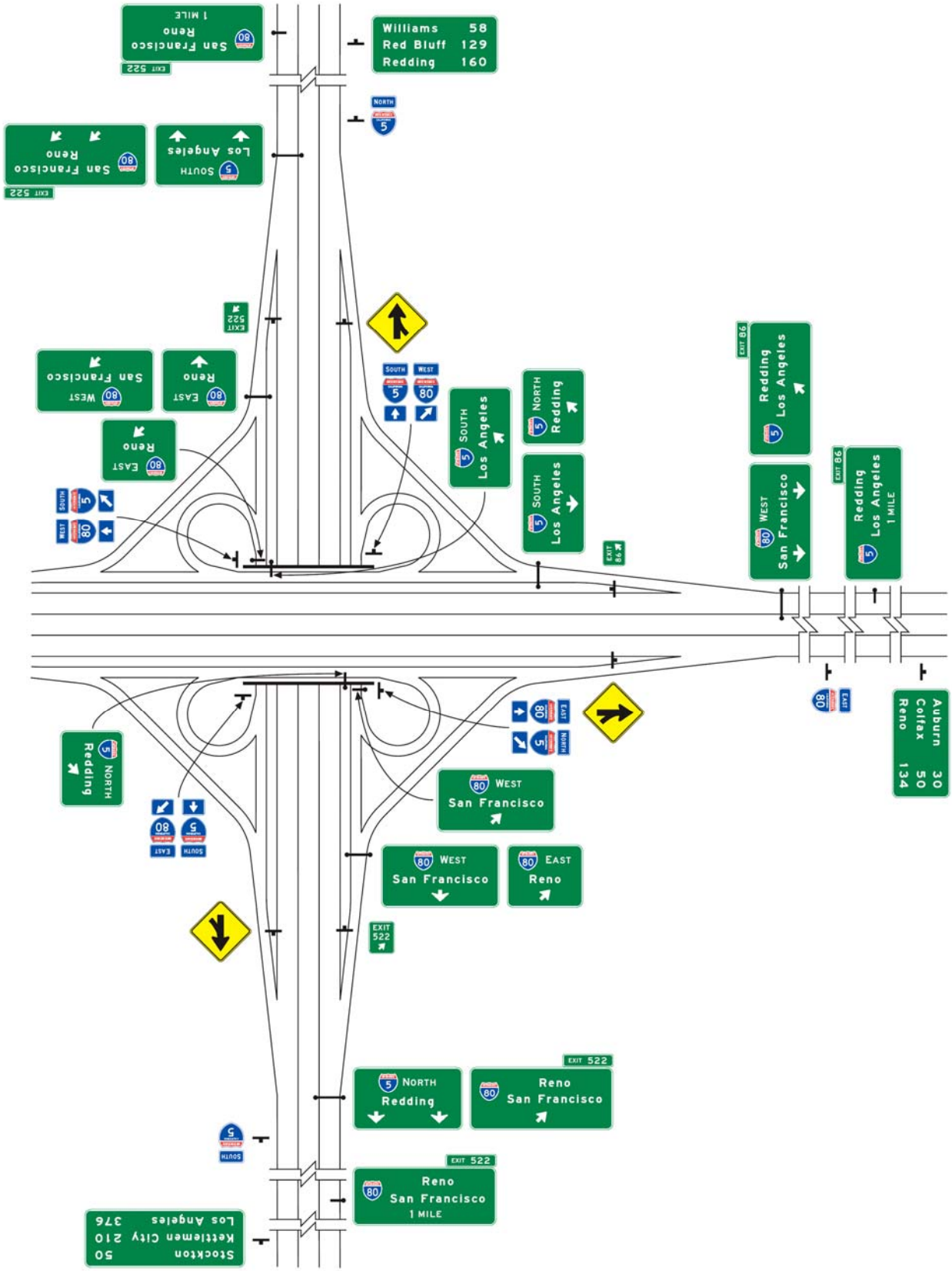


Figure 2E-30 (CA). Examples of Partial Cloverleaf Interchange Guide Signs

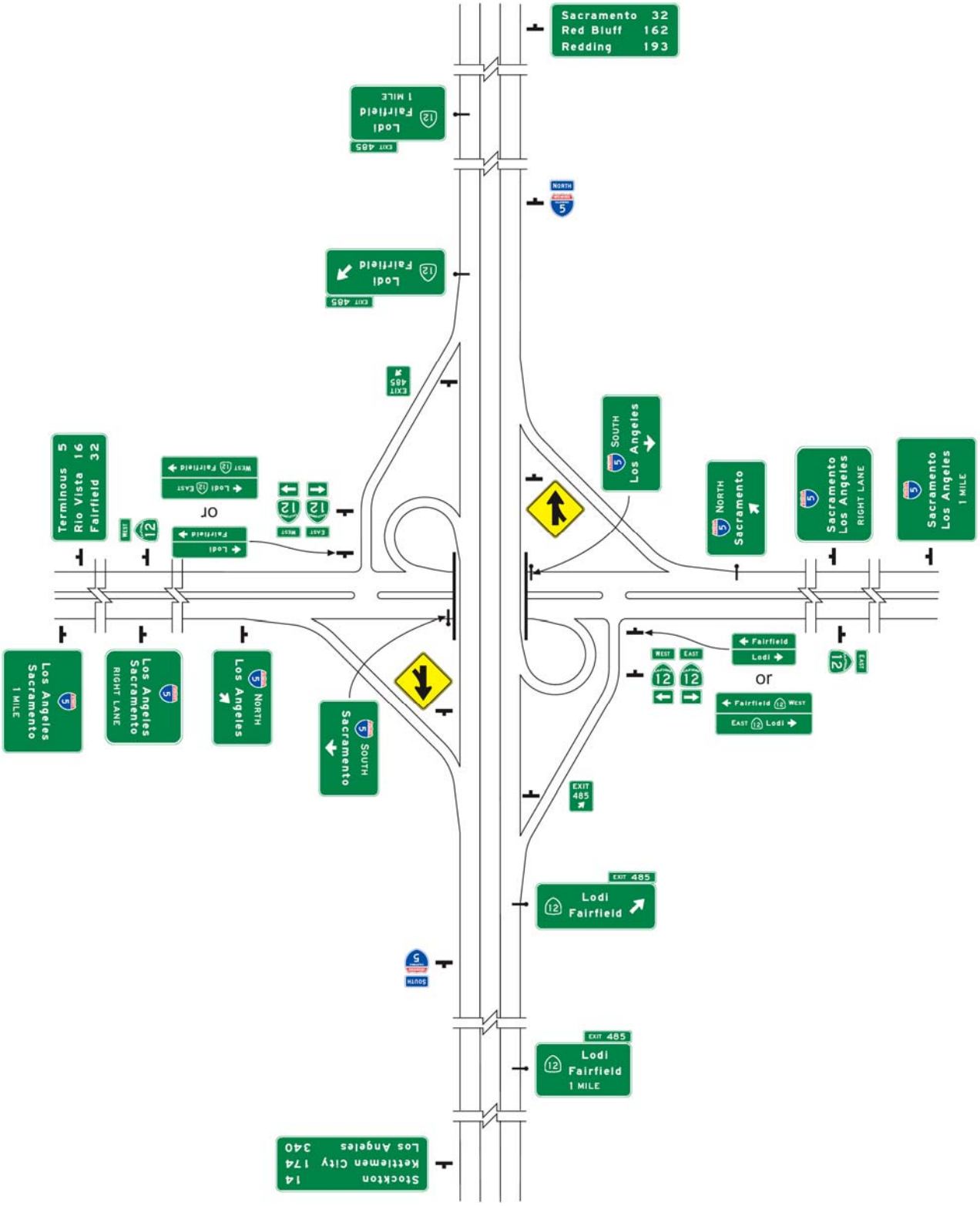


Figure 2E-31 (CA). Examples of Diamond Interchange Guide Signs

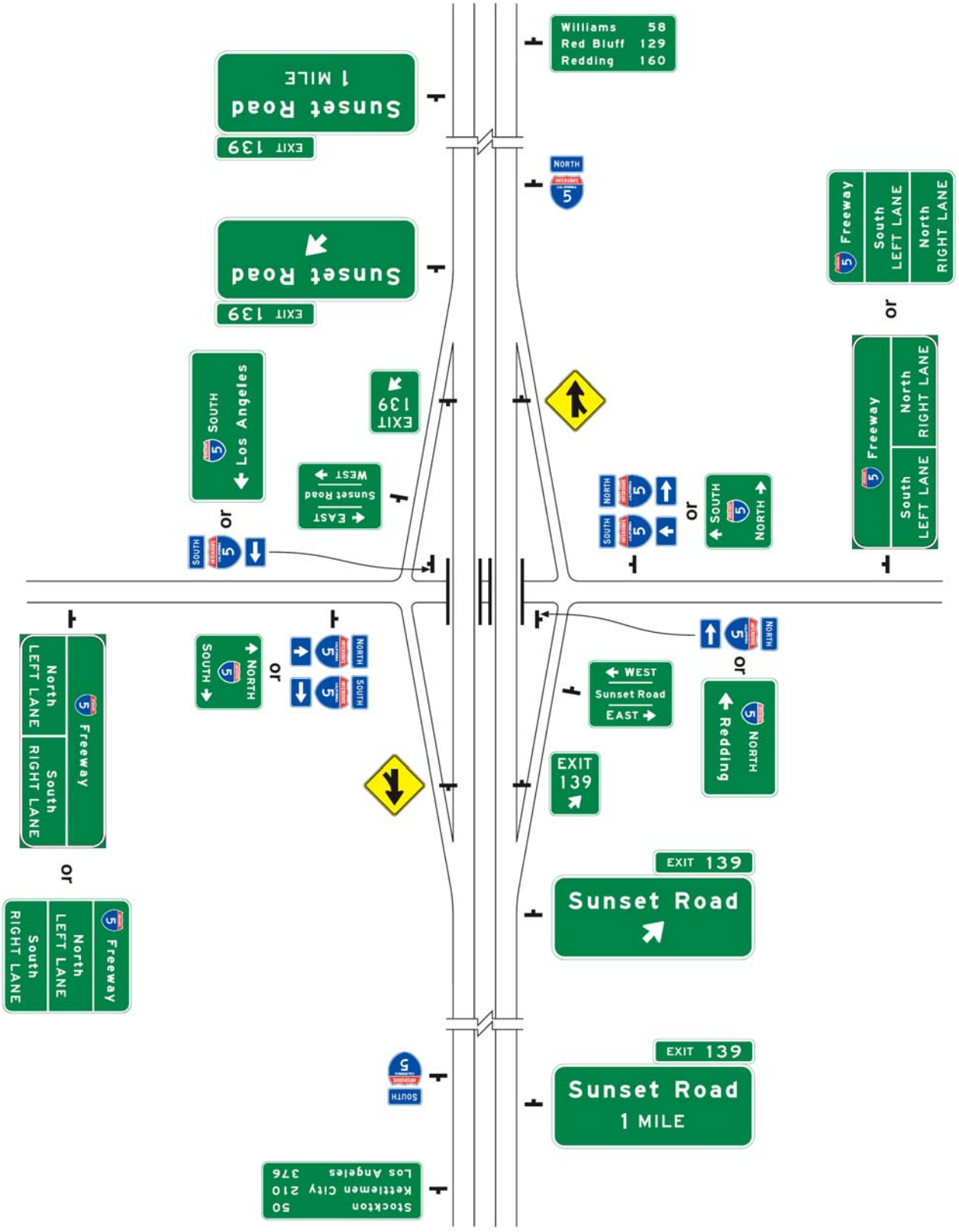


Figure 2E-32 (CA). Examples of Diamond Interchange Guide Signs in an Urban Area

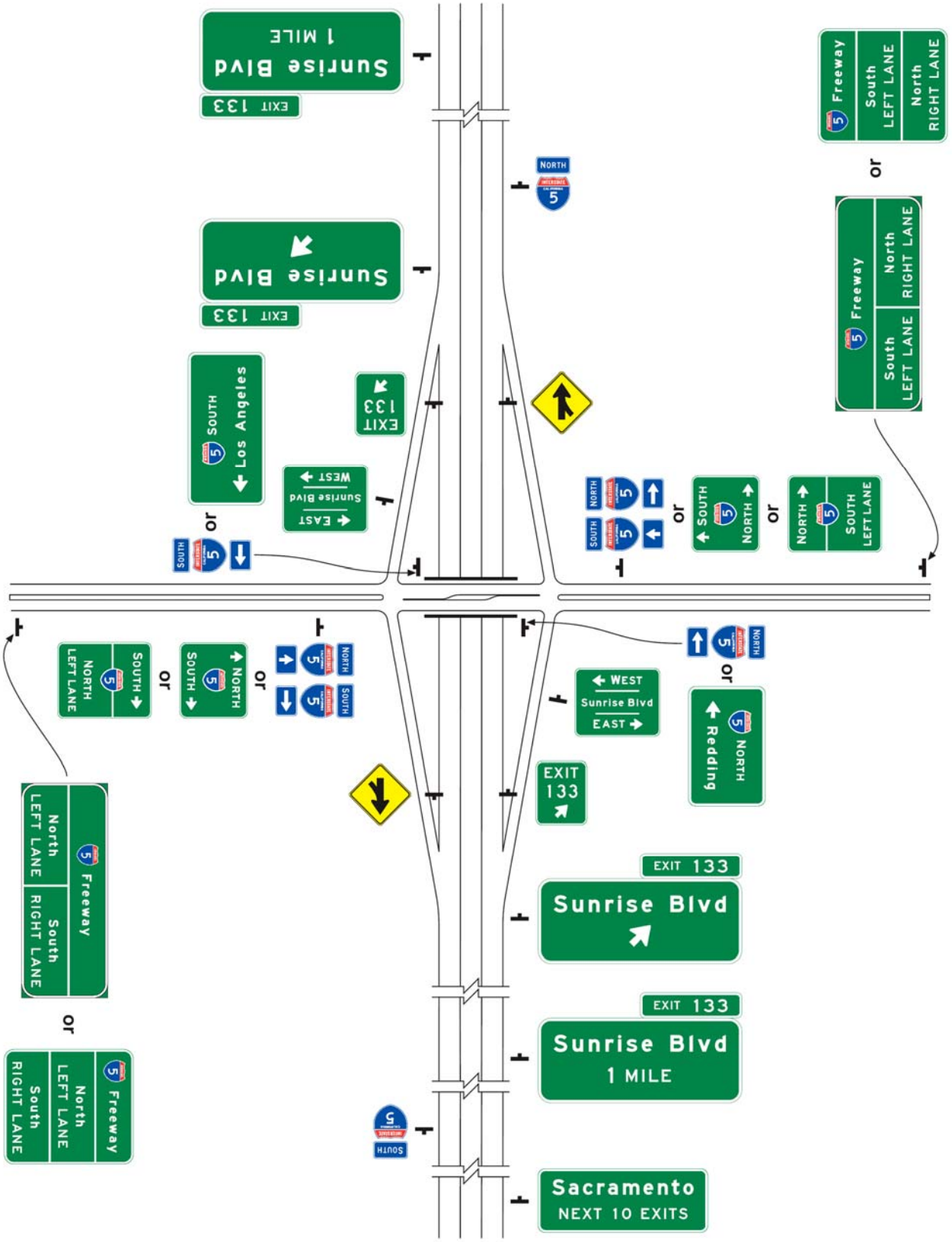
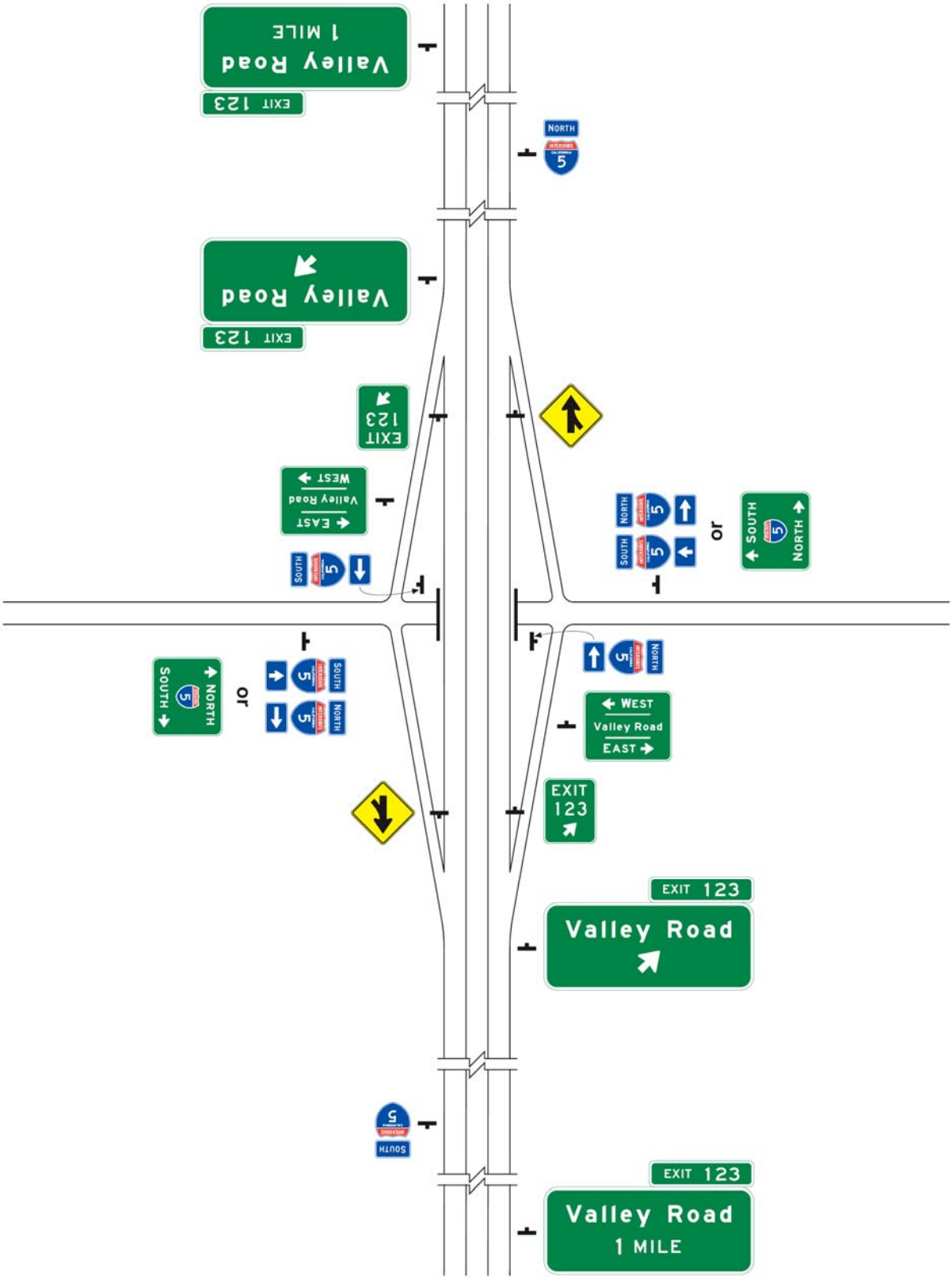


Figure 2E-33 (CA). Examples of Minor Interchange Guide Signs



Section 2E.50 Wrong-Way Traffic Control At Interchange Ramps

Standard:

This section is deleted and replaced with the following:

Support:

Ramp terminal signing serves two important functions:

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

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

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

Guidance:

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

In order to be most responsive to headlights, the Do Not Enter and Freeway Entrance packages should be mounted with the bottom of the lower sign 0.6 m (2 ft) above the edge of the pavement. The ONE WAY (R6-1) signs should be mounted at 0.45 m (1.5 ft) above the edge of pavement.

Support:

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

Standard:

Standard mounting height for all other signs in the ramp terminal area shall remain at 1.5 m (5 ft).

Option:

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

Guidance:

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

Support:

The sign locations shown in Figure 2E-39 (CA), are approximate.

Guidance:

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

Standard:

At least two large painted pavement arrows shall be placed and maintained in the center of each lane of each exit ramp. At least one Type I arrow, not less than 5.49 m (18 ft) in length, shall be positioned in the center of each freeway entrance ramp. Refer to Section 3B.19.

On-Ramp Terminal Signing

Support:

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

Partial interchanges may need special attention with respect to lead-in signing. Trailblazing a route from a partial interchange to another interchange may be necessary to ensure proper traffic movements.

Guidance:

Freeway Entrance packages should be placed as near the diverge point between the on-ramp and the intersecting roadway as practicable. The down diagonal arrow should always point toward the onramp pavement.

Large Freeway Entrance signs should be used with the Freeway Entrance package unless proper placement requires the smaller Freeway Entrance signs.

Off-Ramp Terminal Signing

Standard:

The Turn Prohibition signs (See Section 2B.19) shall be placed in suitable locations on the crossing street in advance of the off-ramp.

Guidance:

The Do Not Enter packages should be placed at off-ramp terminals to meet the following criteria:

1. At least one package should be visible to a driver (within the scope of his headlights) at his decision point on each potential approach.
2. At least one package should be in the head-on position for the driver turning into the off-ramp from each potential approach.

A field decision should be made on whether to use three Do Not Enter packages or four if the off-ramp is split by a traffic island.

Support:

Generally, curbed islands larger than 93 m^2 (1000 ft^2) in area indicate the use of four packages. Painted islands can be somewhat larger and still be adequately signed with three packages. Refer to Figure 2E-39 (CA) Sheets 3, 4 and 5.

Guidance:

The ONE WAY (R6-1) signs should be placed as close to the crossing street as possible. If there are sidewalks immediately adjacent to the cross street, these signs should be located behind the sidewalk to avoid conflicting with pedestrians.

Support:

A less desirable alternate is relocating the signs above the pedestrian level.

Guidance:

At skewed ramp intersections, where the angle approaches 90°, a second ONE WAY (R6-1) sign should be added on the obtuse side when it would be visible to approaching traffic. Refer to Figure 2E-39 (CA) Sheet 1.

Figure 2E-39. Examples of Regulatory Signing and Pavement Markings at Exit Ramp Termination to Deter Wrong-Way Entry

Standard:

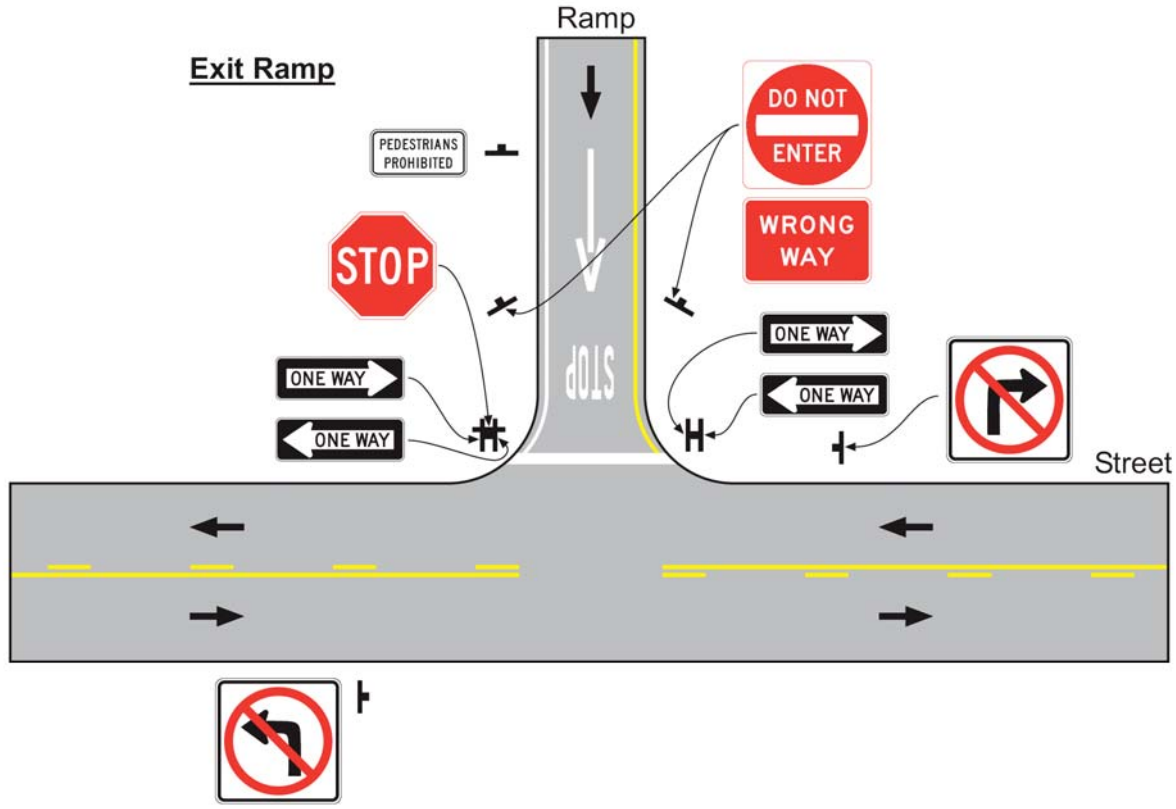
MUTCD Figure 2E-39 is deleted and replaced with Figure 2E-39 (CA).

Figure 2E-40. Examples of Regulatory Signing and Pavement Markings at Entrance Ramp Terminal Where Design Does Not Clearly Indicate the Direction of Flow

Standard:

MUTCD Figure 2E-40 is deleted and replaced with Figure 2E-39 (CA).

Figure 2E-39 (CA). Examples of Regulatory Signing and Pavement Markings at Ramp Terminations to Deter Wrong-Way Entry (Sheet 1 of 5)



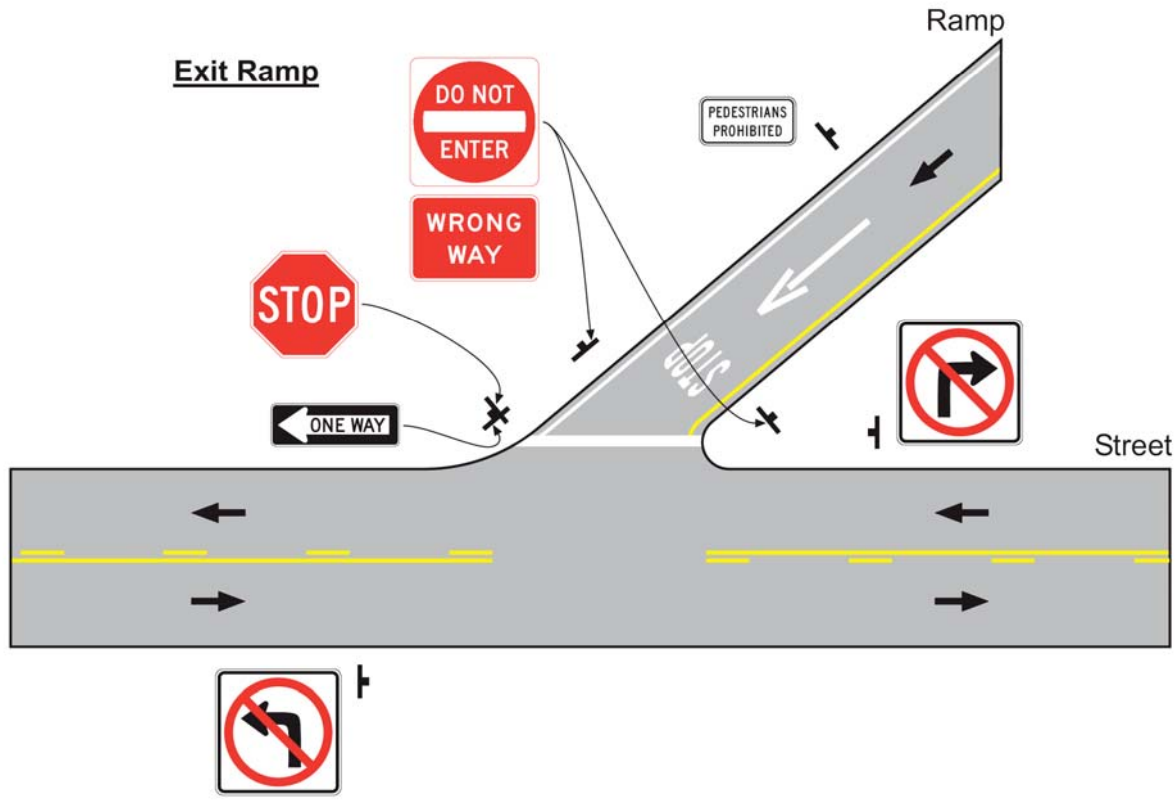
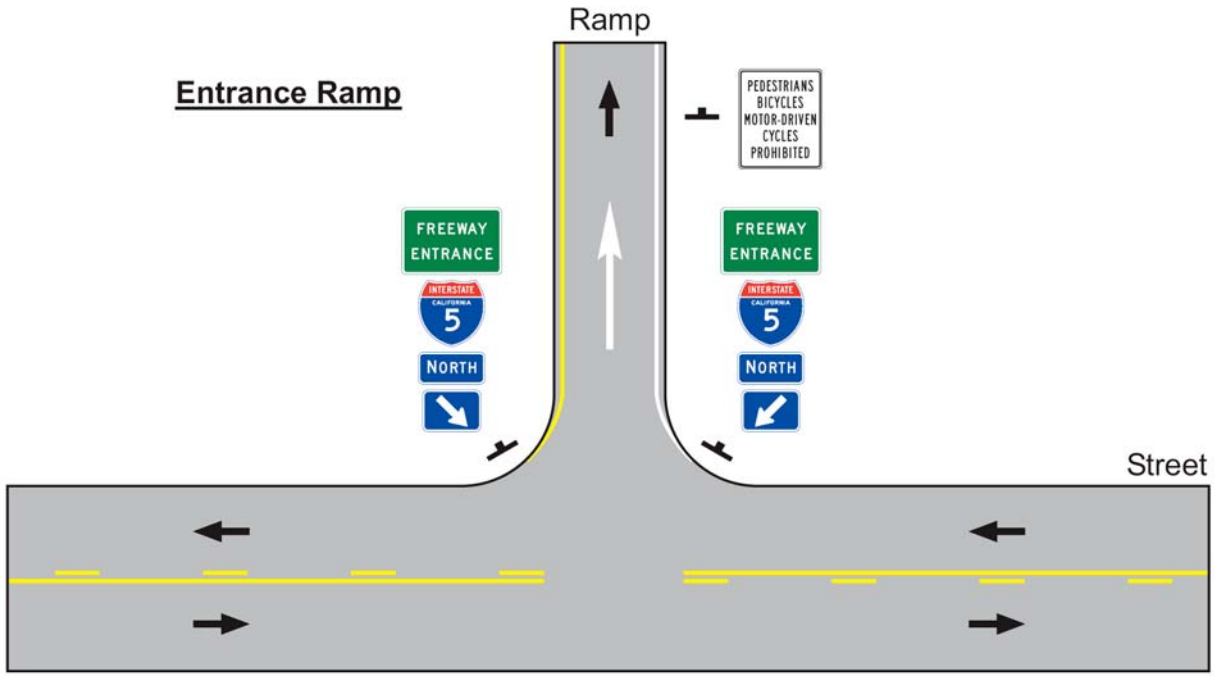


Figure 2E-39 (CA). Examples of Regulatory Signing and Pavement Markings at Ramp Terminations to Deter Wrong-Way Entry (Sheet 2 of 5)



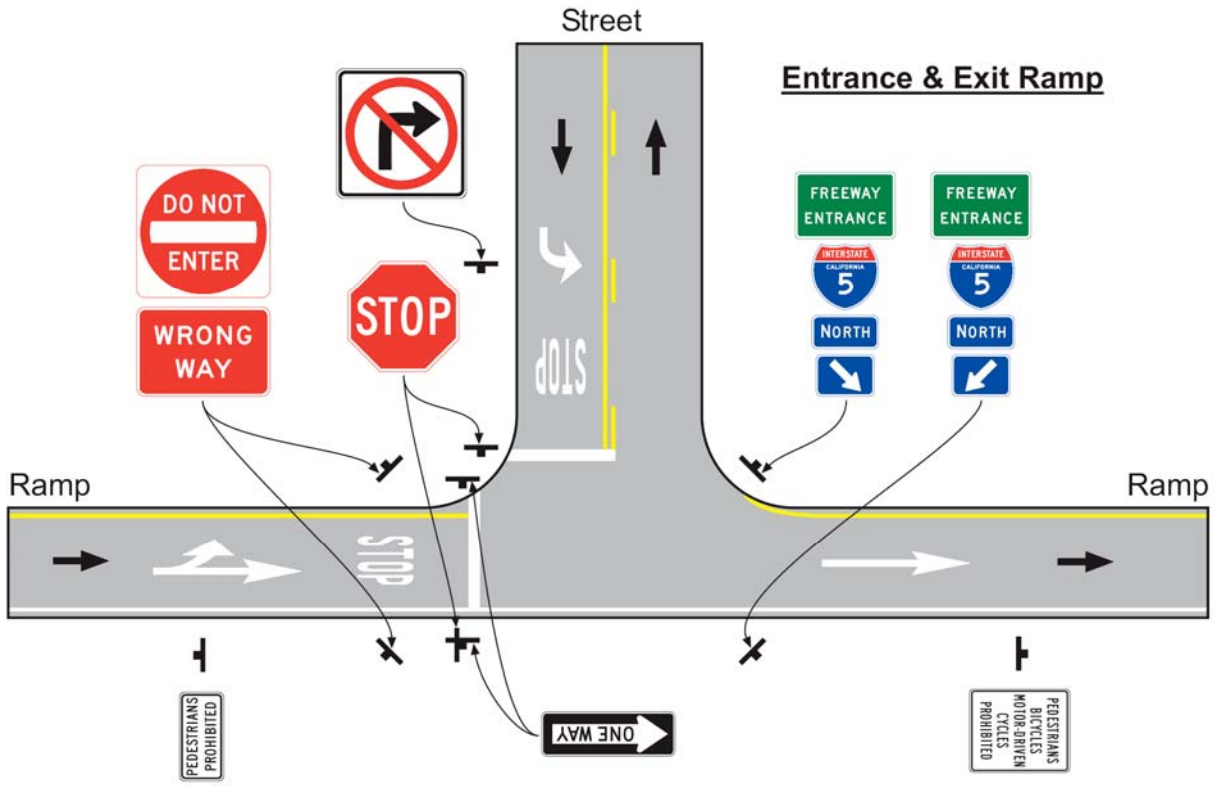


Figure 2E-39 (CA). Examples of Regulatory Signing and Pavement Markings at Ramp Terminations to Deter Wrong-Way Entry (Sheet 3 of 5)

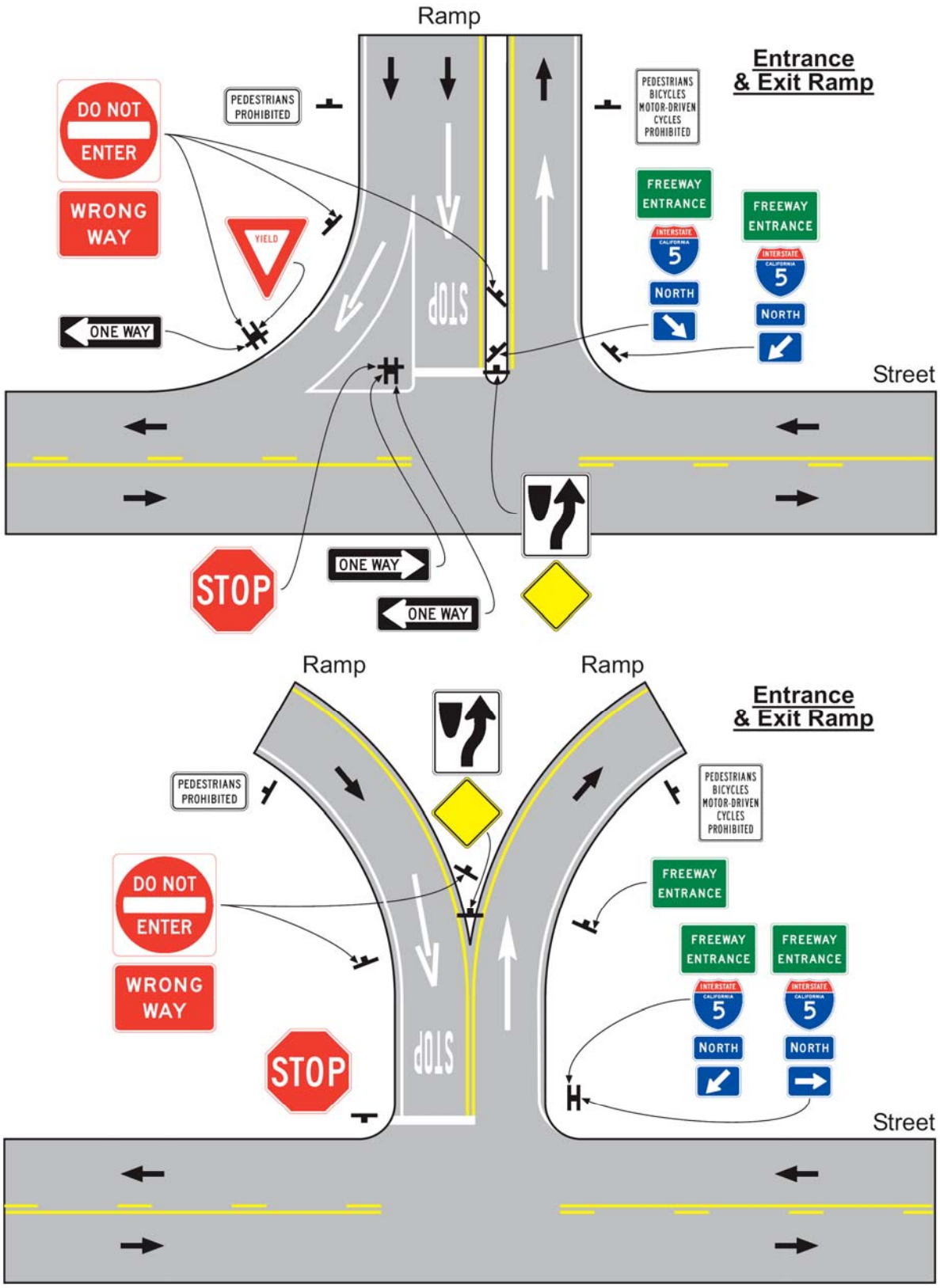


Figure 2E-39 (CA). Examples of Regulatory Signing and Pavement Markings at Ramp Terminations to Deter Wrong-Way Entry (Sheet 4 of 5)

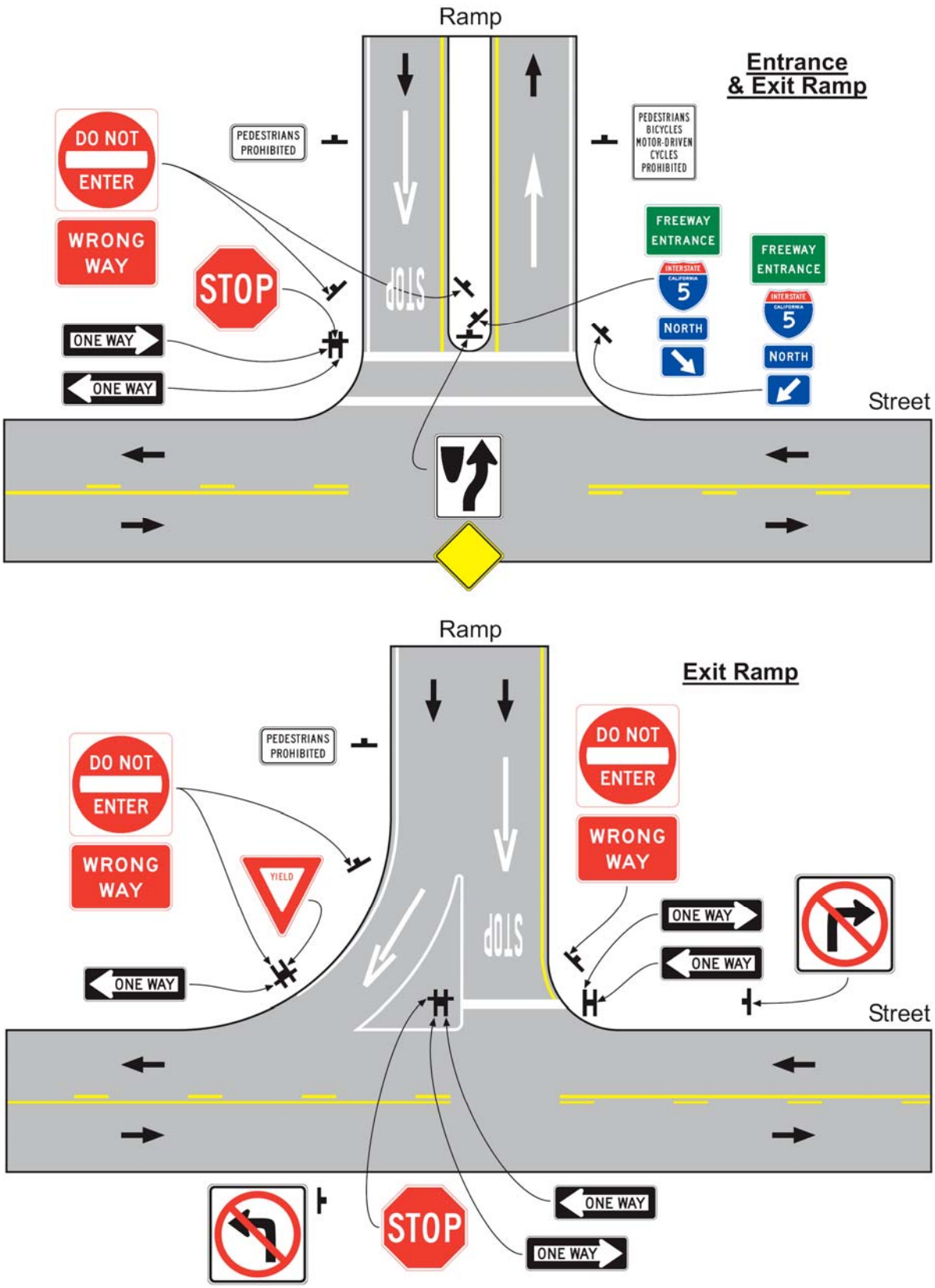
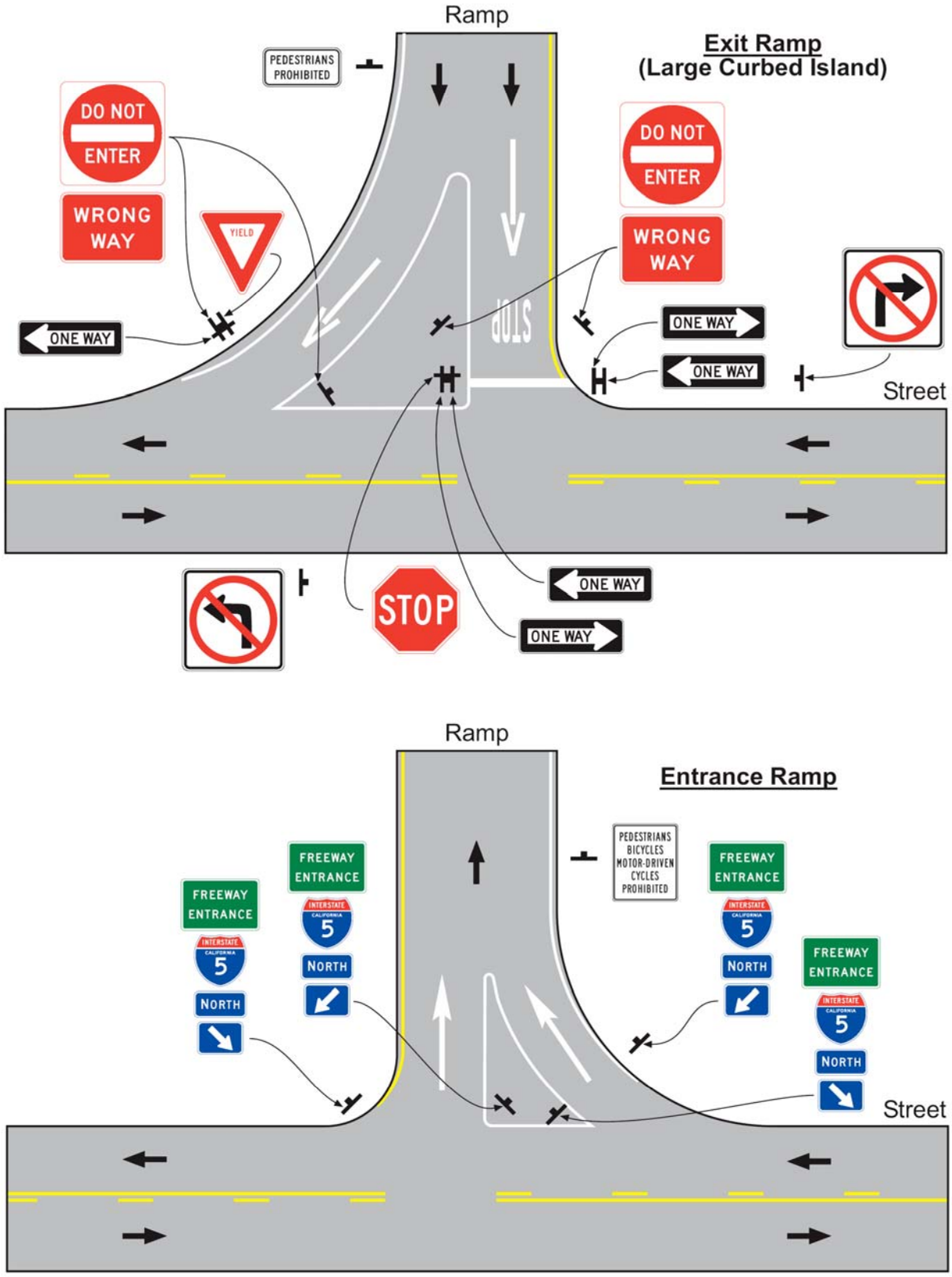


Figure 2E-39 (CA). Examples of Regulatory Signing and Pavement Markings at Ramp Terminations to Deter Wrong-Way Entry (Sheet 5 of 5)



Section 2E.51 General Service Signs

Standard:

Throughout this section, the word "Gas" is changed to "Fuel". In California, the generic term FUEL is used for GAS.

Guidance:

In Paragraph 4 ("Distances to services…"), the phrase "2 km or 1 mile" is changed to "0.8 km (0.5 mi)". See Section 2D.45 for more details.

In Paragraph 18 ("At rural interchange…"), the word "may" is changed to "should".

Option:

Paragraph 8 ("The General Service signs…") is deleted and replaced with the following:

The General Service signs may be located between the Advance Guide sign and the Exit Direction sign, in advance of the exit leading to the available services.

In Paragraph 10 ("If the distance…"), the phrase "Exit Direction sign" is changed to "Advance Guide sign". See Section 2D.45 for more details.

Standard:

Paragraph 19 ("If more than…") is deleted and replaced with the following:

If more than four services become available, any appended sign panel shall be removed and replaced with an independently mounted General Service sign as described in this Section.

The following is added to this section:

Support:

Section 2D.45 also applies to freeways and expressways.

Section 2E.52 Rest and Scenic Area Signs

The following is added to this section:

Support:

Sections 2D.42 and 2D.43 also apply to freeways and expressways.

Section 2E.53 Tourist Information and Welcome Center Signs

The following is added to this section:

Tourist Information Signs (CA Codes G81-21 and G81-24)

Option:

The TOURIST INFORMATION (CA Codes G81-21 and G81-24) signs may be placed directing to off-highway facilities.

Standard:

These signed facilities shall have a principal function of providing local tourist information. Those facilities provided by local chamber of commerce (or other official body) representing a group of people or businesses shall be giver initial priority for signing.

Guidance:

The G81-21 or G81-24 (CA Codes) signs should be placed on State highways only where privately-owned off-highway signs would not reasonably provide adequate directions to motorists. These signs should be restricted to those facilities which are spaced no closer than 24 km (15 mi) apart in each direction along any highway. An excessive number of supplemental panels should not be installed with Tourist Information or Welcome Center signs so as not to overload the road user.

Standard:

The TOURIST INFORMATION (CA Codes G81-21 and G81-24) signs shall have a white legend and border on a blue background.

Guidance:

These signs should be placed beneath another primary guide sign.

Option:

If no guide signs are available, the G81-21 or G81-24 (CA Codes) signs may be placed as separate installations.

Guidance:

Facilities should be within 0.8 km (0.5 mi) of the highway and have reasonably direct access from, and return to, the highway.

Facilities should provide lighting, telephone and information on a 24-hour basis and cover the entire area served. Information should include area and regional maps, and 24-hour service information including, but not limited to medical, police, fire, restrooms, auto repair service and fuel. Outside maps and displays must be provided at all manned centers for use during periods when the facility is not manned.

Facilities should have adequate on premise and off right-of-way signing, where necessary, denoting "Tourist Information". Displays should be professionally designed and constructed and provide resistance to fading, chipping and vandalism.

Standard:

If operated only on a seasonal basis, where criteria cannot be met during closed periods, these signs shall be covered or removed.

Guidance:

For freeway or expressway rest area locations that also serve as tourist information centers, the following signing criteria should be used:

A. The locations for the Advance Guide (CA Code G83 Series), Exit Direction (CA Code G85 Series), and Exit Gore (E5-1) signs should meet the General Service signing requirements described in Section 2D.45.
B. The TOURIST INFORMATION (CA Code G81-21 and G81-24) signs should be placed beneath the REST AREA (D5-2) sign or other primary guide sign. If no guide signs are available, they may be placed as a separate installation.
C. The gore sign should contain only the legend REST AREA with the arrow and should not be supplemented with any legend pertaining to the tourist information.

Option:

As an alternative, the Information Symbol (D9-10) sign may be appended to the guide signs for the exit providing access to the tourist information center. As a second alternative, the D9-10 sign may be combined with General Service signing.

California Welcome Center Signs (CA Code SG47 Series)

Option:

The CALIFORNIA WELCOME CENTER (CA Code SG47 Series) signs may be placed directing to a statewide network of visitor information centers as designated by the California Office of Tourism to encourage tourism in California and provide benefits to the State economy.

Standard:

The facilities signed shall have a principal function of providing statewide tourist information. Centers that can be so designated shall include, but not be limited to, centers operated by convention centers and visitor bureaus, chambers of commerce, federal, state or local governments, or private entities.

Designation of an entity as a California Welcome Center shall be based on conditions established by the Office of Tourism through written agreement with the entity.

The SG47 Series (CA Code) signs shall have a yellow welcome center logo, and a white legend and border on a blue background.

Guidance:

The SG47 Series (CA Code) signs should be placed as separate installations with the individual welcome centers being charged directly for the initial and ongoing cost and fees related production, maintenance and permitting of the signs.

Facilities should be within 4.8 km (3 mi) in urban areas and 8.0 km (5 mi) of a State highway and have reasonably direct access from, and return to, the highway.

Standard:

Follow-up signing, if necessary, shall be placed by local jurisdictions before these signs are place on the State highway.

If operated only on a seasonal basis, where criteria cannot be met during closed periods, signs shall be covered or removed as directed by the Office of Tourism.

Option:

The CALIFORNIA WELCOME CENTER X MILES (CA Code SG47A) sign may be placed on the nearest freeway approximately 3.2 km (2 mi), or more as appropriate, in advance of the exit to a California Welcome Center that has been established under the authority of the California Office of Tourism.

The CALIFORNIA WELCOME CENTER NEXT RIGHT (CA Code SG47B) sign may be placed on the nearest freeway, at the appropriate exit to a California Welcome Center that has been established under the authority of the California Office of Tourism.

The CALIFORNIA WELCOME CENTER with Arrow (CA Code SG47C) sign may be placed at a freeway ramp terminal, conventional highway or local road to provide direction to a California Welcome Center that has been established under the authority of the California Office of Tourism.

The CALIFORNIA WELCOME CENTER X MILES with Arrow (CA Code SG47D) sign may be placed at a freeway ramp terminal to provide direction and distance to a California Welcome Center that has been established under the authority of the California Office of Tourism.

Guidance:

The distance on the SG47D (CA Code) sign should be no more than 4.8 km (3 mi) from the State highway.

Support:

The Welcome Center will be charged directly for the initial and ongoing cost and fees related to production, maintenance and permitting of the SG47A, SG47B, SG47C and SG47D (CA Codes) signs.

Section 2E.54 <u>Reference Location Signs and Enhanced Reference Location Signs (D10-4, D10-5)</u>

Option:

In Paragraph 3 (“Except as provided…”), the word “shall” is changed to “may”. See Section 2D.46 for more details.

Standard:

Reference Location signs shall not be in kilometers. No sign shall have a metric unit or message, except per CVC 21351.3. Hence, the reference posts shall not be used in California with metric messages unless specifically allowed per CVC 21351.3.

The following is added to this section:

Support:

Section 2D.46 also applies to freeways and expressways.

Section 2E.55 <u>Miscellaneous Guide Signs</u>

The following is added to this section:

Support:

Section 2D.48 also applies to freeways and expressways.

Section 2E.56 <u>Radio Information Signing</u>

The following is added to this section:

Support:

There are three types of radio information signs:

1. Radio – Weather Information (D12-1)

2. Radio – Traffic Information (D12-1)
3. Radio – Recreational Information (CA Code G81-65)

Standard:

Stations shall broadcast on AM or FM frequencies licensed by the Federal Communications Commission (FCC) for traveler information stations.

Radio – Weather Information (D12-1)

Option:

The D12-1 sign with alternate "Weather" message may be used on rural highways where weather conditions result in driving conditions less than optimum or to inform motorists of road or traffic conditions for highways and public inter-modal transportation facilities.

The criteria for D12-1 sign is as follows:

Standard:

1 Only the numerical indication of the radio frequency shall be used to identify the broadcasting stations.

2 If a station to be considered operates only on a seasonal basis, its signs shall be removed or covered during the off-season.

Guidance:

3 The radio stations should have signal strength to adequately serve 110 km (70 mi) along the roadway.

4 Signs should be spaced according to need, but ordinarily not closer than 50 km (30 mi) apart for each direction of travel.

5 Only radio stations whose signal will be of value to the traveler and who agree to carry the two items below should be identified on this sign:

a. Periodic weather warnings at no more than 15-minute intervals during periods of adverse weather.
b. Road condition information affecting the roadway being traveled, broadcasted once every half-hour when required, to be supplied by an official agency having jurisdiction.

6 The stations to be included on the signs should be selected in cooperation with the association(s) representing major broadcasting stations in the area to provide:

a. Maximum coverage to all motorists on both AM and FM frequencies, and
b. Consideration of 24 hours a day, 7 days a week broadcast capabilities.

Option:

7 A maximum of three frequencies may be shown on each sign.

8 A particular radio frequency may be shown a maximum of twice in one direction along the mainline.

The WHEN FLASHING (CA Code G81-64A) sign may be used with the D12-1 sign when messages are not broadcast full time and to accommodate "real-time" usage.

Guidance:

The G81-64A (CA Code) sign should be placed with flashing yellow beacons, above and on the same posts with the D12-1 sign.

Radio – Traffic Information (D12-1)

Option:

The D12-1 sign with alternate "Traffic" message may be used to inform motorists of broadcasts about traffic conditions for highways and public inter-modal transportation facilities.

Standard:

The radio station shall be operated by the public agency having jurisdiction over the transportation facility. The agency operating the station shall be responsible for monitoring and maintaining the system and changing the message content as situations warrant.

Radio – Recreation Information (CA Code G81-65)

Option:

The G81-65 (CA Code) sign may be used on rural highways to inform travelers of broadcasts about State or federal parks and recreational facilities.

Standard:

The G81-65 (CA Code) sign shall have a white legend and border on a brown background. The sign and sign structure shall be free of extraneous messages or logos, and must stand alone with no external lights or flashing beacons. Only the numerical indication of the radio frequency shall be used to identify a station. No more than three frequencies shall be shown on each sign. Only radio stations whose signal will be of value to the road user and who agree to broadcast in accordance with the items below shall be identified on this sign:

1. **Provides information about State or federal recreational facilities located in rural areas.**
2. **Message content is devoted to public highway purposes.**
3. **Broadcasts operate 24 hours per day and 7 days per week.**
4. **Broadcasts contain no commercial messages.**

For installation of G81-65 (CA Code) sign on State highways, the sign shall be installed by the permittee through the Department of Transportation's encroachment permit process. The costs, conditions of operation, and specific message content shall be clearly specified in the encroachment permit subject to the following terms and conditions:

1. **The permittee is the State or federal agency that owns and/or operates the recreational facility.**
2. **The permittee possesses a valid FCC license to operate the radio station as a traveler information station.**
3. **The permittee is responsible for the accuracy of the message and message content.**
4. **The permittee bears all costs, including but not limited to, FCC approval and licensing; fabrication and installation of signs; and the installation, operation and maintenance of appurtenant radio equipment and facilities.**

Section 2E.57 Carpool and Ridesharing Signing

The following is added to this section:

Option:

The Carpool Information (CA Code SG19) sign may be placed at selected locations for incoming traffic in urban areas.

Guidance:

For freeways and expressways, the SG19 (CA Code) sign locations should be no closer than 16 km (10 mi) apart.

Also refer to Section 2D.41.

Section 2E.59 Preferential Only Lane Signs

The following is added to this section:

Guidance:

The HOV Advance Lane Assignment (CA Code G20-9) sign should be used on a multilane cross street approaching an HOV drop ramp to indicate the proper lane to directly enter the HOV facility from the cross street. The G20-9 (CA Code) sign should be placed far enough in advance of the HOV drop ramp to permit a motorist to get into the proper lane.

The HOV Advance Guide (CA Code G83-3) sign should be used at a freeway off-ramp or freeway to freeway direct connector that can be accessed only from a HOV lane where an auxiliary lane is installed.

Standard:

The HOV EXIT with Arrow (CA Code G84-1) sign shall be used at exit ramp gores on HOV drop ramps to identify the exiting point for High Occupancy Vehicles.

Guidance:

The arrow on the G84-1 (CA Code) sign should be aligned to approximately the angle of departure. As much as possible, the G84-1 (CA Code) sign should be positioned to avoid confusion that the exit may also serve mixed flow traffic.

Standard:

The HOV Exit Direction (CA Code G85-7 and G85-8) signs shall be used for exiting traffic for buffered and barriered HOV facilities and are generally located near the beginning of the egress locations.

Support:

The G85-7 and G85-8 (CA Codes) signs repeat the destination shown on the Supplemental Destination (CA Code G86 Series) signs and are generally located downstream from them.

Standard:

The HOV Exit Direction (CA Code G85-9) sign shall be used at a freeway off-ramp or freeway to freeway direct connector that can be accessed only from an HOV lane.

Guidance:

The HOV Supplemental Destination (CA Code G86-8 and G86-9) signs should be used to give advance notice of egress locations for buffered and barriered HOV facilities and are located upstream from the HOV Exit Direction (CA Code G85-7, G85-8 and G85-9) signs.

The HOV Supplemental Destination (CA Code G86-10) sign should be used in advance of an HOV drop ramp that can be accessed only from an HOV lane.

Standard:

The CARPOOL LANE ENTRANCE (CA Code G92-1) sign shall be used at the entrance to an HOV drop ramp. The G92-1 (CA Code) sign is similar to the FREEWAY ENTRANCE (CA Code G92) sign and shall be installed similarly. Refer to Section 2E.50.

Section 2E.101 <u>Extinguishable Message Signs</u>

Support:

Extinguishable message signs are designed to have one or more messages that can be displayed or deleted as required. Such a sign can be changed manually, by remote control, or by automatic controls that can "sense" the conditions that require special sign messages.

It is recognized that due to technological limitations, many extinguishable message signs cannot conform to the exact sign shape, color, and dimensions specified in these standards. Nevertheless, it is essential that extinguishable message signs ascribe to the principles established in this Supplement, and to the extent practicable, with the design and applications prescribed herein.

CHAPTER 2F. SPECIFIC SERVICE SIGNS

Section 2F.01 Eligibility

Standard:

All references to the "attraction" services in this section (Paragraph 1, Paragraph 6 and Paragraph 9 sub-heading E) are deleted and shall not be applicable in California. 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.

In Paragraph 2 ("The use of…"), the word "should" is changed to "shall". Refer California Streets and Highways Code, Division 1, Chapter 1, Article 3, Section 101.7.

Paragraph 3 ("Where an engineering study…") is deleted and shall not be applicable in California. California Streets and Highways Code, Division 1, Chapter 1, Article 3, Section 101.7 includes the use of specific service signs for freeways only.

In Paragraph 4 ("Specific service signs…"), the word "should" is changed to "shall". Refer California Code of Regulations, Title 21, Division 2, Chapter 19, Section 2108(d).

Paragraphs 7 ("Distance to eligible…") and 8 ("If, within the…") are deleted for application and shall not be used in California.

Throughout this section, the word "Gas" is changed to "Fuel". In California, the generic term FUEL is used for GAS.

The following is added to this section:

Support:

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:

A qualified specific service shall meet the following minimum criteria:

1. Fuel

The business:

A. Shall be located not more than 1.6 km (1 mi) 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 Department of Transportation approved symbol for diesel, or the letters "LPG" for liquid propane fuel, or any other word or symbol that has been approved by the Department of Transportation 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 4.8 km (3 mi) 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 0.8 km (0 to 0.5 mi), inclusive**	**assign 3 points**
b.	**Over 0.8 to 1.6 km (0.5 to 1.0 mi), inclusive**	**assign 2 points**
c.	**Over 1.6 to 4.8 km (1.0 to 3.0 mi), 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.

a. 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 16 km (10 mi)**	**assign 3 points**
b.	**Over 4.8 to 16 km (3 to 10 mi), inclusive**	**assign 2 points**
c.	**1.6 to 4.8 km (1 to 3 mi), inclusive**	**assign 1 point**
d.	**Less than 1.6 km (1 mi)**	**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 4.8 km (3 mi) 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 0.8 km (0 to 0.5 mi), inclusive**	**assign 3 points**
b.	**Over 0.8 to 1.6 km (0.5 to 1.0 mi), inclusive**	**assign 2 points**
c.	**Over 1.6 to 4.8 km (1.0 to 3.0 mi), 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 16 km (10 mi)**	**assign 3 points**
b.	**Over 4.8 to 16 km (3 to 10 mi), inclusive**	**assign 2 points**
c.	**1.6 to 4.8 km (1 to 3 mi), inclusive**	**assign 1 point**
d.	**Less than 1.6 km (1 mi)**	**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 4.8 km (3 mi) 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 the Department has received proper notification together with a request to cover or remove all Logo Panels fastened to the Specific Service Signs.

5. "Fuel", "Food", "Lodging" and "Camping"

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.

6. Equal Access

A. The order of priority for granting permits to "LODGING" 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 0.8 km (0 to 0.5 mi), inclusive**	**assign 3 points**
b.	**Over 0.8 to 1.6 km (0.5 to 1.0 mi), inclusive**	**assign 2 points**
c.	**Over 1.6 to 4.8 km (1.0 to 3.0 mi), 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 2F.02 Application

Standard:

All references to the "attraction" services in this section (Paragraph 1, Paragraph 6 and Paragraph 9 sub-heading E) are deleted and shall not be applicable in California. 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.

Throughout this section, the word "Gas" is changed to "Fuel". In California, the generic term FUEL is used for GAS.

In Paragraph 2 ("A Specific Service sign…"), the second sentence ("No more than…") and the third sentence ("If three types…") are deleted and replaced with the following:

No more than two types of services shall be represented on any sign or sign assembly. If two types of services are shown on one sign, then the logo panels shall be limited to three for each service (for a total of six logo panels). Refer California Code of Regulations, Title 21, Division 2, Chapter 19, Section 2110(f).

Paragraph 4 ("GAS, FOOD…") is deleted and shall not be applicable in California. California Streets and Highways Code, Division 1, Chapter 1, Article 3, Section 101.7 includes the use of specific service signs for freeways only.

Section 2F.03 Logos and Logo Panels

Standard:

Throughout this section, the word "Gas" is changed to "Fuel". In California, the generic term FUEL is used for GAS.

Section 2F.04 Number and Size of Logos and Signs

Standard:

In Paragraph 2 ("Each Specific Service sign…") the second sentence ("There shall be…") is deleted and replaced with the following:

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).

In Paragraph 4 ("Each logo panel…"), reference to expressways and conventional roads is deleted and shall not be applicable in California. 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 following is added to this section:

Standard:

A logo panel on signs for the mainline shall be 1200 mm (48 in) in width and 900 mm (36 in) in height.

A logo panel on signs for the ramps shall be 450 mm (18 in) in width and 300 mm (12 in) in height.

Section 2F.05 Size of Lettering

Standard:

In Paragraph 1 ("All letters and…"), reference to expressways and conventional roads is deleted and shall not be applicable in California. California Streets and Highways Code, Division 1, Chapter 1, Article 3, Section 101.7 includes the use of specific service signs for freeways only.

Section 2F.06 Signs at Interchanges

The following is added to this section:

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 0.4 km (0.25 mi) in advance of the gore of the approaching interchange with at least 240 m (800-ft) 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 the Department of Transportation, 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 2F.07 Single-Exit Interchanges

Standard:

Paragraph 1 ("At single-exit…") is deleted for application and shall not be used in California.

The following is added to this section:

Standard:

The Single-Exit Interchange (One Service) Mainline sign (CA Code SG42-1) 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.

The Single-Exit Interchange (One Service) Mainline sign (CA Code SG42-2) 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.

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 and SG42-2 (CA Codes) signs.

Option:

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 and SG42-2 (CA Codes) signs.

Standard:

The Single-Exit Interchange (Two Services) Mainline sign (CA Code SG42-6) 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.

The Single-Exit Interchange (Two Services) Mainline sign (CA Code SG42-7) 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.

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 and SG42-7 (CA Code) signs.

Option:

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 and SG42-7 signs.

Standard:

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

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:

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 Code) sign.

Standard:

The Single-Exit Interchange (One Service) Mainline sign (CA Code SG42-10) 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.

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 Code) sign.

Option:

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 Code) sign.

Section 2F.08 Double-Exit Interchanges

The following is added to this section:

Standard:

The Double-Exit Interchange Mainline sign (CA Code SG42-3) 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 Code) sign.

Option:

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 Code) sign.

Standard:

The Double-Exit Interchange Mainline sign (CA Code SG42-11) 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 Code) sign.

Option:

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 Code) sign.

Section 2F.09 Signs at Intersections

Standard:

This section is deleted for application and shall not be used in California. 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 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 2F.10 Signing Policy

The following is added to this section:

Support:

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.

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 (CA Code SG42 Series) signs shall be installed in a geographic area with a population over 5,000 as identified on maps prepared by the Department of Transportation 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 2F.101 Signs at Ramps (CA Codes SG42-4, 42-5, 42-8 and 42-12)

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 2F.07 and 2F.08). As viewed in the direction of travel, the successive signs shall be those for "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.

The Department of Transportation 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 the Department along other public highways as necessary to adequately direct motorists 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 (CA Code SG42-4) 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 (CA Code SG42-5) 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 (CA Code SG42-12) 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.

Standard:

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 (CA Code SG42-8) 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.

CHAPTER 2G. TOURIST-ORIENTED DIRECTIONAL SIGNS

Section 2G.01 Purpose and Application
Standard:

Paragraph 5 ("Where both…") is deleted. The tourist-oriented information and specific service information signs shall be separate installations. Refer to California Streets and Highways Code, Division 1, Chapter 1.5, Article 3, Section 229.285.

The following is added to this section:

Support:

Refer to California Streets and Highways Code, Division 1, Chapter 1.5 for administration, standards, eligibility, and fees concerning the tourist-oriented directional signs. See Section 1A.11 for information regarding these publications.

Section 2G.02 Design
Standard:

Paragraphs 4 ("The tourist-oriented…") and 5 ("The TOURIST ACTIVITIES…") are deleted. The TOURIST ACTIVITIES word message unnecessarily increases the height of the sign.

Paragraph 7 ("Logos for specific…") is deleted. The tourist-oriented information and specific service information signs shall be separate installations. Refer to California Streets and Highways Code, Division 1, Chapter 1.5, Article 3, Section 229.285.

MUTCD Figures 2G-1 and 2G-2 are deleted. Figure 2G-1 (CA) shall be used instead.

Section 2G.04 Arrangement and Size of Signs
Standard:

This section is deleted. Figure 2G-1 (CA) and Department of Transportation's "Traffic Sign Specifications" for Tourist Oriented Directional (CA Codes SG44-1 and SG44-2) signs shall be used for arrangement and size of tourist-oriented directional signs. A single sign arrangement is used in California for tourist-oriented directional signs.

MUTCD Figures 2G-1 and 2G-2 are deleted. Figure 2G-1 (CA) shall be used instead.

Section 2G.05 Advance Signs
Standard:

This section is deleted. Advance signs are not used in California for tourist-oriented directional signs.

Section 2G.06 Sign Locations
Standard:

Paragraph 2 ("If used, advance…") is deleted. Advance signs are not used in California for tourist-oriented directional signs.

Section 2G.07 State Policy

The following is added to this section:

Option:

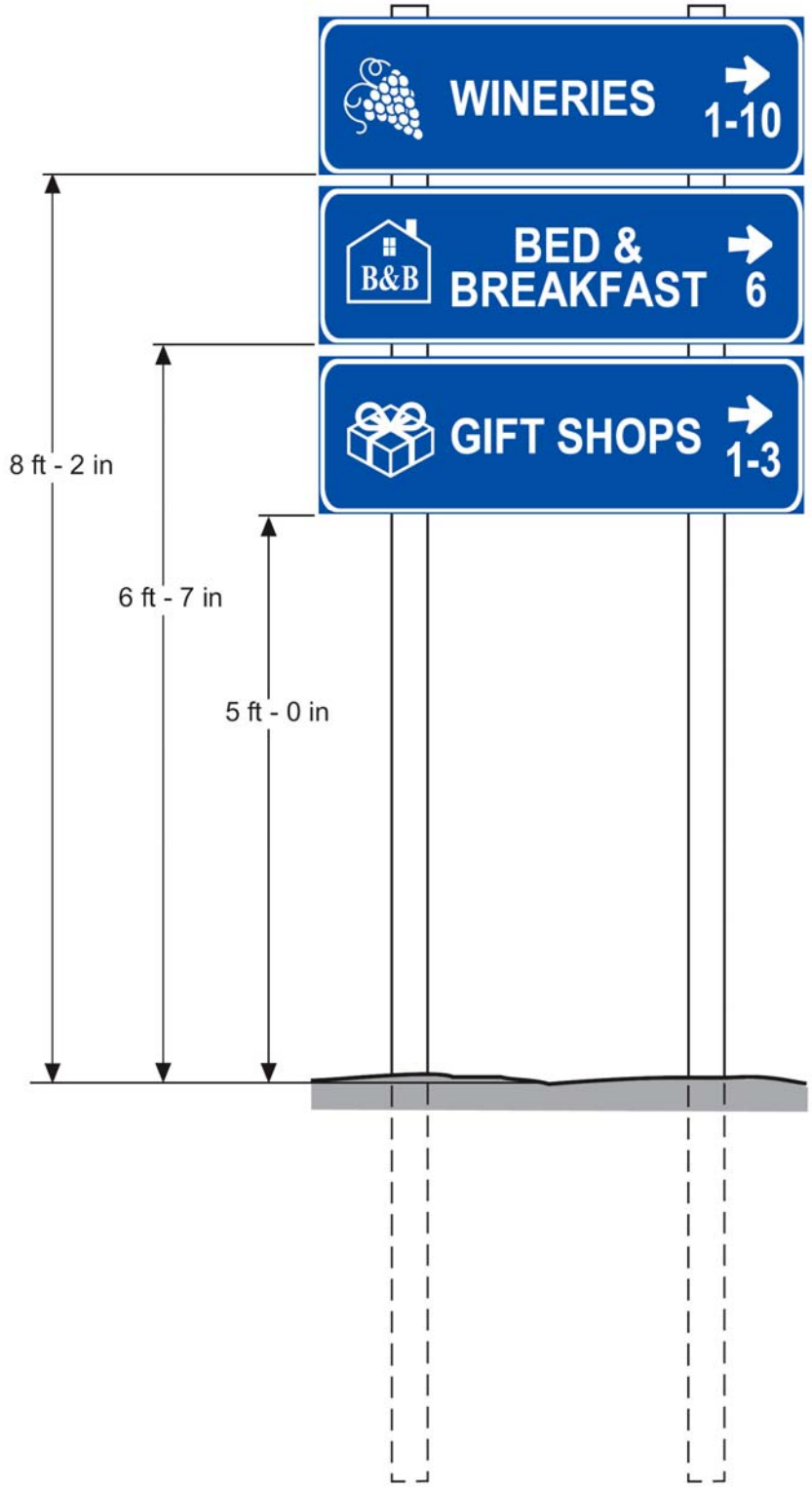
The Tourist Oriented Directional (CA Codes SG44-1 and SG44-2) signs may be placed at qualifying conventional rural highway intersections.

Support:

These qualifying intersections are described in Chapter 1.5 of the Streets and Highways Code.

Refer to California Streets and Highways Code, Division 1, Chapter 1.5 for administration, standards, eligibility, and fees concerning the tourist-oriented directional signs. See Section 1A.11 for information regarding these publications.

Figure 2G-1 (CA). Example of Tourist-Oriented Directional Signs



CHAPTER 2H. RECREATIONAL AND CULTURAL INTEREST AREA SIGNS

Section 2H.02 Application of Recreational and Cultural Interest Area Signs

The following is added to this section:

Support:

The recreational and cultural interest area signs are supplemental signs and are subject to the same spacing and number of messages limitations set forth in Chapters 2A, 2D and 2E. Under these limitations, the supplemental destination, recreational and cultural interest area signs compete for signing on the basis of traffic service.

Guidance:

Recreational area signs to National Parks and State Parks should normally include the name of the area. County and City Park signs should not normally include the name.

Option:

Recreational area signs may be placed for the following facilities:

- National Parks or Monuments.
- State Parks, when located within 8 km (5 mi) of the highway.
- County Parks, when located within 4.8 km (3 mi) of the highway.
- In urban areas, City Parks within 1.6 km (1 mi) may be signed from conventional highways. Normally, City Parks will not be signed to from metropolitan freeways.
- Campgrounds in National Forests or State Parks may be signed from conventional highways when the entrances are located on the highway. An advance sign reading "Campground 1/4 mile" may be placed. Signs at the immediate entrance will be placed by the agency having jurisdiction over the campground.
- Major rural recreational areas may be signed by name. When a recreational area is served by more than a single exit, the appropriate colored NEXT X EXITS (E9) sign may be used. Normally, the sign will include the name of the area and the text "RECREATIONAL AREA".
- In rural recreational areas, guide signs may be supplemented with white on brown symbol signs mounted below indicating recreational facilities available to the motorists.

Guidance:

On State highways, signs to major rural recreational areas that include a jurisdictional logo or are unique in shape should be placed under an encroachment permit from the Department of Transportation.

Standard:

Placement of these signs to major rural recreational areas shall be by the jurisdiction or agency making the request through the normal permit process as a fee exempt permit.

These signs shall be installed in accordance with the Department of Transportation's Standard Plans publication. See Section 1A.11 for more information regarding this publication.

Guidance:

These signs to major rural recreational areas should be limited to areas where they do not block or interfere with other signs necessary for safe and efficient operation of the highway. The sign panels should be clearly marked as to the ownership.

Standard:

The use of the following symbol signs shall conform to the warrants shown here and in Section 2D.45:

General Information

Option:

The Automobile (RG-010) sign indicates that automobiles may use the signed facility within a recreation area.

Standard:

The RG-010 sign shall not be used on State highways.

Option:

The Dam (RG-030) sign may be used to indicate dams, located within 1.6 km (1 mi) of the highway, that have recreational activities with parking, water access, power plant tours and picnicking, which do not meet warrants for other recreational symbols.

The Deer Viewing Area (RG-040) sign may be placed to indicate an area which is determined by the Department of Fish and Game to be particularly well suited for viewing deer and other wild life. This area should have adequate parking and be within 1.6 km (1 mi) of the highway, via a well-maintained road.

The Drinking Water (RG-050) sign may be used to indicate free public drinking water within 0.4 km (0.25 mi) of the highway where no other publicly accessible drinking water is available within 16 km (10 mi).

The Fish Hatchery (RG-090) sign may be used to indicate publicly administered hatcheries that are within 4.8 km (3 mi) of the highway and open for visitors at least 8 hours per day, 180 days per year.

The Information (RG-100) sign may be used to indicate publicly operated informational facilities that are located within 1.6 km (1 mi) of the highway and open all year.

The Lighthouse (RG-120) sign may be used for lighthouse facilities that are within 4.8 km (3 mi) of the highway and open for visitors at least 8 hours per day, 180 days per year.

The Lookout Tower (RG-140) sign may be used for lookout facilities that are publicly owned, within 4.8 km (mi) of the highway, and open for visitors at least 8 hours per day, 180 days per year.

Standard:

Follow up signs to the RG-140 sign, where required, shall be installed by the local authority having jurisdiction in the area.

Option:

The Ranger Station (RG-170) sign may be used for public agency ranger stations that are within 1.6 km (1 mi) of the highway and open all year.

The Truck (RG-190) sign indicates that trucks may use the signed facility within a recreation area.

Standard:

The RG-190 sign shall not be used on State highways.

Option:

The Wildlife Viewing (CA Code G200-81) sign may be used to direct motorists to the Wildlife Viewing Areas as published in the California Watchable Viewing Guide.

Standard:

The WILDLIFE VIEWING (CA Code G200-81A) sign shall be placed below the Wildlife Viewing (CA Code G200-81) sign.

Option:

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

Guidance:

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

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

Option:

The El Camino Real Adopt-A-Highway (CA Code S16-8) sign may be placed to acknowledge the contribution made toward the repair, restoration and maintenance of new mission bell markers. The Adopt-A-Highway guidelines in Section 2D.48 will apply.

Motorist Services

Option:

The Camping (Tent) (RM-010) sign may be used for campsite facilities, either public or private, located within 4.8 km (3 mi) of the highway.

Standard:

For the use of RM-010 sign, a minimum of 15 campsites shall be provided. Water and sanitary facilities shall be available, but not necessarily at each individual campsite.

Option:

The Camping (Trailer) (RM-020) sign may be used to indicate trailer site facilities within a public recreation area, located within 4.8 km (3 mi) of the highway.

Standard:

For the use of RM-010 sign, a minimum of 15 trailer sites shall be provided. Water and sanitary facilities shall be available.

Option:

The Ferry (RM-030) sign may be used to indicate recreational ferry operations within 3.2 km (2 mi) of the highway.

The Food Service (RM-050) sign may be used to sign for food service facilities in public recreation areas which meet the criteria for food (D9-8) signs in Section 2D.45. On State highways, only the D9-8 sign is used, where appropriate, to sign for food service facilities.

The Gas (RM-060) sign may be used to indicate fuel stations in public recreation areas, which meet the criteria for Gas (D9-7) signs in Section 2D.45. On State highways, only the D9-7 sign may be used where appropriate.

The Grocery Store (RM-070) sign may be used within public recreation areas for facilities within 1.6 km (1 mi) of the highway that provide standard grocery items such as eggs, bread, milk and fruit, provided there are no other similar facilities within 16 km (10 mi).

Standard:

For the use of RM-070 sign, services shall be available at least 12 hours per day.

Option:

The Handicapped (RM-080) sign may be used in public recreation areas where paved ramps and rest room facilities accessible to, and usable by, the physically handicapped are provided. On State highways and at other State facilities, only the International Symbol of Accessibility for the Handicapped (D9-6) sign is to be used.

The Lodging (RM-090) sign may be used to indicate lodging facilities in public recreation areas, which meet the criteria for lodging (D9-9) signs in Section 2D.45. On State highways, only the D9-9 sign is used, where appropriate, to sign to lodging facilities.

The Mechanic (RM-100) sign may be used to indicate facilities in public recreation areas with automotive repair capability.

Standard:

The RM-100 sign shall not be used on State highways.

Option:

The Picnic Area (RM-120) sign may be used for picnic areas, either public or private, located within 1.6 km (1 mi) of the highway.

Standard:

For the use of RM-120 sign, a minimum of 10 sites with tables shall be provided. Water and sanitary facilities shall be available.

Option:

The Rest Room (RM-140) sign may be used to indicate free public access to a restroom within 0.4 km (0.25 mi) of the highway where no other publicly accessible restroom is available within 16 km (10 mi).

The Telephone (RM-150) sign may be used within public recreation areas where a public telephone is available 24 hours a day and it is located in a remote area where it is not expected. On State highways, only the Telephone (D9-1) sign is used, where appropriate, to indicate the availability of a telephone.

The Trailer Sanitary Station (RM-160) sign may be used to indicate dump stations where recreational vehicles may dispose of their holding tank waste.

Standard:

For the use of RM-160 sign, the station shall be located within a public recreation area and within 1.6 km (1 mi) of the highway.

Option:

The Viewing Area (RM-170) sign may be used to direct motorists to public recreation area sites, located within 0.4 km (0.25 mi) of the highway, which have significant views.

Guidance:

For the use of RM-170 sign, the sites should have adequate parking and well maintained access. On freeways, the VISTA POINT (D5-2) sign should be used where appropriate. Refer to Section 2D.43.

Accommodation Services

Option:

The Airport (RA-010) sign may be used in public recreation areas to direct motorist to airports, which meet the criteria, specified for Airport (I-5) signs. Only the I-5 and Conventional Airport (CA Code G94-1) signs may be used on State highways to indicate nearby airports.

The Parking (RA-080) sign may be used to indicate public parking facilities less than 0.4 km (0.25 mi) from a highway in recreation areas.

Guidance:

Use of RA-080 signs should be restricted to locations outside of urbanized zones, where the Parking Area (D4-1) sign is inappropriate.

Land Recreation

Option:

The Amphitheater (RL-010) sign may be used to identify an amphitheater facility within 1.6 km (1 mi) of the highway.

The Playground (RL-050) sign may be used to identify playgrounds within a recreation area and not more than 1.6 km (1 mi) from the highway.

The Trail (Bicycle) (RL-090) sign may be used for identifying bicycle trails located within public recreation areas.

Guidance:

On State highways, the Bike Lane (CA Code R81) or the Bike Route (D11-1) signs should be used instead of the RL-090 sign.

Option:

The Trail (Hiking) (RL-100) sign may be used for marked and maintained hiking trails.

Standard:

For the use of RL-100 sign, the trailhead shall be within 1.6 km of the highway, with sufficient parking to accommodate normal demand.

Option:

The Trail (Horse) (RL-110) sign may be used for identifying horse trails located within public recreation areas.

Guidance:

For the use of RL-110 sign, the trailhead should be within 4.8 km (3 mi) of the highway.

Option:

The Trail (Recreational Vehicle) (RL-140) sign may be used to identify recreation vehicle trails located within public recreation areas.

Guidance:

For the use of RL-140 sign, the trailhead should be 4.8 km (3 mi) or less from the highway. For this application, the term "recreation vehicle" is synonymous with "off highway vehicle" (OHV), which includes

vehicles with two or more wheels. The OHV TRAIL (CA Code S12) sign should be used at points where off-highway vehicle trails intersect highways.

Option:

The Trail (Trail Bike) (RL-150) sign may be used to identify trail bike trails located within public recreation areas.

Guidance:

For the use of RL-150 sign, the trailhead should be 4.8 km (3 mi) or less from the highway. The OHV TRAIL (CA Code S12) sign should be used where the trail intersects the highway.

Option:

The Tramway (RL-160) sign may be used to identify recreational tramways or gondolas that provide year-round service and are located within 8 km (5 mi) of the highway.

The Golf Course (CA Code G200-80) sign may be used to identify a 9 hole or more golf course within 4.8 km (3 mi) on a conventional highway which does not have its main entrance adjacent to the highway. The G200-80 (CA Code) signs may be installed under permit by local agencies only.

Standard:

The G200-80 (CA Code) signs shall not be used at driving ranges or miniature golf courses.

Option:

The OHV TRAIL (CA Code S12) sign may be used to direct off highway vehicle operators to the location of a OHV trail. The S12 (CA Code) sign may be supplemented by a white on brown Directional Arrow Auxiliary (M6 Series) sign.

Water Recreation

Option:

The Canoeing (RW-020) sign may be used to indicate where canoeing facilities and services are available within 4.8 km (3 mi) of the highway.

The Diving (RW-030) sign may be used to indicate a diving facility within a recreational area.

The Diving (Scuba) (RW-040) sign may be used to indicate areas suitable for scuba diving within 4.8 km (3 mi) of the highway.

The Fishing (RW-050) sign may be used to indicate a fishing area, either public or private, within 4.8 km (3 mi) of the highway.

The Marina (RW-060) sign may be used to indicate an area where boats can be anchored and serviced within 4.8 km (3 mi) of the highway.

The Motorboating (RW-070) sign may be used to indicate areas where motorboating facilities and services are available within 4.8 km (3 mi) of the highway.

The Ramp (Launch) (RW-080) sign may be used to indicate boat launching facilities, either public or private, located within 4.8 km (3 mi) of the highway.

The Rowboating (RW-090) sign may be used to indicate areas where Rowboating facilities and services are available within 4.8 km (3 mi) of the highway.

The Sailboating (RW-100) sign may be used to indicate areas where Sailboating facilities and services are available within 4.8 km (3 mi) of the highway.

The Skiing (Water) (RW-110) sign may be used to indicate areas where water-skiing facilities and services are available within 4.8 km (3 mi) of the highway.

The Surfing (RW-120) sign may be used to indicate areas suitable for surfing within 4.8 km (3 mi) of the highway.

Guidance:

For the use of RW-120 sign, adequate parking should also be available.

Option:

The Swimming (RW-130) sign may be used to indicate a swimming facility within a recreational area.

Winter Recreation

Option:

The Skating (Ice) (RS-010) sign may be used to indicate ice skating facilities within 8 km (5 mi) of the highway.

The Ski Jumping (RS-020) sign may be used to indicate ski jumping facilities within 8 km (5 mi) of the highway.

The Skiing (Bobbing) (RS-030) sign may be used to indicate ski bobbing facilities within 1.6 km (1 mi) of the highway.

Guidance:

For the use of RS-030 sign, there should be sufficient parking to accommodate normal demand.

Option:

The Skiing (Cross Country) (RS-040) sign may be used to indicate cross country skiing facilities within 1.6 km (1 mi) of the highway.

Guidance:

For the use of RS-040 sign, there should be sufficient parking to accommodate normal demand.

Option:

The Skiing (Downhill) (RS-050) sign may be used to indicate down hill skiing facilities located within 8 km (5 mi) of the highway.

The Sledding (RS-060) sign may be used to indicate sledding facilities within 1.6 km (1 mi) of the highway.

Guidance:

For the use of RS-060 sign, there should be sufficient parking to accommodate normal demand.

Option:

The Snowmobiling (RS-070) sign may be used to indicate Snowmobiling facilities within 1.6 km (1 mi) of the highway.

Guidance:

For the use of RS-070 sign, there should be a paved loading area at any such facility which is at least 6 m (20 ft) wide (measured perpendicular to the traveled way) and sufficient parking to accommodate normal demand. Parking spaces should be sized for vehicles with small trailers.

Option:

The Snowshoeing (RS-080) sign may be used to indicate an area within 1.6 km (1 mi) of the highway where special facilities or services are available for Snowshoeing.

Guidance:

For the use of RS-080 sign, there should be sufficient parking to accommodate normal demand.

Option:

The Winter Recreation Area (RS-090) sign may be used to indicate a winter recreation area within 1.6 km (1 mi) of the highway when other recreation symbols are not appropriate.

Guidance:

For the use of RS-090 sign, there should be sufficient parking to accommodate normal demand.

Sno-Park Signs

Option:

Only those specific parking areas designated by the Department of Parks and Recreation may be signed as Sno-Park parking areas. Parking is by permit only.

The SNO-PARK X MILE (CA Code SG30) sign may be used on expressways or conventional highways to give advance notice of a snow plowed parking area. The SNO-PARK with Arrow (CA Code SG32) sign may be used on expressways or conventional highways in advance of a turn off to a snow plowed parking area.

The SNO-PARK NEXT RIGHT (CA Code SG31) sign may be used on freeways to give advance notice of an exit to a snow plowed parking area. The SNO-PARK (CA Code SG34) sign may be placed below an

existing Advance Guide (CA Code G83 Series) or Supplemental Destination (CA Code G86 Series) sign on freeways to indicate an exit to a snow plowed parking area.

Standard:

If the SG31 or SG34 (CA Codes) sign is used, a SNO-PARK with Arrow (CA Code SG33) sign shall be placed at the ramp terminal.

Guidance:

If used, the PERMIT REQUIRED (CA Code SG35) sign should be placed below the SG30 or SG31 (CA Codes) sign and the PERMIT REQUIRED NOV 1 TO MAY 30 (CA Code SG35-1) sign should be placed below the SG32 or SG33 (CA Codes) sign. Placement should be under the sign, which is nearest to the Sno-Park entrance.

Between November 1 and May 30, during periods when snow is not available for recreational activities, the SG35 and SG35-1 (CA Codes) signs should be covered.

Standard:

At the end of the Sno-Park season, May 30, the SG35 and SG35-1 (CA Codes) signs shall be covered or removed.

Section 2H.08 Placement of Recreational and Cultural Interest Area Symbol Signs

The following is added to this section:

Guidance:

The symbol signs should be placed below the first advance ground-mounted directional sign.

Section 2H.09 Destination Guide Signs

The following is added to this section:

Option:

The Historic District Supplemental Destination (CA Code G86-11) signs may be placed directing traffic to a commercial or residential area that is of historic significance to a community and is recognized as such in the National Register of Historic Places.

Standard:

For a Historic District to be signed from a State highway, its boundaries shall be within 4.8 km (3 mi) of the highway. Only one sign, for each direction shall be allowed and it will be from the nearest State highway. The type of sign, whether it is a supplemental plate under an existing Supplemental Destination (CA Code G86 Series) sign or a stand alone sign shall be determined by the Department of Transportation. Any follow-up signs, if needed, shall be in place before the highway signs are installed.

The requesting local agency's shall be responsible for consulting with the Department of Parks and Recreation, Office of Historic Preservation to verify the Historic District's official name and to insure there are no conflicts with existing historic landmarks or points of historical interest signs which may already be in place.

When the above requirements are met, the requesting agency shall adopt a resolution, requesting Department of Transportation to place the signs. The cost of these signs, and their installation shall be the responsibility of the requesting agency.

Section 2H.101 Historical Landmark Signs (CA Code G13-1, G13-2 and G14)

Standard:

The Historical Landmark (CA Code G13-1 and G13-2) signs and the Advance Historical Landmark (CA Code G14) sign shall have a brown legend and border on a cream colored background.

Option:

The G13-1, G13-2 and G14 (CA Codes) signs may be in addition to the normal compliment of signs, but minimum spacing will be maintained.

The G13-1, G13-2 and G14 (CA Codes) signs may be placed directing to Historical Landmarks that are registered with the Department of Parks and Recreation.

Standard:

On freeways, the G13-1, G13-2 and G14 (CA Codes) signs shall be limited to those more important and better known landmarks where some physical evidence remains, such as missions, forts, state monuments, etc., rather than mere sites of former buildings or happenings.

The Office of Historic Preservation within the Department of Parks and Recreation (or the Resource Protection Division in the case of State Historic Park sites) shall be notified prior to the removal of existing G13-1, G13-2 and G14 (CA Codes) signs.

Guidance:

The Historical Landmark (CA Code G13-1) sign should be used on conventional highways to guide motorist by the most direct route to registered historical landmarks which are located within 8 km (5 mi) of the highway. The sign should be placed not more than 45 m (150 ft) in advance of the intersection on the right.

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

Option:

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

Standard:

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

Guidance:

The Advance Historical Landmark (CA Code G14) sign should be used in advance of a registered historical landmark monument or plaque within or adjacent to the right of way. The sign should be placed 150 to 450 m (500 to 1500 ft) in advance of the landmark or monument on the right, depending on the approach speed of traffic.

Section 2H.102 <u>POINT OF HISTORICAL INTEREST Sign (CA Code G15)</u>

Standard:

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

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

Option:

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

Support:

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

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

Guidance:

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

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

Option:

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

Support:

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

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

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

Guidance:

Suggested placement should be staggered in each direction at approximately 16 km (10 mi) intervals on conventional highways and 40 km (25 mi) intervals on freeways for the S18 and S25 (CA Codes) signs.

Section 2H.104 Historic Bridge Signs (CA Codes S29, S29-1 and S29-2)

Guidance:

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

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

Support:

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

CHAPTER 2I. EMERGENCY MANAGEMENT SIGNING

Support:

No Comments.

This MUTCD Chapter is adopted as is for California.

MUTCD 2003
CALIFORNIA SUPPLEMENT

May 20, 2004

PART 3
MARKINGS

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

PART 3. MARKINGS

TABLE OF CONTENTS

TABLES

CHAPTER 3A. GENERAL

Section 3A.02 Standardization of Application

The following is added to this section:

Standard:

All longitudinal pavement markings shall be retroreflective except non-reflective pavement markers and directional markings for tourists. Refer to CVC 21374.

Guidance:

If used, the masking tape should match the pavement surface color and not provide undue contrast.

Support:

Use of black tape for temporary "masking" is effective for new Asphalt Concrete pavement. However, for faded Asphalt Concrete pavement or Portland Cement Concrete pavements, black "masking" pavement markings could appear as a stripe in low light conditions and result in confusion to road users.

Section 3A.04 Colors

Standard:

Paragraph 1 ("Markings shall be…"), the first sentence is deleted and replaced with the following:

Markings shall be yellow, white, red, blue, or green

The following is added to this section:

Standard:

The color of curb markings shall conform to CVC 21458. Refer to CVC 21374 for exceptions.

A 75 mm (3 in) black line shall be placed between the 100 mm (4 in) wide yellow lines on State highways.

Option:

A 75 mm (3 in) black line may be placed between the 100 mm (4 in) wide yellow lines on streets and highways under local jurisdiction.

Support:

Red pavement markers are used to alert possible wrong way drivers on freeways as shown in Figure 3A-101, Detail 14.

Section 3A.05 Widths and Patterns of Longitudinal Pavement Markings

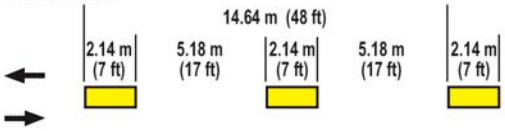
Standard:

The widths and patterns of longitudinal lines shall conform to the details shown in Figures 3A-101 through 3A-112.

Figure 3A-101. Centerlines - 2 Lane Highways

FOR SPEEDS 65 km/h (40 mph) OR LESS

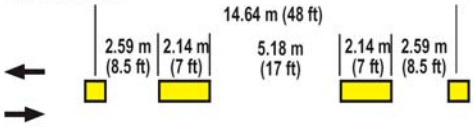
DETAIL 1



POLICY

Centerline pattern for use on two-lane streets and highways (normally used on local streets and highways).

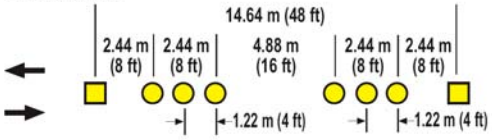
DETAIL 2



Centerline pattern with pavement markers for use on two-lane streets and highways.

DETAIL 3
(Deleted)

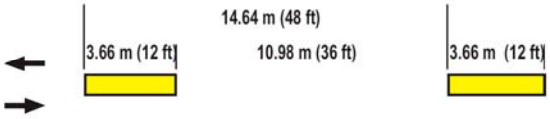
DETAIL 4



Alternate to Detail 2. For use at problem locations where it is difficult to place and maintain centerline because of moisture, sand, etc.

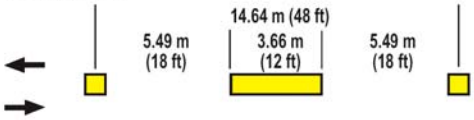
FOR SPEEDS 70 km/h (45 mph) OR MORE

DETAIL 5



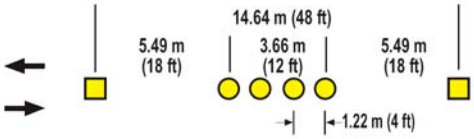
Centerline pattern for use on two-lane streets and highways (normally used on local streets and highways).

DETAIL 6



Centerline pattern with pavement markers for use on two-lane streets and highways.

DETAIL 7



Alternate to Detail 6. For use at problem locations where it is difficult to place and maintain centerline because of moisture, sand, etc.

LEGEND

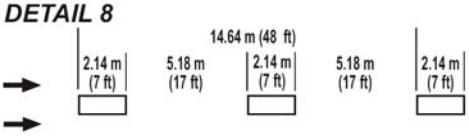
100 mm (4 in) Yellow
Two-Way Yellow Retroreflective Markers
Direction of Travel
Non-Retroreflective Yellow Markers

NOT TO SCALE

Figure 3A-102. Lane Lines - Multilane Highways

FOR SPEEDS 65 km/h (40 mph) OR LESS

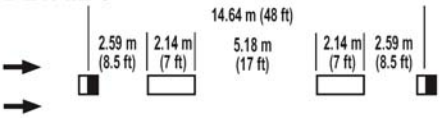
DETAIL 8



POLICY

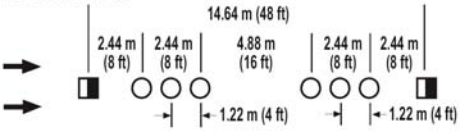
Lane Line pattern for use on multilane streets and highways (normally used on local streets and highways).

DETAIL 9



Lane Line pattern with pavement markers for use on multilane streets, highways and freeway ramps.

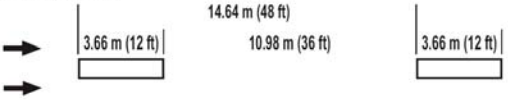
DETAIL 10



Lane Line pattern with pavement markers for use on multilane streets, highways and freeway ramps.

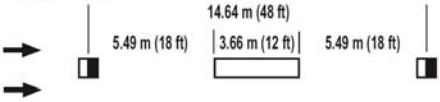
FOR SPEEDS 70 km/h (45 mph) OR MORE

DETAIL 11



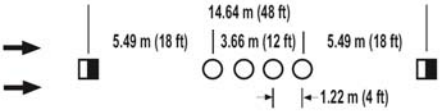
Lane Line pattern for use on multilane streets and highways (normally used on local streets and highways).

DETAIL 12



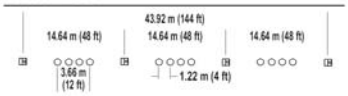
Lane Line pattern with pavement markers for use on multilane conventional streets and highways, State freeways, expressways, freeway ramps, freeway to freeway connectors and collector roads. See Detail 14A.

DETAIL 13

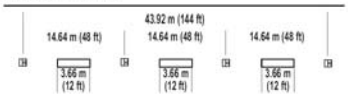


Lane Line pattern with pavement markers for use on State freeways, expressways, freeway ramps, freeway to freeway connectors and collector roads. See Detail 14.

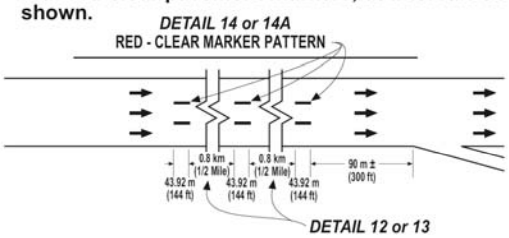
DETAIL 14



DETAIL 14A



Lane Line pattern with red-clear pavement markers shall be used on freeways approaching exit ramps. Detail 14 is used with Detail 13 and Detail 14A is used with Detail 12, in a pattern of four red-clear pavement markers, at intervals as shown.

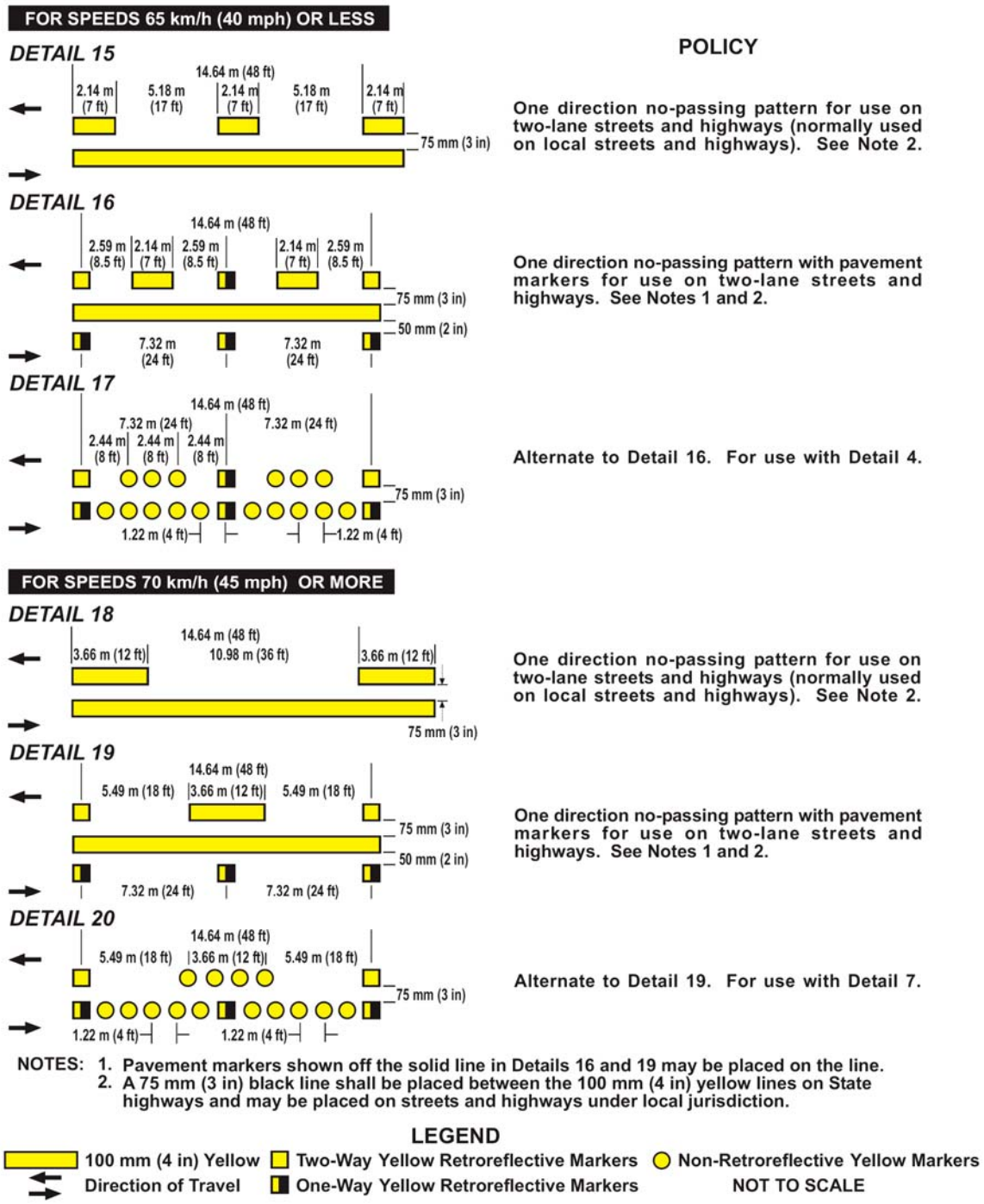


LEGEND

100 mm (4 in) White — One-Way Clear Retroreflective Markers — Non-Retroreflective White Markers

Direction of Travel — Red-Clear Retroreflective Markers — NOT TO SCALE

Figure 3A-103. No Passing Zones - One Direction



POLICY

One direction no-passing pattern for use on two-lane streets and highways (normally used on local streets and highways). See Note 2.

One direction no-passing pattern with pavement markers for use on two-lane streets and highways. See Notes 1 and 2.

Alternate to Detail 16. For use with Detail 4.

One direction no-passing pattern for use on two-lane streets and highways (normally used on local streets and highways). See Note 2.

One direction no-passing pattern with pavement markers for use on two-lane streets and highways. See Notes 1 and 2.

Alternate to Detail 19. For use with Detail 7.

NOTES:
1. Pavement markers shown off the solid line in Details 16 and 19 may be placed on the line.
2. A 75 mm (3 in) black line shall be placed between the 100 mm (4 in) yellow lines on State highways and may be placed on streets and highways under local jurisdiction.

LEGEND

100 mm (4 in) Yellow | Two-Way Yellow Retroreflective Markers | Non-Retroreflective Yellow Markers
Direction of Travel | One-Way Yellow Retroreflective Markers | NOT TO SCALE

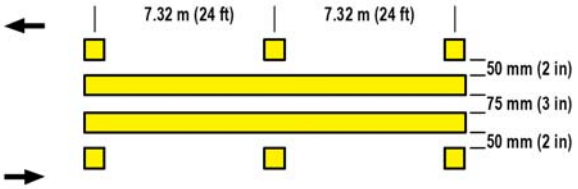
Figure 3A-104. No Passing Zones - Two Direction

DETAIL 21

POLICY

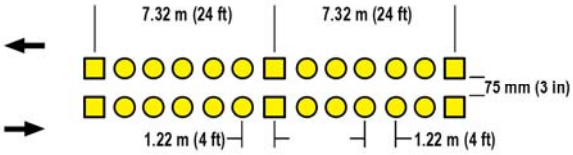
Two-direction no-passing pattern for use on two-lane streets and highways (normally used on local streets and highways). See Note 2.

DETAIL 22



Two-direction no-passing pattern with pavement markers for use on two-lane streets and highways. See Notes 1 and 2.

DETAIL 23



Alternate to Detail 22. For use with either Detail 4 or Detail 7.

NOTES: 1. Pavement markers shown off the solid line in Detail 22 may be placed on the line.
2. A 75 mm (3 in) black line shall be placed between the 100 mm (4 in) yellow lines on State highways and may be placed on streets and highways under local jurisdiction.

LEGEND

100 mm (4 in) Yellow
Two-Way Yellow Retroreflective Markers
Direction of Travel
Non-Retroreflective Yellow Markers

NOT TO SCALE

Figure 3A-105. Left Edge Lines for Divided Highways

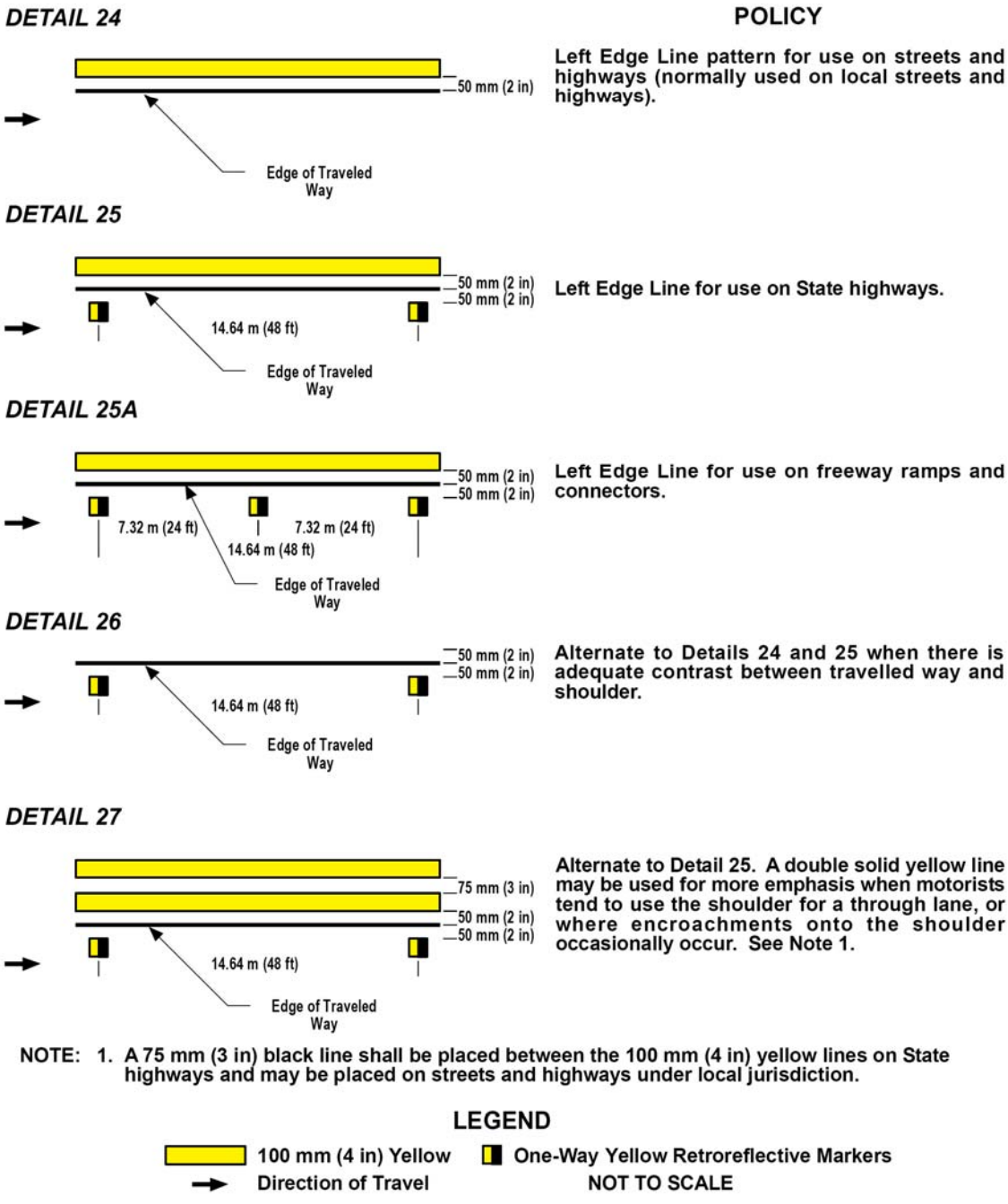
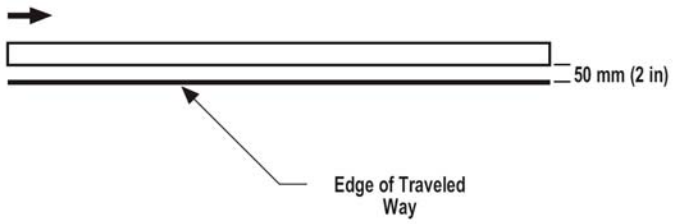


Figure 3A-106. Right Edge Line and Right Edge Line Extension Through Intersections

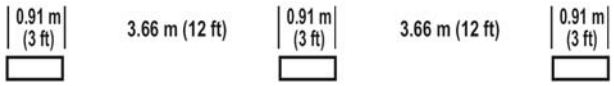
DETAIL 27B
Right Edge Line



POLICY

Right Edge Line pattern for use on all State highways may be used on local streets and highways. It is generally dropped at the beginning of the intersection flares on conventional highways. See also Detail 27C. On freeways, it may be flared in advance of the exit ramp as shown in Figure 3B-8 (CA).

DETAIL 27C
Right Edge Line Extension Through Intersections



Right Edge Line Extension Through Intersections pattern for use to extend the right edgeline through an intersection where climatic conditions, such as areas of heavy fog, may require additional guidance.

NOTE: Raised markers should not supplement right edge line markings. See Section 3B.13.

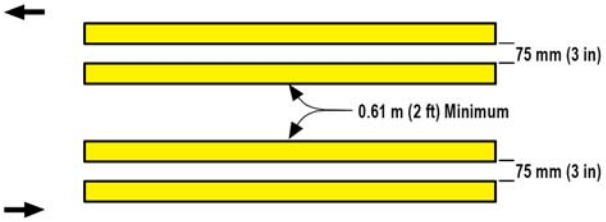
LEGEND

100 mm (4 in) White → Direction of Travel

NOT TO SCALE

Figure 3A-107. Median Islands

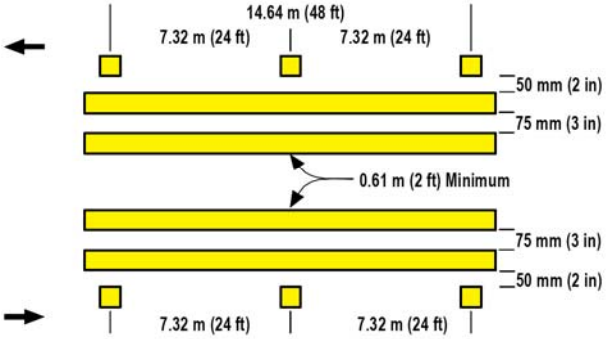
DETAIL 28



POLICY

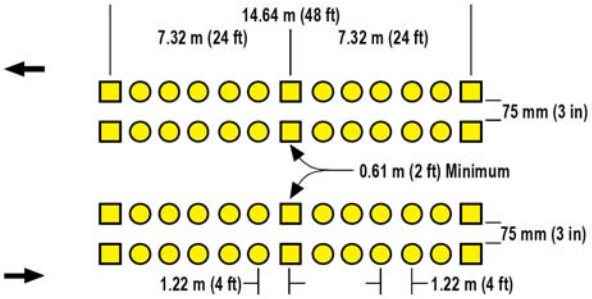
Double Left Edge Line pattern for use on all-paved sections of streets and highways (normally used on local streets and highways). See Note 2.

DETAIL 29



Double Left Edge Line pattern with pavement markers for use on all-paved sections of streets and highways. See Notes 1 and 2.

DETAIL 30



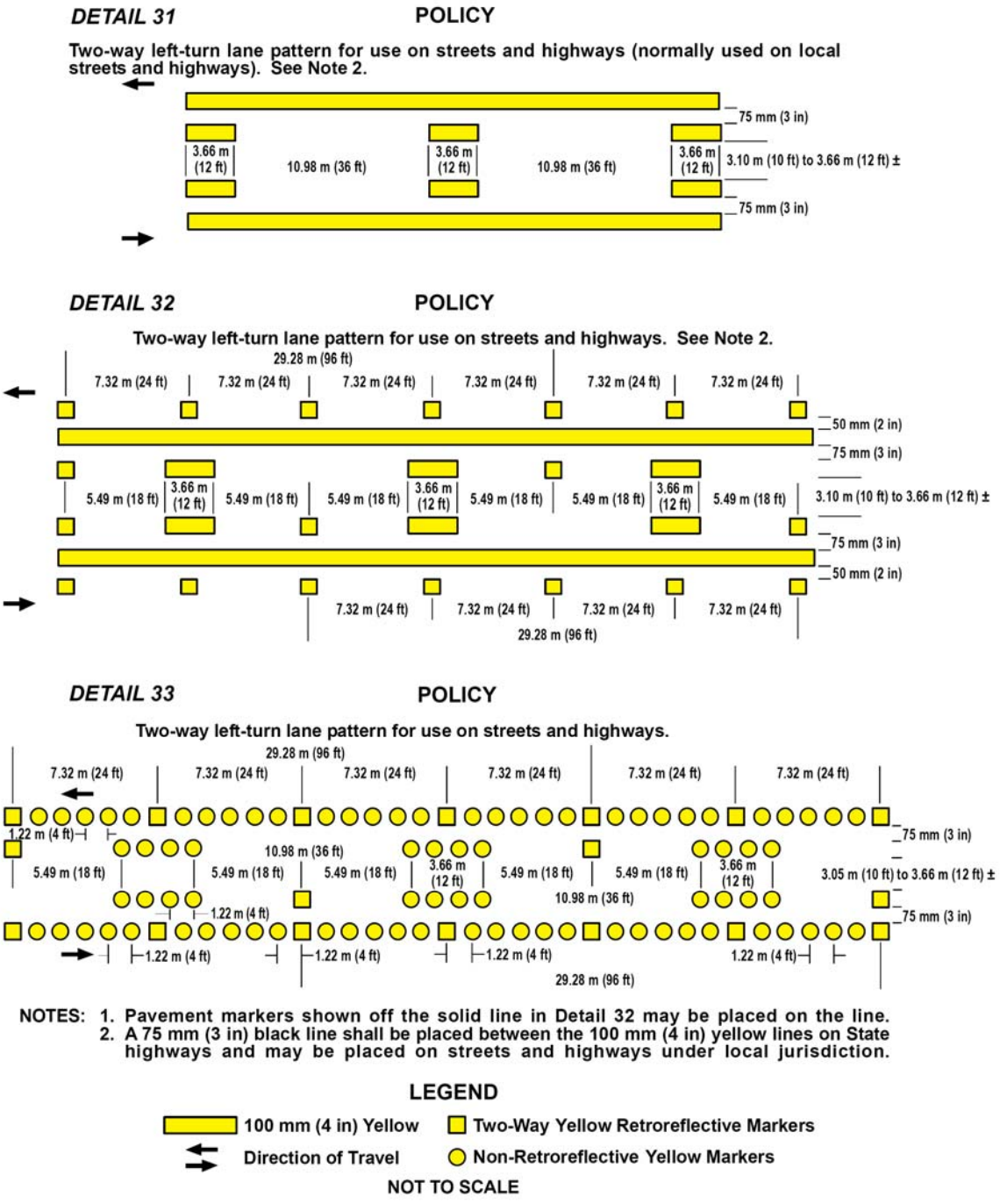
Alternate to Detail 29. For use at problem locations where it is difficult to place and maintain lines because of moisture, sand, etc.

NOTES: 1. Pavement markers shown off the solid line in Detail 29 may be placed on the line.
2. A 75 mm (3 in) black line shall be placed between the 100 mm (4 in) yellow lines on State highways and may be placed on streets and highways under local jurisdiction.

LEGEND

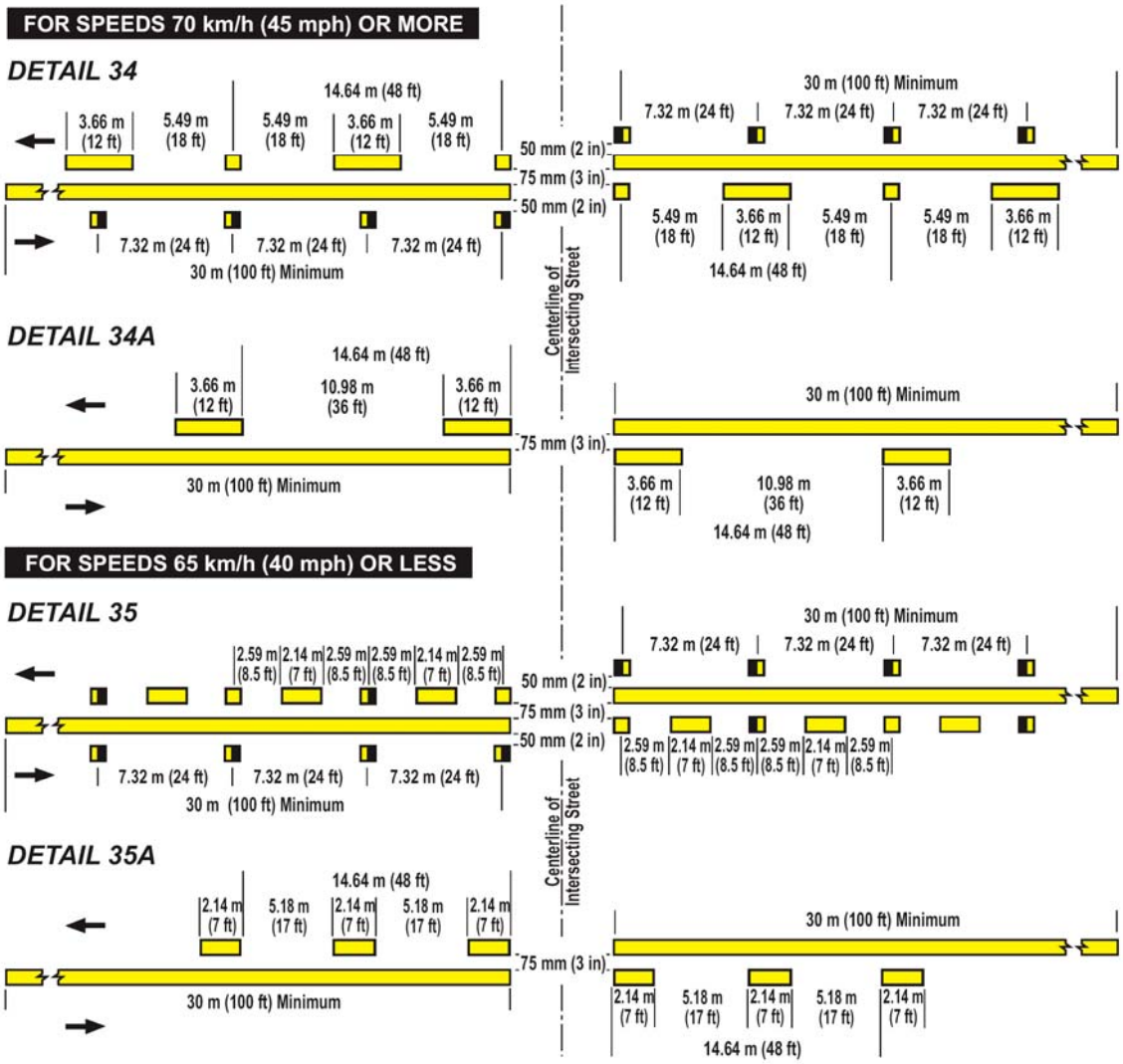
NOT TO SCALE

Figure 3A-108. Two-Way Left-Turn Lanes



NOTES: 1. Pavement markers shown off the solid line in Detail 32 may be placed on the line.
2. A 75 mm (3 in) black line shall be placed between the 100 mm (4 in) yellow lines on State highways and may be placed on streets and highways under local jurisdiction.

Figure 3A-109. Intersection Markings



NOTES:
1. Raised Pavement Markers are optional on non-state highways.
2. Raised Pavement Markers shown off the solid line may be placed on the line.
3. A 75 mm (3 in) black line shall be placed between the 100 mm (4 in) yellow lines on State highways and may be placed on streets and highways under local jurisdiction.

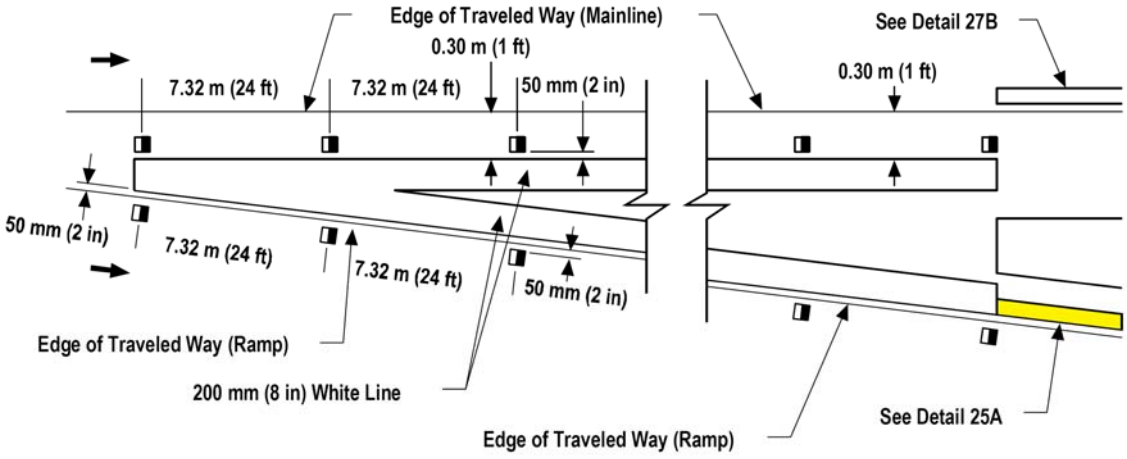
LEGEND

100 mm (4 in) Yellow
Direction of Travel
Two-Way Yellow Retroreflective Markers
One-Way Yellow Retroreflective Markers

NOT TO SCALE

Figure 3A-110. Freeway Exit and Entrance Ramp Channelizing Lines (Sheet 1 of 2)

DETAIL 36 - Exit Ramp Neutral Area (Gore) Channelizing Lines (See Figure 3B-8 (CA), Sheet 2 of 2)



LEGEND

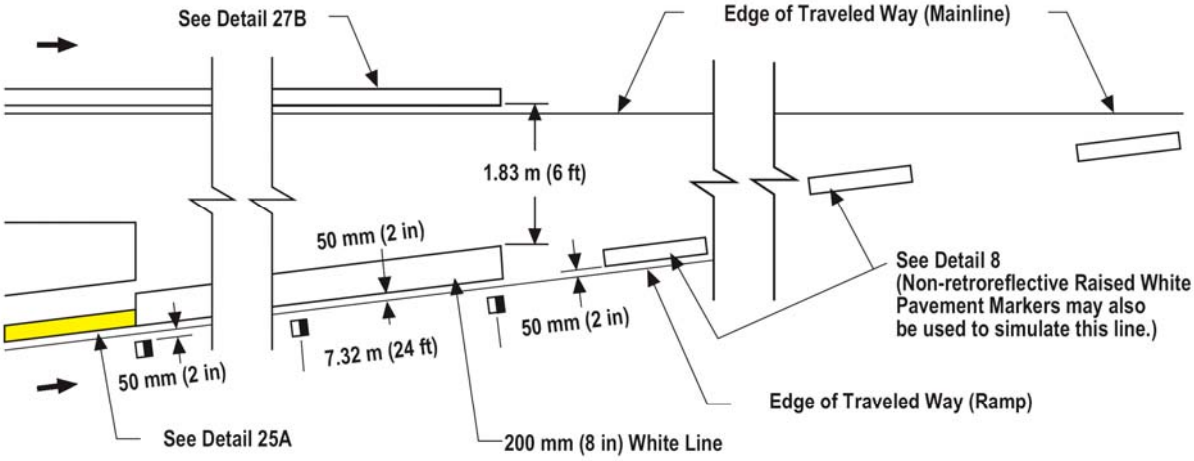
100 mm (4 in) White — One-Way Clear Retroreflective Markers

100 mm (4 in) Yellow — Direction of Travel

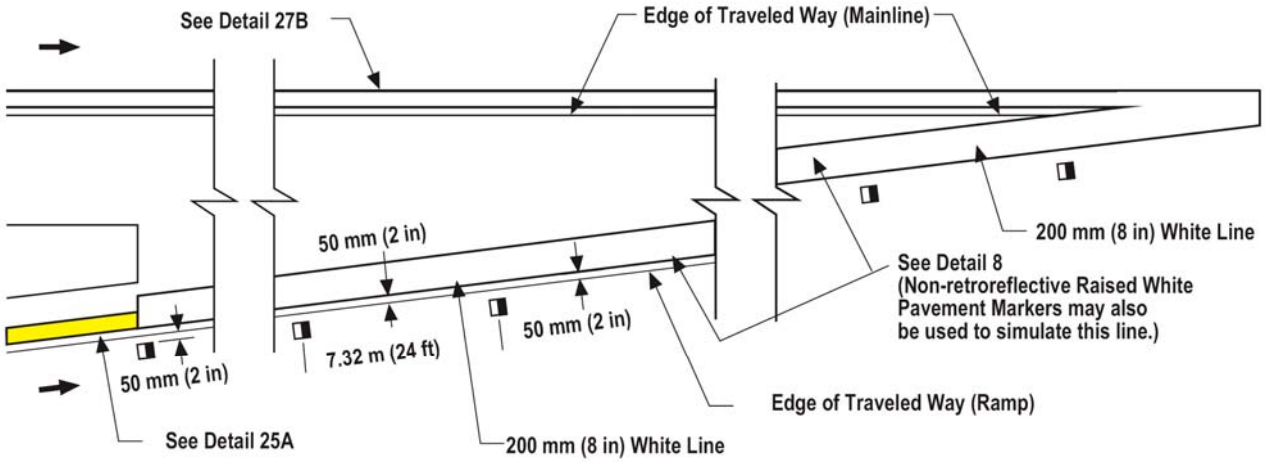
NOT TO SCALE

Figure 3A-110. Freeway Exit and Entrance Ramp Channelizing Lines (Sheet 2 of 2)

DETAIL 36A - Entrance Ramp Neutral Area (Merge) Channelizing Lines (See Figure 3B-9 (CA), Sheet 1 of 2)



DETAIL 36B - Entrance Ramp Neutral Area (Acceleration Lane) Channelizing Lines (See Figure 3B-8 (CA), Sheet 3 of 3)



LEGEND

100 mm (4 in) White — One-Way Clear Retroreflective Markers

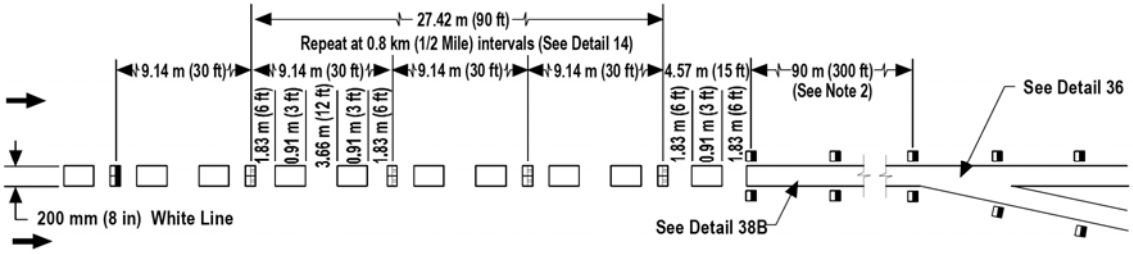
100 mm (4 in) Yellow — Direction of Travel

NOT TO SCALE

Figure 3A-111. Lane Drop Markings

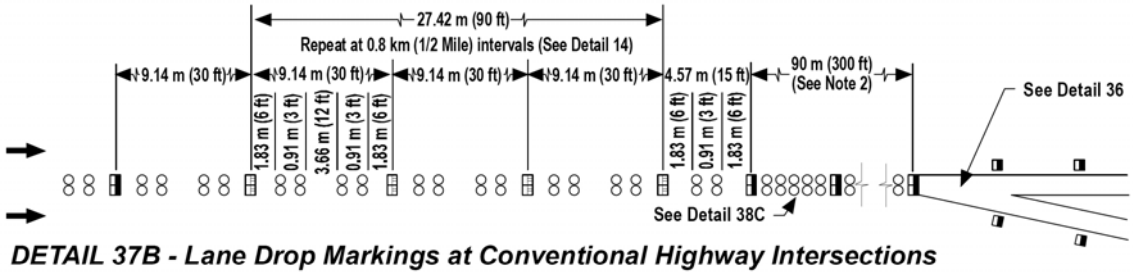
DETAIL 37 - Lane Drop Markings at Exit Ramps

Marking pattern for use on mandatory lane drops at freeway exit ramps and freeway to freeway connectors.



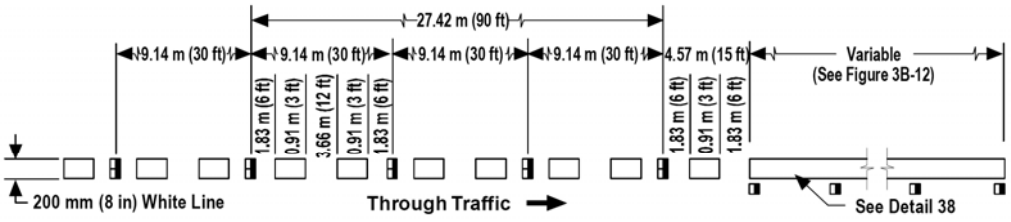
DETAIL 37A - Alternate to Detail 37

For use with Detail 10 and 13.



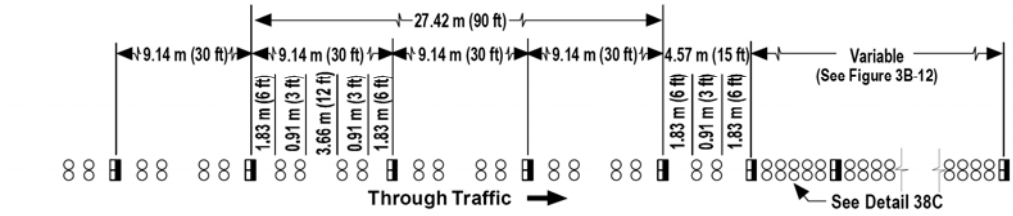
DETAIL 37B - Lane Drop Markings at Conventional Highway Intersections

Marking pattern for use on mandatory turn lanes at intersections. Pavement markers shown are optional on local streets and highways.



DETAIL 37C - Alternate to Detail 37B

For use with Detail 10 and 13.



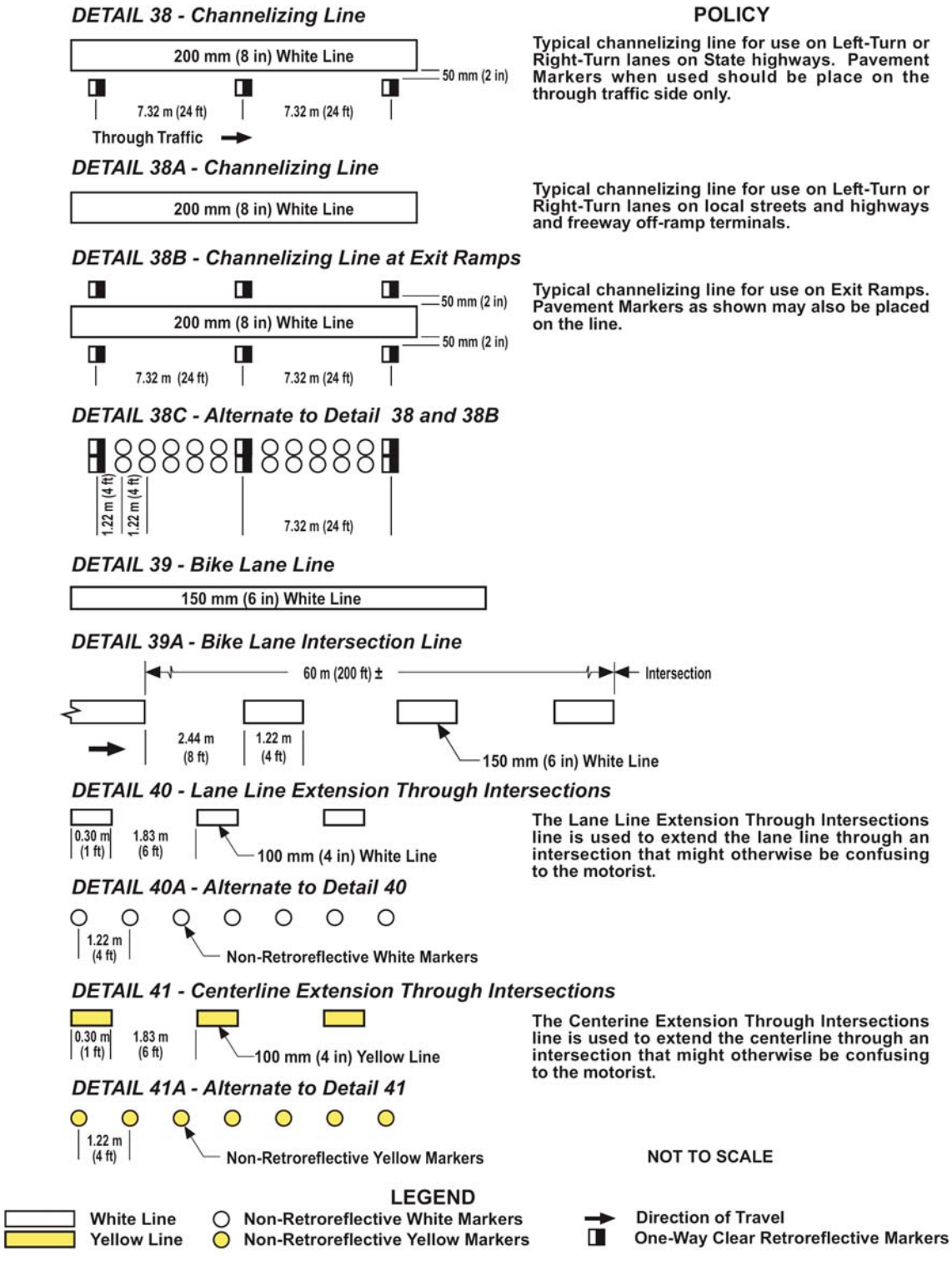
NOTES:
1. **Pavement markers shown off the solid line in Detail 37 may be placed on the line.**
2. **The Solid Channelizing Line shown in Detail 37 and 37A may be omitted on short auxilary lanes where weaving length is critical.**

LEGEND

Non-Retroreflective White Markers
One-Way Clear Retroreflective Markers
Direction of Travel
Red-Clear Retroreflective Markers

NOT TO SCALE

Figure 3A-112. Channelizing Line and Lane Line/Centerline Extensions



CHAPTER 3B. PAVEMENT AND CURB MARKINGS

Section 3B.01 Yellow Centerline Pavement Markings and Warrants

The following is added to this section:

Standard:

Centerline patterns shall be selected from those shown in Figures 3A-101 and 3A-104.

Raised retroreflective pavement markers shall be used to supplement the centerline markings on State highways, except in snow areas.

Support:

Refer to CVC 21460 for Double Lines.

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

Standard:

A left edge line shall consist of a solid 100 mm (4 in) wide yellow line, yellow reflective pavement markers or a combination of line and markers as shown in Figure 3A-105.

Option:

Two normal solid yellow lines may be used as a left edge line on a divided roadway for more emphasis when motorists tend to use the shoulder for a through lane or where encroachments onto the shoulder occasionally occur.

Support:

Left edge line patterns for median islands are shown in Figure 3A-107.

Figure 3B-2. Examples of Four-or-More Lane, Two-Way Marking Applications

Standard:

Lane-use arrow markings shown in this figure as optional, shall not be optional but required. See Section 3B.19.

Section 3B.02 No-Passing Zone Pavement Markings and Warrants

Standard:

Paragraph 3 ("Where the distance…") is deleted and replaced with the following:

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.

The following is added to this section:

Support:

Refer to CVC 21750 through 21759 for overtaking and passing.

Refer to CVC 21460 for Double Lines.

CVC 21752 restricts passing (driving on left side of a two-way roadway) when approaching within 30 m (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 30 m (100 feet) of any bridge, viaduct, or tunnel. The patterns and policy for intersection markings are shown in Figure 3A-109.

Standard:

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

Guidance:

The no-passing zone markings at intersections, when used, should be between 30 m (100 ft) and 90 m (300 ft) in length at the approach to an intersection and placed in a pattern as shown in Figure 3A-109.

Section 3B.03 Other Yellow Longitudinal Pavement Markings

Option:

In Paragraph 5 ("Signs should be…"), the word "should" is changed to "may".

The following is added to this section:

Standard:

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

Support:

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:

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

Option:

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

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 (CA Code R67) sign at new installations and problem locations.

Guidance:

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

Support:

For left turn channelization, see Figure 3B-101 and Department of Transportation's Highway Design Manual, Section 405.2. See Section 1A.11 for information regarding this publication.

Section 3B.04 <u>White Lane Line Pavement Markings and Warrants</u>

The following is added to this section:

Standard:

Lane line patterns shall be selected from those shown in Figure 3A-102. Detail 9 or 10 (65 km/h (40 mph) or less) or Detail 12 or 13 (70 km/h (45 mph) or more) shall be used on State freeways, expressways, freeway ramps, freeway to freeway connectors and collector roads, except when used in snow areas, the raised pavement markers will be recessed.

A right edge line shall consist of a solid 100 mm (4 in) wide white line.

Guidance:

The edge line should be placed 50 mm (2 in) in from the edge of traveled way, approximately 3.6 m (12 ft) from the lane line or centerline on highway mainlines, ramps, and connectors. See Figure 3A-106.

Generally, the solid edge line should be dropped at the beginning of intersection flares.

Option:

In heavy fog areas, or locations where additional guidance would be beneficial, a dotted 100 mm (4 in) wide white right edge line may be continued across an intersection.

Support:

Edge line is not used at turnouts. See Figure 3B-108.

Section 3B.05 <u>Other White Longitudinal Pavement Markings</u>

Standard:

In Paragraph 7 ("For Exit ramps…"), the second sentence ("With a parallel…") is deleted and replaced with the following:

With a parallel deceleration lane, a 200 mm (8 in) wide dotted white lane drop line shall be extended from the beginning of the channelizing line upstream of the entire length of the full-width deceleration lane.

In Paragraph 10 ("For entrance ramps with a parallel…") the phrase "one-half the length" is changed to "the entire length".

In Paragraph 12 ("Lane drop markings…") first sentence, the word "may" is changed to "shall".

Figure 3B-7 (CA). Example of Two-Way Left-Turn Lane Marking Applications

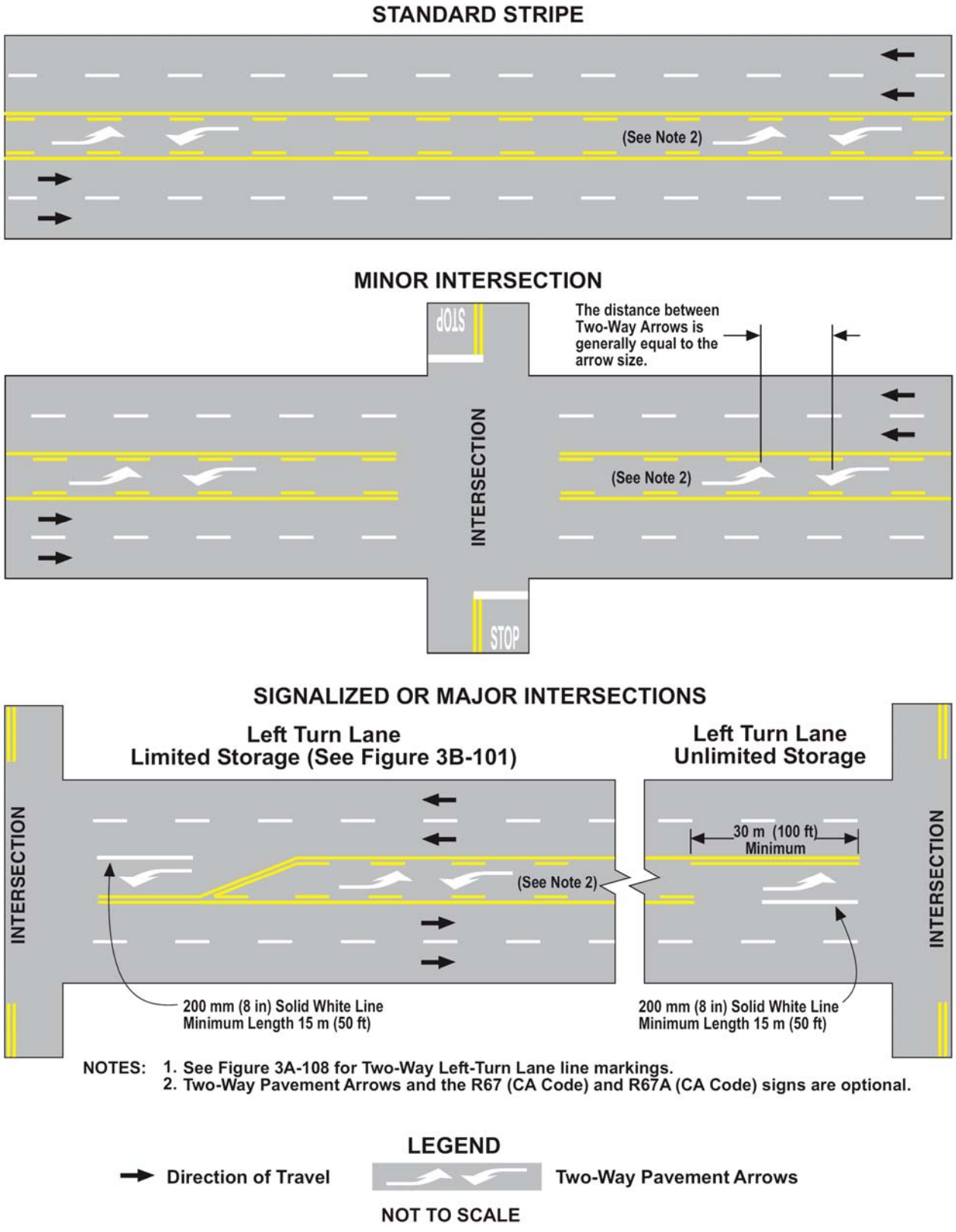
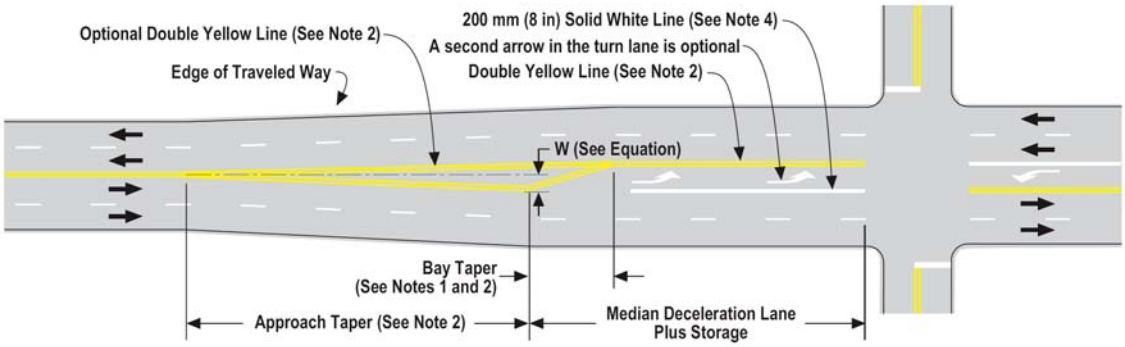


Figure 3B-101. Examples of Left-Turn Channelization Markings

4-Lane



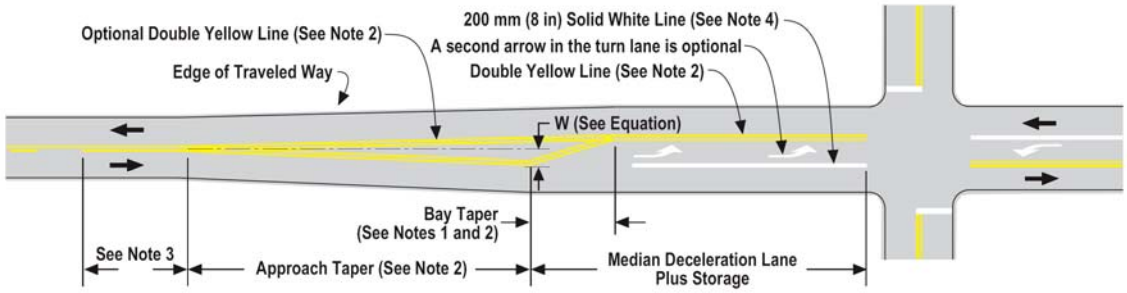
NOT TO SCALE

Approach Taper = $\frac{WS^2}{155}$ for speeds of 65 km/h ($\frac{WS^2}{60}$ for speeds of 40 mph) or less and
0.62*WS for speeds of 70 km/h (WS for speeds of 45 mph) or more.

Where S = Off Peak 85th Percentile Speed in km/h or mph.
In urban areas where space is restricted, "S" may be reduced
15 or 30 km/h (10 or 20 mph).

W = Width of Lateral Traffic Shift in meters (feet).

2-Lane



NOTES:

1. Bay taper length = 18 m (60 ft) or 27 (90 ft) m for Business, Residential and Urban Areas and 36 m (120 ft) for high speed Rural Areas.
2. See Striping Details 21 through 23 or 28 through 30.
3. On two lane roads, use Striping Details 15 through 20 for one half (1/2) of the passing sight distance for the prevailing speed.
4. See Striping Detail 38, use a minimum storage length of 15 m (50 ft).
5. See Highway Design Manual, Section 405.2 for design details.

The following is added to Paragraph 13 ("If used, lane…"):
Guidance:
If the dropped lane is an auxiliary lane 0.8 km (1/2 mi) or less in length, the lane drop line should extend throughout the entire length.
The following is added to this section:
Standard:
The lane drop line pattern shall be as shown in Figure 3A-111.
Support:
See Figures 3A-111, 3B-8 (CA), 3B-9 (CA), 3B-10 (CA), 3B-12 (CA) and 3B-107 for further details of markings and signing.
Option:
A 200 mm (8 in) wide single solid white line preceded by a 200 mm (8 in) wide dotted white line may be placed in advance of an intersection where the outside lane is dropped at the intersection, and as a result, creates a mandatory turn lane.
Standard:
If used, diagonal lines shall be the same color as the edge line.

Figure 3B-8. Examples of Channelizing Line Applications for Exit Ramp Markings
Standard:
MUTCD Figure 3B-8 is deleted and replaced with Figure 3B-8 (CA).

Figure 3B-9. Examples of Channelizing Line Applications for Entrance Ramp Markings
Standard:
MUTCD Figure 3B-9 is deleted and replaced with Figure 3B-9 (CA).

Figure 3B-10. Example of Lane Drop Markings at Exit Ramps
Standard:
MUTCD Figure 3B-10 is deleted and replaced with Figure 3B-10 (CA).

Section 3B.06 Edge Line Pavement Markings
The following is added to this section:
Standard:
Exit and entrance ramps, including freeway connectors, shall be marked with a yellow edge line supplemented with yellow reflective pavement markers on the left and a white edge line on the right. See Figure 3A-105.

Section 3B.07 Warrants for Use of Edge Lines
The following is added to this section:
Standard:
Edge lines shall be used on all State highways, except urban type streets with curbs and parking provisions.
Option:
The Two-Way Traffic (W6-3) sign may be used in conjunction with edge lines at locations where motorists could perceive that they are on a one-way roadway when, in fact, they are on a two lane, two-way highway. See Section 2C.34 for W6-3 sign.

Figure 3B-8 (CA). Example of Signing and Channelizing Line Applications for Exit Ramp Markings (Sheet 1 of 3)

a - Parallel deceleration lane

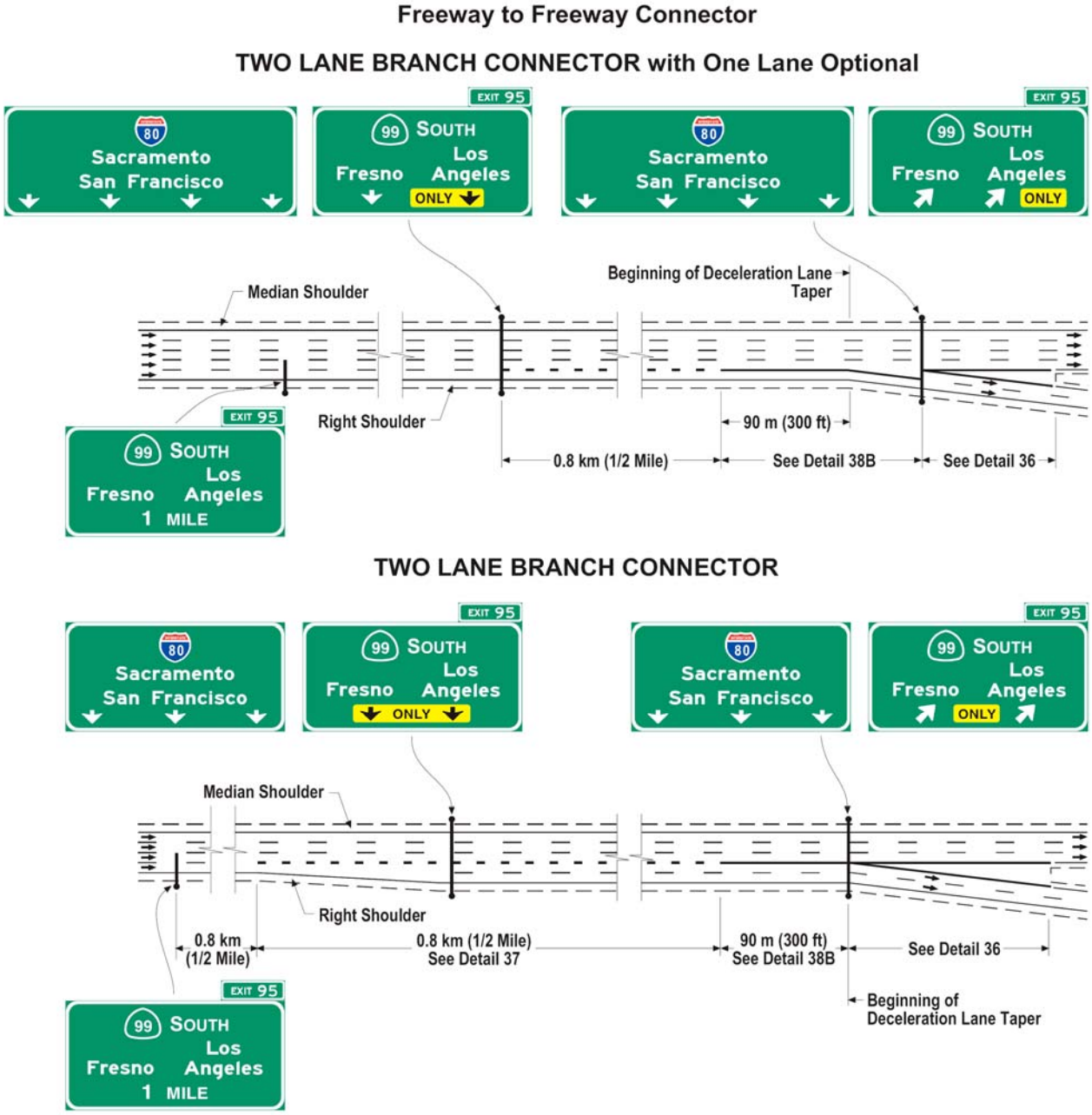
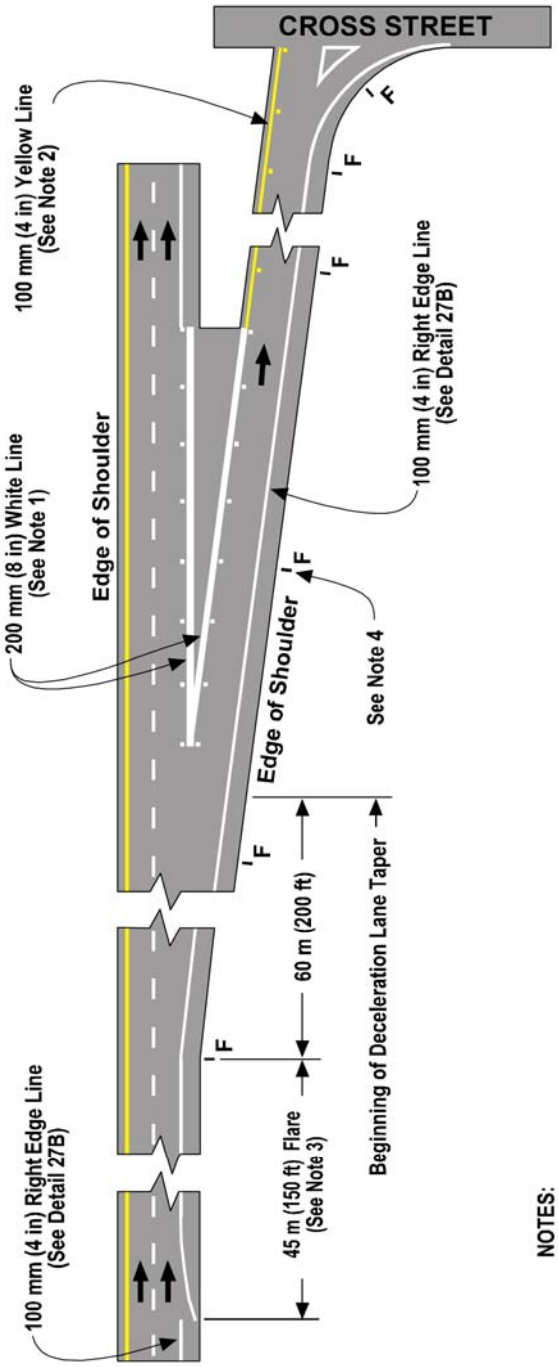


Figure 3B-8 (CA). Example of Signing and Channelizing Line Applications for Exit Ramp Markings (Sheet 2 of 3)

b - Tapered deceleration lane



NOTES:

1. Place a 200 mm (8 in) Solid White Line and One-Way Clear Retroreflective Markers on 7.32 m (24 ft) centers. See Detail 36.
2. Place a 100 mm (4 in) Solid Yellow Left Edge Line and One-Way Yellow Retroreflective Pavement Markers on 7.32 m (24 ft) centers. See Detail 25A.
3. A flared Right Edge Line 60 m (200 ft) in advance of an exit ramp, is recommended where climatic conditions, such as areas that experience heavy fog, may require additional guidance. In areas that normally do not experience these conditions, a continuous edge line may be used. See also Section 3B.11, Advance Markers - Exit Ramps.
4. Place delineators 0.6 m (2 ft) to 1.8 m (6 ft) outside edge of paved shoulder, approximately 60 m (200 ft) apart with a minimum of 3 delineators per tangent. For additional details on delineator locations and spacing on curves, see Figure 3D-1 and 3D-102.
5. See Figure 3B-22 (CA) for Ramp Terminal Markings and Section 2E.50.

LEGEND

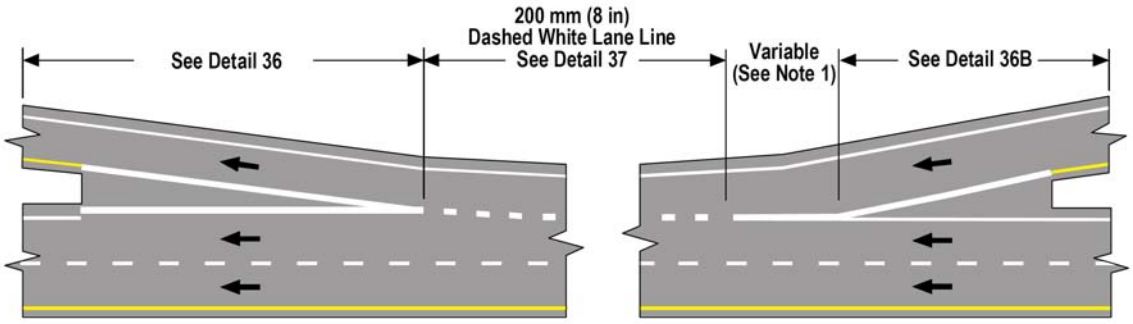
I Delineator → Direction of Travel

NOT TO SCALE

Figure 3B-8 (CA). Example of Signing and Channelizing Line Applications for Exit Ramp Markings (Sheet 3 of 3)

c - Cloverleaf Ramps

ACCELERATION/DECELERATION (Weaving) LANE



Acceleration/Deceleration Lanes less than 180 m (600 ft) are normally not striped. Lanes more than 180 m (600 ft) and less than 0.8 km (1/2 Mile) should use a 200 mm (8 in) Dashed White Stripe (Detail 37). Lanes longer than 0.8 km (1/2 Mile), a 100 mm (4 in) Dashed White Line (Detail 8 or 11) should be used.

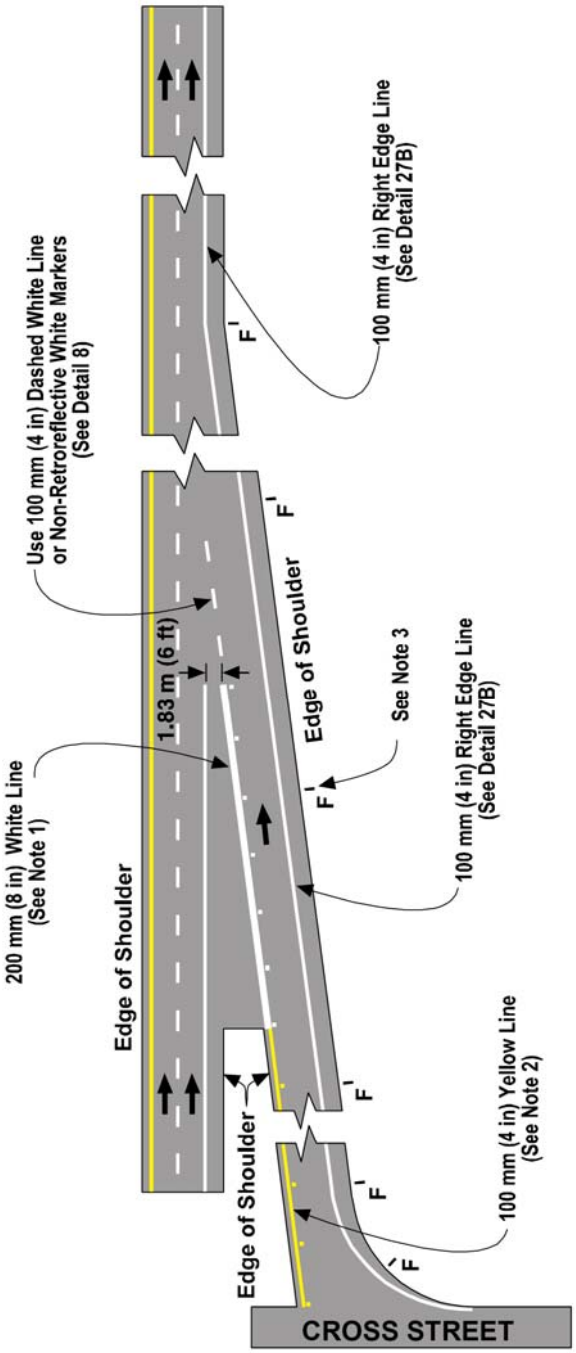
NOTES:

1. **A 200 mm (8 in) Solid White Channelizing Line should be continued for approximately one-tenth the length of the acceleration lane beyond the tangent point. See Detail 38A.**
2. **A 100 mm (4 in) Dashed White Lane Line (Detail 8 or 11) is normally used for the remaining length of the lane. However, in those locations where the lane may give the appearance of an added lane and to discourage its use by through traffic, a 200 mm (8 in) Dashed White Channelizing Line (Detail 37) may be considered.**
3. **See Figure 3B-12 (CA) for transition area signing and marking details, when the acceleration lane is longer than 1.6 km (1 mi).**

LEGEND

← Direction of Travel NOT TO SCALE

Figure 3B-9 (CA). Examples of Channelizing Line Application for Entrance Ramp Marking (Sheet 1 of 2)



NOTES:

1. Place a 200 mm (8 in) Solid White Line and One-Way Clear Retroreflective Markers on 7.32 m (24 ft) centers. See Detail 36A.
2. Place a 100 mm (4 in) Solid Yellow Left Edge Line and One-Way Yellow Retroreflective Pavement Markers on 7.32 m (24 ft) centers. See Detail 25A.
3. Place delineators 0.6 m (2 ft) to 1.8 m (6 ft) outside the edge of paved shoulder, approximately 60 m (200 ft) apart with a minimum of 3 delineators per tangent. For additional details on delineator locations and spacing on curves, see Figure 3D-1 and 3D-102.
4. When the entrance ramp lane becomes an added freeway lane, it shall be marked as a standard lane line. If the additional lane terminates at an exit ramp within 0.8 km (1/2 Mile).

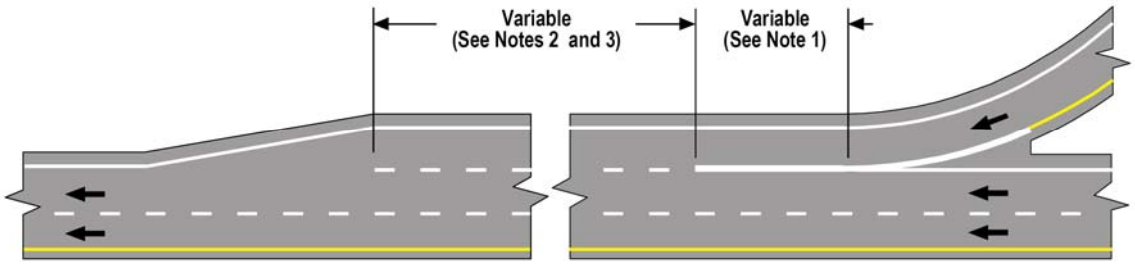
LEGEND

I Delineator → Direction of Travel

NOT TO SCALE

Figure 3B-9 (CA). Examples of Channelizing Line Application for Entrance Ramp Marking (Sheet 2 of 2)

PARALLEL ACCELERATION LANE



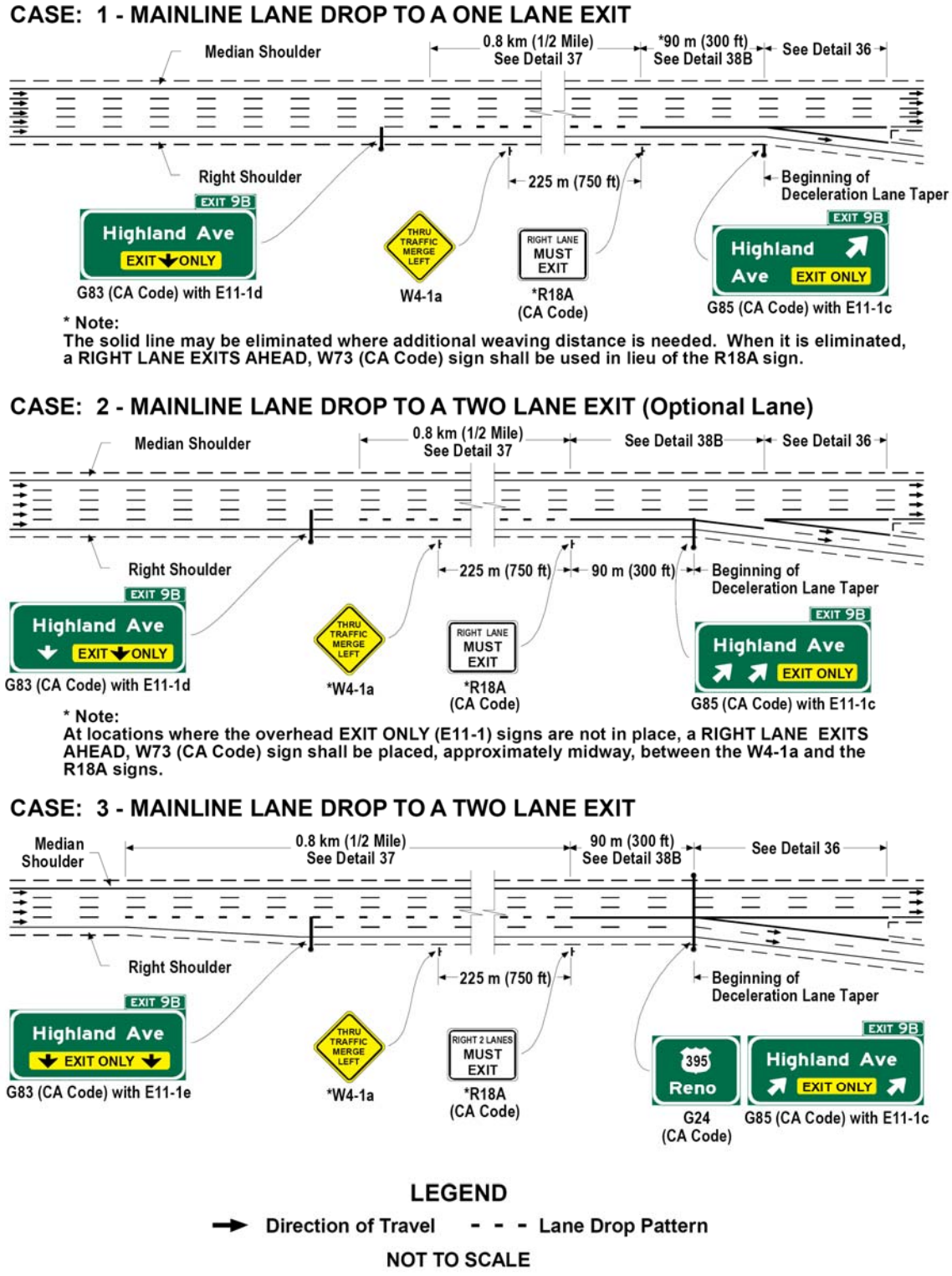
NOTES:

1. **A 200 mm (8 in) Solid White Channelizing Line should be continued for approximately one-tenth the length of the acceleration lane beyond the tangent point. See Detail 38A.**
2. **A 100 mm (4 in) Dashed White Lane Line (Detail 8 or 11) is normally used for the remaining length of the lane. However, in those locations where the lane may give the appearance of an added lane and to discourage its use by through traffic, a 200 mm (8 in) Dashed White Channelizing Line (Detail 37) may be considered.**
3. **See Figure 3B-12 (CA) for transition area signing and marking details, when the acceleration lane is longer than 1.6 km (1 mi).**

LEGEND

← **Direction of Travel** **NOT TO SCALE**

Figure 3B-10 (CA). Example of Lane Drop Signing and Markings at Exit Ramps



Section 3B.08 Extensions Through Intersections or Interchanges
Standard:

In Paragraph 1 ("Pavement markings extended …"), the phrase "…and at least the same width …" is deleted as it conflicts with Paragraph 2 ("A normal line…").

The following is added to this section:

Support:

See Figure 3A-112, Detail 40 and 40A for lane line extensions.

Figure 3B-11. Examples of Extensions through Intersections
Standard:

MUTCD Figure 3B-11 (c) is deleted as it could mislead motorists to believe that the through lane traffic may also turn left.

Lane-use arrow markings shown in this figure as optional, shall not be optional but required. See Section 3B.19.

Section 3B.09 Lane Reduction Transition Markings

The following is added to this section:

Support:

Typical lane reduction transitions (four lane to two lane) and transitions from two lanes to four lanes are shown in Figure 3B-12 (CA).

Figure 3B-12. Examples of Lane Reduction Markings
Standard:

MUTCD Figure 3B-12 is deleted and replaced with Figure 3B-12 (CA).

Section 3B.11 Raised Pavement Markers
Standard:

The N criteria for spacing as mentioned in this section shall not be used in California.

The widths and patterns of raised pavement markers shall conform to the details shown in Figures 3A-101 through 3A-112. See Section 3A.05.

The following is added to this section:

Support:

Raised pavement markers are not normally placed where snow plows would damage the markers and require an unusual amount of replacement.

Guidance:

When used in these areas, they should be recessed, as shown in Department of Transportation's Standard Plan A20-D. See Section 1A.11 for information regarding this publication.

Advance Markers

Option:

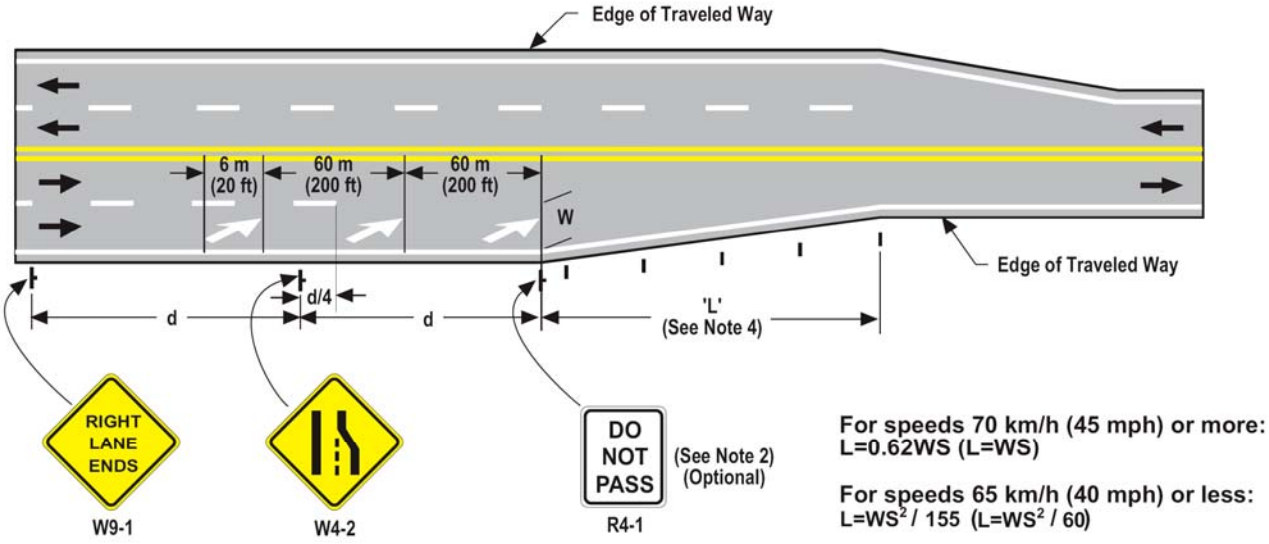
Advance Markers at exit ramps may be used to help motorists locate exit ramps in heavy fog areas.

Support:

The Advance Markers consist of a 3-2-1 countdown pattern of one-way clear reflective pavement markers. The pattern consists of three markers placed on the right shoulder 640 m (2100 ft) in advance of the neutral area (gore), two markers at 425 m (1400 ft) and one marker at 215 m (700 ft). The markers are placed on a line perpendicular to the lane line at 0.3 m (1 ft) spacing beginning 50 mm (2 in) off the edge of traveled way.

Figure 3B-12 (CA). Examples of Signs and Lane Reduction Markings (Sheet 1 of 3)

From 4 lanes to 2 lanes (No Median)



NOTES:

1. A W9-1 sign should be used in conjunction with the W4-2 sign.
2. The R4-1 sign should not be used on a freeway or expressway, etc., where two or more lanes remain after a lane is dropped. See Section 2B.24.
3. Lane Reduction Arrows are placed in groups of three. They are optional on highways where speeds are 65 km/h (40 mph) or less. Where speeds are 70 km/h (45 mph) or more or a W9-1 sign is used, an additional group of arrows may be placed in advance of the W9-1 sign. See also Note 4.
4. Delineators should be spaced approximately 60 m (200 ft) apart. There should be a minimum of 3 delineators throughout the entire length of a lane reduction transition. See Section 3D.04.
5. A left lane drop should be avoided on undivided roadways because of the difficulty in placing signs to warn motorists in the left lane.

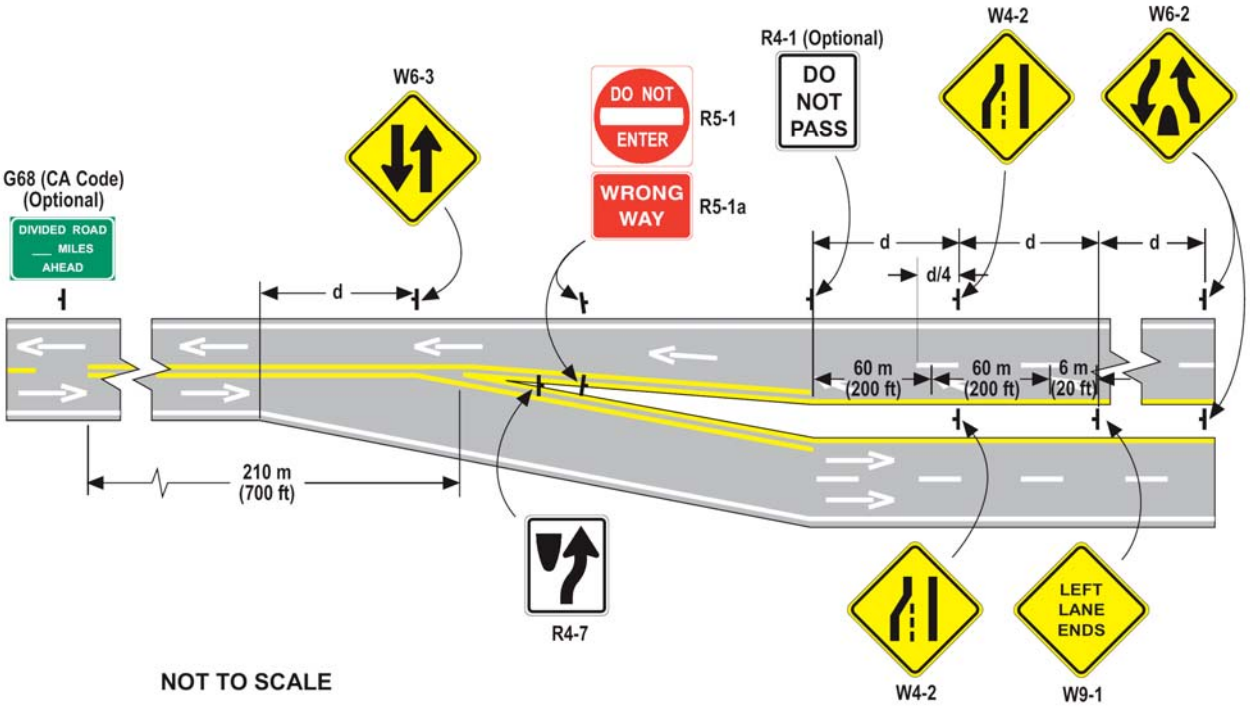
LEGEND

L = Length in meters (feet)
S = Posted, 85th Percentile, statutory speed, or design speed for new construction in km/h (mph)
W = Offset in meters (feet)
d = Advance Placement Distance (see Section 2C.05)

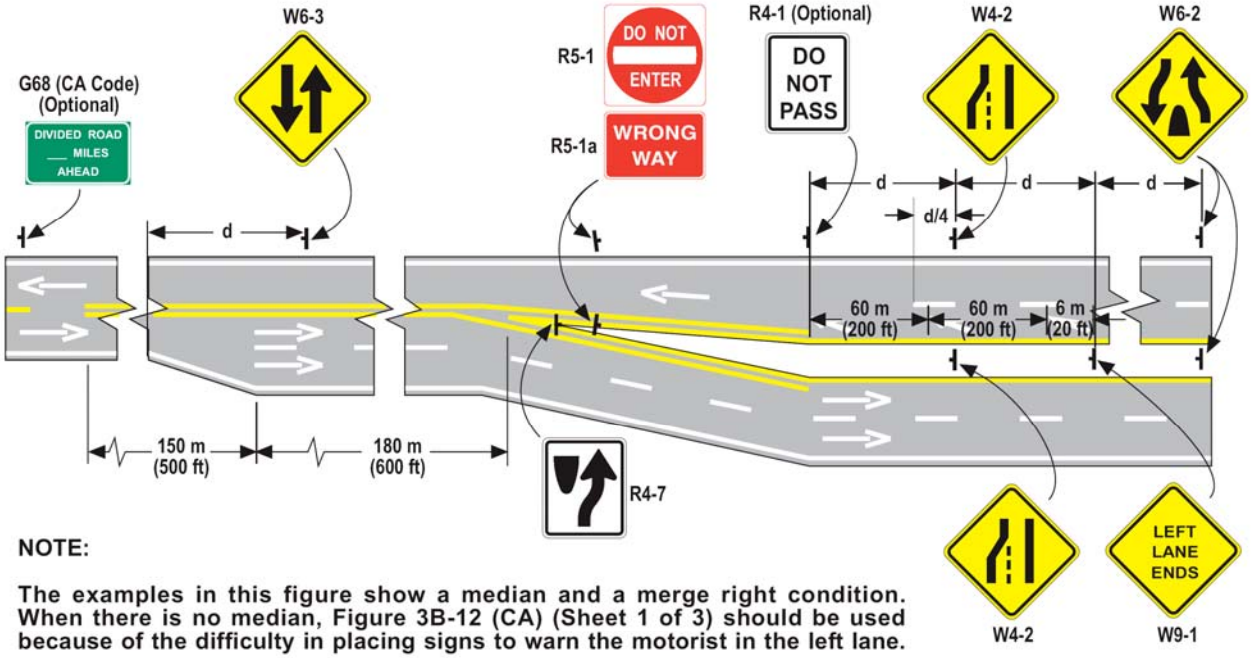
→ Direction of Travel
Lane Reduction Arrow
Delineators (Type F)
NOT TO SCALE

Figure 3B-12 (CA). Examples of Signs and Lane Reduction Markings (Sheet 2 of 3)

From 4 lanes to 2 lanes (With Median)



NOT TO SCALE



NOTE:

The examples in this figure show a median and a merge right condition. When there is no median, Figure 3B-12 (CA) (Sheet 1 of 3) should be used because of the difficulty in placing signs to warn the motorist in the left lane.

LEGEND

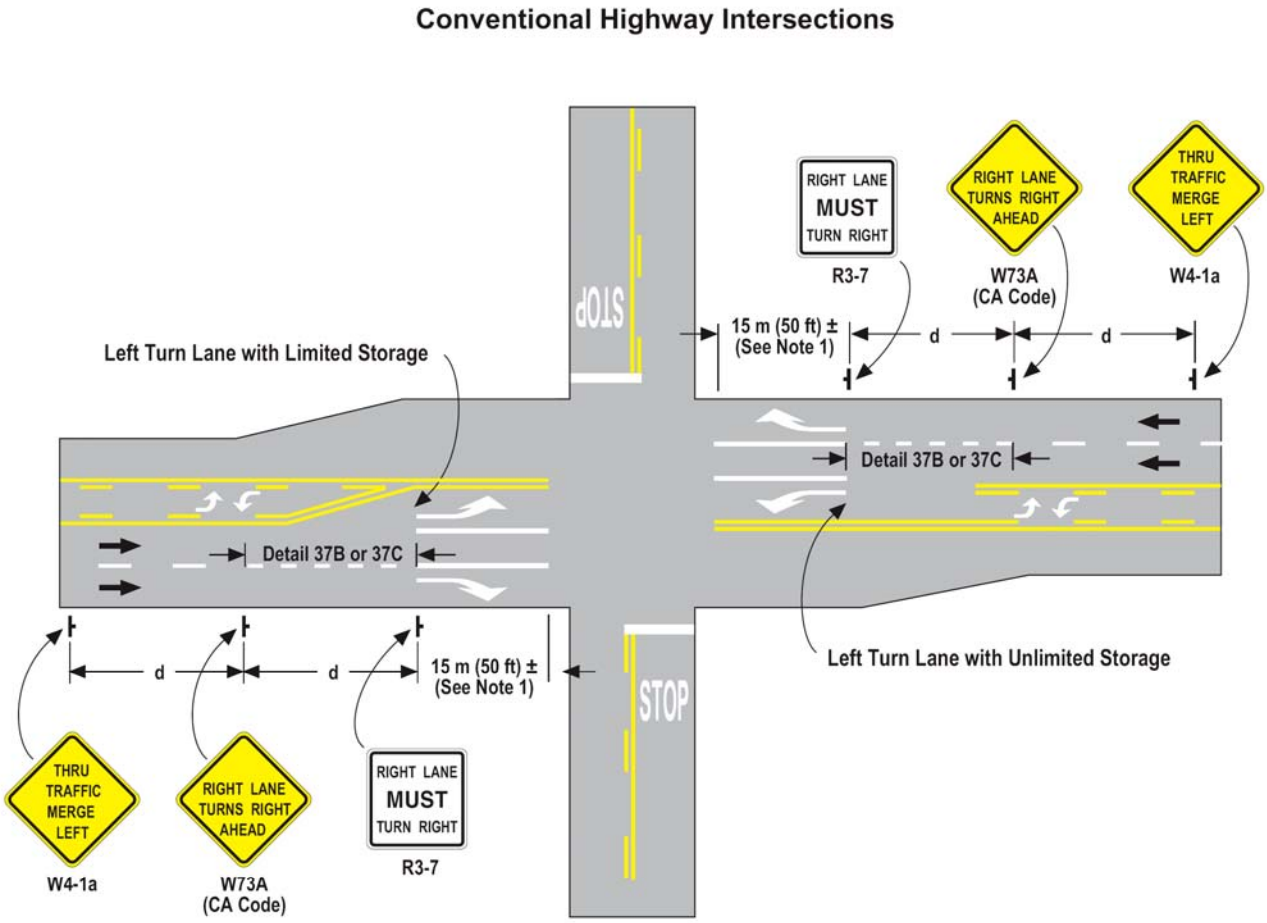
d = Advance Placement Distance (see Section 2C.05)

Delineators (Type F)

Lane Reduction Arrow

Wrong Way Arrow

Figure 3B-12 (CA). Examples of Signs and Lane Reduction Markings (Sheet 3 of 3)



NOTES:

1. See Figure 3B-101 for taper and storage lengths. See Detail 37B and 37C for lane drop markings. The minimum length of solid channelizing line is 15 m (50 ft). However, if using Detail 37C, the minimum length will be 14.64 m (48 ft).

2. The RIGHT LANE TURNS RIGHT AHEAD, (CA Code W73A) sign should be placed in conjunction with the RIGHT LANE MUST TURN RIGHT (R3-7) sign and the appropriate lane line and markings. A THRU TRAFFIC MERGE LEFT (W4-1a) sign may be placed in advance of the W73A (CA Code) sign. However, adequate sight distance or proximity to a freeway ramp, cross road, etc., may dictate the need and location of additional signs and the length of the turn lane.

LEGEND

→ Direction of Travel	Pavement Arrows
⊦ Sign Location	d = Advance Placement Distance (see Section 2C.05)

NOT TO SCALE

Location Markers for Fire Hydrants

Option:

Blue raised reflective pavement markers, may be placed on a highway, street, or road, to mark fire hydrant and/or water supply locations.

Standard:

The blue raised reflective pavement markers shall not be used for any other purpose.

Local agencies shall not place blue reflective pavement markers on a State highway unless they first obtain an encroachment permit from the Department of Transportation. The agency responsible for the placement shall also be responsible for the maintenance and replacement. See Section 13060, of the Health and Safety Code. See Section 1A.11 for information regarding this publication.

Guidance:

In general, the blue reflective pavement markers should be placed 150 mm (6 in) from the centerline stripe, or approximate center of the pavement where there is no centerline stripe, on the side nearest the fire hydrant.

When placed on expressways, freeways and freeway ramps, they should be placed on the shoulder, 0.31 m (1 ft) to the right of the edge line, opposite the fire hydrant. Typical marker locations are shown on Figure 3B-102.

Option:

Because fire hydrants adjacent to freeways may be out of the right-of-way and, in many locations, out of view from the freeway, some fire districts may want to install small supplemental signs (CA Code S9 and S10) or markings to identify the hydrant number or distance to the hydrant. These installations are optional and at the discretion of the Department of Transportation's Districts.

Section 3B.12 Raised Pavement Markers as Vehicle Positioning Guides with Other Longitudinal Markings

Standard:

The N criteria for spacing as mentioned in this section shall not be used in California.

The widths and patterns of raised pavement markers shall conform to the details shown in Figures 3A-101 through 3A-112. See Section 3A.05.

Section 3B.13 Raised Pavement Markers Supplementing Other Markings

Standard:

The N criteria for spacing as mentioned in this section shall not be used in California.

The widths and patterns of raised pavement markers shall conform to the details shown in Figures 3A-101 through 3A-112. See Section 3A.05.

Section 3B.14 Raised Pavement Markers Substituting for Pavement Markings

Standard:

The N criteria for spacing as mentioned in this section shall not be used in California.

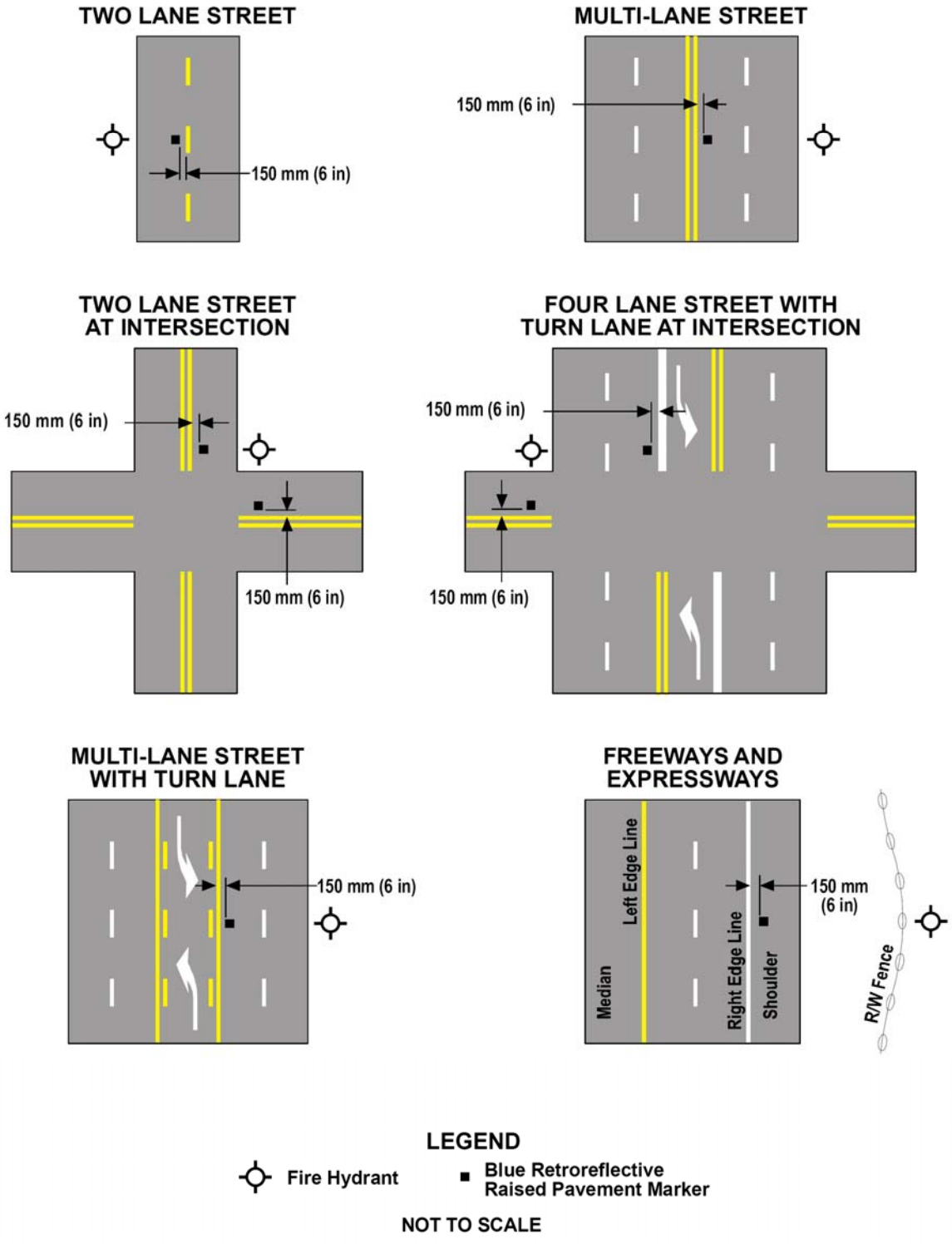
The widths and patterns of raised pavement markers shall conform to the details shown in Figures 3A-101 through 3A-112. See Section 3A.05.

The following is added to this section:

Standard:

If used on State highways, internally-illuminated raised pavement markers shall be installed by an encroachment permit and include a maintenance agreement as a provision of the permit for the service life of the markers.

Figure 3B-102. Examples of Fire Hydrant Location Pavement Markers



Section 3B.15 Transverse Markings

The following is added to this section:

Standard:

Crosswalk markings near schools shall be yellow. Refer to CVC 21368 and Part 7.

Support:

Refer to Department of Transportation's Standard Plans for pavement marking letters, numerals and symbols. See Section 1A.11 for information regarding this publication

Section 3B.16 Stop and Yield Lines

The following is added to this section:

Support:

As defined in CVC 377, a "limit line" is a solid white line not less than 300 mm (12 in) nor more than 600 mm (24 in) wide, extending across a roadway or any portion thereof to indicate the point at which traffic is required to stop in compliance with legal requirements.

Standard:

For all purposes, limit line(s) shall mean stop line(s) as referenced in the MUTCD.

A limit line shall be placed in conjunction with STOP (R1-1) signs on paved approaches not controlled by signals.

Guidance:

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

Option:

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

Support:

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

Typical limit line markings are shown in Figure 3B-103.

Standard:

The individual triangles comprising the yield line shall have a base of 0.6 m (2 ft) wide and a height of 0.9 m (3 ft). The space between the triangles shall be 0.3 m (1 ft).

Support:

Figure 3B-14 (CA) shows typical yield line layout for streets and highways.

Figure 3B-14. Examples of Yield Line Layouts

Standard:

MUTCD Figure 3B-14 is deleted and replaced with Figure 3B-14 (CA).

Section 3B.17 Crosswalk Markings

Standard:

In Paragraph 4 ("When crosswalk lines…"), the phrase "150 mm (6 in)" is changed to "300 mm (12 in)".

The following is added to this section:

Standard:

Crosswalk markings near schools shall be yellow as provided in CVC 21368. See Part 7.

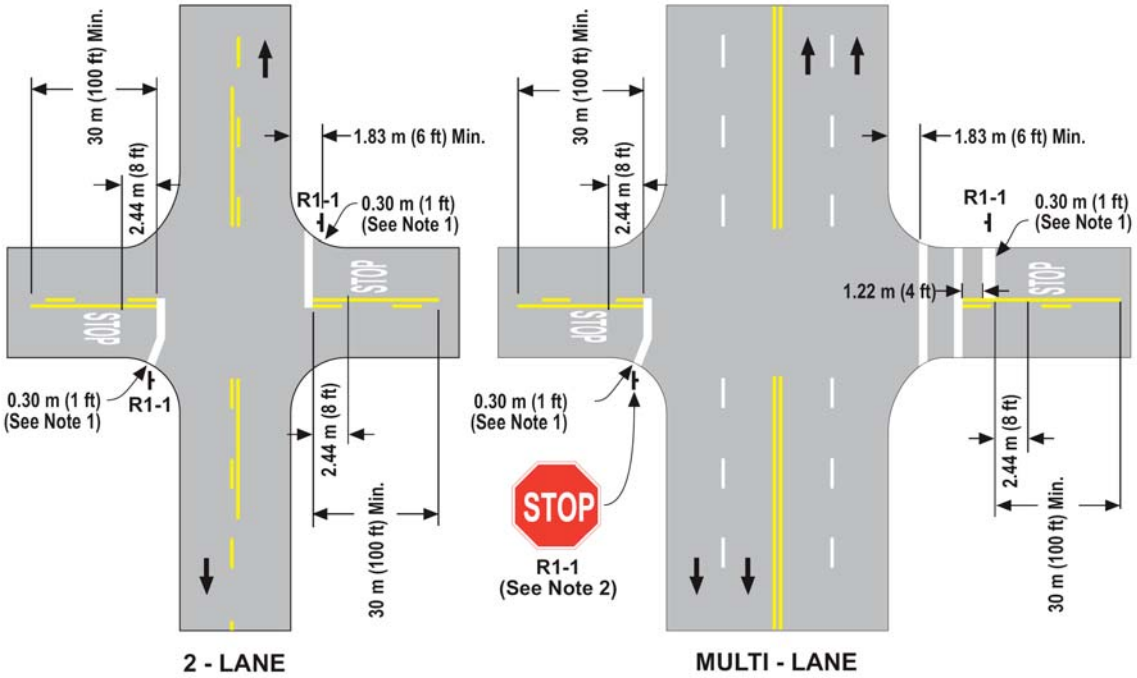
Option:

Pedestrian crosswalk markings may be placed at intersections, representing extensions of the sidewalk lines, or on any portion of the roadway distinctly indicated for pedestrian crossing. Refer to CVC 275.

Guidance:

In general, crosswalks should not be marked at intersections unless they are intended to channelize pedestrians. Emphasis is placed on the use of marked crosswalks as a channelization device.

Figure 3B-103. Examples of Intersection Markings



NOTES:

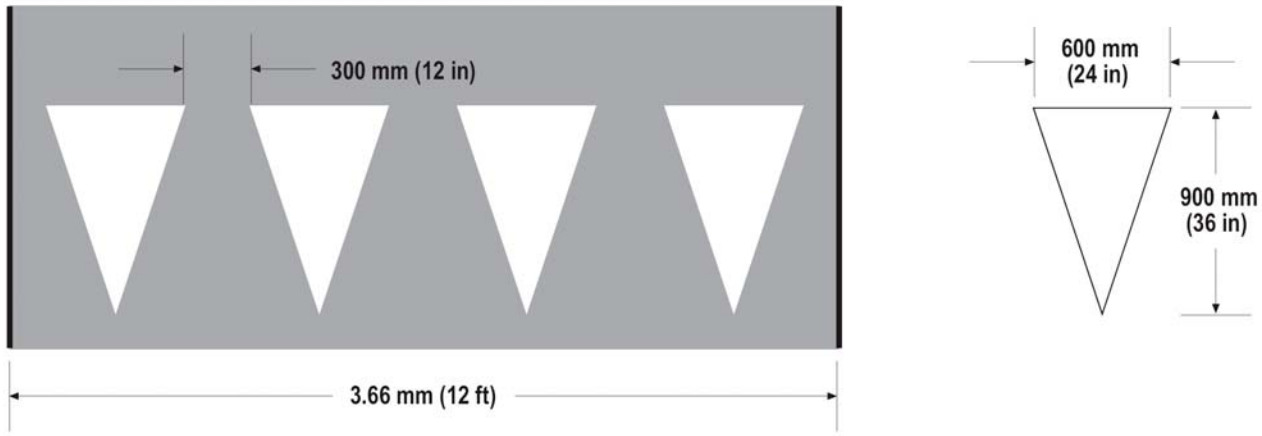
1. The Limit Line on wide side roads on long radius corners may be bent at a 45°± angle for traffic making a right turn.
2. When a STOP AHEAD (W3-1a) sign is used, a pavement legend may be placed to supplement the sign according to Section 3B.19.

LEGEND

→ Direction of Travel

NOT TO SCALE

Figure 3B-14 (CA). Example of Yield Line Layout



The following factors may be considered in determining whether a marked crosswalk should be used:

- Vehicular approach speeds from both directions.
- Vehicular volume and density.
- Vehicular turning movements.
- Pedestrian volumes.
- Roadway width.
- Day and night visibility by both pedestrians and motorists.
- Channelization is desirable to clarify pedestrian routes for sighted or sight impaired pedestrians.
- Discouragement of pedestrian use of undesirable routes.
- Consistency with markings at adjacent intersections or within the same intersection.

Option:

Crosswalk markings may be established between intersections (mid-block) in accordance with CVC 21106(a).

Guidance:

Mid-block pedestrian crossings are generally unexpected by the motorist and should be discouraged unless, in the opinion of the engineer, there is strong justification in favor of such installation. Particular attention should be given to roadways with two or more traffic lanes in one direction as a pedestrian may be hidden from view by a vehicle yielding the right-of-way to a pedestrian.

Option:

When diagonal or longitudinal lines are used to mark a crosswalk, the transverse crosswalk lines may be omitted.

Standard:

However, when the factor that determined the need to mark a crosswalk is the clarification of pedestrian routes for sight-impaired pedestrians, the transverse crosswalk lines shall be marked.

Option:

At controlled approaches, limit lines (stop lines) help to define pedestrian paths and are therefore a factor the engineer may consider in deciding whether or not to mark the crosswalk.

Where it is desirable to remove a marked crosswalk, the removal may be accomplished by repaving or surface treatment.

Guidance:

A marked crosswalk should not be eliminated by allowing it to fade out or be worn away.

Support:

The worn or faded crosswalk retains its prominent appearance to the pedestrian at the curb, but is less visible to the approaching driver.

Standard:

Notification to the public shall be given at least 30 days prior to the scheduled removal of an existing marked crosswalk. The notice of proposed removal shall inform the public how to provide input related to the scheduled removal and shall be posted at the crosswalk identified for removal. Refer to CVC 21950.5

Option:

Signs may be installed at or adjacent to an intersection directing that pedestrians shall not cross in a crosswalk indicated at the intersection in accordance with CVC 21106(b).

White PED XING pavement markings may be placed in each approach lane to a marked crosswalk, except at intersections controlled by traffic signals or STOP or YIELD signs.

Section 3B.18 <u>Parking Space Markings</u>

The following is added to this section:

Support:

Refer to CVC 22500 through 22522 for parking space markings.

Refer to Section 2B.39 for Parking Regulations.

<u>Policy on Parking Restrictions</u>

Option:

Local authorities may, by ordinance, provide for the establishment of parking meter zones and cause streets and highways to be marked with white lines designating parking spaces. Refer to CVC Section 22508.

Standard:

Where the proposed zones are on State highways, the ordinances shall be approved by the Department of Transportation.

Local authorities shall furnish a sketch or map showing the definite location of all parking meter stalls on State highways before departmental approval is given.

Support:

The District Directors have been delegated the authority to approve such ordinances.

The desirable dimensions of parking meter stalls are 2.4 m (8 ft) by 7.3 m (24 ft) with a minimum length of 6.1 m (20 ft).

Standard:

At all intersections, one stall length on each side measured from the crosswalk or end of curb return shall have parking prohibited. A clearance of 1.8 m (6 ft) measured from the curb return shall be provided at alleys and driveways.

Guidance:

At signalized intersections parking should be prohibited for a minimum of two stall lengths on the near side and one stall length on the far side. See Figure 3B-18 (CA).

Standard:

The departmental approval for the installation of the parking meters shall be covered by an encroachment permit.

Option:

Local authorities may by ordinance permit angle parking. Refer to CVC 22503.

Support:

Department of Transportation does not approve ordinances establishing angle parking on State highways.

Diagonal parking stalls are not permitted on State highways.

Figure 3B-18. Examples of Parking Space Markings
Standard:

MUTCD Figure 3B-18 is deleted and replaced with Figure 3B-18 (CA).

Section 3B.19 Pavement Word and Symbol Markings
Standard:

Paragraphs 9 ("The SCHOOL word …") and 10 ("When the SCHOOL …") are deleted. If used, the SCHOOL pavement marking shown in Figure 3B-20 (CA) shall be used and it shall be restricted to a single lane.

Guidance:

In Paragraph 3 ("Letters and numerals…"), the phrase "1.8 m (6 ft)" is changed to "2.44 m (8 ft)".

Option:

In Paragraph 11 ("Pavement word and…"), the words "should" and "scaled" are changed to "may" and "spaced", respectively.

The following is added to this section:

Standard:

Word and symbol markings near schools shall be yellow as provided in CVC 21368. See Part 7.

Support:

Normally, pavement word and symbol markings supplement standard signing.

Guidance:

A STOP pavement marking should be placed on all but minor approaches to State highways not controlled by signals.

Option:

Pavement markings with appropriate figures may be used to supplement speed limit signs. See Section 2B.13.

Arrows:
Standard:

Where a turning movement is mandatory, an arrow marking accompanied by a regulatory sign shall be used. However, when an additional clearly marked lane is provided for the approach to the turning movement, the sign is not required. Refer to CVC 22101.

Support:

Examples of entrance/exit ramp terminal signs and pavement markings are shown in Figure 3B-23 (CA).

Guidance:

The Type V arrows and warning signs, as shown in Figure 3B-104, should be used at locations where motorists could perceive that they are on a one-way roadway when, in fact, they are on a two lane, two-way highway. Following are some typical situations:

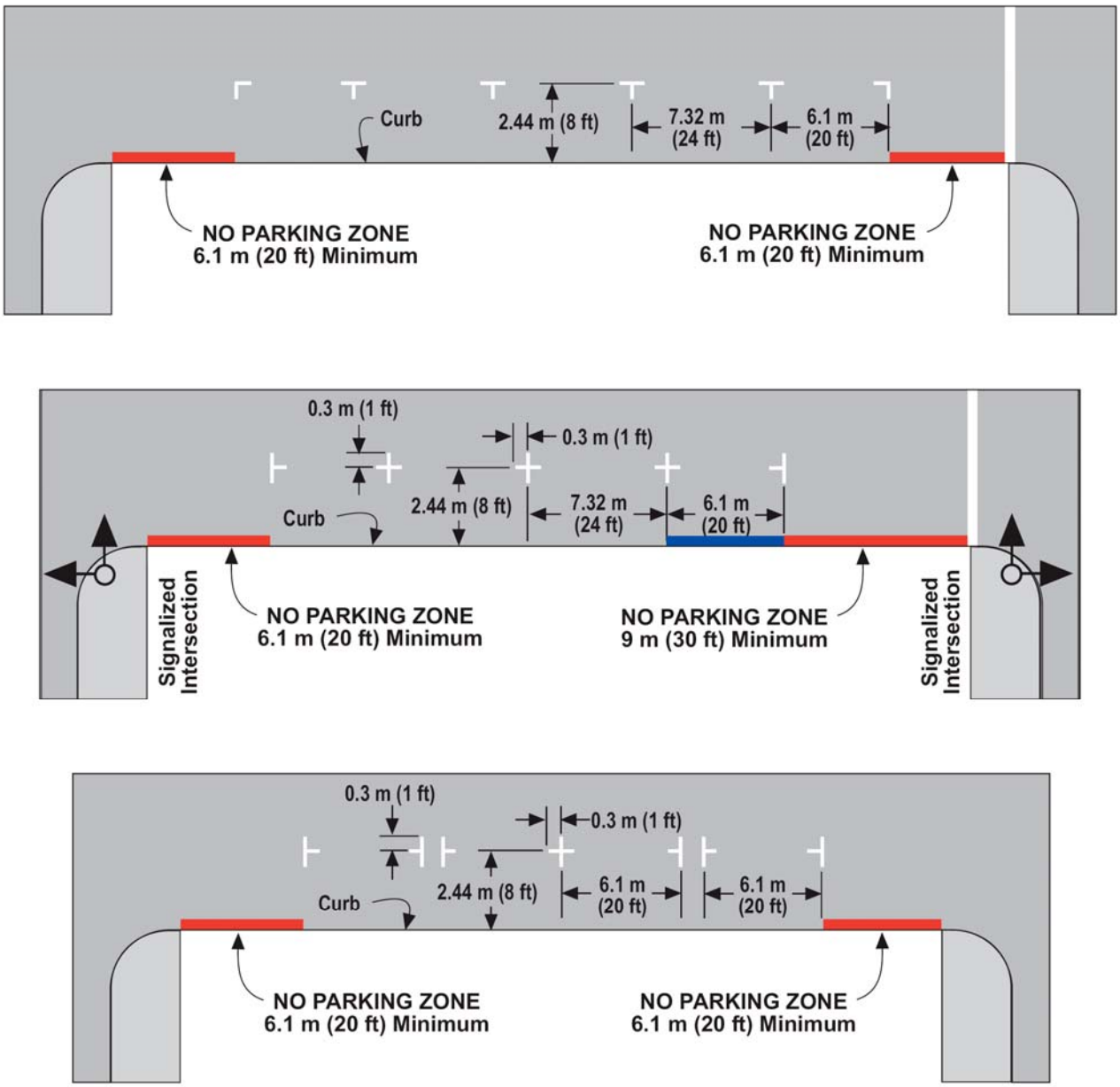
- Construction sites where a two-lane highway is being converted to a freeway or an expressway.
- Two-lane, two-way highways where ultimate freeway or expressway right-of-way has been purchased and grading for the full width has been completed.
- Two-lane, two-way highways following long sections of multi-lane freeway or expressway.

Exit Ramp Arrows:
Standard:

A minimum of two pavement arrows shall be placed on each freeway exit ramp lane.

A Type V arrow shall be the first arrow, on the ramp, in the direction of travel when exiting the freeway.

Figure 3B-18 (CA). Examples of Parking Space Markings

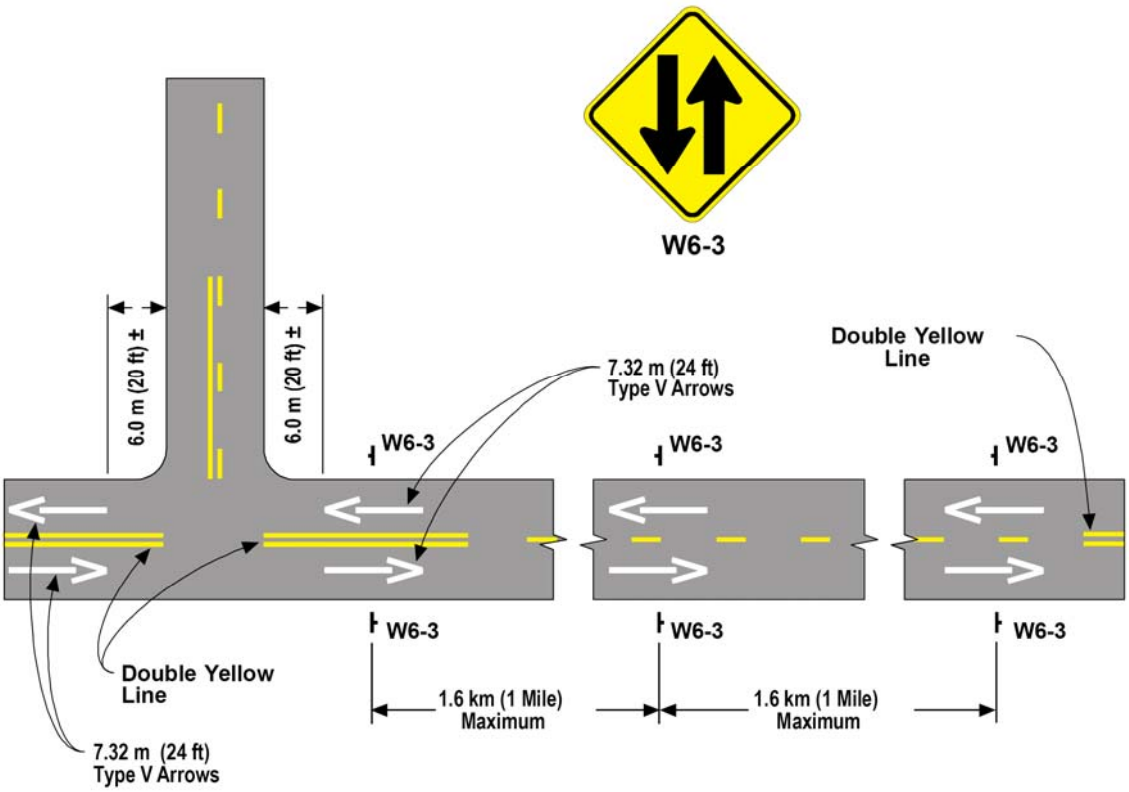


NOT TO SCALE

NOTES:

1. For Parking Stalls along the left side curb on one-way streets, markings may be placed on the curb delineating the ends of the individual stalls.
2. All stall markings are made with 100 mm (4 in) wide white lines. The shape is optional.
3. The parking stall cross line, 2.44 m (8 ft) from the curb, may be continuous longitudinally.

Figure 3B-104. Treatment for Divided Highway Illusion



NOTE:

1. **Use a Double Yellow Line (Two Direction - No Passing) to discourage wrong way movements at critical locations, such as entering roads or approaches to transitions.**

NOT TO SCALE

Where a mandatory movement is required, a Type I, II, III, IV, VII, or VIII arrow shall be placed with its point approximately 6.10 m (20 ft) preceding the limit line, crosswalk or "STOP" pavement legend. Where no mandatory movement is required, a Type V arrow shall be used at this location.

All other additional arrows, when used, shall be a minimum of 7.32 m (24 ft) in length.

All arrows shall be placed in the center of the lane and spaced approximately 30 m (100 ft) to 90 m (300 ft) apart.

Guidance:

The actual position and spacing should be determined in the field to provide the optimum visibility for traffic that may attempt to enter the exit ramp in the wrong direction.

Support:

See Figures 3B-21 (CA) and 3B-23(CA).

Entrance Ramp Arrows:

Standard:

A minimum of one Type I arrow, not less than 5.49 m (18 ft) in length, shall be positioned in the center of each freeway entrance ramp lane so that it is clearly in view of a right-way driver.

Guidance:

The distance between arrows, when more than one per lane is needed, should be 30 m (100 ft) to 90 m (300 ft). The Type V arrow should not be used on entrance ramps.

Support:

See Figures 3B-21 (CA) and 3B-23(CA).

Additional information on signing of ramp terminals is shown in Section 2E.50.

Turn Lane Arrows:

Standard:

One directional arrow, a minimum of 2.44 m (8 ft) in length, shall be placed in the center of each turning lane near the point of entrance.

Option:

High approach speeds may justify the use of a longer arrow. Two or more arrows may be placed in long turning lanes.

Support:

See Figures 3B-7 (CA) and 3B-101.

Support:

Refer to Section 2E.50 for Wrong-Way Traffic Control at Interchange Ramps.

Figure 3B-19. International Symbol of Accessibility Parking Space Marking with Blue Background and White Border Options

Standard:

MUTCD Figure 3B-19 is deleted and replaced with Figure 3B-19 (CA).

Figure 3B-20. Example of Elongated Letters for Word Pavement Markings

Standard:

MUTCD Figure 3B-20 is deleted and replaced with Figure 3B-20 (CA).

Figure 3B-21. Examples of Standard Arrows for Pavement Markings

MUTCD Figure 3B-21 is deleted and replaced with Figure 3B-21 (CA).

Figure 3B-22. Example of Lane Use Control Word and Symbol Markings
Standard:

Lane-use arrow markings shown in this figure as optional, shall not be optional but required. See Section 3B.19.

Limit lines (stop lines) (as shown in this figure) shall not be used in conjunction with marked crosswalks. See Section 3B.16.

Support:

See Figure 3A-112, Detail 40 and 40A for lane line extensions.

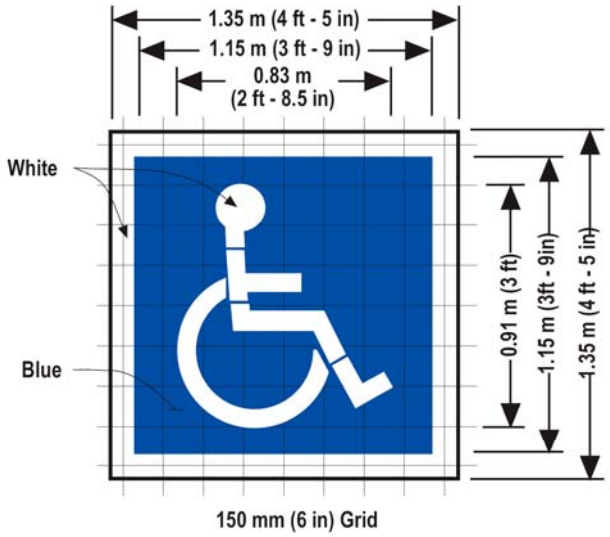
Figure 3B-23. Examples of Arrow Markings at Exit Ramp Terminals
Standard:

The MUTCD Figure 3B-23 is deleted and replaced with Figure 3B-23 (CA).

Figure 3B-24. Examples of Arrow Markings at Entrance Ramp Terminals
Standard:

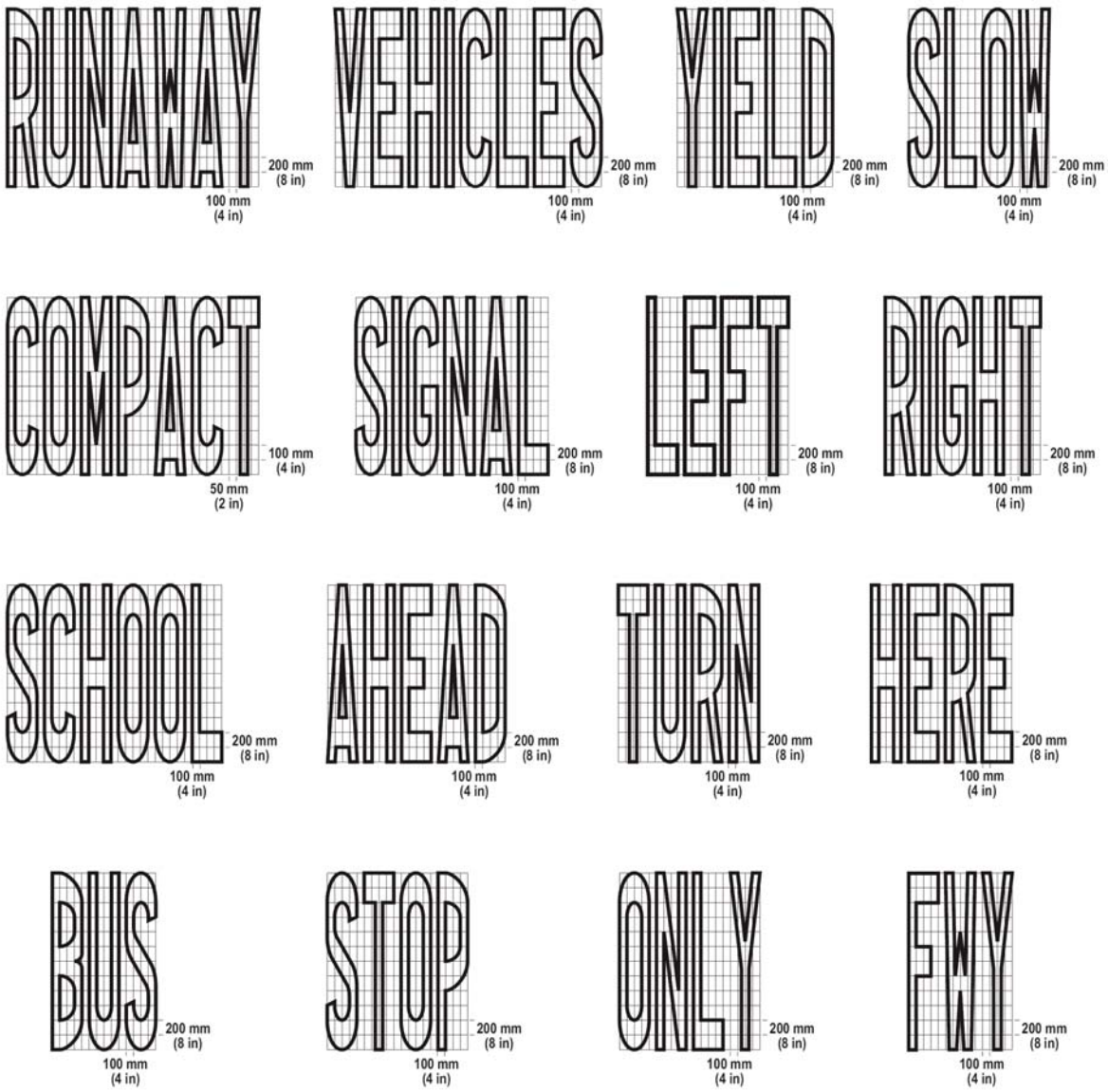
The MUTCD Figure 3B-24 is deleted and replaced with Figure 3B-23 (CA).

Figure 3B-19 (CA). Disabled Persons Parking Symbol



NOTE: The design detail for this symbol is also shown in the Department of Transportation's Standard Plans.

Figure 3B-20 (CA). Examples of Elongated Letters for Word Pavement Markings (Sheet 1 of 2)

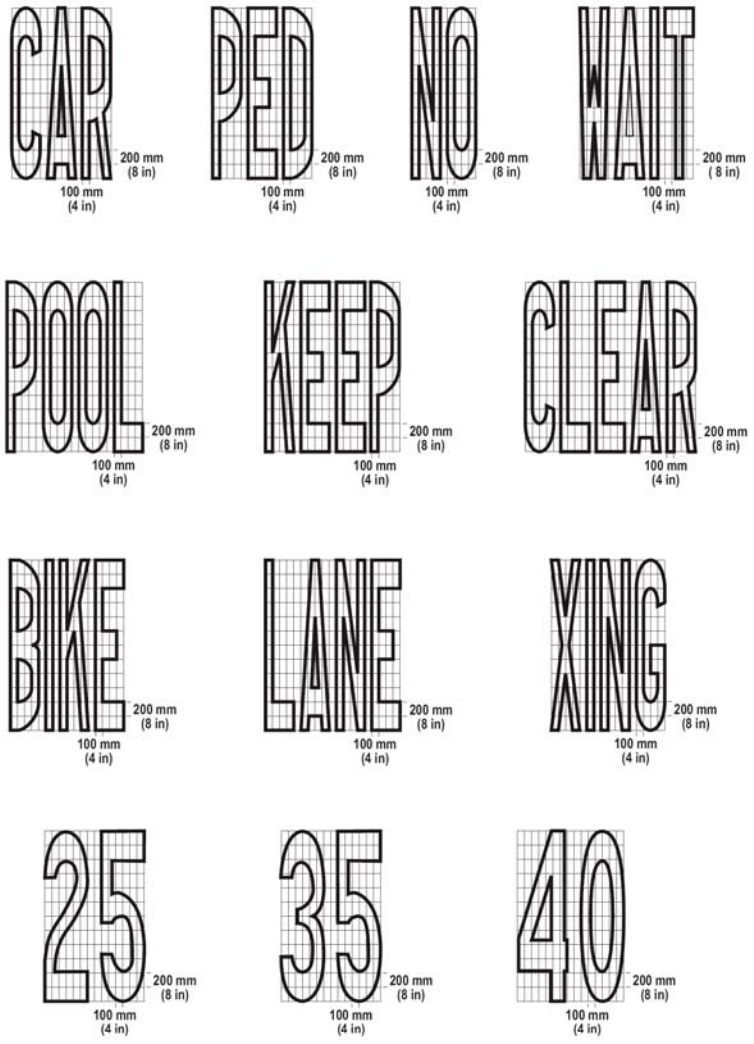


NOTES:

1. **All letters and numerals should be in conformance with the standard alphabets for highway signs and pavement markings approved by Caltrans.**
2. **The design details for various words are also shown in the Standard Plans published by Caltrans.**

NOT TO SCALE

Figure 3B-20 (CA). Examples of Elongated Letters for Word Pavement Markings (Sheet 2 of 2)

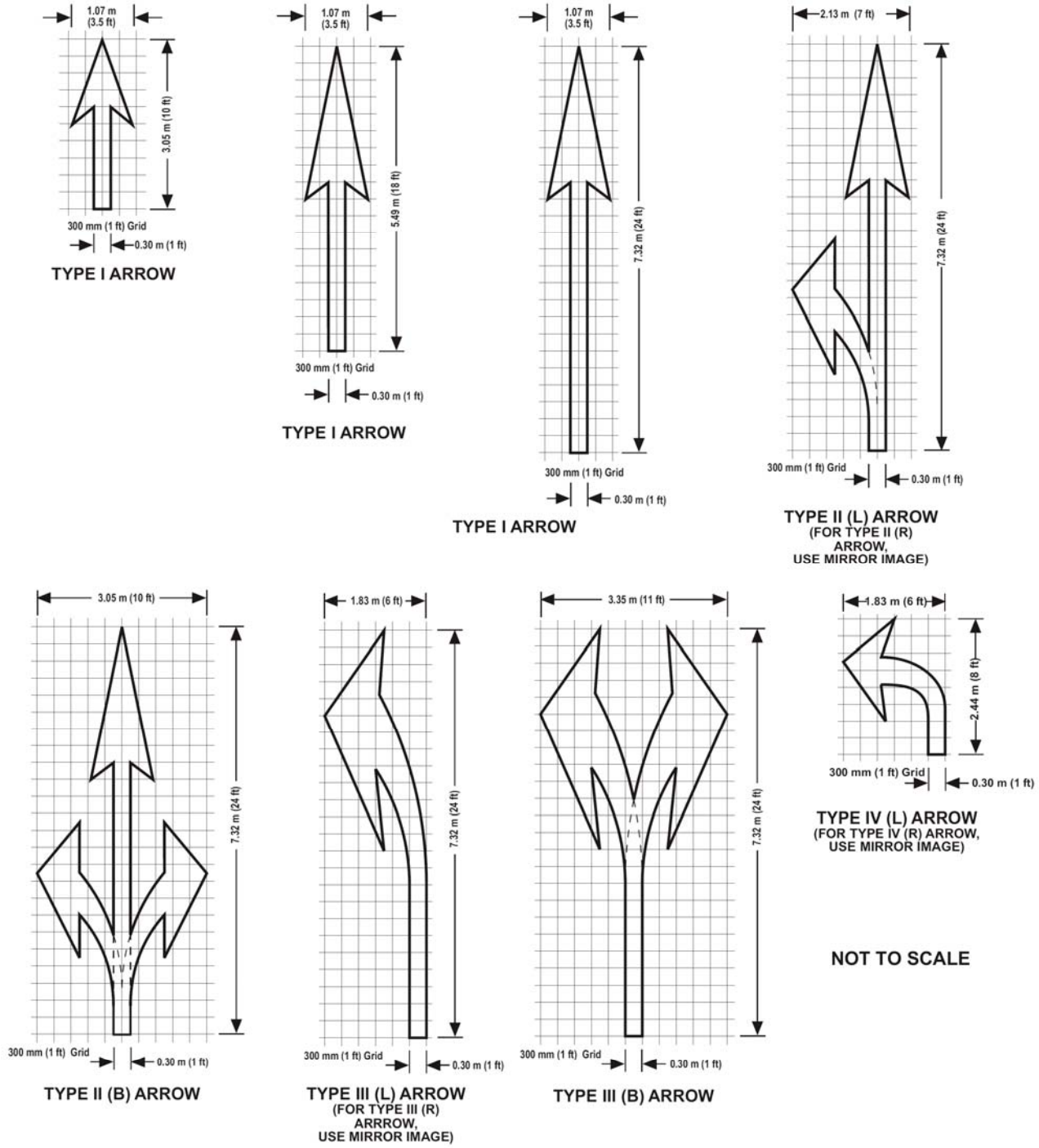


NOTES:

1. **All letters and numerals should be in conformance with the standard alphabets for highway signs and pavement markings approved by Caltrans.**
2. **The design details for various words are also shown in the Standard Plans published by Caltrans.**
3. **Half-size "BIKE LANE" legends are shown on Figure 9C-105 in "Part 9 Traffic Controls for Bicycle Facilities."**

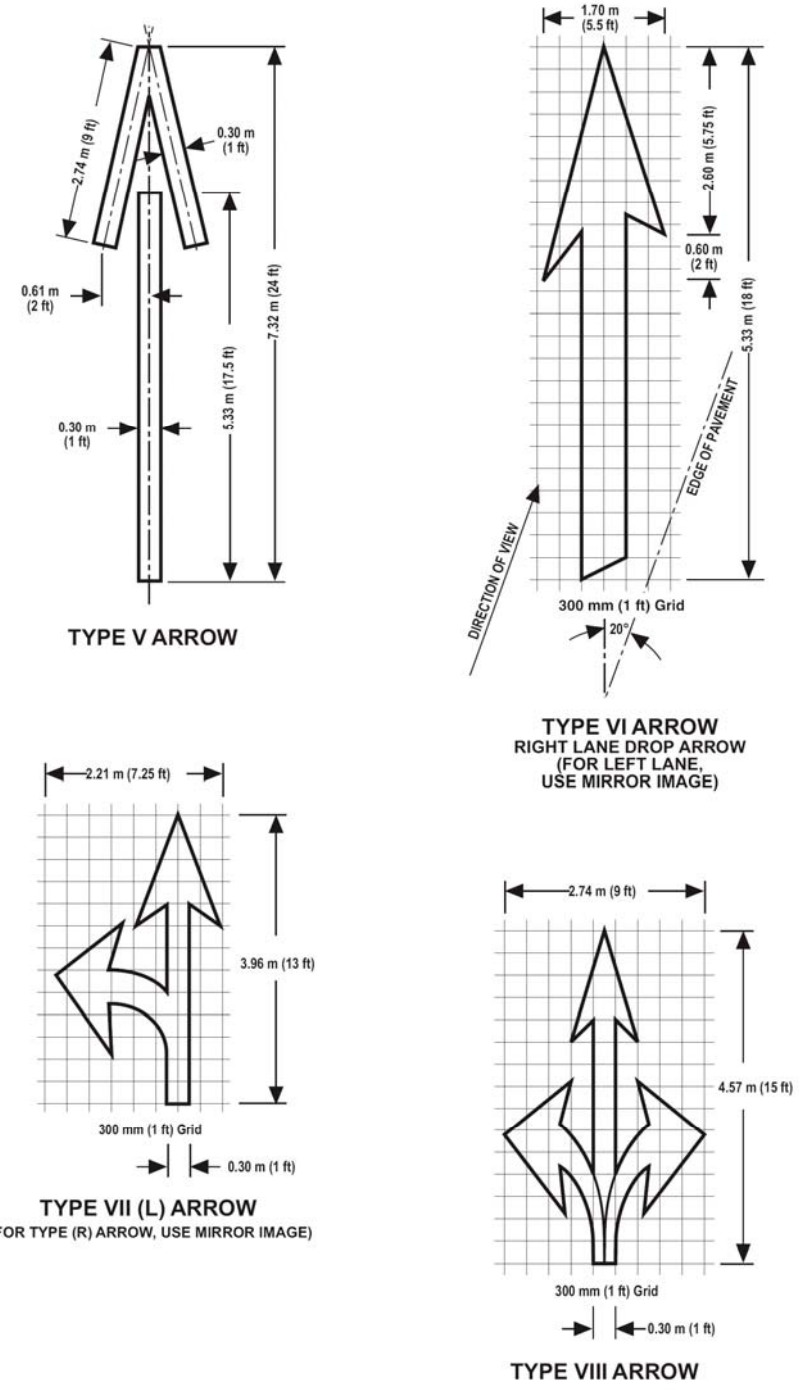
NOT TO SCALE

Figure 3B-21 (CA). Examples of Arrows for Pavement Markings (Sheet 1 of 2)



NOTE: The design details for various arrows are also shown in the Standard Plans published by Caltrans.

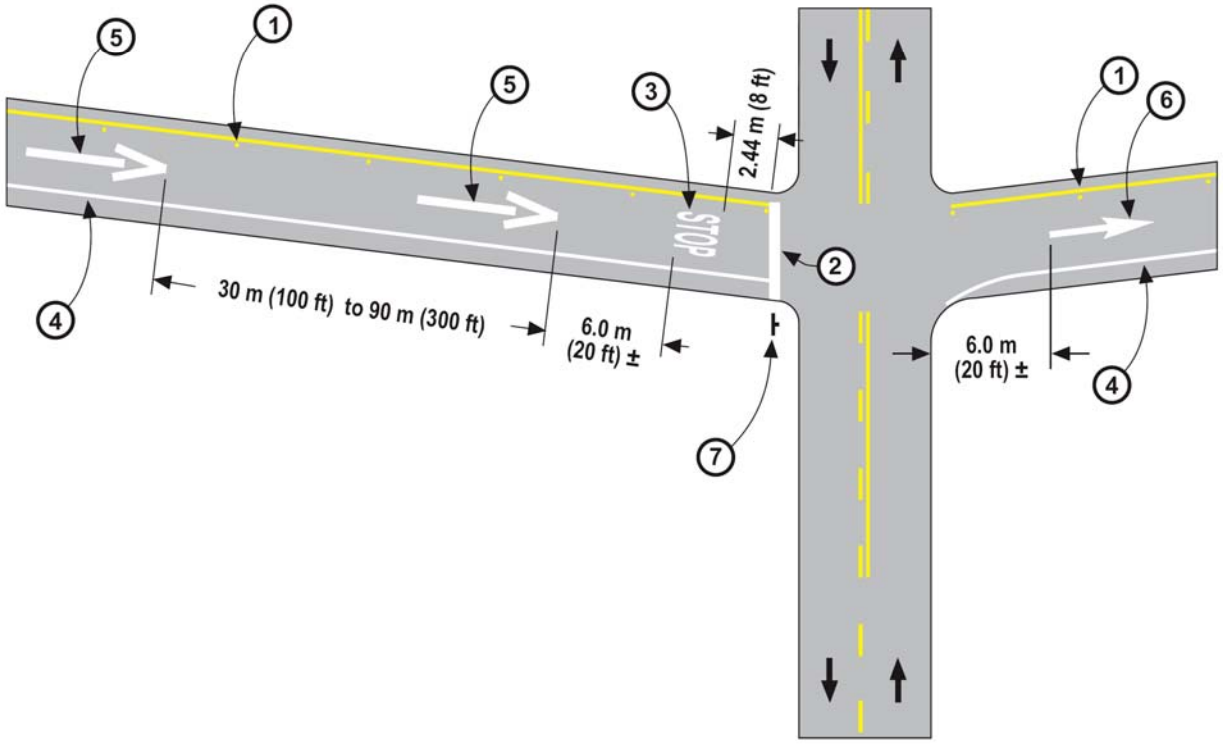
Figure 3B-21 (CA). Examples of Arrows for Pavement Markings (Sheet 2 of 2)



NOT TO SCALE

NOTE: The design details for various arrows are also shown in the Standard Plans published by Caltrans.

Figure 3B-23 (CA). Examples of Entrance/Exit Ramp Terminal Signs and Pavement Markings (Sheet 1 of 6)



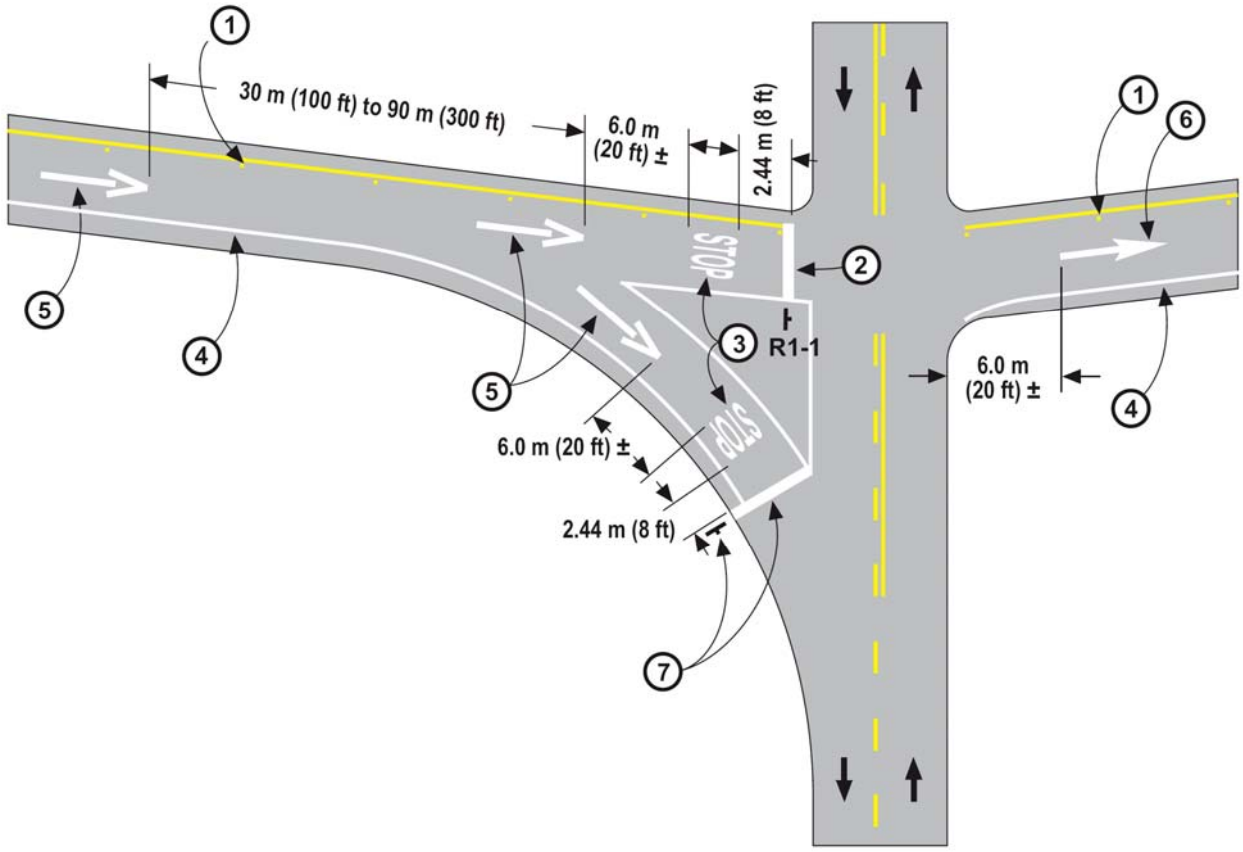
NOTES:

1. Place 100 mm (4 in) Solid Yellow Left Edge Line and One-Way Yellow Retroreflective Pavement Markers on 7.32 m (24 ft) centers as shown. See Edge Line Detail 25A.
2. Place Limit Line as shown. See also Note 7 and Section 3B.16.
3. Place "STOP" legend as shown. See Section 3B.16.
4. Place 100 mm (4 in) Solid White Right Edge Line, flared end optional, as shown. See Edge Line Detail 27B.
5. Place Type V Arrows, in pairs, as shown. See Section 3B.19.
6. Place Type I Arrow as shown. See Section 3B.19.
7. A "YIELD" (R1-2) sign, Yield Line and "YIELD" pavement legend may be used in lieu of the "STOP" (R1-1) sign, Limit Line and "STOP" pavement legend on low volume roads.

LEGEND

→ Direction of Travel NOT TO SCALE

Figure 3B-23 (CA). Examples of Entrance/Exit Ramp Terminal Signs and Pavement Markings (Sheet 2 of 6)



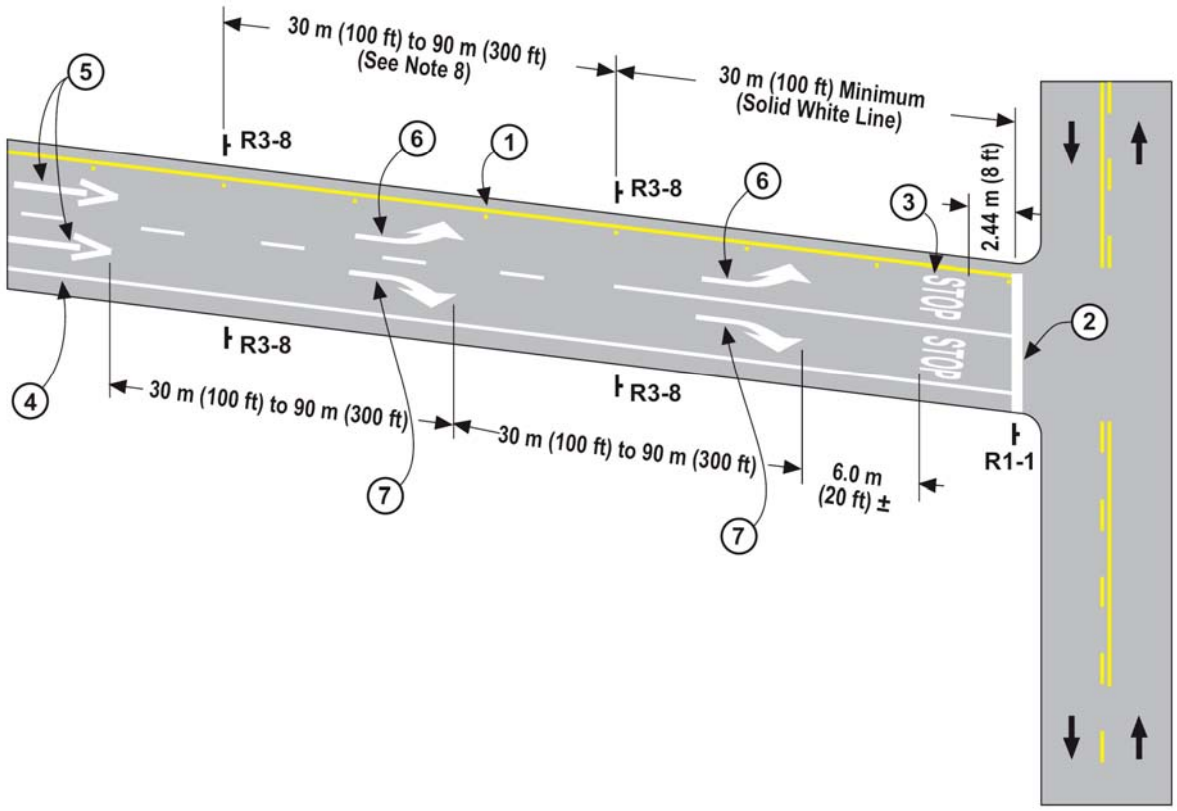
NOTES:

1. Place 100 mm (4 in) Solid Yellow Left Edge Line and One-Way Yellow Retroreflective Pavement Markers on 7.32 m (24 ft) centers as shown. See Edge Line Detail 25A.
2. Place Limit Line as shown. See Section 3B.16.
3. Place "STOP" legend as shown. See Section 3B.16.
4. Place 100 mm (4 in) Solid White Right Edge Line, flared end optional, as shown. See Edge Line Detail 27B.
5. Place Type V Arrows, in pairs, as shown. See Section 3B.19.
6. Place Type I Arrow as shown. See Section 3B.19.
7. A "YIELD" (R1-2) sign, Yield Line and "YIELD" pavement legend may be used in lieu of the "STOP" (R1-1) sign, Limit Line and "STOP" pavement legend on low volume roads.

LEGEND

→ Direction of Travel NOT TO SCALE

Figure 3B-23 (CA). Examples of Entrance/Exit Ramp Terminal Signs and Pavement Markings (Sheet 3 of 6)



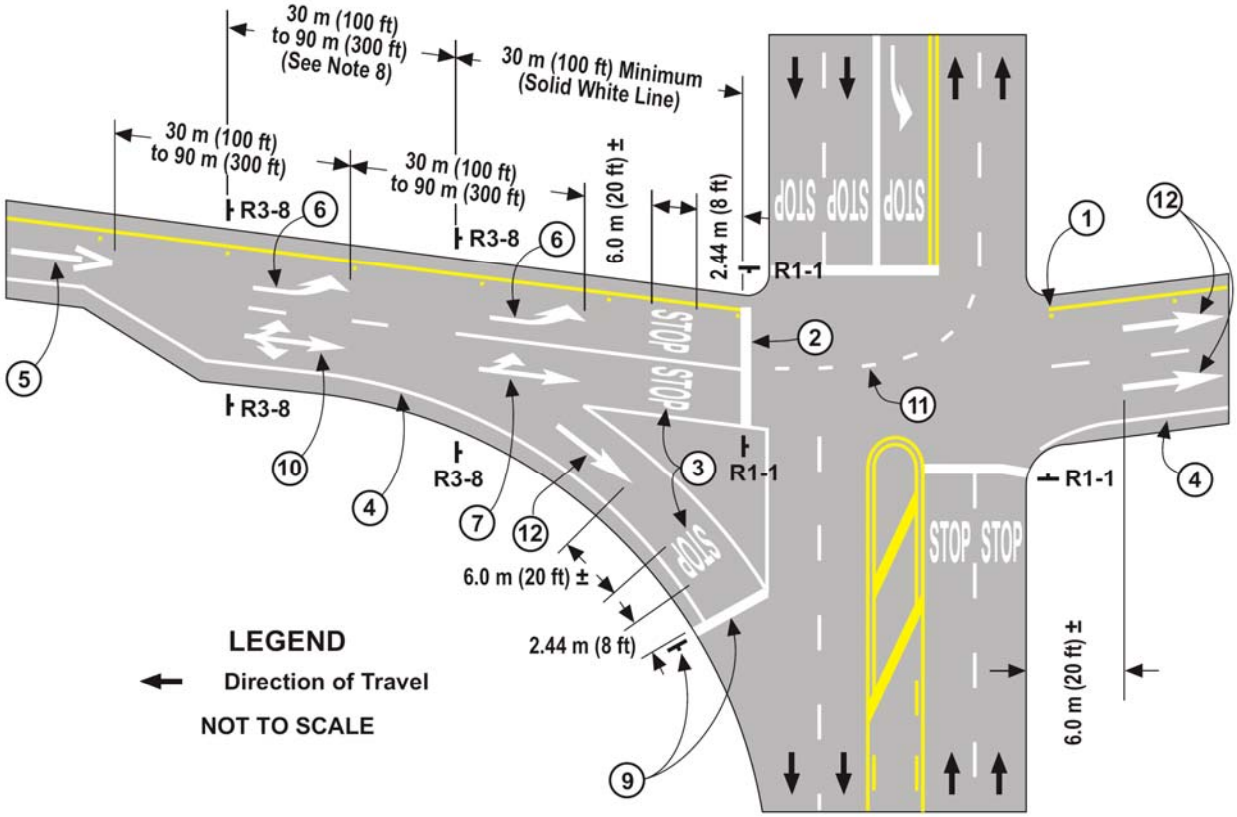
NOTES:

1. Place 100 mm (4 in) Solid Yellow Left Edge Line and One-Way Yellow Retroreflective Pavement Markers on 7.32 m (24 ft) centers as shown. See Edge Line Detail 25A.
2. Place Limit Line as shown. See Section 3B.16.
3. Place "STOP" legend as shown. See Section 3B.16.
4. Place 100 mm (4 in) Solid White Right Edge Line, flared end optional, as shown. See Edge Line Detail 27B.
5. Place Type V Arrows as shown. See Section 3B.19.
6. Place Type III (L) Arrows, in pairs, as shown when distance permits. See Section 3B.19.
7. Place Type III (R) Arrows, in pairs, as shown when distance permits. See Section 3B.19.
8. Lane Use Control (R3-8) signs should be placed on both sides of the exit ramp, at the beginning of the Solid White Line. An additional set should also be placed in advance where distance permits, to alert the motorist of lane use controls ahead.

LEGEND

→ Direction of Travel NOT TO SCALE

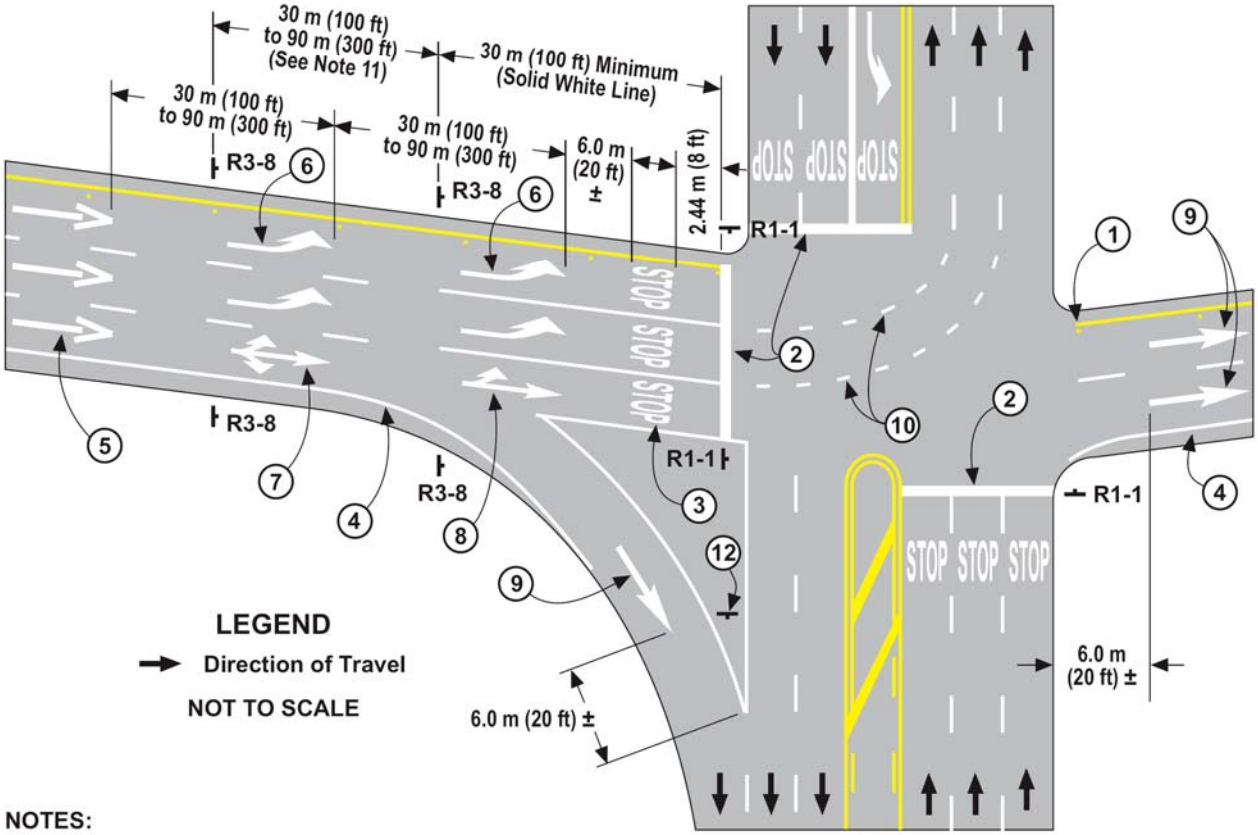
Figure 3B-23 (CA). Examples of Entrance/Exit Ramp Terminal Signs and Pavement Markings (Sheet 4 of 6)



NOTES:

1. Place 100 mm (4 in) Solid Yellow Left Edge Line and One-Way Yellow Retroreflective Pavement Markers on 7.32 m (24 ft) centers as shown. See Edge Line Detail 25A.
2. Place Limit Line as shown. See Section 3B.16.
3. Place "STOP" legend as shown. See Section 3B.16.
4. Place 100 mm (4 in) Solid White Right Edge Line, flared end optional, as shown. See Edge Line Detail 27B.
5. Place Type V Arrow as shown. See Section 3B.19.
6. Place Type III(L) Arrows, in pairs, as shown where distance permits. See Section 3B.19.
7. Place Type II(L) Arrow, as shown where distance permits. See Section 3B.19.
8. Lane-Use Control (R3-8) signs should be place on both sides of the exit ramp, at the beginning of the Solid White Line. An additional set should also be placed in advance where distance permits, to alert the motorist of lane use controls ahead.
9. A "YIELD" (R1-2) sign, Yield Line and "YIELD" pavement legend may be used in lieu of the "STOP" (R1-1) sign, Limit Line and "STOP" pavement legend on low volume roads.
10. Place Type II(B) Arrow, as shown. See Section 3B.19.
11. Lane Line Extensions through the intersection may be used, as shown. See Lane Line Detail 40.
12. Place Type I [7.32 m (24 ft)] Arrows as shown. See Section 3B.19.

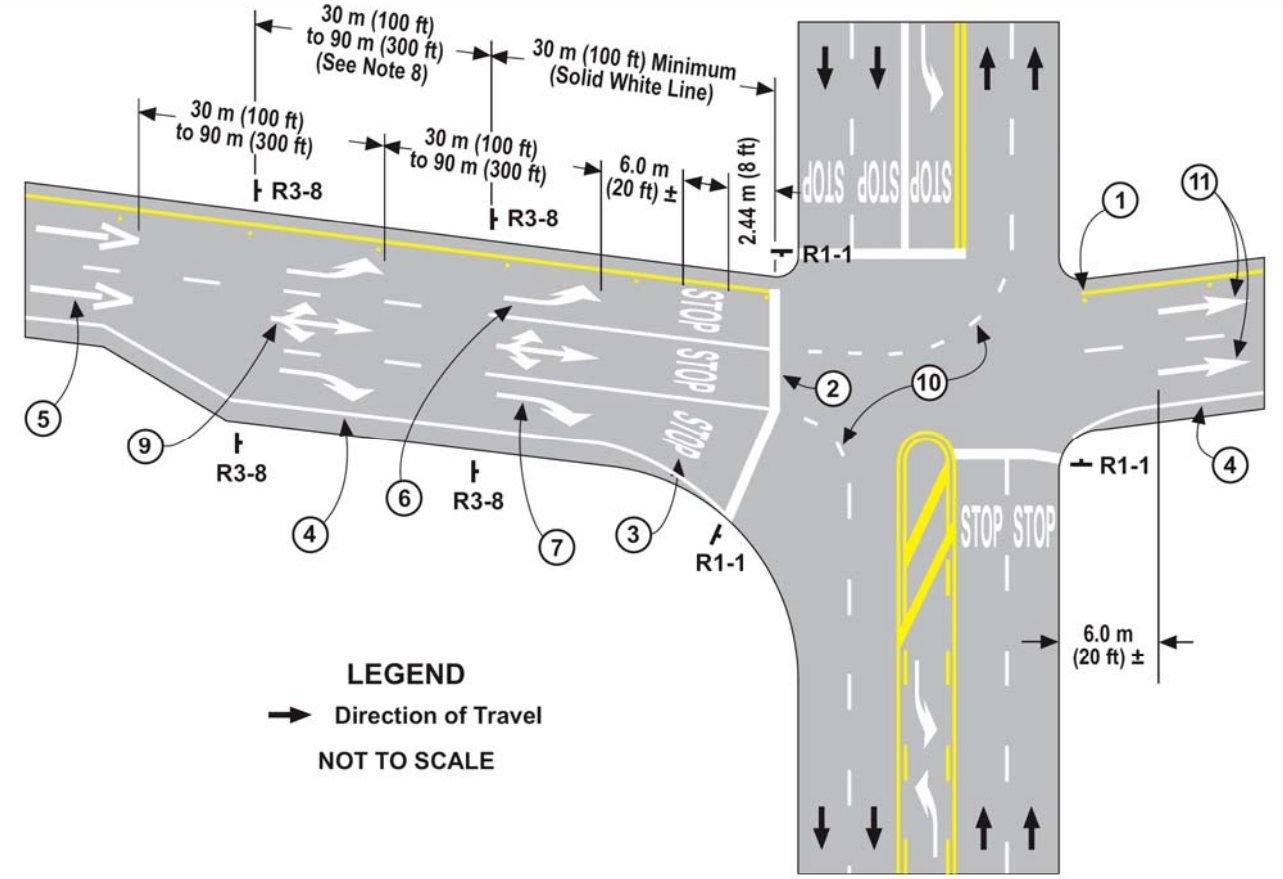
Figure 3B-23 (CA). Examples of Entrance/Exit Ramp Terminal Signs and Pavement Markings (Sheet 5 of 6)



NOTES:

1. Place 100 mm (4 in) Solid Yellow Left Edge Line and One-Way Yellow Retroreflective Pavement Markers on 7.32 m (24 ft) centers as shown. See Edge Line Detail 25A.
2. Place Limit Line as shown. See Section 3B.16.
3. Place "STOP" legend as shown. See Section 3B.16.
4. Place 100 mm (4 in) Solid White Right Edge Line, flared end optional, as shown. See Edge Line Detail 27B.
5. Place Type V Arrows as shown. See Section 3B.19.
6. Place Type III(L) Arrows, in pairs, as shown where distance permits. See Section 3B.19.
7. Place Type II(B) Arrow, as shown where distance permits. See Section 3B.19.
8. Place Type II(L) Arrow, as shown. See Section 3B.19.
9. Place Type I [7.32 m (24 ft)] Arrow as shown. See Section 3B.19.
10. Lane Line Extensions through the intersection may be used, as shown. See Lane Line Detail 40.
11. Lane-Use Control (R3-8) signs should be place on both sides of the exit ramp, at the beginning of the Solid White Line. An additional set should also be placed in advance where distance permits, to alert the motorist of lane use controls ahead.
12. The Added Lane Symbol (W4-3) sign should be used in lieu of the Merge Symbol (W4-1) sign, when an extra lane is provided of more than 0.8 km (1/2 Mile) in length.

Figure 3B-23 (CA). Examples of Entrance/Exit Ramp Terminal Signs and Pavement Markings (Sheet 6 of 6)



NOTES:

1. Place 100 mm (4 in) Solid Yellow Left Edge Line and One-Way Yellow Retroreflective Pavement Markers on 7.32 m (24 ft) centers as shown. See Edge Line Detail 25A.
2. Place Limit Line as shown. See Section 3B.16.
3. Place "STOP" legend as shown. See Section 3B.16.
4. Place 100 mm (4 in) Solid White Right Edge Line, flared end optional, as shown. See Edge Line Detail 27B.
5. Place Type V Arrows as shown. See Section 3B.19.
6. Place Type III(L) Arrows, in pairs, as shown where distance permits. See Section 3B.19.
7. Place Type III(R) Arrows, in pairs, as shown where distance permits. See Section 3B.19.
8. Lane-Use Control (R3-8) signs should be place on both sides of the exit ramp, at the beginning of the Solid White Line. An additional set should also be placed in advance where distance permits, to alert the motorist of lane use controls ahead.
9. Place Type II(B) Arrows, in pairs, as shown where distance permits. See Section 3B.19.
10. Lane Line Extensions through the intersection may be used, as shown. See Lane Line Detail 40.
11. Place Type I [7.32 m (24 ft)] Arrows as shown. See Section 3B.19.

Section 3B.20 Speed Measurement Markings

The following is added to this section:

Support:

The California Highway Patrol patrols certain highways with both helicopters and fixed-wing aircraft. The purpose of the patrol is to monitor traffic, provide motorist assistance and initiate appropriate enforcement action.

In order to make the air patrol effective, the California Highway Patrol and Caltrans have agreed upon markings and signs as shown in Figure 3B-105.

Option:

Speed measurement markings may be placed on the right shoulder in areas patrolled by aircraft as requested by the California Highway Patrol.

Standard:

Where there is an equation of more than 30 m (100 ft) in a 1.6 km (1 mi) posting, a white 'X' pavement marking shall be placed at each end of the section to indicate the markings are less than 1.6 km (1 mi) apart.

Guidance:

The SPEED ENFORCED BY AIRCRAFT (CA Code R48-2) sign should be used for both directions of travel and should be spaced at 40 km (25 mi) intervals.

Pavement marking should be placed on the shoulder in one direction only, except where the opposing roadway is widely separated.

Option:

In areas where identifying features are widely separated, white 0.91 m (3 ft) high post kilometer (mile) numbers may be placed at 8 km (5 mi) points where needed for aircraft reference.

Standard:

Markings shall not be on the traveled way.

Option:

If routes with narrow shoulders are requested for marking, the standard marking shape may be modified to provide an equivalent area without encroaching on the traveled way or the Alternate Marking System described.

Support:

The Alternate Marking System is a 200 mm (8 in) wide solid white longitudinal line, 6.1 m (20 ft) in length and in line with the right edge line. It is preceded and followed by a 6.1 m (20 ft) gap in the right edge line.

Section 3B.21 Curb Markings

Standard:

Paragraphs 6 ("Retroreflective solid yellow…") and 7 ("Retroreflective solid white…") are deleted. In California, object markers are used for this purpose. See Chapter 3C.

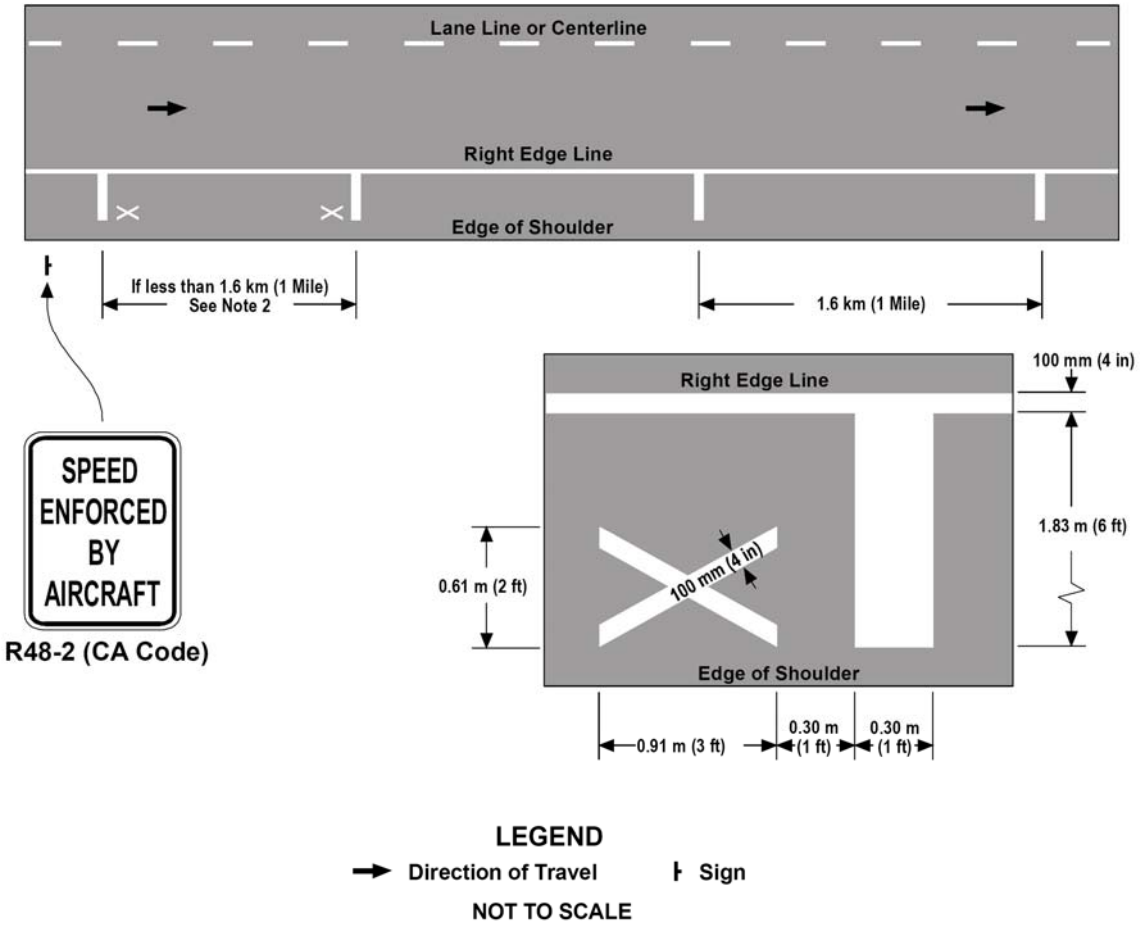
The following is added to this section:

Support:

Refer to Section 2B.39 for Parking Regulations.

In California, curb markings are not used for delineating traffic. They are mainly used for parking regulations.

Figure 3B-105. Examples of Signs and Markings for Highways Where Speed is Enforced by Aircraft



LEGEND

→ Direction of Travel ⊢ Sign

NOT TO SCALE

Standard:

The color of curb markings shall conform to CVC 21458 quoted below:

(a) Whenever local authorities enact local parking regulations and indicate them by the use of paint upon curbs, the following colors only shall be used, and the colors indicate as follows:

(1) Red indicates no stopping, standing, or parking, whether the vehicle is attended or unattended, except that a bus may stop in a red zone marked or sign posted as a bus loading zone.

(2) Yellow indicates stopping only for the purpose of loading or unloading passengers or freight for the time as may be specified by local ordinance.

(3) White indicates stopping for either of the following purposes:

(A) Loading or unloading of passengers for the time as may be specified by local ordinance.

(B) Depositing mail in an adjacent mailbox.

(4) Green indicates time limit parking specified by local ordinance.

(5) Blue indicates parking limited exclusively to the vehicles of disabled persons and disabled veterans.

(b) Regulations adopted pursuant to subdivision (a) shall be effective on days and during hours or times as prescribed by local ordinances.

Parking regulations shall be covered by ordinance or order of the authority having jurisdiction over the street or highway.

Option:

Curb markings may supplement standard signs.

Prohibitions or restrictions enacted by local authorities under Sections 22506 or 22507 may be indicated by marking curbs as prescribed by CVC Section 21458.

Policy on Parking Restrictions

Support:

Loading Zones - Local authorities are authorized by Section 21112 of the CVC to license and regulate the location of stands on streets and highways for use of taxicabs and other public carriers for hire. Where such stands are located on State highways, and highway maintenance is not delegated to the local authority, the approval of the Department is required. The District Directors have been delegated authority to approve local ordinances establishing such stands.

Loading zone ordinances restricted for certain segments of traffic such as "hotel patrons only" will not be approved. Bus stand ordinances are generally approved.

Standard:

Whenever practicable, bus stands shall be located on the far side of the intersection.

Section 3B.22 Preferential Lane Word and Symbol Markings

Support:

In Paragraph 9 (“The spacing of…”) the second sentence (“Markings spaced as…”) is deleted and replaced with the following:

Markings spaced as close as 24 m (80 ft) apart might be appropriate on city streets, while markings spaced 150 m (500 ft) might be appropriate for freeways (Refer to HOV Guidelines) and 56 m (180 ft) for onramps (Refer to Ramp Meter Design Manual). See Section 1A.11 for information regarding these publications.

Standard:

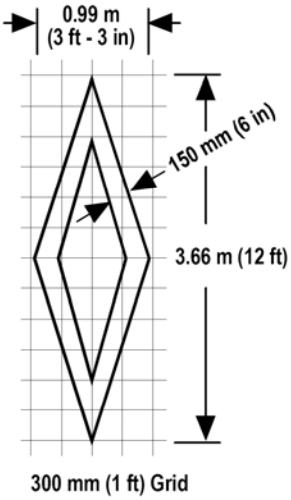
Paragraph 10 (“The vehicle occupancy…”) is deleted and shall not be applicable in California.

The following is added to this section:

Support:

For State highways, see Department of Transportation’s High Occupancy Vehicle (HOV) Guidelines and Ramp Meter Design Manual. See Section 1A.11 for information regarding these publications.

Figure 3B-106. Diamond Symbol (HOV Lane)



NOTE: The design detail for this symbol is also shown in the Department of Transportation's Standard Plans.

High Occupancy Vehicle (HOV) lanes are lanes where usage is restricted to a class of vehicle occupancy. HOV lane assignments could be made on a full-time or part time basis. Freeway mainline HOV lanes can be operated as physically separated, buffer separated, reversible, contiguous, or as contra-flow facilities. HOV lanes can also be operated on county roads or city streets.

The HOV lane symbol (diamond shape) is shown in Figure 3B-106.

Section 3B.23 <u>Preferential Lane Longitudinal Markings for Motor Vehicles</u>
Standard:

In Paragraph 4 ("The following four…"), sub-heading C, notes 1, 2 and 3 are deleted and replaced with the following:

1. **A single solid wide white line where crossing is discouraged (see Figure 3B-26c).**
2. **A single broken wide white line where crossing is permitted (see Figure 3B-26d) at ingress/egress segments for physically separated full-time preferential lanes.**
3. **A single broken 100 mm (4 in) white line where crossing is permitted on preferential lanes that operate for only certain periods of the day. In these cases, markings shall conform to the purpose the lane serves a majority of the time.**

In Paragraph 4 ("The following four…"), sub-heading D, notes 1, 2 and 3 are deleted and replaced with the following:

1. **A single solid wide white line where crossing is discouraged (see Figure 3B-25c).**
2. **A single broken 100 mm (4 in) white line where crossing is permitted on preferential lanes that operate for only certain periods of the day. In these cases, markings shall conform to the purpose the lane serves a majority of the time.**
3. **A single dotted normal white line where crossing is permitted for any vehicle to perform a right turn maneuver (see Figure 3B-25e).**

Option:

Paragraph 6 ("When concurrent flow…") is deleted and replaced with the following:

When concurrent flow preferential lanes and other travel lanes are separated by 3.6 m (12 ft) or more, chevron markings may be placed in the neutral area.

Guidance:

If used, the chevron spacing should be 60 m (200 ft) or greater.

Standard:

Paragraph 7 ("For full-time…") is deleted and shall not be applicable in California.

The following is added to this section:

Support:

The striping pattern for the lane lines between the HOV lane and the adjacent normal flow lanes will vary depending on the condition. See Department of Transportation's High Occupancy Vehicle (HOV) Guidelines and Ramp Meter Design Manual for the appropriate HOV lane line striping patterns and markings. See Section 1A.11 for information regarding these publications.

Table 3B-2. Standard Edge Line Lane Markings for Preferential Lanes

Standard:

MUTCD Table 3B-2 is deleted and replaced with Table 3B-2 (CA).

Section 3B.26 Speed Hump Markings

The following is added to this section:

Support:

Per CVC 440, speed humps or bumps are not official traffic control devices.

Section 3B.101 Diagonal and Chevron Markings

Guidance:

Diagonal and chevron markings should be used, when in the opinion of an engineer, it is necessary to add emphasis or to discourage vehicular travel upon a paint formed roadway feature such as an unusually wide shoulder area, a pedestrian refuge island, or a traffic divisional or channelization island.

Diagonal lines, when used, should be installed between an edge line and traffic island, or between pairs of double yellow lines.

Chevron markings, when used, should be installed between channelizing lines for traffic flows in the same direction.

Support:

The applicable channelizing lines for chevron markings are shown in Figure 3A-110, Details 36, 36A and 36B and pairs of lines shown in Figure 3A-112, Details 38 and 38A.

The diagonal lines or chevron markings are normally 300 mm (12 in) wide.

Standard:

Diagonal lines and chevrons shall be the same color as the line or lines to which they connect and shall point at a 45-degree forward angle.

Diagonal lines or chevrons, if used, shall be the same color as the edge line.

Option:

The spacing between these lines may vary from 0.3 m (1 ft) in a pedestrian crosswalk to 60 m (200 ft) for vehicular traffic.

Table 3B-2(CA). Standard Edge Line Lane Markings for Preferential Lanes

Type of Preferential Lane	Left Edge Line	Right Edge Line
Physically-Separated, Non-Reversible	A Single normal solid yellow line	A Single normal solid white line
Physically-Separated, Reversible	A Single normal solid white line	A Single normal solid white line
Concurrent Flow-Left Side	A Single normal solid yellow line	A single solid wide white line where crossing is discouraged (see Figure 3B-25c) A single broken wide white line where crossing is permitted (see Figure 3B-25d) for full-time preferential lane ingress/egress segments A single broken 100 mm (4 in) white line for part-time preferential lanes
Concurrent Flow-Right Side	A single solid wide white line where crossing is discouraged (see Figure 3B-25c) A single broken 100 mm (4 in) white line for part-time preferential lanes A single dotted normal white line where crossing is permitted for any vehicle to perform a right-turn maneuver (see Figure 3B-25e)	A Single normal solid white line

Notes: If there are two or more preferential lanes, they shall be separated with a normal broken white line.
The standard lane markings listed in this table are provided in a tabular format for reference.
This information is also described in the second Standard in Section 3B.23.

Section 3B.102 Passing Lanes

Standard:

When a passing lane is provided, a two-direction no passing marking (see Figure 3A-104) shall be used when the Average Daily Traffic (ADT) exceeds 3,000. See Figure 3B-107.

Option:

Passing in both directions may be provided by alternating the direction of the middle lane at about 1.6 km (1 mi) intervals.

A one-direction no passing marking (see Figure 3A-103) with one or more YIELD TO UPHILL TRAFFIC (CA Code R55) signs may be used when the ADT is 3,000 or less.

Section 3B.103 Truck Lanes

Standard:

When a climbing lane is provided on an upgrade and it is necessary to prohibit trucks from passing slower moving vehicles, a 200 mm (8 in) solid white line shall be used in place of the standard lane line stripe.

The TRUCKS RIGHT LANE ONLY (CA Code R53B) sign shall be placed at the beginning of the restriction and at approximately 0.4 km (1/4 mi) intervals. When the restriction is necessary only during certain hours, the Specific Hours/Days Plaque (CA Code R82A) shall be placed below the R53B (CA Code) sign.

A TRUCK LANE (R4-6) sign shall be placed in advance of the truck lane. An END TRUCK LANE (CA Code R53A) sign shall be placed at the end of the restriction. See Figure 3B-12 (CA) for signing and marking the end of an extra lane.

Section 3B.104 Turn Lanes

Support:

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

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

Standard:

Left-turn or right-turn lanes shall be separated from the through lanes by a single solid 200 mm (8 in) wide white line as shown in Figure 3A-112.

Section 3B.105 Turnouts

Guidance:

Paved turnouts should be marked with a 200 mm (8 in) wide single solid white line between the through lane and the turnout. The line should not extend through the entry and exit areas. See Figure 3B-108 and Department of Transportation's Highway Design Manual, Section 204.5 (4). See Section 1A.11 for information regarding this publication.

Turnouts should be 60 m (200 ft) to 150 m (500 ft) in length including a short taper of 15 m (50 ft) at each end. Turnouts should not be longer than 150 m (500 ft).

The right edge line should be dropped throughout the length of the turnout.

Option:

Turnout length may be increased 30 m (100 ft) on down grades over 3%.

Section 3B.106 Rumble Strips

Support:

Rumble strips are bands of raised material or indentations formed or ground into the traveled way, on the centerline or shoulders. Rumble strips call the motorist's attention to standard warning or regulatory devices or otherwise alert drivers by transmitting sound and/or vibration through the vehicle.

Option:

Rumble strips may be used in the traveled way on California's streets and highways if the traffic engineer considers their use as the optimal solution to the identified problem.

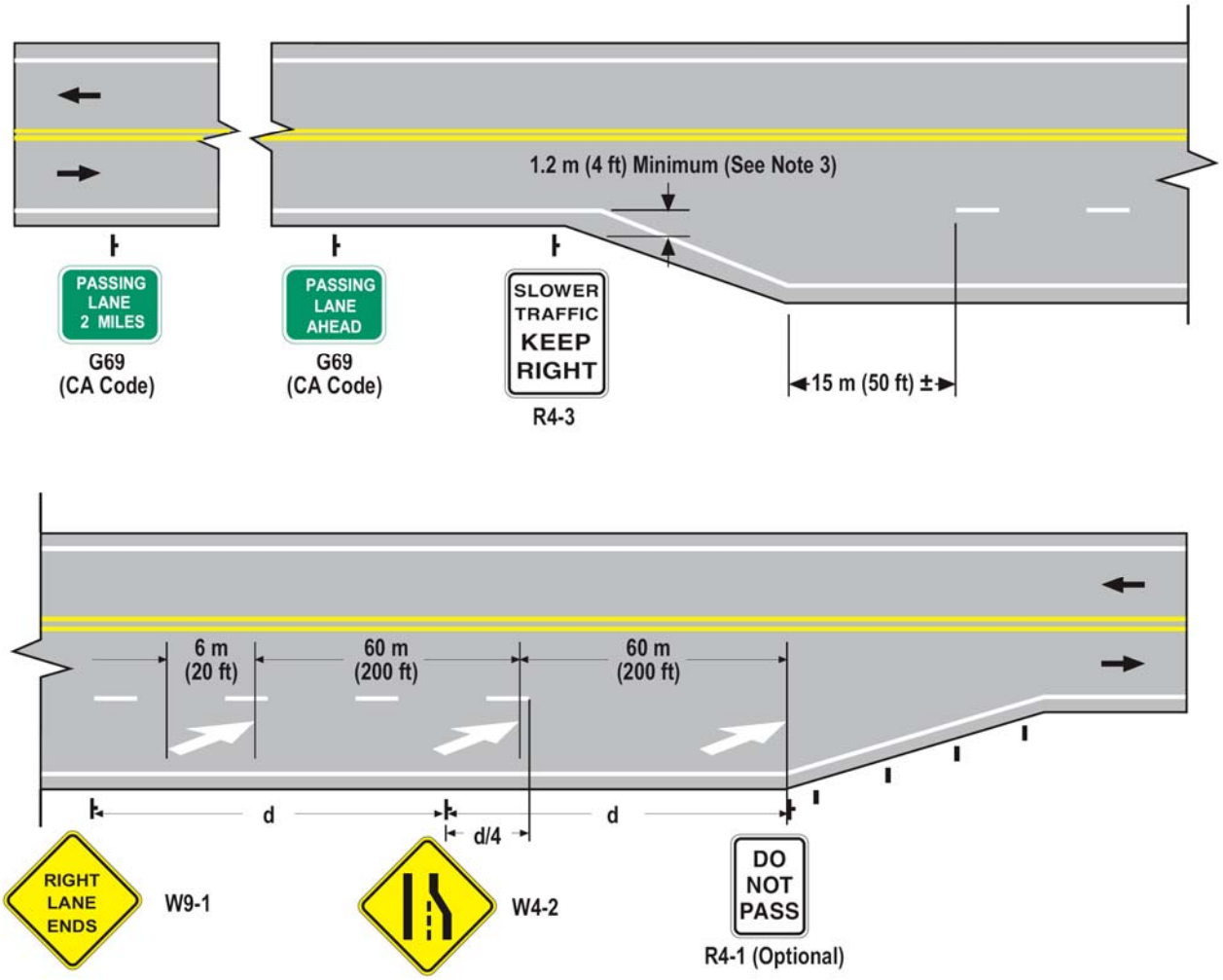
Guidance:

The use of rumble strips on State highways should be reviewed by the Department of Transportation's District Traffic Engineer or their representative.

Option:

Rumble strips may be incorporated into rehabilitation projects to replace existing rumble strips without an extensive review.

Figure 3B-107. Passing Lanes



NOTES:

1. For sign and delineator placement, see Figure 3B-12 (CA) (Sheet 1 of 3).
2. Lane Reduction Arrows may be placed when a passing lane is 1.6 km (1 Mile) or more in length.
3. To discourage vehicular travel off the traveled way, the Right Edge Line should be continued until there is at least 1.2 m (4 ft) between the beginning of the edge line taper and the edge of the traveled way.

LEGEND

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

Sign Location

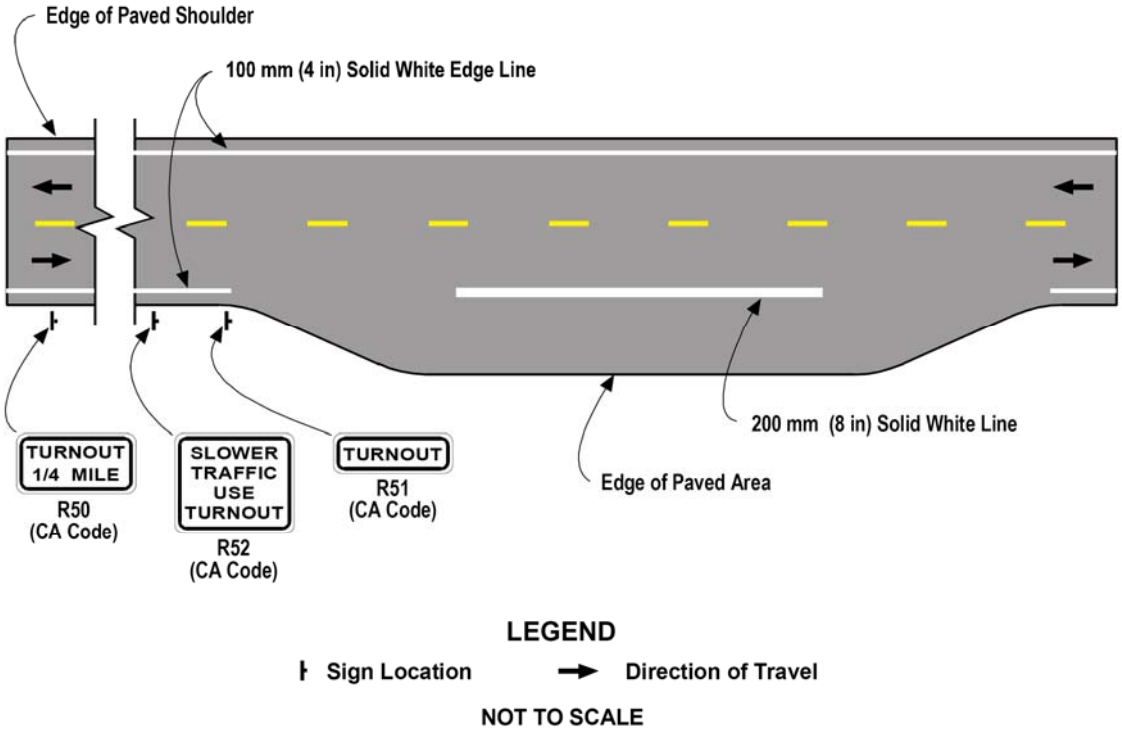
Delineator

Direction of Travel

Lane Reduction Arrow

NOT TO SCALE

Figure 3B-108. Examples of Signing and Marking Turnouts



Guidance:

Requests should include a description of location, reasons for use, the alternatives which were considered, collision history and a discussion of standard traffic control devices which have been or are in place.

Traveled Way Rumble Strips:

Support:

Rumble strips on the traveled way are 19 mm (0.75 in) or less in height if raised or 25 mm (1 in) or less in depth if rolled-in indentations, 8.5 mm (0.33 in) +/- 1.5 mm (0.06 in) if ground-in indentations and generally extend across the travel lanes.

A ground in rumble strip with the dimensions shown above has been field reviewed to confirm rideability for bicyclists & motorcyclists.

There are several significant disadvantages to the use of rumble strips across the travel lanes. These include:

- An abrupt rise in the roadway can present problems to bicyclists and motorcyclists. For this reason, there should be provisions made for cyclists to safely traverse through or around raised rumble strips.
- Nearby residents may be subjected to noise.

Typical locations where rumble strips on the traveled way have been used include:

- End of a freeway.
- In advance of toll booths.
- Within a construction zone in advance of the workers.
- In advance of a "T" Intersection where the motorist is not expecting to stop.

Shoulder Rumble Strips:

Support:

Shoulder rumble strips are 19 mm (0.75 in) or less in height if raised 25 mm (1 in) in depth for rolled-in indentations and 8.5 mm (0.33 in) +/- 1.5 mm (0.06 in) for ground-in indentations that extend along the highway shoulder. The maximum width of shoulder rumble strips is 300 mm (12 in) for both rolled-in and ground-in indentations.

Guidance:

Where bicycles are permitted, shoulder rumble strips should not be used unless approximately 1.5 m (5 ft) of clear shoulder width for bicycle use is available between the rumble strips and the outer edge of the shoulder.

Standard:

If shoulder width is less than 1.5 m (5 ft) and rumble strips are required, then only raised and inverted profile thermoplastic stripe shall be used. Ground-in rumble strip treatments that are greater than 8.5 mm (0.33 in) +/- 1.5 mm (0.06 in) depth shall not be installed on shoulders where bicyclists are allowed.

Option:

Research findings indicate that the use of rumble strips on shoulders of freeways in remote areas may reduce drift-off-road accidents. Drifting off the road is most likely to be a problem on freeways with few interchanges and long tangents. Rumble strips may be used on other roadway types as well to address drift off roadway collisions at locations where they are a concern. The rumble strips may consist of grooves rolled into the hot mix as part of a resurfacing project, ground-in indentation in Portland Concrete Cement or Asphalt Concrete in existing roadway shoulders, or the application of a raised and inverted profile thermoplastic.

Guidance:

When roadways in remote areas are to be resurfaced, consideration should be given to the drift-off-road problem and the use of rumble strips considered.

Option:

Table 3B-101 may be used by the District Traffic Engineer as a guide to determine the appropriate rumble strip treatment for various shoulder types.

Centerline Rumble Strips:

Support:

Centerline rumble strips are currently being used experimentally at 2 and 3 lane locations in California and across the nation as a tool to address drift across the centerline collisions.

Option:

The District Traffic Engineer may consider the use of centerline rumble strips with other considerations as a means of addressing drift across the centerline collisions.

Table 3B-101. Rumble Strip Installation Guide

Rumble Strip Treatment	Rumble Strip Depth	Shoulder Type	Bicycles Permitted	Minimum Shoulder Width
Rolled-In Rumble Strip Treatment Standard Plan A40	25 mm (1 in)	ACC Only	YES	1.5 m (5 ft)
			NO	1.2 m (4 ft)
Ground-In Rumble Strip Treatment Standard Plan A40	8 (+/- 1.5) mm (0.33 in (+/- 0.06 in))	ACC and PCC	YES	1.5 m (5 ft)
			NO	1.2 m (4 ft)
Raised and Inverted Profile Thermoplastic	N/A	ACC and PCC	YES	No Minimum
			NO	No Minimum
Centerline Ground-In Rumble StripTreatment Experimental	8 (+/- 1.5) mm (0.33 in (+/- 0.06 in))	ACC and PCC	N/A	N/A

Note: Ground-In Rumble Strip Treatments that are greater than 8.5 (+/-1.5) mm (0.33 in (+/-0.06 in)) in depth shall not be installed on shoulders where bicyclists are allowed.

CHAPTER 3C. OBJECT MARKERS

Section 3C.01 Object Marker Design and Placement Height

Standard:

Paragraphs 5 ("When used for…") and 6 ("When used to…") are deleted. Figure 3C-101 shall be used for mounting height of object markers.

In Paragraph 2 ("When used…"), the following types of object markers are added:

CA Type L Utility Pole marker shall be yellow retroreflective material consisting of three 50 x 300 mm (2 x 12 in) horizontal rectangles arranged vertically on a utility pole as shown in Figure 3C-101.

CA Type Q object marker shall be a vertical tubular marker, with a height of 450 to 600 mm (18 to 24 in) and a minimum cross sectional dimension of 57 mm (2 ¼ in). The yellow retroreflective material shall consist of three bands, each 75 mm (3 in) in height or a single band 225 mm (9 in) in height as shown in Figure 3C-101.

CA Type R (OM-3C) object marker size shall be 600 x 750 mm (24 x 30 in).

Support:

A cross-reference of object markers is shown in Table 3C-101.

Section 3C.02 Markings for Objects in the Roadway

The following is added to this section:

Option:

Objects in a paved area within 2.4 m (8 ft) of the traveled way may be marked with a CA Type P (OM-3L, OM-3R) or CA Type R (OM-3C) object marker.

The CA Type Q object marker may be used to emphasize objects within the roadway, for example, curb noses, where it is desirable that the marker be visible from all directions.

Guidance:

If any object marker is located behind the guard rail, all of the marker panel should be visible to approaching traffic.

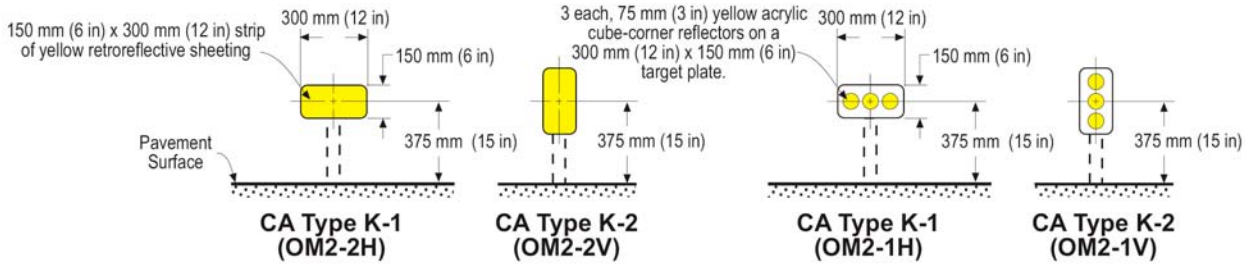
The CA Type P (OM-3L, OM-3R) object marker should be in line with the inner edge of the obstruction.

Table 3C-101. Cross-Reference of Object Markers

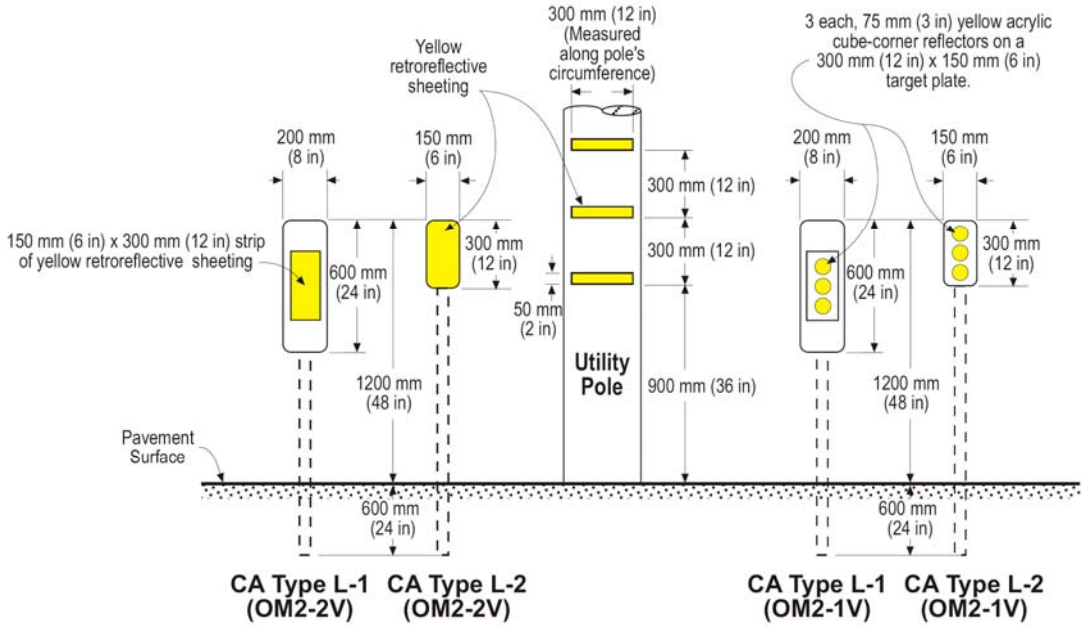
California Type	MUTCD Code	Title	Supplement Section	MUTCD Section
K-1	OM2-2H	Typical CA Type K Object Marker	None	3C.01, 3C.03
K-2	OM2-2V	Typical CA Type K Object Marker	None	3C.01, 3C.03
L-1	OM2-2V	Typical CA Type L Object Marker	3C.01, 3C.03	None
L-2	OM2-2V	Typical CA Type L Object Marker	3C.01, 3C.03	None
N-1	OM1-3	Typical CA Type N Object Marker	2C.09, 2C.38, 3C.03, 6F.108	3C.01, 3C.02
N-2	OM4-3	Typical End-of-Roadway Marker	2C.21, 3C.04	3C.04
P	OM-3L and OM-3R	Typical CA Type P Object Marker	3C.02, 6F.108	3C.01, 3C.02
Q	None	Typical CA Type Q Object Marker	3C.01, 3C.02	None
R	OM-3C	Typical CA Type R Object Marker	3C.01, 3C.02	3C.01, 3C.02
Utility Pole	None	Typical CA Type L Object Marker	3C.01, 3C.03	None

Figure 3C-101. Examples of Object Markers (Sheet 1 of 2)

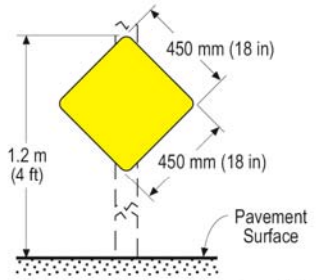
Typical CA Type K Object Marker



Typical CA Type L Object Marker



Typical CA Type N Object Marker

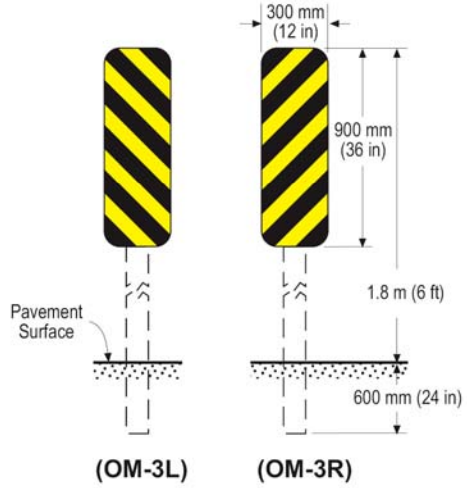


CA Type N-1 (OM1-3), CA Type N-2 (OM4-3)

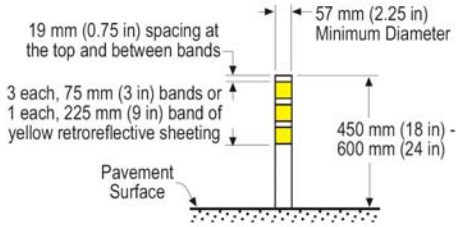
NOT TO SCALE

Figure 3C-101. Examples of Object Markers (Sheet 2 of 2)

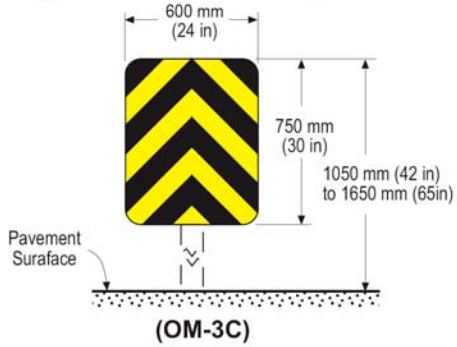
Typical CA Type P Object Marker



Typical CA Type Q Object Marker



Typical CA Type R Object Marker



NOT TO SCALE

Figure 3C-1. Object Markers and End-of-Roadway Markers
Standard:

The Typical Type 3 Object Marker (OM-3C) shown in this MUTCD figure shall not be used in California. The CA Type R Object Marker (OM-3C) (size 600 x 750 mm (24 x 30 in)) as shown in Figure 3C-101 shall be used instead.

Section 3C.03 Markings for Objects Adjacent to the Roadway
The following is added to this section:
Option:

Objects outside of the paved shoulder, within 3.6 m (12 ft) of the traveled way, may be marked with CA Type L object markers.

The CA Type L (OM2-2V and OM2-2H) object markers may be placed in front of, alongside of, or attached to the object. Where objects are very close to each other, only the first object may need to be marked.

The CA Type L Utility Pole marker may be used to mark a utility pole.

Standard:

If used on State highways, CA Type L-1 (OM2-2V) object marker shall be used instead of CA Type L-2 (OM2-2V).

Guidance:

If used, the utility company should be responsible for installing and maintaining the CA Type L Utility Pole marker.

Support:

See Section 2C.09 and 2C.38 for use of CA Type N-1 (OM1-3) object markers in conjunction with One-Directional Large Arrow (W1-6) and Two-Direction Large Arrow (W1-7) signs for abrupt changes in the roadway alignment.

See Section 6F.108 for use of CA Type N, P and R object markers for temporary traffic control.

Section 3C.04 End-of-Roadway Markers
Standard:

Paragraph 3 ("The end-of-roadway…") is deleted and replaced with the following:

The end-of-roadway marker shall be used at the end of a road or cul-de-sac street where there is no alternate vehicular path.

Paragraph 5 ("The minimum mounting…") is deleted. Figure 3C-101 shall be used for mounting height of the end-of-the-roadway marker.

The following is added to this section:
Support:

See Section 2C.21 for use of end-of-roadway marker in conjunction with END (CA Code W31) sign.

CHAPTER 3D. DELINEATORS

Section 3D.02 Delineator Design

The following is added to this section:

Support:

There are two classes of delineator posts and several types of retroreflectorization as shown in Figure 3D-101.

Section 3D.03 Delineator Application

Standard:

Paragraph 6 ("Double or vertically…") is deleted.

Paragraph 7 ("Red delineators…") is deleted. In California, red markers are used for wrong-way traffic, not delineators.

The following is added to this section:

Option:

Where delineation is required within a paved area, surface mounted channelizers may be used. See Section 3F.02.

Standard:

The color of the delineator retroreflectors shall conform to the color of edge lines except for the use of yellow on the right at narrow bridges and red at truck escape ramps.

Support:

Examples of the use of delineators are shown in Figure 3D-101. Color exceptions are shown in Figure 3D-103 and 3D-104.

Following are typical delineators and their uses:

- Type E - White Retroreflector (2 Sided). For use on the left or right of 2-lane 2-way streets and highways when it is desirable to have a reflector on the front, and one on the back of the delineator facing the opposite direction of traffic.
- Type F - White Retroreflector (1 Sided). For use on the right of freeways and expressways. They may also be used on 2-lane 2-way streets and highways when the Type E is not needed.
- Type G - Yellow Retroreflector (1 Sided). For use on the left of divided highways and 2-lane highway intersections as shown in Figure 3D-102.
- Type I - Yellow Retroreflector (2 Sided). For use at approaches to narrow bridges as shown in Figure 3D-104.
- Type J - Red Retroreflector (1 Sided). For placement on both sides of Truck Escape Ramps as shown in Figure 3D-103.

Section 3D.04 Delineator Placement and Spacing

Guidance:

In Paragraph 1 ("Delineators should…") second sentence ("They should be…"), the phrase "0.6 to 2.4 m (2 to 8 ft)" is changed to "0.6 to 1.8 m (2 to 6 ft)".

Paragraph 3 ("Delineators should be spaced…") is deleted and replaced with the following:

Delineators should be spaced 160 m (530 ft) apart on mainline tangent sections. Delineators should be spaced 60 m (200 ft) apart on ramp tangent sections.

The following is added to this section:

Guidance:

Installations should be inspected at night to ensure that there are no confusing or misleading delineators.

Standard:

Unless local conditions justify otherwise, delineators shall be placed on all State highways.

Guidance:

Delineators should also be provided on all city and county roads.

When used, delineators should be placed as follows:

a On the outsides of highway curves of 915 m (3000 ft) radius or less (including medians in divided highways), freeway exit and entrance ramps and connectors. Exception to this, is where a median barrier is delineated as shown in the Median Barrier Delineation Detail in Figure 3D-105. Delineator spacing on curves is shown in Figure 3D-1 and Table 3D-1.

b On the right of tangent sections of freeway entrance and exit ramps, collector roads, freeway connectors and lane reduction transition sections at 60 m (200 ft) spacing.

c On embankments higher than 3.0 m (10 ft) and with side slopes steeper than 1:4. Delineator spacing is approximately 160 m (525 ft).

d On approaches to narrow bridges as shown in Figure 3D-104.

e On tangent sections of rural State highways where there are no reflective pavement markers, such as in snow areas. Delineator spacing is approximately 160 m (525 ft).

f On all new guardrail or bridge rail installations, or when maintenance is required on existing guardrail or bridge rail, within 3.66 m (12 ft) of the edge of traveled way and curves of 915 m (3000 ft) radius or less. The spacing on tangent sections is approximately 160 m (525 ft). For spacing on curves, see Figure 3D-1 and Table 3D-1.

Option:

Delineators may also be placed as follows:

a At intersections, road approaches, and median openings, as shown in Figure 3D-102.

b On sections of highway with non-standard shoulder width.

Section 3D.101 Culvert Markers

Support:

Culvert markers are placed as a convenience to maintenance crews in marking locations of culvert openings. Such marking is sometimes necessary to protect culvert ends from damage from adjacent operations as well as to serve as an aid in locating culverts during storm conditions.

Refer to Department of Transportation's Maintenance Manual, Chapter M5 (Traffic Safety Devices) for more information on culvert markers. See Section 1A.11 for information regarding this publication.

Option:

Culvert markers may be placed on both sides of the highway at those culverts where they are necessary.

Guidance:

Culvert markers should be so placed as not to interfere with a line of delineators.

Standard:

Culvert markers shall not be retroreflective, or contain kilometer post marker information.

Section 3D.102 Emergency Passageway Marker

Support:

Except for emergency passageways in median barriers, median openings are not allowed on freeways.

Refer to Department of Transportation's Traffic Manual, Section 7-04.7 for design considerations of emergency passageways. See Section 1A.11 for information regarding this publication.

Guidance:

Where freeway median passageways are provided for emergency vehicles, delineation for the crossover should be as follows:

a At a point, 320 m (1/5 mi) in advance of the crossover, one Class 1 Delineator, with a yellow post and two 75 x 300 mm (3 x 12 in) white retroreflectors stacked vertically (600 mm (24 in) of white retroreflectance), should be placed on the left side of the through roadway facing approaching traffic.

b At a point, 160 m (1/10 mi) in advance of the crossover, one Class 1 Delineator, with a yellow post and two 75 x 300 mm (3 x 12 in) yellow retroreflectors stacked vertically, should be placed on the left side as in (a).

c At the far side of the crossover, one Class 1 Delineator, with a yellow post and one 75 x 300 mm (3 x 12 in) white retroreflector over one 75 x 300 mm (3 x 12 in) yellow retroreflector stacked vertically, should be placed on the left side as in (a).

Section 3D.103 Narrow Bridge Signing and Marking

Support:

The placement of warning signs, object markers, delineators, and edge lines at narrow bridges is dependent upon the width of the bridge and approach roadway.

Standard:

Narrow bridge signing and marking shall conform to the details shown in Figure 3D-104.

Section 3D.104 Median Barrier Delineation

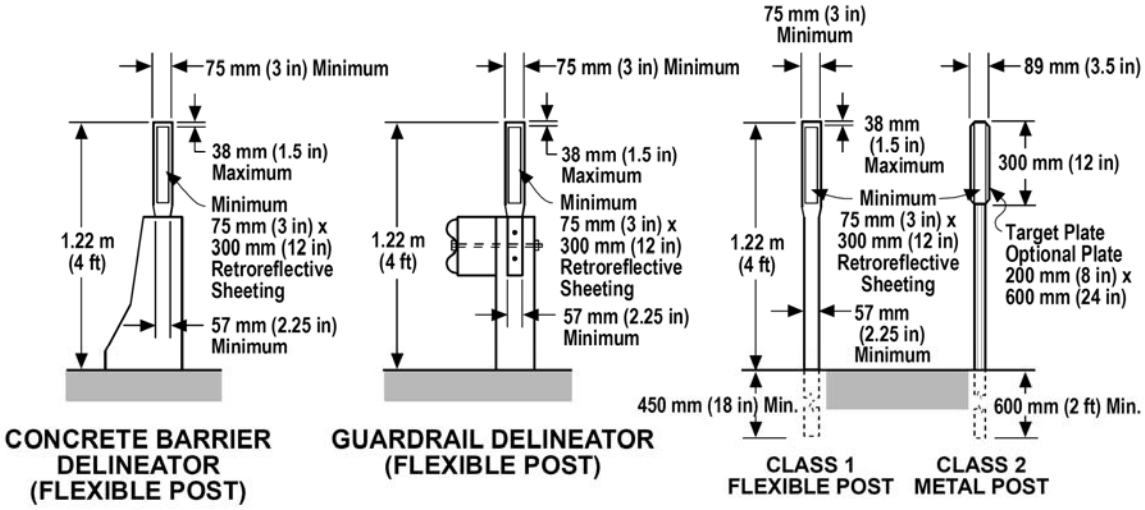
Guidance:

Median barriers should be delineated when the clearance between the barrier and the edge of traveled way is less than 2.44 m (8 ft).

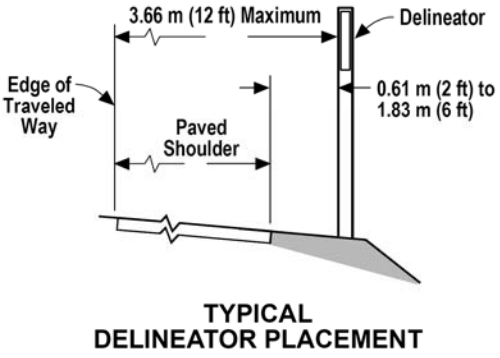
In general, when delineated, it should be with an approved median barrier marker, the same color as the left edge line. They should be placed on top of the barrier at 14.64 m (48 ft) centers.

Markers placed on the sides of barriers, near the splash zone, should be avoided because of the tendency to collect dirt which reduces their effectiveness. See Figure 3D-105.

Figure 3D-101. Examples of Delineators



NOT TO SCALE



TYPICAL DELINEATOR PLACEMENT

TYPES OF DELINEATORS

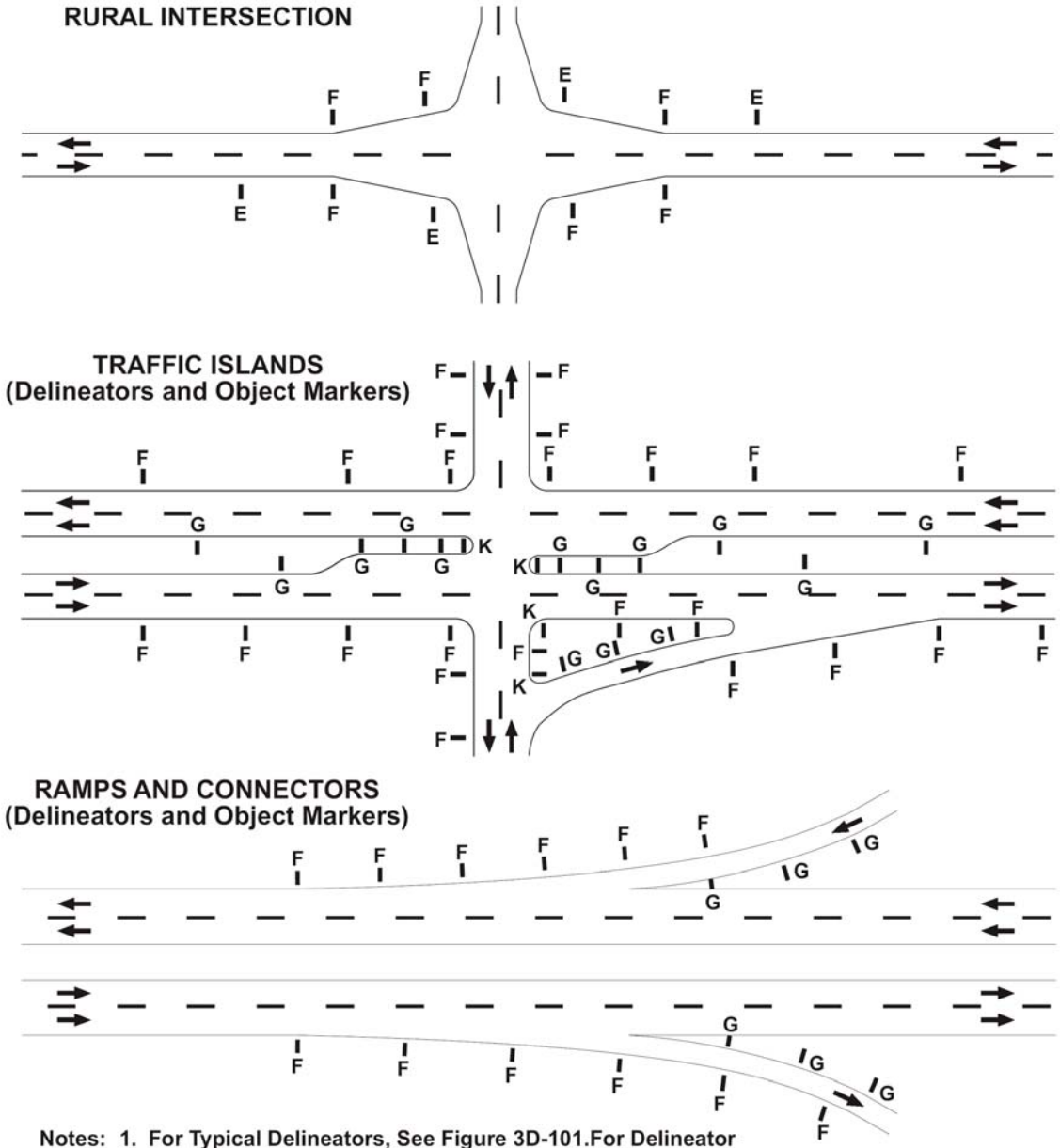
TYPE	RETROREFLECTOR COLOR	
	FRONT	BACK*
E	WHITE	WHITE
F	WHITE	NONE
G	YELLOW	NONE
I	YELLOW	YELLOW
J	RED	NONE

*Back Retroreflector:
Class 1 Delineator - 75 mm (3 in) ± square of retroreflective sheeting.
Class 2 Delineator - 75 mm (3 in) ± acrylic cube-corner retroreflective

Notes:

1. **Class 1 (Flexible Post) Delineators are standard on State highways, except for certain locations, e.g., snow or protected areas behind guardrail, etc. The color of the post is white.**
2. **Class 1 (Flexible Post) Delineators used in construction or maintenance zones shall be orange with white retroreflective sheeting. However, if the delineators are to remain in place as a permanent roadway feature after the construction or maintenance period, the color of the post shall be white with the appropriate color of retroreflective sheeting as specified in Section 3D.03.**
3. **The Type of Retroreflective Element and Class of Post is designated as E-1, F-2, etc.**

Figure 3D-102. Examples of Delineator Placement When Used at Intersections, Islands, Ramps, and Connectors



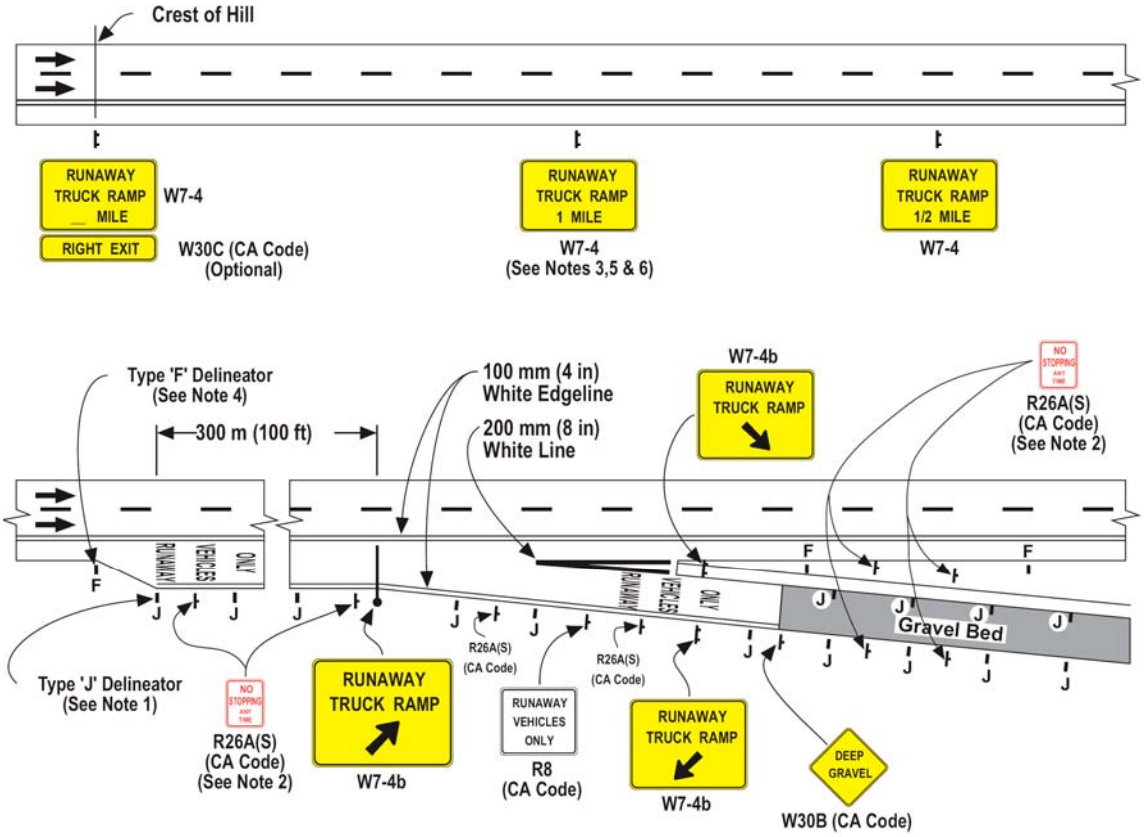
Notes: 1. For Typical Delineators, See Figure 3D-101.For Delineator
2. Spacing on Curves, See Figure 3D-1.
3. For Typical Object Markers, See Figure 3C-2 and 3C-101

LEGEND

K = CA Type K Object Marker E,F,G = Types of Delineators

Direction of Travel NOT TO SCALE

Figure 3D-103. Examples of Runaway Truck Ramp Signs and Markings



Notes:

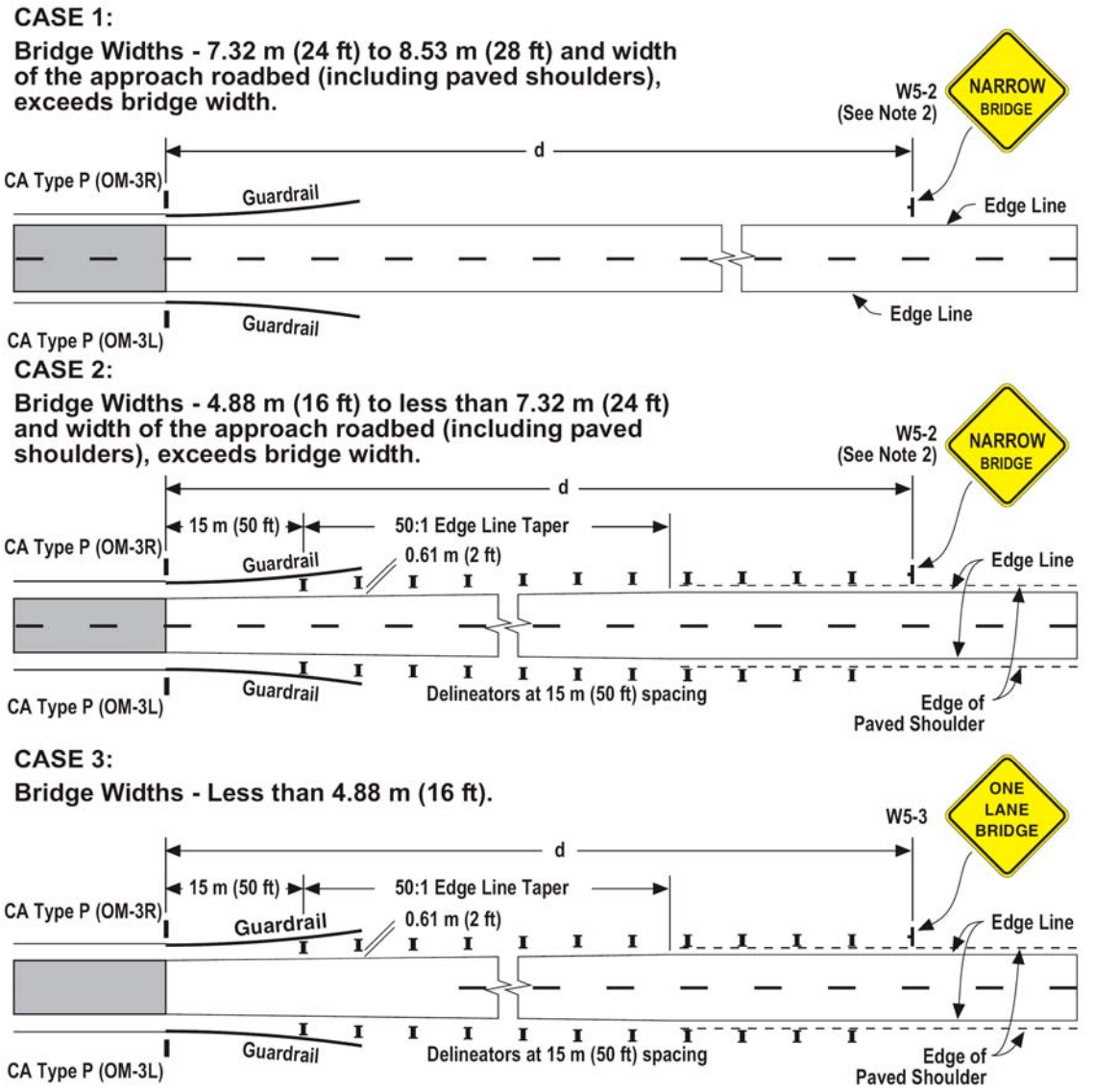
1. Place Type 'J' Delineators at 15 m (50 ft) centers. See Figure 3D-101.
2. Place NO STOPPING ANY TIME, R26A(S) signs at 75 m (250 ft) centers.
3. Additional RUNAWAY TRUCK RAMP 1 MILE and RUNAWAY TRUCK RAMP 1/2 MILE, W7-4 signs may also be placed in the median on a one-way roadway.
4. Place 3 - Type 'F' Delineators at 150 m (500 ft) centers, preceding and following the Runaway Truck Ramp. See Figure 3D-101.
5. Additional advance RUNAWAY TRUCK RAMP (2 MILES, 3 MILES, etc.) W7-4 signs may be added as necessary.
6. Overhead signs may be substituted for ground mounted signs.

LEGEND

← Direction of Travel

NOT TO SCALE

Figure 3D-104. Narrow Bridge Signs and Markings (One-Way and Two-Way Roadways)



Notes:
1. The Edge Line shall be continued across all bridges on State highways.
2. The NARROW BRIDGE (W5-2) sign should be erected on the right and in the median on a one-way roadway.
3. Delineators shall be contiued across the bridge in Cases 2 and 3.

LEGEND

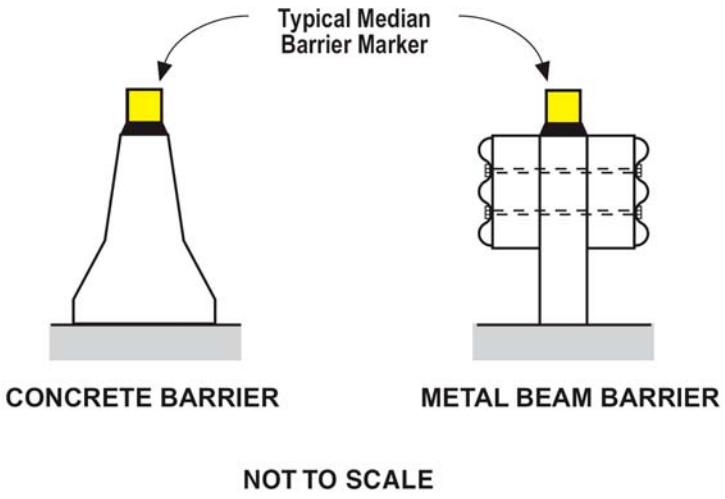
I = CA Type P Object Marker. See Figure 3C-101.

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

I = Delineators (Type "G" for One-Way Roadways and Type "I" for Two-Way Roadways). See Figure 3D-101.

NOT TO SCALE

Figure 3D-105. Examples of Median Barrier Delineation



CHAPTER 3E. COLORED PAVEMENTS

Support:

No Comments.

This MUTCD Chapter is adopted as is for California.

CHAPTER 3F. BARRICADES AND CHANNELIZING DEVICES

Section 3F.02 Channelizing Devices

Standard:

Paragraphs 1 (Channelizing devices…") through 9 ("When 700 mm…") are deleted and shall not be applicable in California. In California, cones are used for temporary traffic control, not as permanent channelizing devices.

The following is added to this section:

Support:

Channelizers are flexible retroreflectorive devices for installation within the roadway to discourage motorists from crossing a line or area of the roadway. Unlike delineators, which indicate the roadway alignment, channelizers are intended to provide additional guidance and/or restriction to traffic by supplementing pavement markings and delineation.

Option:

Channelizers may be used for additional emphasis to discourage median crossings at traffic islands and at lane separations.

Standard:

The design of a channelizer shall be as shown in Figure 3F-101.

The retroreflective unit used on channelizers shall be a minimum of 75 x 300 mm (3 x 12 in). The 75 x 300 mm (3 x 24 in) minimum retroreflective unit shall be visible at 300 m (1000 ft) at night under illumination of legal high beam headlights, by persons with vision of or corrected to 20/20. Refer to Department of Transportation's Standard Specifications Section 12-3.07. See Section 1A.11 for information regarding this publication.

The post shall be flexible with a 57 mm (2 ¼ in) minimum width, except that the portion containing the retroreflective unit shall be a minimum width of 75 mm (3 in). The post shall be a minimum height of 900 mm (36 in) above the pavement on State highways.

Channelizer posts used for temporary traffic control shall be orange with white reflectors. See Section 6F.101.

If the channelizers are to remain in place as a permanent roadway feature, the post shall be white and the color of the reflector shall conform to that of the pavement markings it supplements with the following exceptions:

- **Retroreflective units used in narrow bridge shoulder tapers shall be yellow as shown in Figure 3D-104.**
- **Retroreflective units shall be white when used in construction and maintenance zones (posts shall be orange). See Section 6F.101.**

Option:

At locations where speeds are 65 km/h (40 mph) or less a minimum post height of 700 mm (28 in) may be used.

Support:

Since channelizers require closer spacing, their post size requirements differ from those of delineators.

There are two basic types of channelizers: one attaches to the pavement and the other attaches to an anchoring device imbedded in the pavement. Both the base and anchor systems are designed to permit replacement of the channelizer post. See Figure 3F-101.

Guidance:

Channelizers should be placed a minimum of 0.61 m (2 ft) from the traffic line, away from traffic, to allow for future maintenance of the line.

Option:

Space limitations may dictate exceptions to this criteria. At certain locations, placement directly on the traffic line may be required.

Support:

Spacing of the channelizers depends on the type of facility where they are to be used, the speed and volume of traffic, and the alignment to be channelized. Spacing which results in a visual fence/barrier effect is a key factor in channelizer installation.

Guidance:

The maximum post spacing should be 30 m (100 ft) on carpool lanes where channelizers are used primarily to delineate the separation between the carpool lane and the main facility.

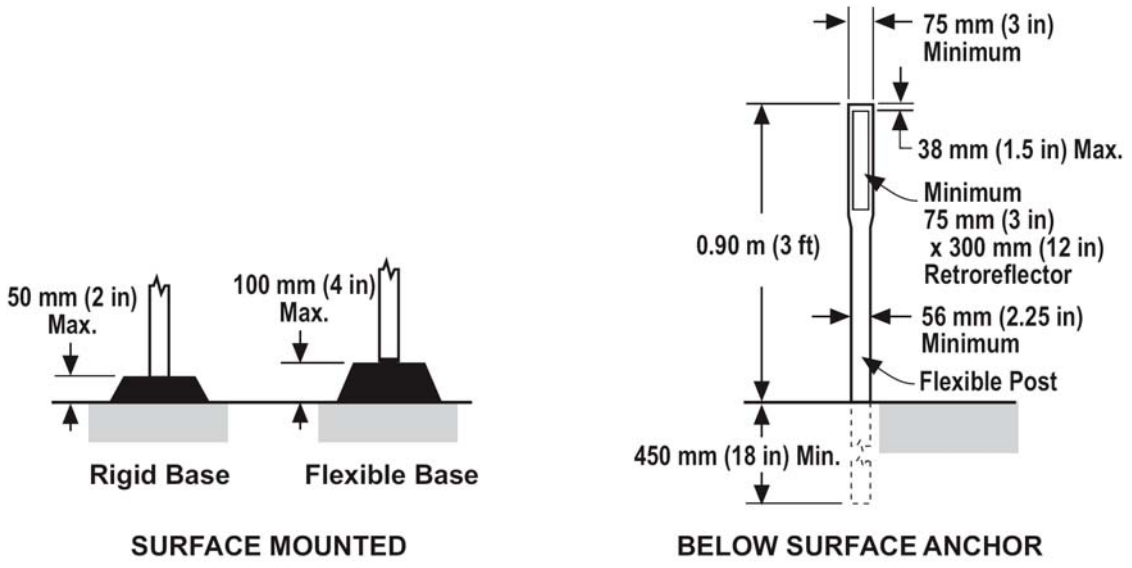
In locations where a relatively high number of violations occur, the post spacing should be 7.5 m (25 ft).

Option:

Where barrier violations are relatively minimal, a post spacing of 15 m (50 ft) may be adequate. However, spacing in excess of 15 m (50 ft) is of negligible value as a deterrent to intentional barrier violations.

Post spacing closer than 7.5 m (25 ft) may be considered on lower speed roads, urban streets and at specific locations such as traffic islands.

Figure 3F-101. Example of Channelizers



CHAPTER 3G. ISLANDS

Section 3G.01 General

The following is added to this section:

Support:

On State highways, criteria for the design of islands are set forth in Department of Transportation's Highway Design Manual. See Section 1A.11 for information regarding this publication.

Section 3G.02 Approach-End Treatment

Standard:

Paragraphs 2 ("Approach-end markings…") through 6 ("Pavement markings…") are deleted for application in California. Use Section 3B.106 for the rumble strips topic, instead.

Section 3G.03 Island Marking Application

Standard:

The Option and Guidance topics shall be deleted for application in California. Use Section 3B.106 for the rumble strips topic, instead.

Paragraphs 3 ("As indicated…") and 4 ("When raised bars…") are deleted for application in California. Use Section 3B.106 for the rumble strips topic, instead.

The following is added to this section:

Standard:

Double solid 100 mm (4 in) wide yellow lines shall be used to delineate the edge of a median island where the median is an all-paved, at-grade section of the highway. The island formed by double yellow lines shall be at least 0.61 m (2 ft) in width, as shown in Figure 3A-107.

When used, other markings in the median island area shall be yellow.

Support:

This treatment is not intended for freeways or other highways with a positive barrier in the median. Single solid yellow left edge line and markers as shown in Figure 3A-105 are standard.

The use of channelizing lines are shown in Figure 3A-112 and no-passing markings are shown in Figures 3A-104 and 3B-13.

Section 3G.06 Island Delineators

Standard:

Paragraph 1 ("Delineators installed…") is deleted and replaced with the following:

Delineators installed on islands shall be the same colors as the related edge lines.

Support:

In California, red markers are used for wrong-way traffic, not delineators.

MUTCD 2003
CALIFORNIA SUPPLEMENT

May 20, 2004

PART 4
HIGHWAY TRAFFIC SIGNALS

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

PART 4. HIGHWAY TRAFFIC SIGNALS

TABLE OF CONTENTS

CHAPTER 4A. GENERAL

Support:

No Comments.

This MUTCD Chapter is adopted as is for California.

CHAPTER 4B. TRAFFIC CONTROL SIGNALS – GENERAL

Section 4B.02 Basis of Installation or Removal of Traffic Control Signals

The following is added to this section:

Standard:

Once a traffic signal at an intersection or pedestrian crossing has been energized, it shall not be turned off unless arrangements have been made for temporary control by traffic officers, temporary stop signs or an approved portable signal.

Section 4B.05 Adequate Roadway Capacity

The following is added to this section:

Support:

When the vehicular volume on a two-lane State highway is large enough to warrant traffic signals, usually there will be considerable congestion after the signals are installed unless the State highway is widened to four lanes at the intersection. Sometimes, it is also necessary to widen the intersecting road.

Guidance:

Where possible, the highway approaches and local road approaches should be widened to two lanes for through traffic, for a minimum of 60 m (200 ft) for traffic approaching the intersection and for a minimum of 100 m (330 ft) for traffic leaving the intersection. Additional widening for tapered sections should be provided at the ends of the added lanes. It may be necessary to prohibit parking in these areas and/or to provide left turn lanes. See Section 4B.104 for financing.

Section 4B.101 Traffic Signal Development Procedures –Introduction

Support:

General requirements for the development of traffic signal, lighting and electrical systems projects are noted in the Department of Transportation's Project Development Procedures Manual. See Section 1A.11 for information regarding this publication. The cost of traffic signals on Federal Aid highway projects is eligible for federal participation under certain conditions.

Option:

The preparation of a Project Study Report may be required for major traffic signal lighting and/or electrical system projects for scoping and programming purposes.

Guidance:

The Department of Transportation's Project Development Procedures Manual and the appropriate Program Advisor should be consulted to determine specific reporting requirements.

Section 4B.102 Project Report

Standard:

The Department of Transportation's District shall prepare a project report of the investigation of conditions at locations where a new traffic signal is to be installed, an existing traffic signal is to be modified or an existing traffic signal is to be removed. The Department of Transportation's District Directors are authorized to approve project reports in accordance with the current departmental policies contained in the Project Development Procedures Manual. Three copies of the District-approved project report shall be forwarded to the Department of Transportation's Chief, State and Local Project Development. A project report shall be prepared whether the work is performed by the State or by others.

Guidance:

General requirements for project reports are noted in the Department of Transportation's Project Development Procedures Manual. A project report for the installation, modification (except for upgrading

projects involving specific equipment) or removal of a traffic signal should include the following specific information:

1. Traffic Counts.

   Both pedestrian and vehicular traffic counts should include the periods of the average day when the signals would appear to be needed most. The counts should be at least eight hours in duration, not necessarily consecutive, but including a.m. and p.m. peak hours.

   Traffic counts for a new signal shall be shown on appropriate Traffic Signal Warrant Sheets and a Directional Traffic Count Sheet. See Figures 4C-101, 4C-102 and Table 4C-101.

   Where pedestrian volumes are significant, show the volume on each crosswalk for the same periods as the vehicle count.

   When estimated traffic volumes are used in establishing traffic signal warrants, they should be prepared on Form TS-10D. See Table 4C-101.
2. Collision Diagram.

   A collision diagram for the intersection covering the recent accident experience history. The diagram should cover a 3-year interval.
3. Condition Diagram.

   A condition diagram showing existing roadway conditions. Any railroad grade crossing within 60 m (200 ft) of the intersection should be shown.
4. Improvement Diagram.

   A diagram showing existing and proposed signals, phasing, channelization and other proposed improvements. This may be combined with 1, 2 and/or 3 on a single plan.
5. Estimate.

   An estimate of the cost of the project (including State furnished materials) and the proposed method of financing.
6. Other Specialized Data When Appropriate:
   a. Classification of Vehicles. The classification is required when it is a significant factor in affecting intersection capacity.
   b. Critical Speed (85th percentile) of Approaching Vehicles. This is the speed at a point unaffected by existing controls.
   c. Time-Space Diagram. When the project involves a coordinated traffic signal system.

Section 4B.103 Submittals

Support:

General requirements for the submittal of plans, specifications and estimates are noted in the Department of Transportation's Project Development Procedures Manual and the PS&E Guide. See Section 1A.11 for information regarding these publications.

Standard:

All electrical plans shall bear the following: "Note: This plan accurate for electrical work only."

Section 4B.104 Financing

Guidance:

Unless previously budgeted, the financing of a project should be considered only after receipt of the PS&E Report and cooperative agreements.

Support:

Normally, the costs of a new traffic signal or the modification of a signal or signal system are to be shared with a local agency.

Option:

In situations where a new traffic signal or a modification to an existing traffic signal or traffic signal system is urgently needed to improve safety or traffic flow on the State highway and the local agencies are

unable to finance their prorated share of the cost, the State may accept a lesser participation, or even no participation, by the local authorities.

Standard:

The definition of "urgently needed" shall be made by the Department of Transportation's District Director.

The cost of small projects such as modifications to existing traffic signals (detectors, signal heads, mast arms, etc.) where the prorated share of the local agency is $3,000 or less, shall be at 100% State expense.

Section 4B.105 Design Cost

Standard:

The following criteria shall apply in determining the amount of participation in the design cost by the State and a local agency:

a Where the State prepares plans for the installation or modification of a traffic signal or a traffic signal system on a State highway, the design costs should be shared with the local agency. Where the local agency is to prepare the plans, the State may participate in the design costs. Participation should be the same as construction cost participation and be covered by a cooperative agreement.

Guidance:

b Estimated design costs should be determined on the basis of an agreed fixed percentage of the total project costs. The fixed percentage should be based on historical design costs for projects in the price range concerned.

Standard:

c Where the State is requested by a local agency to prepare plans and specifications for a traffic signal project that does not involve State participation in the construction costs, the design costs shall be borne entirely by the local agency or others. The State may, however, assume the design engineering costs and the construction engineering costs, where the local agency agrees to pay all of the construction costs for a warranted project and where all of the costs would normally be shared on a prorated basis.

Section 4B.106 Construction Costs - Conventional Highways

Standard:

The following criteria shall apply in determining the amount of the construction costs by the State and local agency for a traffic signal, safety lighting, and channelization or widening project on conventional State highways.

Channelization and/or Widening Costs. On cooperatively financed projects, the channelization and/or widening costs shall be shared as follows:

1. **Channelization on and/or widening of the State highway shall be at 100% State expense.**
2. **Channelization on and/or widening of the local street shall be at 100% local agency expense.**
3. **Where the local agency's portion of the channelization or widening is a minor part of the channelization or widening being constructed by the State and the local agency's share of the work amounts to $3,000, or less, the State may assume the entire cost of the channelization or widening.**

Channelization and/or widening required, as a part of the conditions of a permit by a private party shall be at 100% expense of the private party.

In Cases A, B, and D listed below, the costs of constructing the electrical facilities are to be shared by the State and local agencies. The costs shall be shared on a prorated basis in the same ratio as the number of legs in the intersection under each agency's jurisdiction bears to the total number of legs.

Case A. Installation or Modification of a Traffic Signal and/or Safety Lighting at an Existing Intersection. When a traffic signal and/or safety lighting is to be installed or modified at the intersection of a State highway and a local road, local agency participation in the installation or modification costs shall be sought.

Guidance:

Case B. Existing Driveways at Existing Signalized Intersections. A private driveway that constitutes a leg at an existing signalized intersection should be treated as follows:

1. If the driveway does not generate appreciable traffic, no control is required.
2. If the driveway serves an area that generates sufficient traffic to constitute a problem, it should be controlled. One example of control is the use of a red flashing beacon and/or a RIGHT TURN ONLY (CA Code R41) sign to control egress from the private driveway. Another would be to provide signal indications for the private driveway.

Stndard:

3. Costs shall be as in Case D.

Case C. A New Road or Driveway at an Existing Signalized Intersection. Where a new road or driveway is to be constructed to enter an existing "T" intersection, the cost of necessary right-of-way, traffic signal and/or safety lighting shall be at 100% local agency or permittee expense. The cost shall include the signal faces and detectors for the new approach and signal faces and detectors for left turns into the new approach and channelization, if necessary.

Case D. Installation of a Traffic Signal and/or Safety Lighting at an existing intersection with a Driveway. Where a traffic signal and/or safety lighting is to be installed at an existing intersection serving an area which generates sufficient traffic to constitute a problem that includes a private driveway as the fourth approach, the cost of signal and lighting equipment for the driveway approach shall be included in the cost of the entire installation. Where one or more legs of the intersection are under the jurisdiction of a local agency, the construction costs shall be shared with the local agency. The cost of the driveway leg shall be included with the local agency's share. It shall be the responsibility of the local agency to obtain the right-of-way, right-of-entry or easement necessary to install and maintain the signal equipment to be located on private property.

Case E. Reconstruction of a Conventional State Highway. When it is necessary to widen or reconstruct a State highway, the reconstruction and relocation of traffic control devices and safety lighting systems, shall be at 100% State expense. Local participation for purposes of expediting a project should be accepted. Additional traffic control devices installed in connection with reconstruction of a conventional highway are to be treated as in Case A.

Case F. Relocation of a Conventional State Highway. When an existing State highway is relocated, the State will install warranted traffic control devices and safety lighting at State expense. Local participation will not be required. If, however, a local authority wishes to participate in a project in order to expedite it, local participation should be accepted.

Case G. Installation of a Traffic Signal and/or Safety Lighting at a Private Driveway or Privately Owned Street. The cost of a new traffic signal and/or safety lighting installed at a private driveway or privately owned street (i.e., not under the jurisdiction of a city or county) shall be entirely at the expense of the property owner or developer.

The permittee shall grant the State access rights to the private property at any time for the purpose of maintaining or timing the signal and lighting.

Upon installation, all rights, title and interest in the traffic signal equipment shall be granted to the State by the permittee. In the event that the State finds it advisable for the signals to be removed, the State will remove and salvage the equipment.

Case H. Reconstruction of Existing Facilities. When affected by State highway construction, existing street lighting, police and fire alarm systems, and similar systems owned by a city, county or publicly owned service district shall be relocated at the sole expense of the owner, unless prior rights can be established.

Case I. School Traffic Signals and Flashing Beacons. Where traffic signals and/or flashing beacons are justified only by the School Area Traffic Signal Warrant on a State highway, the installation shall be at 100% State expense. When any other warrant is met also, the cost is shared in the usual manner.

Section 4B.107 Construction Costs – Freeways

Standard:

The installation of electrical work and channelization at an intersection of a freeway ramp and a local road shall be at 100% State expense if such improvements are warranted at the time the freeway is to be opened to traffic, or if they are estimated to be warranted within five years after the date the freeway is opened to traffic.

Support:

It can be difficult to accurately predict the traffic pattern at interchanges at the time of the freeway design. Therefore, the need for signals at the ramp connections to local roads cannot always be anticipated.

Standard:

If within five years after the date of completion of the freeway, the interchange does not operate in the manner intended, and signal warrants are met, it shall be the policy to provide signals, lighting, channelization or roadway widening as necessary to facilitate the flow of traffic through the interchange. This work shall be done entirely at State expense in the same manner as it would have been done had it been planned in the original freeway project. This shall include widening of roadway approaches to proposed signalized ramp intersections in accordance with present design practice entirely at State expense.

After the five-year period, the cost of installation shall be financed in the same manner as for existing intersections.

Guidance:

Approval by local agencies should be obtained for changes to roads under their jurisdiction.

Option:

In lieu of treating each ramp intersection individually and sharing the costs on the basis of the number of legs under each jurisdiction, the concept of the overall facility as described in the Department of Transportation's Maintenance Manual may be used. See Section 1A.11 for information regarding this publication.

Standard:

Frontage roads or portions of frontage roads, which serve as connections between ramps to or from the freeway and existing public roads and which are retained under State jurisdiction, shall be considered as freeway ramps and electrical work at the intersections shall be financed as described above.

Any time the interchange is revised by adding or relocating ramps, it is considered a new interchange and the cost of signals at the ramp terminals and/or the connection to the local road shall be at 100% State expense.

Section 4B.108 Roadway Improvements by Local Agencies

Standard:

Any new connection of a local street to a State highway, including any electrical work, widening and/or channelization required within the State highway right of way, shall be at 100% local agency expense.

At existing intersections any relocation or improvement of electrical facilities due to widening and/or channelization of the local street shall be at 100% local agency expense.

Section 4B.109 Cooperative Agreements

Support:

When a local agency participates in the various project costs, a cooperative agreement is required.

Standard:

Each agreement shall include a statement of ownership, maintenance and operation.

Support:

Preapproved agreement forms and procedure details are available.

Section 4B.110 Engineering Services for Local Agencies

Standard:

Contracts with local agencies for the State to provide traffic signal control system engineering services shall include a clause relating to "Legal Relationships and Responsibilities".

Support:

Preapproved wording is available.

Section 4B.111 Salvaged Electrical Equipment

Support:

A construction project sometimes includes the removal of traffic signal, lighting or other electrical equipment that is not to be reused on the particular project.

Guidance:

The determination as to whether particular electrical equipment is salvable should be made at the Department of Transportation's District level. The determination as to whether or not to salvage existing equipment should be made on the basis of the economic benefit to the State and on the conservation of energy and/or materials that would result from salvaging and/or reinstallation. Equipment should be salvaged if it falls within one of the following categories:

1. It is an item for which there is a foreseeable use.
2. It is part of an electrical installation owned jointly with another agency and the other agency has requested the salvaged equipment.
3. It is usable in some other Department of Transportation's District.
4. It can be immediately disposed of by other means.

Standard:

All electrical equipment removed and determined not to be salvable shall become the property of the contractor.

Equipment determined to be salvable shall be disposed of as follows:

1. **If the electrical installation is jointly owned by the State and one or more local agencies, each of the owners shall share in the salvage value. The local agencies shall be given first choice in obtaining the salvaged equipment. The agency obtaining the salvaged equipment shall reimburse the other agency in accordance with the proportionate ownership.**
2. **Where the State or local agency is replacing existing electrical equipment without the other agency participating in the cost of the new equipment, the salvaged equipment shall belong to**

the party or parties who bore the cost of the new equipment unless otherwise specified in an agreement or encroachment permit.

The salvage value shall be determined at the Department of Transportation's District level during preparation of the preliminary report.

Guidance:

The salvage value should be such that if the equipment were taken into State storage it could be used economically for maintenance or as State-furnished material on contracts. The estimated salvage value should make the equipment more attractive to local agencies than the money representing the other partner's share of the salvage value. Wire and wiring supplies such as conduit, junction boxes, and connectors, and other materials should be considered as a lot at no value, or in any case, not more than the nominal sum of $1.

Support:

Often, salvaged electrical equipment is available for use on new installations; in many cases this will result in considerable savings.

Section 4B.112 Encroachment Permits

Standard:

Encroachment permits are required for a local agency or a private party to install or modify traffic signals and street lighting on a State highway.

Guidance:

Plans and Specifications prepared by Permittees should conform to State Standard Specifications, Standard Plans and be submitted to the Department of Transportation's District for review and approval.

Standard:

In each case, a statement of ownership, maintenance and operation shall be included in the permit.

Support:

A Permit Engineering Evaluation Report (PEER) may be prepared in lieu of a project report for all projects estimated to cost $1,000,000 or less, as part of the encroachment permit review process. Instructions for PEER's are found in the Department of Transportation's Project Development Procedures Manual and the Encroachment Permits Manual. See Section 1A.11 for information regarding these publications.

Standard:

All projects financed, in whole or in part, from retail transactions and use taxes and projects costing more than $1,000,000 requires a cooperative agreement.

Section 4B.113 Modifications of Existing Signals

Guidance:

Where existing signals are to be modified, construction plans should include a separate plan of the existing system as well as a plan showing the modifications.

Option:

It may also be necessary to include a tabulation on the plan showing such appurtenances as backplates and special signal faces that may be difficult to discern on a complicated plan.

Guidance:

The design of any signal modification project should include adequate consideration for keeping the existing signals in operation while the modification work is being done.

Section 4B.114 Signals on Poles Owned by Others

Option:

Traffic signal equipment may be attached to poles owned by utility companies or other agencies when it is desired to keep the number of poles at an intersection to a minimum.

Guidance:

In such cases, the Agency should enter into an agreement with the owner of the pole. The agreement should be written to hold the owner of the pole free of liability relative to operation of the traffic signal or damage to the pole and to make the State or Local Transportation Agency responsible for moving the equipment in the event the pole is removed or relocated.

CHAPTER 4C. TRAFFIC CONTROL SIGNAL NEEDS STUDIES

Section 4C.01 Studies and Factors for Justifying Traffic Control Signals

The following is added to this section:

Standard:

Delay, congestion, approach conditions, driver confusion, future land use or other evidence of the need for right of way assignment beyond that which could be provided by stop sign shall be demonstrated.

Support:

Figure 4C–101 and Table 4C-101 are examples of warrant sheets.

Guidance:

Table 4C-101 should be used only for new intersections or other locations where it is not reasonable to count actual traffic volumes.

Section 4C.02 Warrant 1, Eight-Hour Vehicular Volume

In the first Option, the text "70 km/h or exceeds 40 mph" is deleted and replaced by "64 km/h or exceeds 40 mph".

Delete the last Option that begins "If the posted or…" The 56% column in Table 4C-1 shall not apply in California.

Table 4C-1 Warrant 1, Eight-Hour Vehicular Volume

Delete the 56% column and related note(d).

Section 4C.03 Warrant 2, Four-Hour Vehicular Volume

In the Option the text "70 km/h or exceeds 40 mph" is deleted and replaced by "64 km/h or exceeds 40 mph".

Section 4C.04 Warrant 3, Peak Hour

In the Option the text "70 km/h or exceeds 40 mph" is deleted and replaced by "64 km/h or exceeds 40 mph".

Section 4C.06 Warrant 5, School Crossing

The following is added to this section:

Option:

Flashing beacons at school crosswalks may be installed on State highways in accordance with CVC Sections 21372 and 21373.

The following alternative criterion may be used for determining if a school crossing traffic signal is justified under this warrant:

1. When other warrants in this Chapter are met AND
2. No other controlled crossing is located within 180 m (600 ft) AND;
3. Urban Areas - 500 vehicles and 100 school pedestrians for each of any two hours (not necessarily consecutive) daily while students are crossing to or from school; or 500 vehicles for each of any two hours daily while students are crossing to or from school and a total of 500 school pedestrians during the entire day. OR
4. Rural Areas - 350 vehicles and 70 school pedestrians for each of any two hours (not necessarily consecutive) daily while students are crossing to or from school; or 350 vehicles for each of any two hours (not necessarily consecutive) daily while students are crossing to or from school and minimum total of 350 school pedestrians during the entire day.

Guidance:

When the critical (85th percentile) approach speed exceeds 55 km/h (35 mph) or the sight distance to the intersection is less than the required stopping sight distance, rural criteria should be applied.

Section 4C.101 Function of School Crossing Traffic Signals

Support:

A traffic signal assigns intersection right-of-way and promotes the orderly movement of pedestrians and vehicles. However, improper signal controls sometimes lead to intentional violations, unnecessary delays and traffic diversion to less desirable routes.

Section 4C.102 Criterion for School Crossing Traffic Signals

Standard:

1. **The signal shall be designed for full-time operation.**
2. **Pedestrian signal faces of the International Symbol type shall be installed at all marked crosswalks at signalized intersections along the "Suggested Route to School."**
3. **If an intersection is signalized under this guideline for school pedestrians, the entire intersection shall be signalized.**
4. **School area traffic signals shall be traffic actuated type with push buttons or other detectors for pedestrians.**

Option:

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

Section 4C.103 Bicycle Signal Warrant

Guidance:

A bicycle signal should be considered for use only when the volume and collision or volume and geometric warrants have been met:

1. *Volume*, When W = B x V and W $\geq$ 50,000 and B $\geq$ *50.*
   Where: W is the volume warrant. B is the number of bicycles at the peak hour entering the intersection. V is the number of vehicles at the peak hour entering the intersection. B and V shall use the same peak hour.
2. *Collision*, When 2 or more bicycle/vehicle collisions of types susceptible to correction by a bicycle signal have occurred over a 12-month period and the responsible public works official determines that a bicycle signal will reduce the number of collisions.
3. *Geometric*, (a) Where a separate bicycle/ multi use path intersects a roadway. (b) At other locations to facilitate a bicycle movement that is not permitted for a motor vehicle.

Figure 4C-2 Warrant 2 – Four Hour Vehicular Volume (70% Factor)

Under the Figure title, the text "70 km/h OR ABOVE 40 mph" is replaced by "64 km/h OR ABOVE 40 mph."

Figure 4C-4 Warrant 3 – Peak hour (70% Factor)

Under the Figure title, the text "70 km/h OR ABOVE 40 mph" is deleted and replaced by "64 km/h OR ABOVE 40 mph."

Figure 4C-101. Traffic Signal Warrants Worksheet (Sheet 1 of 4)

DIST _____ CO _____ RTE _____ KPM _____

CALC _____ DATE _____
CHK _____ DATE _____

Major St: _____ Critical Approach Speed _____ km/h
Minor St: _____ Critical Approach Speed _____ km/h

Critical speed of major street traffic > 64 km/h (40 mph)..... ☐
or
In built up area of isolated community of < 10,000 population..... ☐
} **RURAL (R)**

☐ **URBAN (U)**

WARRANT 1 - Eight Hour Vehicular Volume

Condition A - Minimum Vehicle Volume **100% SATISFIED YES ☐ NO ☐**
80% SATISFIED YES ☐ NO ☐

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) 1 U	1 R	2 or More U	2 or More R	Hour							
Both Approaches Major Street	500 (400)	350 (280)	600 (480)	420 (336)								
Highest Approaches Minor Street	150 (120)	105 (84)	200 (160)	140 (112)								

Condition B - Interruption of Continuous Traffic **100% SATISFIED YES ☐ NO ☐**
80% SATISFIED YES ☐ NO ☐

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) 1 U	1 R	2 or More U	2 or More R	Hour							
Both Approaches Major Street	750 (600)	525 (420)	900 (720)	630 (504)								
Highest Approaches Minor Street	75 (60)	53 (42)	100 (80)	70 (56)								

Combination of Conditions A & B **SATISFIED YES ☐ NO ☐**

REQUIREMENT	WARRANT	✓	FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME		Yes ☐ No ☐
	2. INTERRUPTION OF CONTINUOUS TRAFFIC		

Figure 4C-101. Traffic Signal Warrants Worksheet (Sheet 2 of 4)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for four hours.

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Highest Approaches - Minor Street						

*All plotted points fall above the curves in MUTCD Figure 4C-1 or 4C-2. Yes ☐ No ☐

WARRANT 3 - Peak Hour **PART A or PART B SATISFIED YES ☐ NO ☐**

PART A **SATISFIED YES ☐ NO ☐**

(All parts 1, 2, and 3 below must be satisfied)

1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceedds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND Yes ☐ No ☐
2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND Yes ☐ No ☐
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaoches. Yes ☐ No ☐

PART B **SATISFIED YES ☐ NO ☐**

APPROACH LANES	One	2 or More				Hour
Both Approaches - Major Street						
Highest Approaches - Minor Street						

The plotted points for vehicles per hour on major streets (both approaches) and the corresponding per hour higher volume vehicle minor street approach (one direction only) for one hour (any consecutive 15 minute period) fall above the applicable curves in MUTCD Figure 4C-3 or 4C-4.

Figure 4C-101. Traffic Signal Warrants Worksheet (Sheet 3 of 4)

DIST _____ CO _____ RTE _____ KPM _____

CALC _____ DATE _____
CHK _____ DATE _____

Major St: _____ Critical Approach Speed _____ km/h
Minor St: _____ Critical Approach Speed _____ km/h

Critical speed of major street > 64 km/h (40 mph)..... ☐
or
In built up area of isolated community of < 10,000 population..... ☐ **RURAL (R)**

☐ **URBAN (U)**

WARRANT 4 - Pedestrian Volume
(All Parts Must Be Satisfied)

100% SATISFIED YES ☐ NO ☐

Hours - - ->				
Pedestrian Volume				
Adequate Crossing Gaps				

Any hour > 190 Yes ☐ No ☐
OR 4 hours > 100 Yes ☐ No ☐
AND < 60 gap/hr Yes ☐ No ☐

AND, The distance to the nearest traffic signal along the major street is greater than 90m (300 ft) - - - - - - - - - - Yes ☐ No ☐

AND, The new traffic signal will not seriously disrupt progressive traffic flow in the major street. - - - - - - - - - - Yes ☐ No ☐

WARRANT 5 - School Crossing
(All Parts Must Be Satisfied)

SATISFIED YES ☐ NO ☐

Part A
Gap/Minutes and # of Children

Each of Two Hours - - ->			
Gaps vs Minutes	Minutes Children Using Crossing		
	Number of Adequate Gaps		
School Age Pedestrians Crossing Street			

Gaps < Minutes SATISFIED YES ☐ NO ☐
Children > 20/hr SATISFIED YES ☐ NO ☐

Part B
Distance to Nearest Controlled Crossing

Is Nearest Controlled Crossing More Than 180 m (600 ft) away? SATISFIED YES ☐ NO ☐

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

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

MINIMUM REQUIREMENTS	DISTANCE TO NEAREST SIGNAL	FULFILLED
> 300 m (1000 ft)	N _____ m, S _____ m, E _____ m, W _____ m	Yes ☐ No ☐
On one way isolated streets or streets with one way traffic significance and adjacent signals are so far apart that necessary platooning and speed control would be lost.		
On 2-way streets where adjacent signals do not provide necessary platooning and speed control proposed signals could constitute a progressive signal system.		☐ ☐

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

REQUIREMENTS	WARRANT	✓	FULFILLED
One Warrant Satisfied 80%	Warrant 1 - Minimum Vehicular Volume		
	OR Warrant 2 - Interruption of Continuous Traffic		Yes ☐ No ☐
Signal Will Not Seriously Disrupt Progressive Traffic Flow			☐ ☐
Adequate Trial of Less Restrictive Remedies Has Failed to Reduce Accident Frequency			☐ ☐
Acc. Within a 12 Month Period Susceptible for Corr. & Involving Injury or ≥ $500 Damage			
MINIMUM REQUIREMENTS	NUMBER OF ACCIDENTS		
5 or More			☐ ☐

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

MINIMUM VOLUME REQUIREMENTS	ENTERING VOLUMES - ALL APPROACHES	✓	FULFILLED
1000 Veh/Hr	During Typical Weekday Peak Hour _____ Veh/Hr		
	OR During Each of Any 5 Hrs. of a Sat. and/or Sun _____ Veh/Hr		Yes ☐ No ☐

CHARACTERISTICS OF MAJOR ROUTES	MAJOR ST.	MINOR ST.	
Hwy. System Serving as Principal Network for Through Traffic			
Rural or Suburban Highway Outside Of, Entering, or Traversing a City			
Appears as Major Route on an Official Plan			
Any Major Route Characteristics Met, Both Streets			☐ ☐

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.

Figure 4C-102. Traffic Count Worksheet

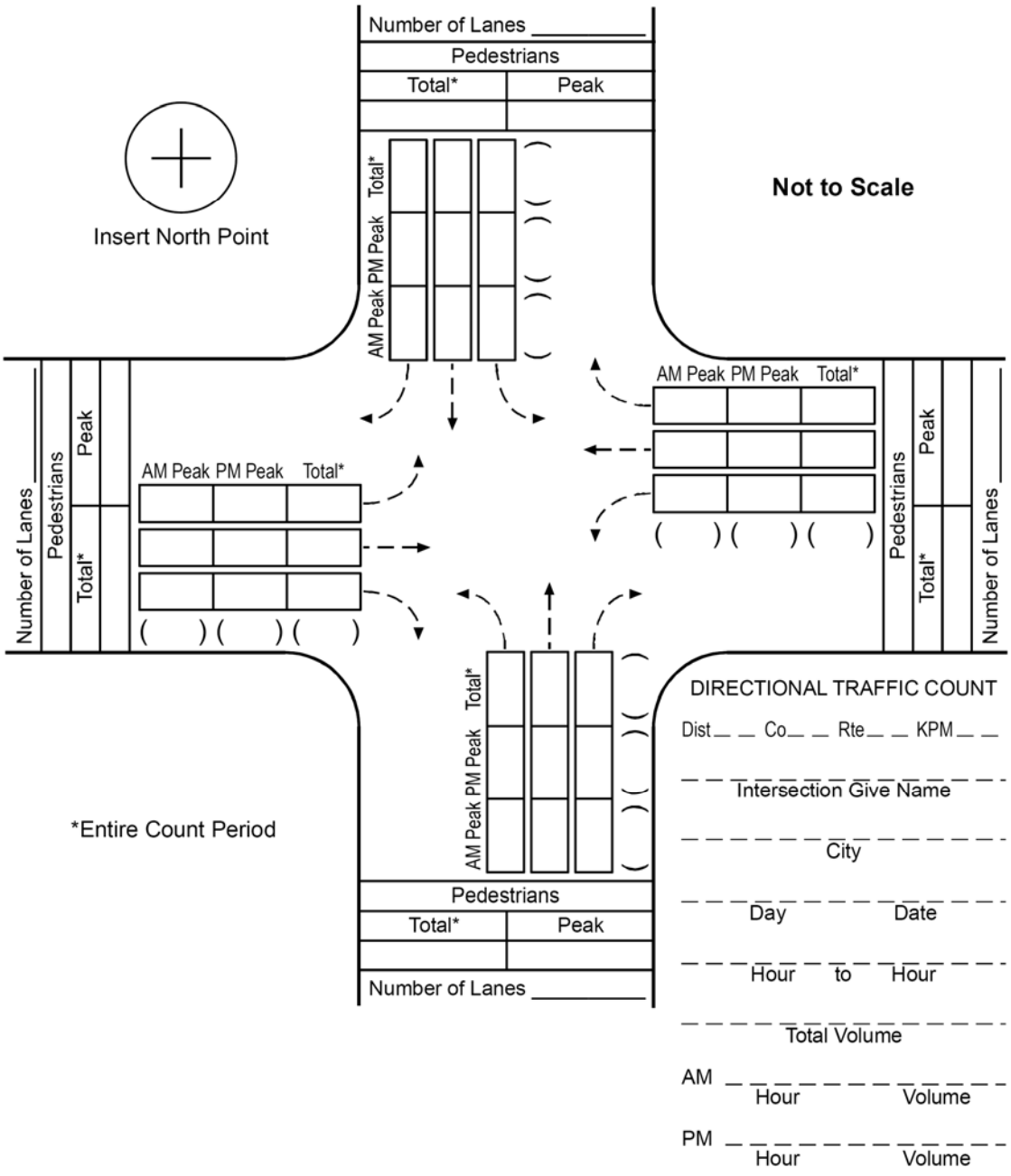


Table 4C-101. Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

(Based on Estimated Average Daily Traffic - See Note)

URBAN..... RURAL.....	Minimum Requirements EADT	
1A - Minimum Vehicular Traffic Satisfied _____ Not Satisfied _____	Vehicles Per Day on Major Street (Total of Both Approaches)	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)
Number of lanes for moving traffic on each approach	Urban / Rural	Urban / Rural
Major Street / Minor Street		
1..... 1.....	8,000 / 5,600	2,400 / 1,680
2 or More..... 1.....	9,600 / 6,720	2,400 / 1,680
2 or More..... 2 or More.....	9,600 / 6,720	3,200 / 2,240
1..... 2 or More.....	8,000 / 5,600	3,200 / 2,240
1B - Interruption of Continuos Traffic Satisfied _____ Not Satisfied _____	Vehicles Per Day on Major Street (Total of Both Approaches)	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)
Number of lanes for moving traffic on each approach	Urban / Rural	Urban / Rural
Major Street / Minor Street		
1..... 1.....	12,000 / 8,400	1,200 / 850
2 or More..... 1.....	14,400 / 10,080	1,200 / 850
2 or More..... 2 or More.....	14,400 / 10,080	1,600 / 1,120
1..... 2 or More.....	12,000 / 8,400	1,600 / 1,120
1A&B - Combinations Satisfied _____ Not Satisfied _____ No one warrant satisfied, but following warrants fulfilled 80% or more..... _____ (1) _____ (2)	2 Warrants	2 Warrants

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

CHAPTER 4D. TRAFFIC CONTROL SIGNAL FEATURES

Section 4D.02 Responsibility For Operation and Maintenance

The following is added to this section:

Support:

The Department of Transportation is responsible for the operation of all State highway traffic signals, regardless of whether the signal is maintained by the State or by others.

Standard:

State highway traffic signals shall include, but are not necessarily limited to, all signals on a State highway and at ramp connections to local streets.

Maintenance and operation of highway traffic signals involving State Highways by an agency other than the Department of Transportation shall require a jointly approved written agreement.

Section 4D.04 Meaning of Vehicular Signal Indications

In the second paragraph, item C.2, delete the second sub-paragraph that begins with "When an R10-17a sign…" The R10-17a sign shall not be used in California. Turning on a steady red arrow is not permitted in California.

Section 4D.05 Application of Steady Signal Indications

Delete subparagraph s B.4 (c) and B.4 (d) in the Standard that begins with "An engineering…" Signs W25-1 and W25-2 shall not be used in California.

Delete and replace the last paragraph under Option that begins "If U-turns are permitted…" with:

Standard:

When a RIGHT TURN ARROW controls the Right Turn movement, a conflicting U-turn approach shall be prohibited.

Section 4D.06 Application of Steady Signal Indications for Left Turns

Delete subparagraphs A.4 in the Standard that begins "If the left-turn signal face…"

The following is added to this section:

Guidance:

Since separate signal phases for protected left turns will reduce the green time available for other phases, alternate means of handling left turn conflicts should be considered first.

Support:

The most likely possibilities are:

1. Prohibition of left turns. This can be done only if there are convenient alternate means of making the movement. Typical alternate means are:
   a. A series of right and/or left turns around a block to permit getting to the desired destination; or
   b. Making the left turn at an adjacent unsignalized intersection during gaps in the opposing through traffic.
2. Geometric changes to eliminate the left turn. An effective change would be a complete separation or a complete or partial "clover leaf" at grade. Any of these, while eliminating left turns, requires additional cost and right of way.
3. Provide protected-permissive or permissive-protected left turn operation. The protected left turn interval may be prohibited during certain periods of the day to allow only permissive intervals for left turn movement in order to increase the green time available for other phases. Refer to Section 4D.112 for the requirements of protected-permissive or permissive-protected left turn operation.

Guidance:

Protected left turn phases should be considered where such alternatives couldn't be utilized, and one or more of the following conditions exist:

1. Accidents - Five or more left turn accidents for a particular left turn movement during a recent 12-month period.
2. Delay - Left-turn delay of one or more vehicles, which were waiting at the beginning of the green interval and are still remaining in the left turn lane after at least 80% of the total number of cycles for one hour.
3. Volume - At new intersections where only estimated volumes are available, the following criteria may be used. For pretimed signal or a background-cycle-controlled actuated signal, a left turn volume of more than two vehicles per approach per cycle for a peak hour; or for a traffic-actuated signal, 50 or more left turning vehicles per hour in one direction with the product of the turning and conflicting through traffic during the peak hour of 100,00 or more.
4. Miscellaneous. Other factors that might be considered include but are not limited to: impaired sight distance due to horizontal or vertical curvature, or where there are a large percentage of buses and trucks.

Section 4D.07 Application of Steady Signal Indications for Right Turns

The following is added to this section:

Guidance:

A right-turn green arrow should be considered for use only when there is an exclusive right-turn lane or it is the only movement that traffic is permitted to make or when the right-turn volume exceeds 200 vehicles per hour.

Section 4D.09 Unexpected Conflicts During Green or Yellow Intervals

In the Standard, subparagraph A, first sentence, place a period (.) after "…signal indication." Delete "…except for the situation regarding U-turns described in Section 4D.05."

Section 4D.10 Yellow Change and Red Clearance Intervals

The following is added to this section:

Support:

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

Guidance:

The length of the yellow change interval is dependent upon the speed of approaching traffic. See Table 4D-102 for suggested minimum yellow interval timing.

Option:

Red clearance intervals which follow yellow change intervals are not required, but may be considered where any of the following conditions exist:

1. Intersections that are wide, offset or contain unusual geometry; intersections where the visibility of conflicting traffic is blocked or limited;
2. Movements where the approach speeds are 90 km/h (55 mph) or more; or
3. Where it is desirable to help clear vehicles that recurrently become queued in the intersection where there are permissive left turns.

Guidance:

Red clearance intervals range from 0.01 to 2.0 seconds and should not exceed 6 seconds.

Section 4D.13 Preemption and Priority Control of Traffic Control Signals

In Options subparagraph C, delete the word "turning" to change the sentence to read:

A. A special sequence of signal phases to display a red indication to prohibit all movements toward the track during the approach or passage of a train or transit vehicle.

The following is added to this Section:
Guidance:

Traffic control signals within 60 m (200 ft) of a highway-rail crossing should be operated during railroad pre-emption in a manner that minimizes delay and potential conflicts. These alternatives include steady all-red, all-red flash, limited service or special sequential signal phasing.
Option:

Extinguishable or changeable message regulatory signs and/or appropriate red traffic control signal indications that are visible only during railroad or light rail transit pre-emption may be used to prohibit movements from a signalized location toward a highway-rail crossing. Examples of applicable regulatory signs that may be used in a extinguishable format include the R3-1, R3-2 and R5-1 signs.
Support:

Left turns from a nearby signalized intersection toward a highway-rail crossing can be prohibited during railroad or light rail transit pre-emption by use of a red-left arrow display or a extinguishable R3-2 sign. Likewise, right turns from a nearby signalized intersection toward such a crossing can be prohibited by use of a red right arrow display or a extinguishable R3-1 sign. Through movements from a nearby signalized intersection toward a highway-rail crossing can be prohibited by a circular red display or a extinguishable R5-1 sign.

Where the highway-rail crossing impacts two streets near a signalized intersection, then steady all red operation may be appropriate during railroad or light rail transit pre-emption.
Where the typical pre-emption period tends to be short, such as for light rail transit or commuter trains, a single pre-emption signal phase that serves some vehicular movements and prohibits others may be appropriate. So-called “limited-service” operation, which provides a steady circular green to traffic parallel to the rail line, is one such example.

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

Where there are exclusive turn lanes that accommodate turns toward the highway-rail crossing, then it becomes practical to prohibit those moves during railroad pre-emption.

Where exclusive turn lanes or special sequential phases are not feasible, then all-red flash may be desirable to allow movements to be made after motorists stop to assess the railroad or light rail transit pre-emption operation.

The desirability of prohibiting movements toward the highway-rail crossing during railroad or light rail transit pre-emption increases as:

1) the distance between the signalized intersection and the highway-rail crossing decreases; and,
2) the volume that likely would enter increases.

Section 4D.15 <u>Size, Number, and Location of Signal Faces by Approach</u>
The following is added to the first standard, second paragraph of this section:
Standard:

F. For mast-arm mounted, span-wire mounted and signal bridge mounted indications
The following is added to this section:
Standard:

There shall be at least two signal faces for each controlled approach of an intersection including signalized left turn lanes.
Guidance:

Supplemental signal faces should be considered if any of the following conditions exist:

1. The area is rural.
2. The area is urban and the signal is the first one on a particular highway.
3. The roadway is striped for two or more approach lanes.

4. Where visibility of the signal is affected by alignment or obstructions.

Support:

On an undivided roadway, the signal faces for each through approach of an intersection are usually placed at the far right and far left corners.

Option:

The signal faces for two or more approaches may be combined on a single standard.

Support:

However, it is generally desirable to locate the signal faces on separate standards at curb returns. This practice will tend to maximize the visibility of the signal faces for the controlled approach while minimizing the visibility of the signal faces intended for the cross-street approach.

Guidance:

Separate standards should be considered whenever the curb return radius is greater than 3 m (10 ft).

The preferred locations for new installations of signal faces for fully-protected left turn movements at a typical intersection are on a mast arm of sufficient length to place one signal face as nearly as practical in line with the left turn lane and to place the second face on a standard at the far left corner.

Option:

Unusual roadway geometrics, wide medians, wide roadways, more than one left turn lane in the same direction or other factors may require the left turn signal face(s) to be mounted on standard(s) located in a median to satisfy visibility requirements.

A signal face, containing a circular green indication, may be located in a far median only when:

1. The signal phasing provides a protected left turn movement; or
2. The signal face is provided with some type of visibility control so that the indications are not visible to traffic in the left turn storage lane; or
3. It is not facing a left turn storage lane.

A signal face containing a circular green indication may be located in the near median where there is a left turn storage lane and there is no associated left turn phase.

Supplemental signal faces may be placed at a near side location or suspended from a mast arm.

Section 4D.19 <u>Lateral Placement of Signal Supports and Cabinets</u>

The following is added to this section:

Guidance:

Normally, controller cabinets should be located in accordance with the following:

1. It should not be vulnerable to traffic.
2. Traffic movements at the intersection should be visible from the controller timing position.
3. The doors of the cabinet should open away from the curb or traveled way.
4. It should be possible to park a maintenance truck close to the cabinet.
5. It should not be located in a drainage ditch, in an area which could be under water or where subjected to water from sprinklers.
6. It should not obstruct sidewalks, wheelchair ramps, or store entrances.
7. It should be placed so as not to obstruct pedestrian or driver visibility.

Support:

Refer to Figures 4D-102 through 4D-108 for typical signal layouts for various intersections.

Standard:

Upon requests, keys for the police panel on traffic signal controller cabinets shall be furnished to the California Highway Patrol offices or local enforcement agencies.

Section 4D.20 Temporary Traffic Control Signals

The following is added to this section:

Option:

Temporary signals for traffic control at the intersection of a State highway and a haul road, or to provide one-way traffic control through a construction zone, may be either the fixed or portable type. Such signals are normally installed by a contractor and may require an Encroachment Permit.

Standard:

1. **Requirements.**
   Each plan for temporary signals shall include the equipment details as well as the following operating requirements:
   a. **Shall meet all requirements of section 4D.20 of the MUTCD**
   b. **Signal faces, detectors and control equipment is to be kept in good operating condition at all times.**
   c. **When not in use, portable signals are to be removed from the vicinity of the highway and fixed signals are to be placed in flashing operation with yellow indications for the highway and red indications for the haul road.**
   d. **Timing of the signals will be determined by the Agency having jurisdiction.**
   e. **A Signal Ahead (W3-3) sign (and flashing beacon, if required) is to be placed on each approach of the highway in advance of the signal.**
   f. **Haul road signals shall be operated using manual control or vehicle detectors. The operation shall provide a green indication to the haul road only if the contractor's equipment is approaching the crossing. The haul road green interval shall not exceed 10 seconds and the highway green interval shall not be less than 20 seconds, unless specific permission is given in writing. A 3-second, minimum, yellow change interval, and any required red clearance interval shall follow each green interval.**
   g. **One-way traffic control signals may utilize pretimed or traffic-actuated controller units, or may be manually controlled.**
   h. **A 3-second, minimum, yellow change interval shall follow each green interval. An all-red clearance interval shall follow each yellow change interval. The all-red clearance interval shall permit a vehicle to travel the length of the one-way lane before a green indication is shown to opposing traffic.**
   i. **Failure to comply with any of the above or other specified conditions will be justification for revoking the permit.**
2. **Equipment Details.**
   Fixed temporary traffic signals shall be designed for 120-volt operation, while portable temporary signals may be battery operated. The vehicle signal faces shall be the standard 3-section type with no less than two separate signal faces for each approach, including the haul road approaches. The signal faces shall be mounted a minimum of 3 m (10 ft) above the roadway and directed so that the indications are readily seen by traffic. The signal faces for highway traffic shall be equipped with backplates.

   For one-way lane control or where conditions require sets of signals to be coordinated, the sets may be interconnected by cable or radio so that they are operated from a single manual or automatic control. The control system shall be designed to prevent conflicting green indications.

Section 4D.101 Traffic Signal Design Introduction

Support:

The design of traffic signals by the Department of Transportation is based upon the following publications:

1. Manual on Uniform Traffic Control Devices (MUTCD)
2. California Supplement to the MUTCD.
3. Standard Specifications.
4. Standard Plans.
5. Signal and Lighting Design Guide.
6. Ramp Meter Design Manual.
7. Highway Design Manual.

Additional references that can be used include:

1. Traffic Engineering Handbook.
2. Manual of Traffic Signal Design.
3. Traffic Control Systems Standards.
4. Traffic Control Devices Handbook.

See Section 1A.11 for information regarding these publications.

Section 4D.102 Signal Plan Schedules

Guidance:

The traffic signal plans for the installation of a new signal or the major modification of an existing signal should include the following schedules:

1. Pole and Equipment Schedule.
   A pole and equipment schedule shows the types of standards, mast arm lengths, types and mounting for vehicle and pedestrian signal faces, and other equipment. See Table 4D-106 and the Standard Plans.
2. Conductors and Conduit Schedule.
   A conductor and conduit schedule shows the size of each conduit run, and the size, type and number of conductors or cables in each conduit run. See Table 4D-107.

Support:

Dimensions of conductors and conduit and data for determining conduit size are shown in Tables 4D-108 and 4D-109.

Section 4D.103 Vehicle Detectors

Support:

The proper operation of a traffic-actuated signal is dependent upon the appropriate type and proper placement of detectors. The types and applications of vehicle detectors currently used include the following:

1) Inductive Loop - The inductive loop detector, because of its presence feature, detects a standing vehicle as well as a moving one. The detection area is roughly that enclosed by the loop.
2) Magnetometer- The magnetometer detector detects a standing vehicle, as well as a moving one, and has a detection area up to 1 m (3.3 ft) in diameter over each sensing element.
3) Magnetic- The magnetic detector detects only vehicles moving in excess of 8 km/h (5 mph). One sensing element covers one or two traffic lanes.
4) Video Detection- Detects vehicles passing through the field of view of a CCTV camera or image sensor. They are useful during construction or other temporary situations when lanes change frequently in width and location as well as where the installation of conduit and detector loops is expensive or difficult. Care is necessary to avoid locations and conditions, which could obscure the detector's visibility such as extreme weather, sun glare and moving shadows.

5) Pressure Sensitive.

Standard:

No new pressure sensitive installations shall be made. Existing units shall be replaced with other types of detectors loop when:

a. They require relocation;
b. The traffic signal is to be modified; or
c. The roadway is to be resurfaced.

Support:

The normal installation of inductive loop and magnetometer detectors requires sound pavement if the detector is to operate reliably.

Guidance:

If the pavement on an approach in which these detectors are to be installed is cracked, the project should include resurfacing of the areas where the detectors and lead-in cables are to be placed.

Support:

Typical installation details for inductive loop and magnetometer detectors are shown on the Standard Plans. The longitudinal location (setback) of detectors relative to the limit line depends on the speed of traffic and the type of detector operation desired. See Table 4D-101 for suggested setback from Limit lines.

Section 4D.104 Bicycle Signals

Support:

A bicycle signal is an electrically powered traffic control device that may only be used in combination with an existing traffic signal. Bicycle signals shall direct bicyclists to take specific actions and may be used to improve an identified safety or operational problem involving bicycles.

Standard:

When bicycle traffic is controlled, only green, yellow and red lighted bicycle symbols, shall be used to implement bicycle movement at a signalized intersection. The application of bicycle signals shall be implemented only at locations that meet Department of Transportation Bicycle Signal Warrants. This will remain in effect until January 1, 2005.

A separate signal phase for bicycle movement shall be used.

Guidance:

Alternative means of handling conflicts between bicycles and motor vehicles should be considered first. Two alternatives that should be considered are:

1. Striping to direct a bicyclist to a lane adjacent to a traffic lane such as a bike lane to left of a right-turn-only lane.
2. Redesigning the intersection to direct a bicyclist from an off-street path to a bicycle lane at a point removed from the signalized intersection.

A bicycle signal phase should be considered only after these and other less restrictive remedies have had an adequate trial with enforcement and with the result that the collision frequency has not been reduced.

Section 4D.105 Bicycle Detectors

Option:

Bicycle detectors may be required at traffic-actuated signal installations.

Standard:

A Type D loop configuration shown on Department of Transportation's Standard Plan ES5B is effective for detecting bicycles and small motorcycles and shall be installed at the bicycle loop detector locations. Loop detectors shall not be placed within a pedestrian crosswalk or where it could conflict with pedestrian traffic.

Option:

The loop detector logo shown on Department of Transportation's Standard Plan A24C may be used to show a bicyclist where to stop in a bike lane or traffic lane to be detected.

Guidance:

The logo should be applied to the pavement in the center of the Type D loop.

Support:

See Figure 4D-111 for suggested locations of bicycle detectors and Department of Transportation's Standard Plans for typical bike lane pavement markings.

Section 4D.106 Selection of Traffic Signal Operation

Guidance:

A prime factor to be considered in selection of the type of traffic signal operation is adequacy. While it may be true that a sophisticated signal control will operate satisfactorily at any intersection, the intersection should not be provided with a type of control that is unnecessarily complex and expensive.

Support:

The type of traffic signal operation to be used is dependent upon the variations in traffic demand. The two general types of signal operation are pretimed and traffic-actuated. Traffic-actuated operation can be further classified as full-traffic-actuated or semi-traffic-actuated. With full-traffic-actuated operation, all traffic movements or phases are provided with detectors. In semi-traffic-actuated operation, certain phases (usually the coordinated phases) do not have detectors.

Guidance:

Pretimed and semi-traffic-actuated operation should be used in coordinated systems only. They should not be installed at isolated intersections (more than 1.6 km (1 mile) from the closest signalized intersection).

Where the distance between signalized intersections is 0.8 km (0.5 mile) or less, coordination of signals should be considered, including the preparation of a time-space diagram and an evaluation of the cost-effectiveness of coordination.

Discretion should be used with phasing at offset intersections as it may introduce operational problems, which should be recognized and avoided. The most critical of these problems is where one approach right-of-way is terminated while the opposing approach continues with a green indication.

Section 4D.107 Selection of Left-Turn Phasing

Support:

There are various methods to signalize left turn movements. See Figure 4D-101.

Guidance:

If the left turn volume is 300 or more vehicles per hour, or if delays to traffic at the intersection can be significantly reduced, consideration should be given to a two-lane left turn.

Section 4D.108 Dual Left

Support:

This method is most effective during free or isolated operation and is traffic-actuated. It is the most efficient means of providing protected left turn movements since the various phases and combinations of phases appear only on demand. A through movement is allowed to go with its associated left turn movement when there is no opposing left turn traffic.

Section 4D.109 Lead-Lag

Guidance:

This operation can be either pretimed or traffic-actuated. Normally, "Lead-Lag" phasing should be considered for coordinated signals when the offset timing determined by the system time-space diagram

results in the arrival of the two directions of traffic at different times during a cycle. This will provide the most efficient progressive band.

Section 4D.110 Opposite or Opposing

Guidance:

Opposing operation should be used where the left turn volume per lane is very high in either direction and is about equal to or greater than the companion through movement.

Support:

This method is especially useful when one of the through lanes must be used as an optional turning lane or where a separate left turn lane cannot be provided.

Section 4D.111 Permissive Left-Turn Phasing

Guidance:

When a protected-permissive or permissive-protected left-turn phasing operation is used for a signal system, no information sign is necessary.

Standard:

If a sign is used, it shall be a LEFT TURN YIELD ON GREEN (Green Ball symbol) (R10-12) sign.

Option:

Public agencies having jurisdiction may use an extinguishable message sign on local roads in place of the R10-12 sign on their local roads that are not part of an intersection with a State highway.

Standard:

The extinguishable message shall say LEFT TURN YIELD in at least 150 mm (6 in) high letters. The light source shall be designed and constructed so that when illuminated, the message shall be white and remain dark when not in use. The message shall be illuminated only when the green permissive ball is lighted.

The following apply to permissive left-turn phasing:

1. **This operation shall not be initiated where the left turn accident warrant is satisfied.**
2. **Both directions of through traffic shall be terminated simultaneously except where opposing left turns or opposing U-turns are prohibited.**

Guidance:

3. Signal faces should not be placed in a median facing a left turn lane.

Support:

4. Signs are not required for this operation unless U-turns are to be prohibited.

Section 4D.112 Signals at Interchanges

Support:

Signals at freeway interchanges require special consideration as to phasing and timing to minimize backup of traffic onto the freeway lanes.

In addition, signals at diamond-type interchanges require phasing and timing to provide the necessary turning movements from the cross street to and from the ramps, without a backup of traffic between the ramps.

Guidance:

Figures 4D-109 and C4D-110 are guides and should be used to determine the timing of traffic signals at diamond interchanges. These figures should be used in conjunction with Table 4D-103 to determine the timing of the splits and offsets for diamond interchange signals.

Support:

The decision whether to use pretimed or traffic-actuated operation is dependent not only upon traffic conditions in the interchange area, but also upon traffic conditions along the cross street. For example, a

coordinated traffic signal system along the cross street may require that the signals at the interchange be coordinated with the cross street progression

Section 4D.113 Timing of Green Intervals

Guidance:

The proportion of green time, or split, allotted to each phase or combination of phases during a signal cycle, should be as close as practicable to the proportion of critical lane traffic volumes on the respective approaches. In traffic-actuated operation, this proportioning is done automatically and continuously as a result of vehicle detector inputs to the controller unit.

Option:

Factors that may modify this proportioning are the time required for pedestrian intervals and the requirements of a coordinated system.

Support:

In the usual signal operation, predetermined splits can be selected by time-of-day or traffic-responsive equipment. In coordinated signal systems, the cycle length and the split can be varied by command from the system master controller.

Section 4D.114 Review of Traffic Signal Operations

Guidance:

All traffic signals should be periodically reviewed for proper operation. The traffic signal operation should be observed during morning and evening peak traffic periods and during off-peak periods. If an operating deficiency is observed, the reason for the deficiency should be determined. If there is a malfunction, Maintenance unit should be notified, and after corrective work is done, further surveillance should be conducted to be sure no deficiency remains. If a need for a design change is observed, an analysis should be made to determine what improvement might be necessary to improve the design.

Improvements to consider are:

1. Timing of:
   a. Maximums or Force Offs
   b. Gap Interval
   c. Offsets
   d. Cycle Length
2. Time-of-Day or Traffic Responsive Settings
3. Signal Phasing or Phase Sequence
4. Type of Operation
5. Coordination of Signals
6. Signs, Striping and/or Pavement Markings
7. Roadway Improvements

Standard:

Timing and phasing of traffic signals and any subsequent changes in timing shall be approved by the public agency having jurisdiction. Timing records shall be kept by the agency responsible for the maintenance and/or operation and be readily available to the maintenance and traffic operations staffs and other agencies, where appropriate.

Support:

Aids for timing are shown in Tables 4D-104 and 4D-105.

Section 4D.115 Railroad Preemption

Support:

Railroad preemption results in a special traffic signal operation depending on the relation of the railroad tracks to the intersection, the number of phases in the traffic signal and other traffic conditions. Railroad preemption is normally controlled by the railroad grade crossing warning equipment.

Guidance:

Typical circumstances where railroad preemption is required and the following type of signal operation should be provided during preemption:

1. Where a railroad grade crossing, provided with grade crossing warning equipment, is within 60 m (200 ft) of a signalized intersection, preemption of the traffic signal should provide the following sequence of operation:
   a. A yellow change interval and any required red clearance interval for any signal phase that is green or yellow when preemption is initiated and which will be red during the track clearance interval. The length of yellow change and red clearance intervals shall not be altered by preemption. Phases, which are in the green interval when preemption is initiated, and which will be green during the track clearance interval, shall remain green. Any pedestrian walk or clearance interval, in effect when preemption is initiated, shall immediately be terminated and all pedestrian signal faces shall display steady upraised HAND.
   b. A track clearance interval for the signal phase or phases controlling the approach that crosses the railroad tracks. The signal indication for the clearance interval may be either green or flashing red.
   c. A yellow change interval if green signal indications were provided during the track clearance interval.
   d. Depending on traffic requirements and phasing of the traffic signal controller, the traffic signal may then do one of the following:
      (1) Go into flashing operation, with flashing red or flashing yellow indications for the approaches parallel to the railroad tracks and flashing red indications for all other approaches. Pedestrian signals shall be extinguished. If flashing red is used for all approaches, an all-red or other clearance interval shall be provided prior to returning to normal operation.
      (2) Revert to limited operation with those signal indications controlling through and left turn approaches towards the railroad tracks displaying steady red. Permitted pedestrian signal phases shall operate normally. This operation shall be used only if the grade crossing warning equipment includes gates.
   e. The traffic signal shall return to normal operation following release of preemption control.
2. Where the railroad tracks run within a roadway and train speeds exceed 16 km/h (10 mph), preemption of the traffic signal should provide the following sequence of operation.
   a. A yellow change interval and any required red clearance interval for all signal phases that are green or yellow when preemption is initiated and which will be red during the preemption period. The length of yellow change and red clearance intervals shall not be altered by preemption. Phases, which are in the green interval when preemption is initiated, and which will be green during the preemption period, shall remain green. Any walk or pedestrian clearance intervals in effect when preemption is initiated shall be immediately terminated and all pedestrian signal faces shall display upraised HAND.
   b. All signal faces controlling traffic movements parallel to the railroad tracks will display green or flashing yellow indications. All other vehicle signal faces will display red indications; pedestrian signal faces will display upraised HAND.
3. Where the railroad tracks run along a roadway of a signalized intersection and train speeds do not exceed 16 km/h (10 mph), trains may be controlled by the vehicle signal indications. This type of

train control requires approval from the railroad, the Public Utilities Commission and the Director of Transportation.

4. Unusual or unique track or roadway configurations may require other solutions than those described above.

Section 4D.116 Emergency Vehicle Preemption

Option:

Authorized emergency vehicles may preempt traffic signals. The purpose of such preemption is to provide the right of way to the emergency vehicle as soon as practical. The preemption may be controlled by one of the following means:

1. By direct wire, modulated light or radio from a remote location such as a fire house; and
2. By modulated light or radio from an emergency vehicle.

Guidance:

Emergency vehicle preemption should provide the following sequence of operation:

1. A yellow change interval and any required red clearance interval for any signal phase that is green or yellow when preemption is initiated and which will be red during the preemption interval. The length of the yellow change and red clearance intervals shall not be altered by preemption. Phases, which are in the green interval when preemption is initiated, and which will be green during the preemption period shall remain green. Any pedestrian walk interval in effect when preemption is initiated shall be immediately terminated. The normal pedestrian clearance interval may be abbreviated.

Standard:

2. An all-red intersection preemption display shall not be used.

3. The traffic signal shall return to normal operation upon termination of the demand for preemption or the termination of the assured green interval.

At a traffic signal provided with both emergency vehicle preemption and railroad preemption, the railroad preemption shall have priority. In the event of a demand for an emergency vehicle preemption during the time that the intersection is operating on railroad preemption, the railroad preemption sequence shall continue unaffected until completion. In the event of a demand for railroad preemption during emergency vehicle preemption operation, railroad preemption shall immediately assume control of the intersection.

When control of emergency vehicle preemption is by means of a radio or modulated light source, the following shall apply:

1. **The transmitter shall be permanently mounted on the emergency vehicle or building and shall operate at a range sufficient to permit a normal yellow change interval and any required clearance intervals to take place prior to the arrival of the emergency vehicle. The normal pedestrian clearance interval may be abbreviated.**
2. **The preemption system may provide an indication (such as a special signal) to the driver of an emergency vehicle that preemption of the traffic signal has been effected. If a special signal light is used, the color shall not be red, yellow, or green.**
3. **The system shall be designed to prevent simultaneous preemption by two or more emergency vehicles on separate approaches to the intersection.**

When performed by a local agency, the installation of emergency vehicle preemption equipment shall be covered by an Encroachment Permit issued by the Department of Transportation's District Director.

The permit shall state the applicable requirements from those listed above and the following:

1. **It should be understood that the permit for the installation might be revoked or changed as deemed advisable or necessary by the Department of Transportation.**

2. **The timing of the preemption equipment shall be as approved in advance by the Department of Transportation and shall not be changed without written permission. The Permittee shall make any changes in timing, requested by the Department of Transportation.**
3. **The Permittee shall assume all liability for the claims, which arise due to or because of the permit.**

Support:

Normally emergency vehicle preemption equipment is installed, operated, and maintained at no cost to the State. An exception is where the equipment is installed for use by vehicles of another State agency.

Standard:

The State shall maintain the preemption equipment at the traffic signal when the signal is maintained by the State. The costs of such maintenance shall be at 100% local agency expense.

Section 4D.117 Bus/Transit Vehicle Priority

Standard:

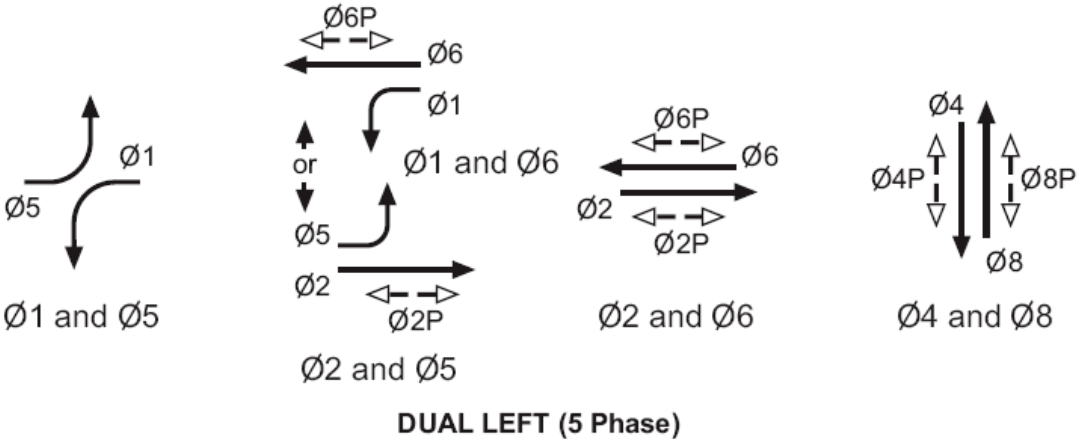
The requirements for bus/transit vehicle priority insofar as installation, encroachment permit, maintenance and funding are the same as stated above for emergency vehicle preemption. The equipment and operation requirements for bus/transit vehicle priority shall be similar to those above for emergency vehicle priority. Some exceptions to these requirements are:

1. **Equipment requirements for the transmitter are set forth in CVC Section 25352.**
2. **Any pedestrian interval in effect when priority is initiated shall not have its timing affected.**

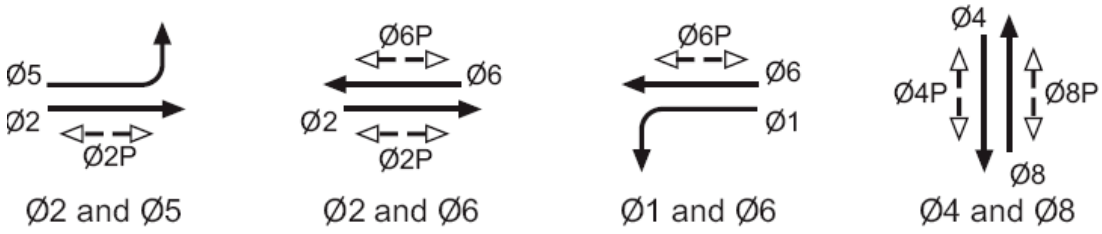
Guidance:

3. Normally, bus/transit priority should not occur more than once every other signal cycle.

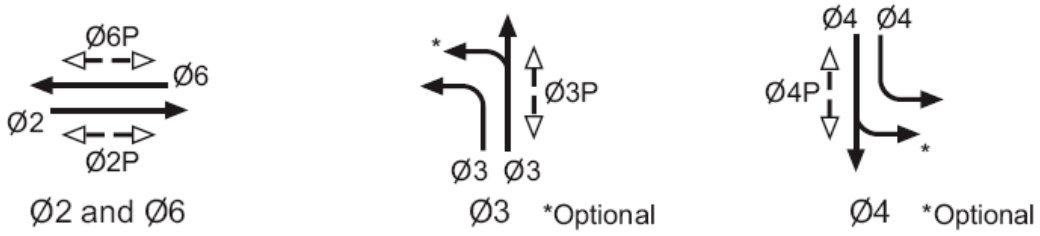
Figure 4D-101. Left-Turn Phasing Methods (Phase Diagrams)



DUAL LEFT (5 Phase)

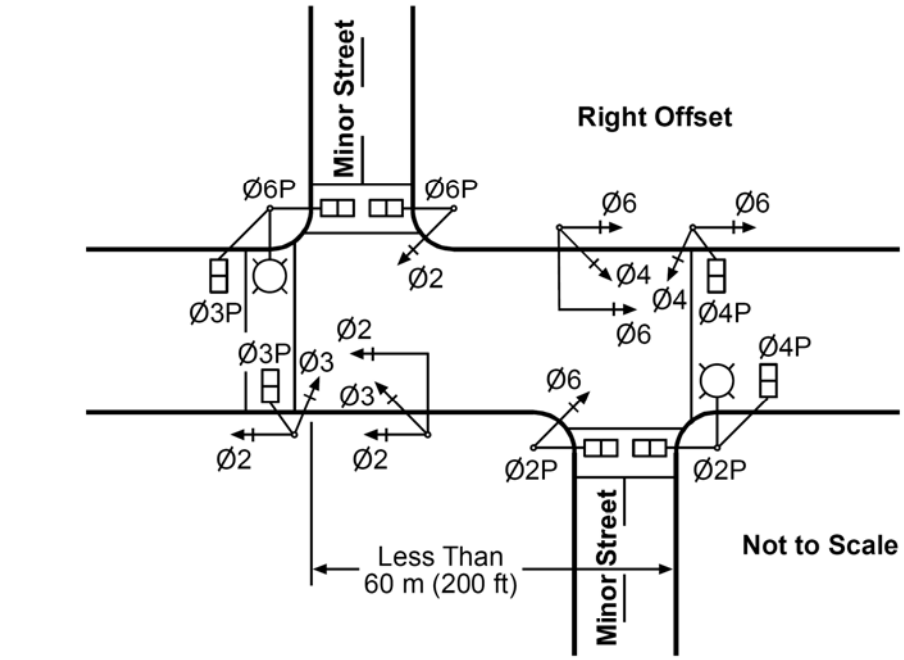


LEAD - LAG

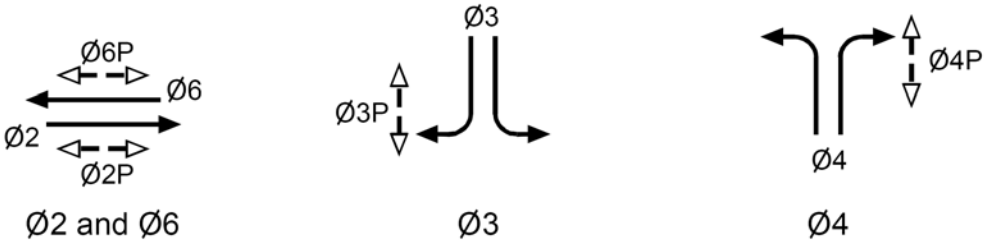


OPPOSITE (Opposing)

Figure 4D-102. Typical Signal Layout at Offset Intersections, Signalized and Marked as a Single Intersection (Sheet 1 of 4)

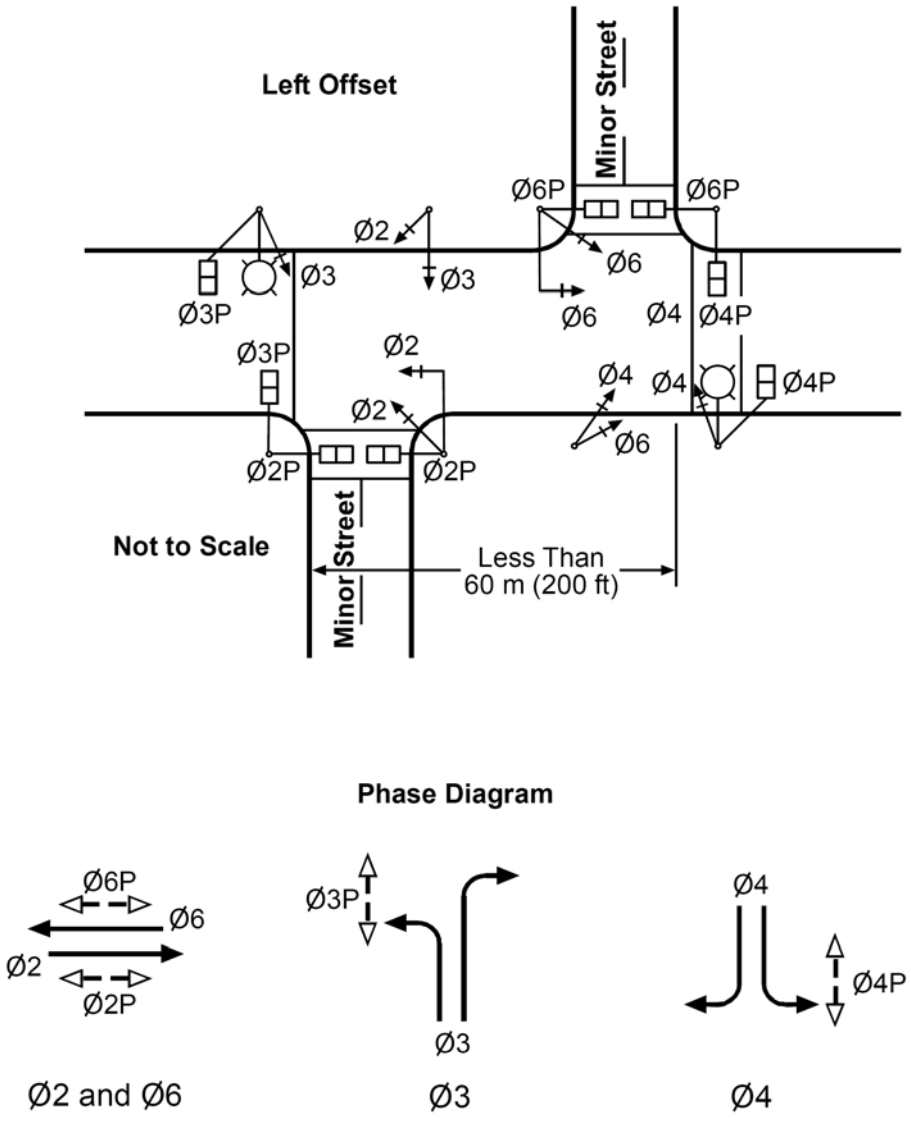


Phase Diagram



NOTE: Safety Lighting Design shall satisfy the requirements of Traffic Manual, Section 9-10.3.

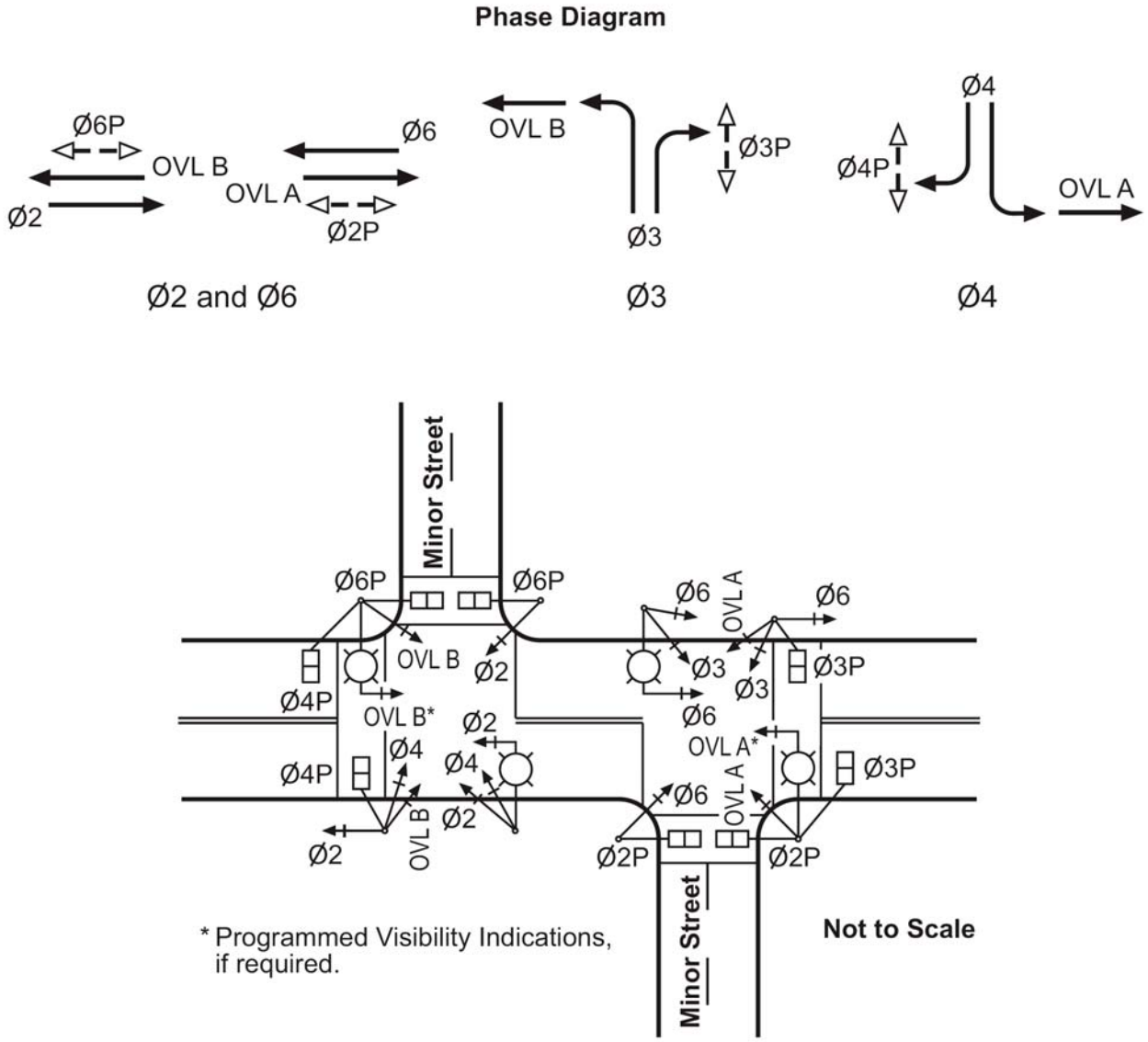
Figure 4D-102. Typical Signal Layout at Offset Intersections, Signalized and Marked as a Single Intersection (Sheet 2 of 4)



Phase Diagram

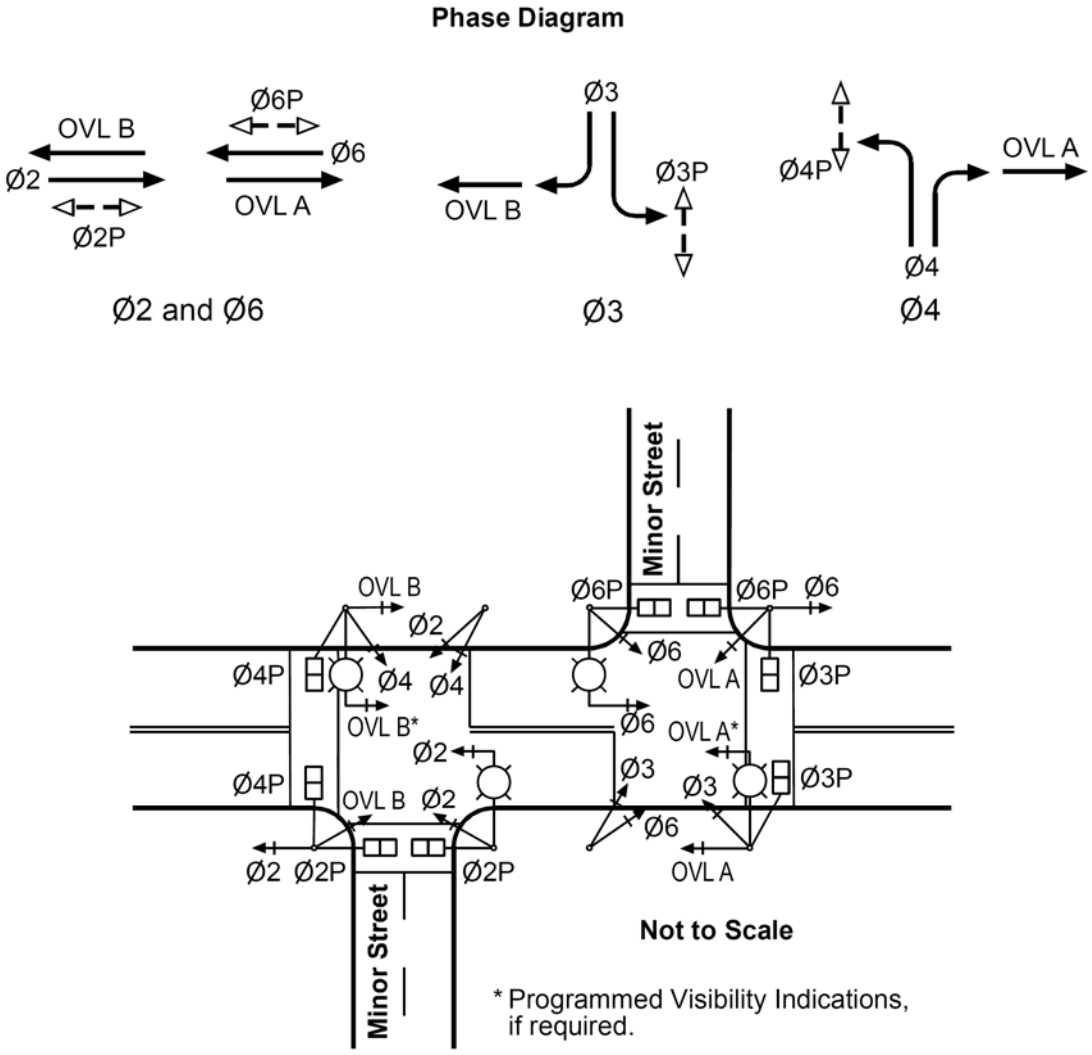
NOTE: Safety Lighting Design shall satisfy the requirements of Traffic Manual, Section 9-10.3.

Figure 4D-102. Typical Signal Layout at Offset Intersections, Signalized and Marked as a Single Intersection (Sheet 3 of 4)



NOTE: Safety Lighting Design shall satisfy the requirements of Traffic Manual, Section 9-10.3.

Figure 4D-102. Typical Signal Layout at Offset Intersections, Signalized and Marked as a Single Intersection (Sheet 4 of 4)



NOTE: Safety Lighting Design shall satisfy the requirements of Traffic Manual, Section 9-10.3.

Figure 4D-103. Typical Signal Layout (Two Phase Operation)

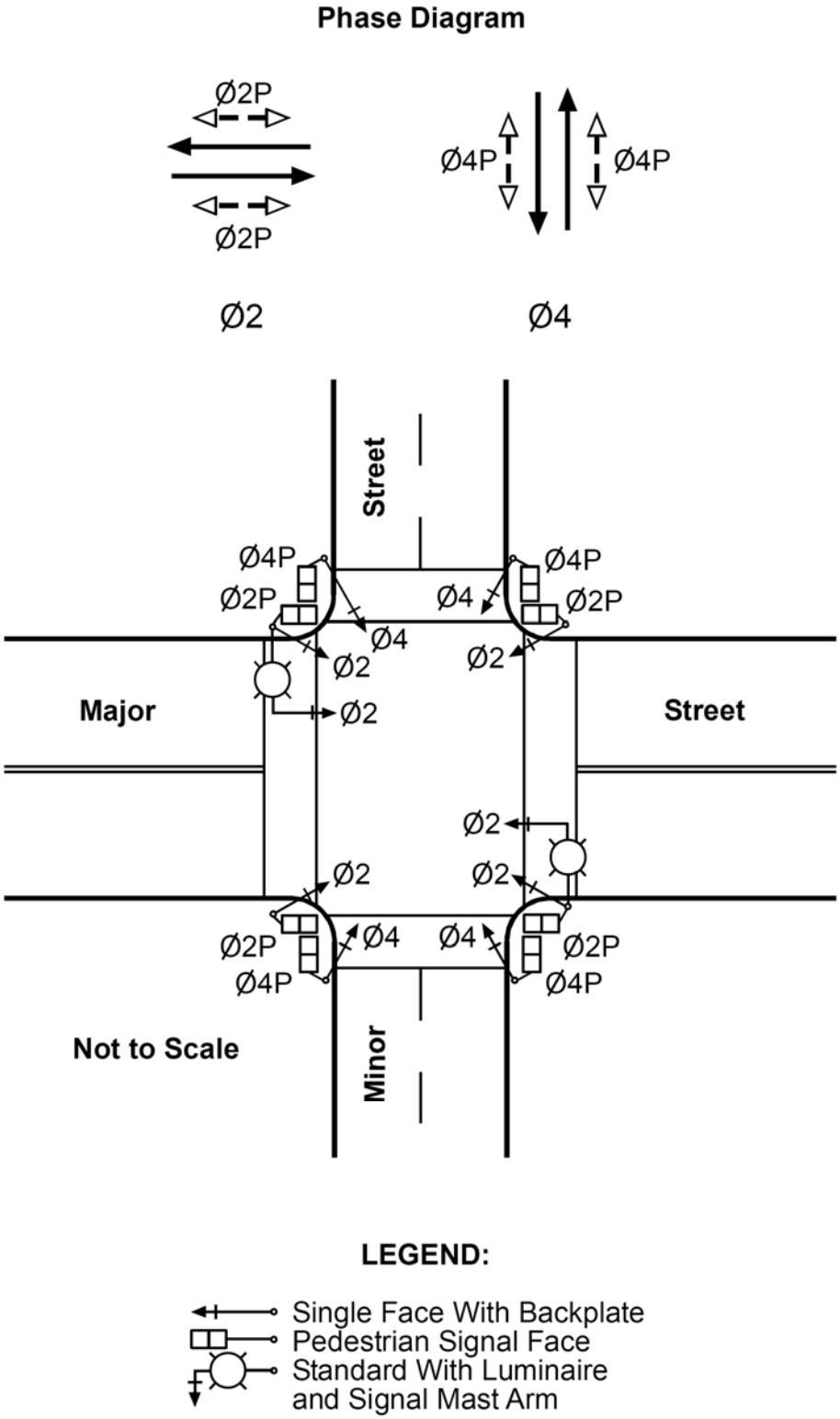


Figure 4D-105. Typical Signal Layout
(Five Phase "Dual Left" Operation)

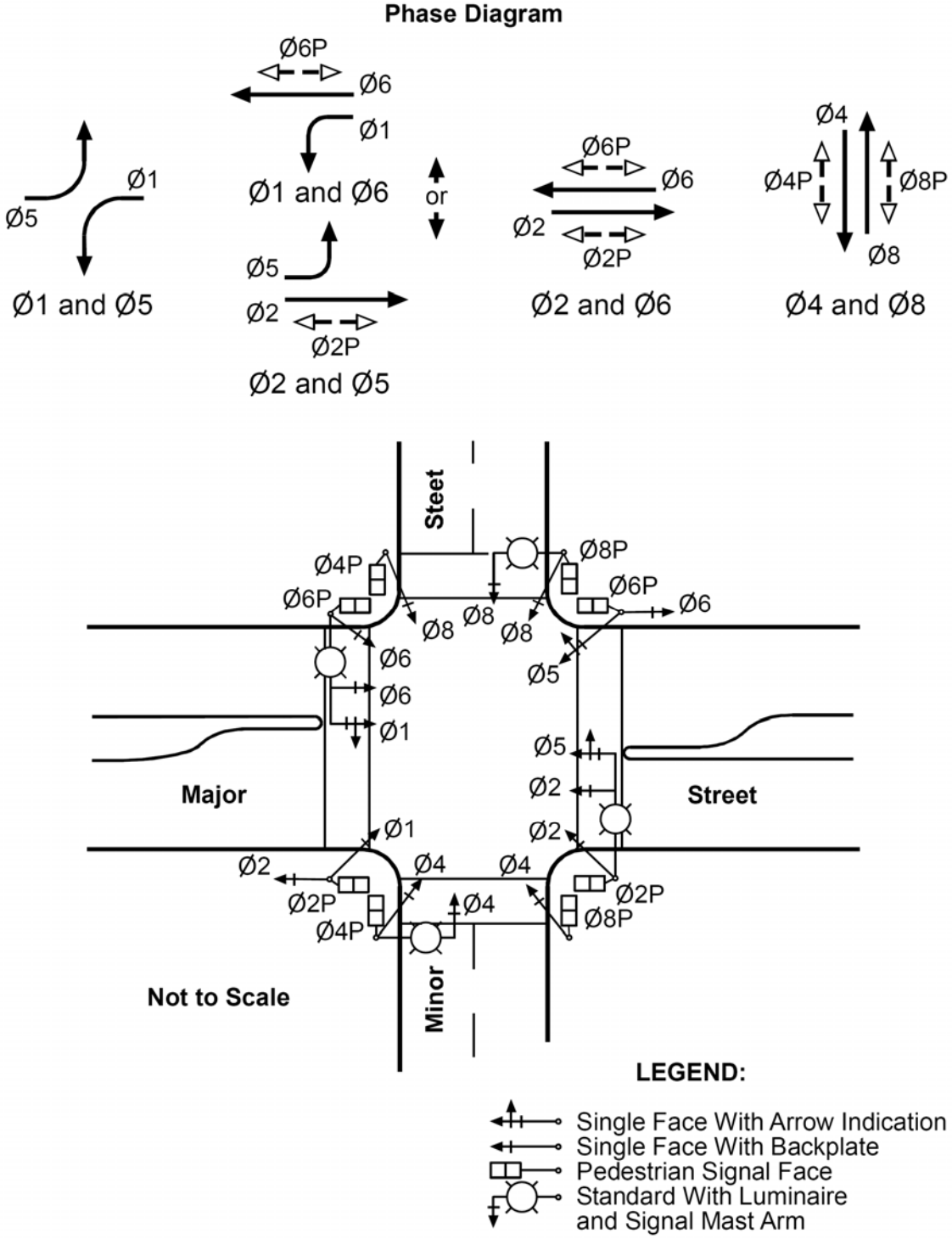


Figure 4D-106. Typical Signal Layout
(Six Phase "Opposing" Operation)

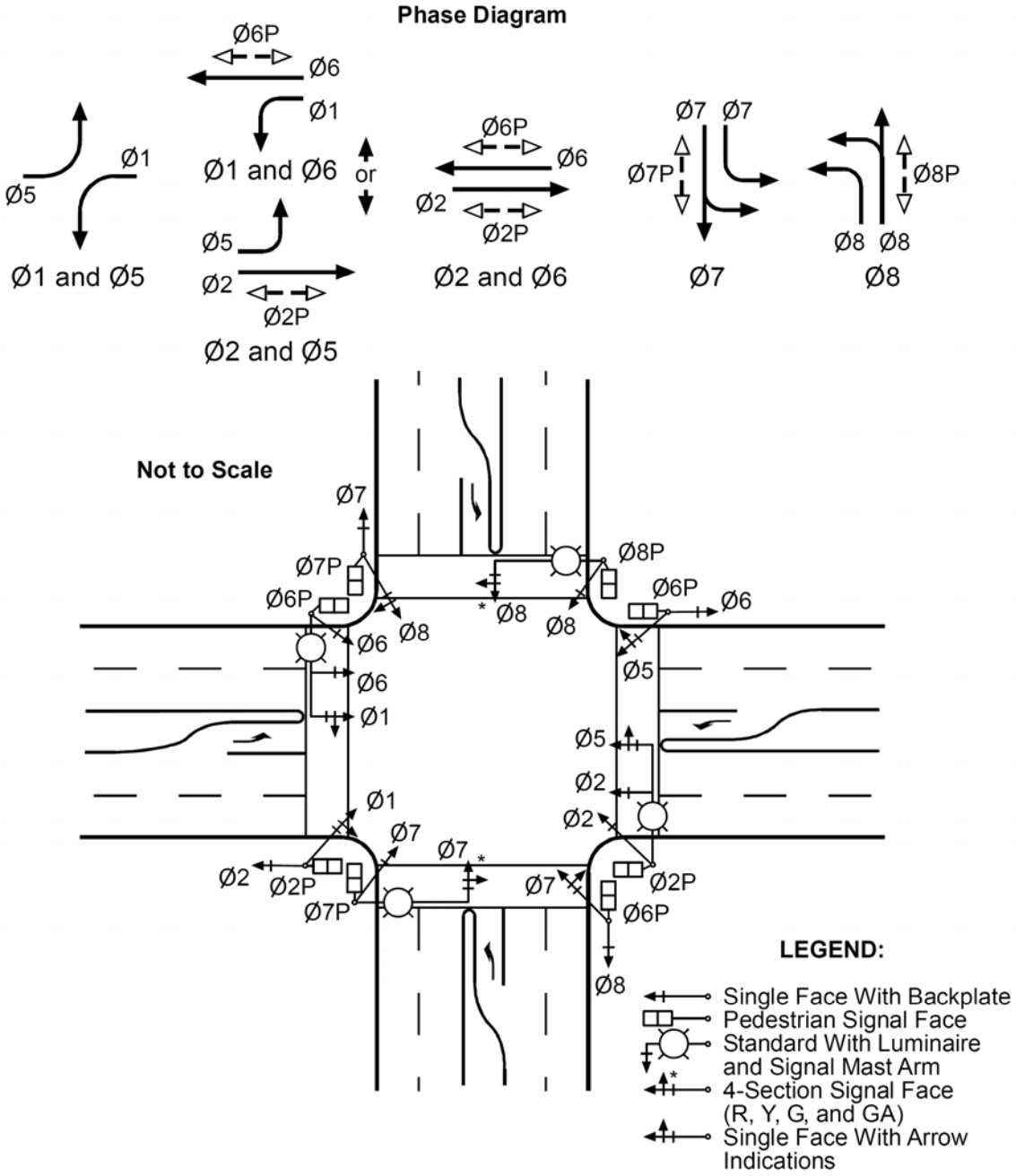


Figure 4D-107. Typical Signal Layout
(Eight Phase "Quad Left" Operation)

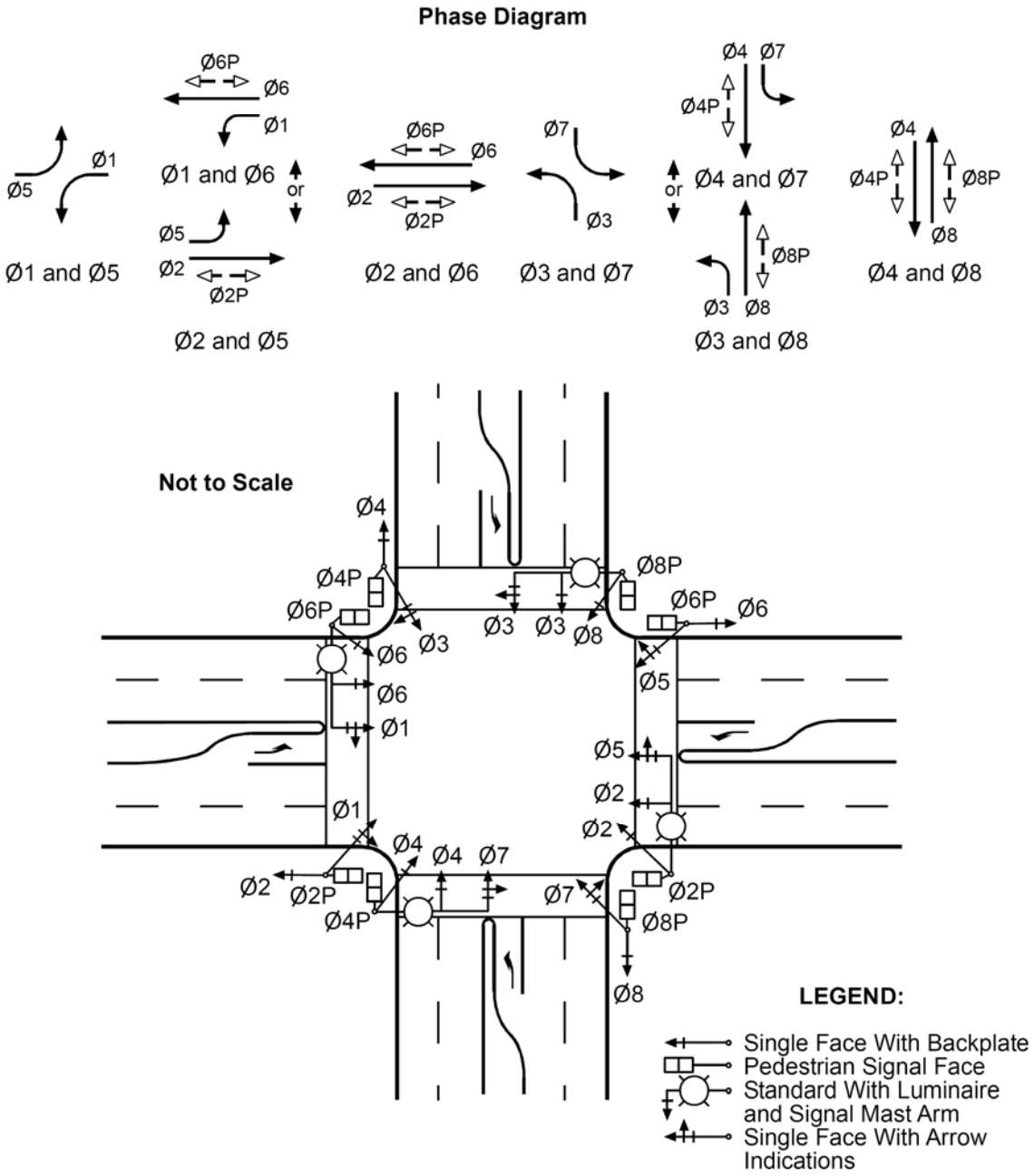


Figure 4D-108. Typical Traffic Signal Installation

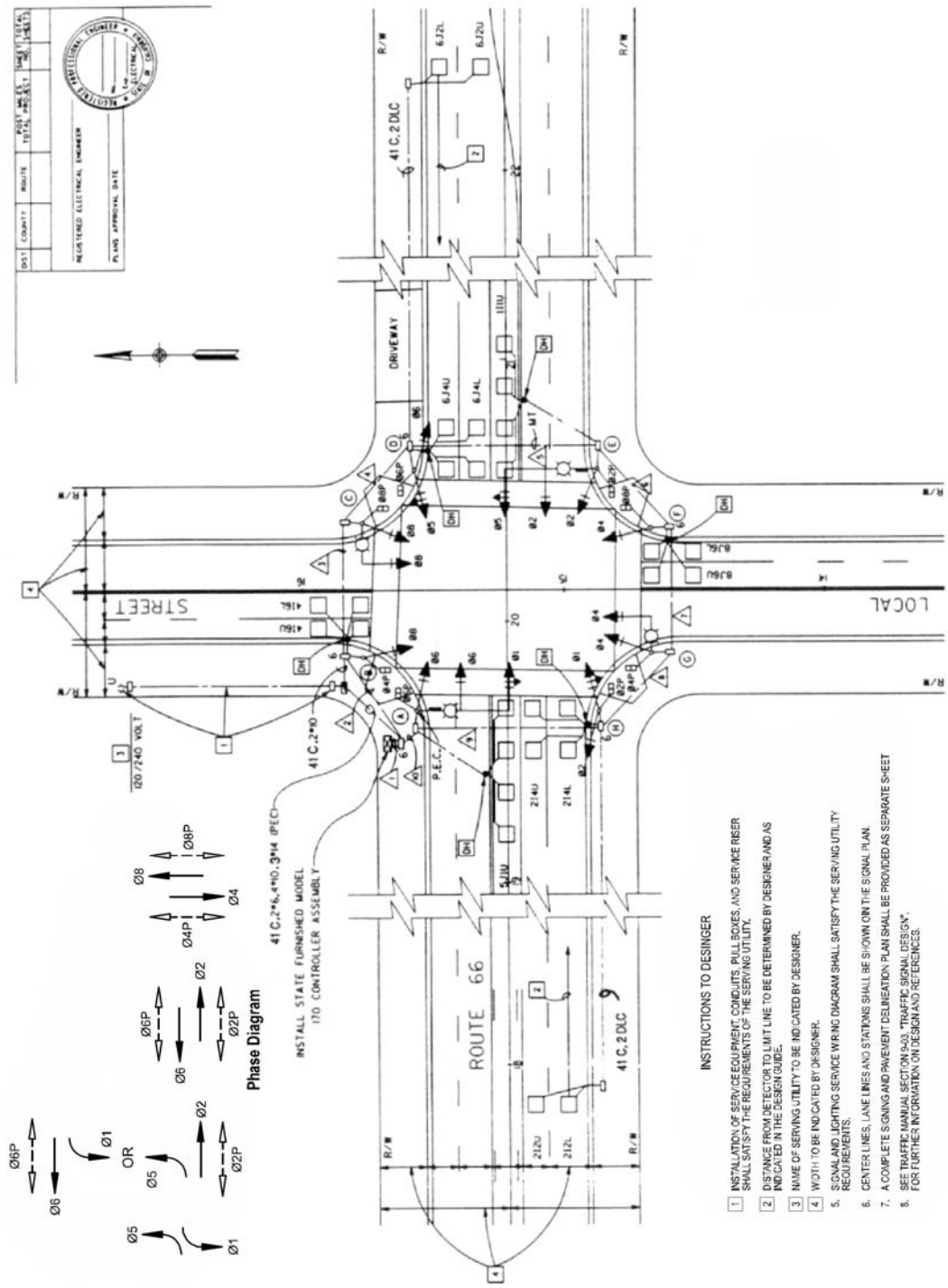
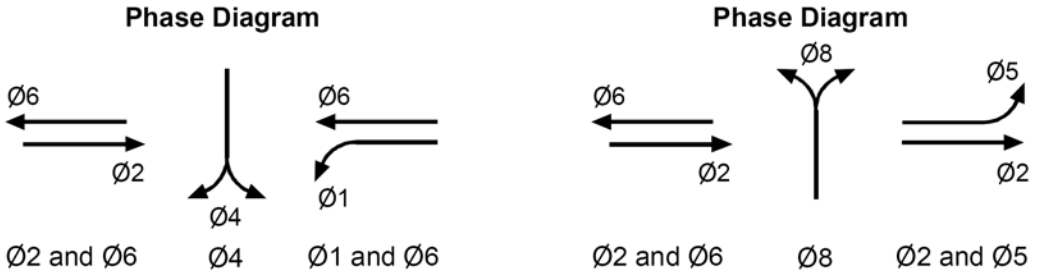
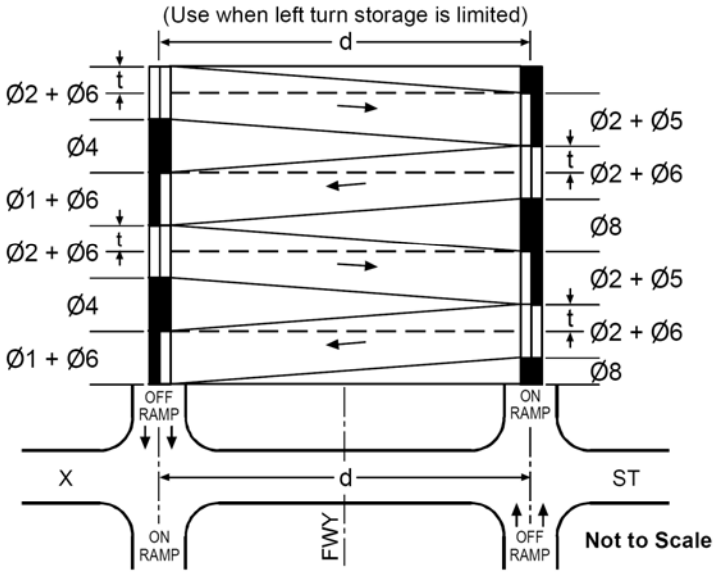
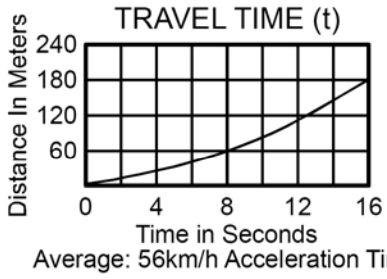


Figure 4D-109. Diamond Interchange Timing Chart (Heavy Left-Turn - 200 vphpl or More - Using Two Controllers)



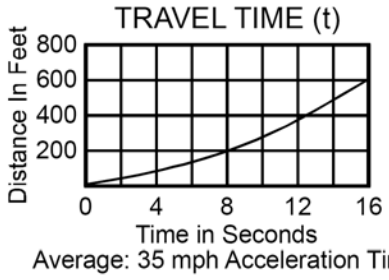


Ø2 + Ø6 should be = <Ø5
Ø2 + Ø6 should be = <Ø1
Ø4 should be = <Ø2 + Ø6
Ø8 should be = <Ø2 + Ø6
Phase Times are Green-Yellow



Average: 56km/h Acceleration Time

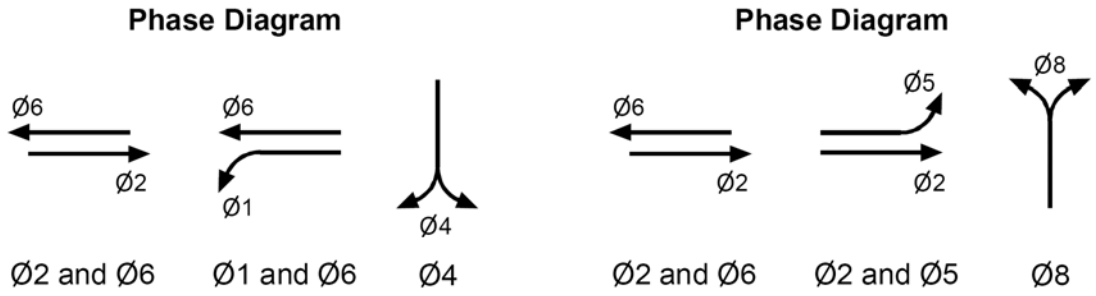
2t + Ø6 + Ø5 = Cycle Length
Ø2 + Ø6 + Ø4 = 2t + Ø5
Ø2 + Ø6 + Ø8 = 2t + Ø1
"t" = Time to go distance "d"

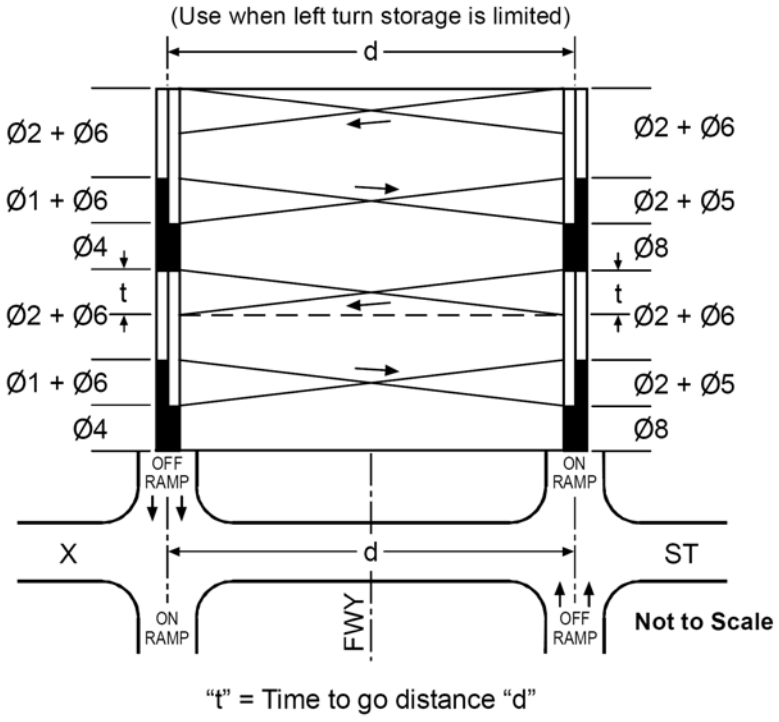


Average: 35 mph Acceleration Time

NOTE: These timing guidelines are ideal. Variations in timing may be necessary to provide proper splits to meet volume demands (See Table 4D-101).

Figure 4D-110. Diamond Interchange Timing Chart (Light Left-Turn - 200 vphpl or Less - Using Two Controllers)

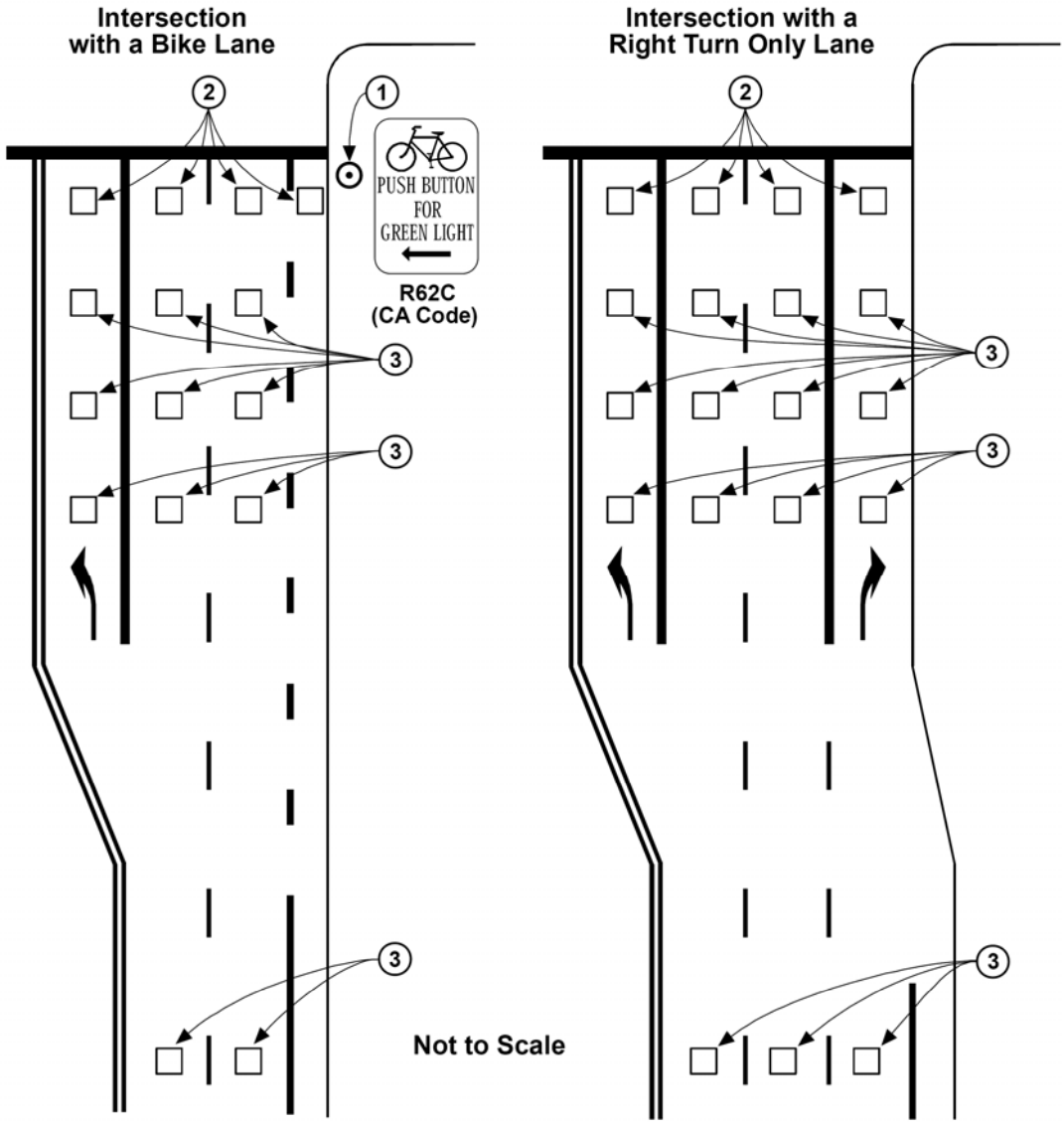




"t" = Time to go distance "d"

NOTES: 1. These timing guidelines are ideal. Variations in timing may be necessary to provide proper splits to meet volume demands (See Table 4D-101).
2. The Green-Yellow interval for phases 1, 4, 5 or 8 should equal time "t".

Figure 4D-111. Bicycle Detection Systems



NOTES:

1. **Bike/Push Button for Green Light (CA Code R62C) Sign or a Type D Loop Detector may be used to activate a traffic signal. A push button should be located so it is convenient to use by bicyclists.**
2. **Typical Type D Loop Detector locations.**
3. **Typical Loop Detector locations. See Section 4D.105.**
4. **See Standard Plan A24C for Bicycle Loop Detector pavement marking details.**

Table 4D-101. Suggested Detector Setbacks From Limitline

Deceleration Rate d = 3.05 m per second^2

Reaction Time r = 1.00 second

Deceleration Distance = $^1/_2dt^2$ or $^1/_2Vt$ or $\frac{V^2}{2d}$

Deceleration Time = $\frac{V}{d}$

Detector Setback = Deceleration Distance + Reaction Time = $\frac{V^2}{2d} + Vr$

V = Speed (meter per second)

d = Deceleration Rate (meter per second^2)

t = Deceleration Time (seconds)

Note: When English units are used, replace "d" (Deceleration Rate) with 10 ft per second^2. Speed must be expressed in feet per second and the Deceleration Setback will be measured in feet.

SPEED				DEC. TIME	DECELERATION DISTANCE		TOTAL TIME	DETECTOR SETBACK			
								ACTUAL		SUGGESTED	
mph	km/h	m/s	feet/s	Seconds	Meters	Feet	Seconds	Meters	Feet	Meters	Feet
25	40	11.18	36.68	3.67	20.49	66.93	4.67	31.67	103.90	30	105
30	48	13.42	44.00	4.40	29.51	96.82	5.40	42.93	140.80	45	140
35	56	15.65	51.35	5.13	40.17	131.80	6.13	55.82	183.10	55	185
40	64	17.89	58.69	5.87	52.46	204.90	6.87	70.35	230.80	70	230
45	72	20.13	66.04	6.60	66.40	217.80	7.60	86.52	283.90	85	285
50	80	22.36	73.36	7.33	81.97	268.90	8.33	104.33	342.30	105	345
55	89	24.60	80.71	8.06	99.18	325.40	9.06	123.78	406.10	125	405
60	97	26.83	88.00	8.80	118.04	387.30	9.80	144.87	475.30	145	475
65	105	29.07	95.37	9.53	138.53	454.50	10.53	167.60	549.90	170	550
70	113	31.29	102.7	10.27	160.50	526.60	11.27	191.79	649.30	190	650

Table 4D-102. Suggested Minimum Yellow Interval Timing

APPROACH SPEED		YELLOW INTERVAL
mph	km/h	Seconds
25 or less	40 or less	3.0
30	48	3.2
35	56	3.6
40	64	3.9
45	72	4.3
50	80	4.7
55	89	5.0
60	97	5.4
65	105	5.8

Table 4D-103. Traffic Signal Timing Analysis Chart

Number of Cars	Min. Time in Seconds Req. for Cars	Length of Stopped Queue		Length of Moving Queue		Moving Queue Time (Bond Width in Seconds)	NUMBER OF VEHICLES PER HOUR LANE AT INDICATED CYCLE LENGTH									
		Meters	Feet	Meters (48 km/h)	Feet (30 mph)		50 Sec.	60 Sec.	70 Sec.	80 Sec.	90 Sec.	100 Sec.	120 Sec.	150 Sec.	180 Sec.	240 Sec.
1	4	8	25	0	0	2	70	60	50	45	40	35	30	25	20	15
2	7	16	50	27	88	4	145	120	100	90	80	70	60	50	40	30
3	9	24	75	54	176	6	215	180	150	135	120	110	90	70	60	45
4	11	32	100	81	264	8	290	240	205	180	160	145	120	95	80	60
5	13	40	125	108	352	10	360	360	255	225	200	180	150	120	100	75
6	15	48	150	135	440	12	430	420	310	270	240	215	180	145	120	90
7	17	54	175	162	528	14	505	480	360	315	280	250	210	170	140	105
8	19	62	200	189	616	16	575	540	410	360	320	290	240	190	160	120
9	21	70	225	216	704	18	650	600	460	405	360	320	270	215	180	135
10	23	78	250	243	792	20	720	660	510	450	400	360	300	240	200	150
11	25	84	275	270	880	22	790	720	560	495	440	400	330	265	220	165
12	27	92	300	297	968	24	865	780	610	540	480	430	360	290	240	180
13	29	100	325	324	1056	26	935	840	665	585	520	470	390	315	260	195
14	31	108	350	351	1144	28	1020	900	715	630	560	500	420	340	280	210
15	33	114	375	378	1232	30	1080	960	765	675	600	540	450	365	300	225
16	35	122	400	405	1320	32	1150	1020	815	720	640	580	480	385	320	240
17	37	130	425	432	1408	34	1225	1080	865	765	680	610	510	410	340	255
18	39	138	450	459	1496	36	1295	1140	920	810	720	650	540	430	360	270
19	41	146	475	486	1584	38		1200	970	855	760	680	570	455	380	285
20	43	154	500	513	1672	40		1260	1020	900	800	720	600	480	400	300
21	45	162	525	540	1760	42		1320	1070	945	840	760	630	505	420	315
22	47	170	550	567	1848	44		1380	1120	990	880	790	660	530	440	330
23	49	178	575	594	1936	46		1440	1175	1035	920	830	690	550	460	345
24	51	186	600	621	2024	48			1225	1080	960	860	720	575	480	360
25	53	194	625	648	2112	50			1275	1125	1000	900	750	600	500	375
26	55	202	650	675	2200	52			1325	1170	1040	930	780	625	520	390
27	57	210	675	702	2288	54			1375	1215	1080	960	810	650	540	405
28	59	218	700	729	2376	56			1430	1260	1120	990	840	670	560	420
29	61	226	725	756	2464	58				1305	1160	1020	870	700	580	435

Table 4D-104. Signal Operations - Vehicular Speed (Metric Units)

SECONDS		10	15	20	25	30	35	40	45	50	55	60
km/h	m/s	DISTANCE TRAVELED IN METERS										
1	0.28	2.80	4.20	5.60	7.00	8.40	9.80	11.20	12.60	14.00	15.40	16.80
2	0.56	5.60	8.40	11.20	14.00	16.80	19.60	22.40	25.20	28.00	30.80	33.60
3	0.83	8.30	12.45	16.60	20.75	24.90	29.05	33.20	37.35	41.50	45.65	49.80
4	1.10	11.00	16.50	22.00	27.50	33.00	38.50	44.00	49.50	55.00	60.50	66.00
5	1.39	13.90	20.85	27.80	34.75	41.70	48.65	55.60	62.55	69.50	76.45	83.40
10	2.80	28.00	42.00	56.00	70.00	84.00	98.00	112.00	126.00	140.00	154.00	168.00
15	4.17	41.70	62.60	83.40	104.30	125.00	146.00	167.00	188.00	209.00	229.00	250.00
20	5.56	55.60	84.00	111.00	139.00	167.00	195.00	222.00	250.00	278.00	306.00	334.00
25	6.94	69.40	104.00	139.00	174.00	208.00	243.00	278.00	312.00	347.00	382.00	416.00
30	8.33	83.30	125.00	167.00	208.00	250.00	292.00	333.00	375.00	417.00	458.00	500.00
35	9.72	97.20	146.00	194.00	243.00	292.00	340.00	389.00	437.00	486.00	535.00	583.00
40	11.10	111.00	167.00	222.00	278.00	333.00	389.00	444.00	500.00	555.00	611.00	666.00
45	12.50	125.00	188.00	250.00	313.00	375.00	438.00	500.00	563.00	625.00	688.00	750.00
50	13.89	138.90	208.00	278.00	347.00	417.00	486.00	556.00	625.00	695.00	764.00	834.00
55	15.28	152.80	229.00	306.00	382.00	458.00	535.00	611.00	688.00	764.00	840.00	917.00
60	16.67	166.70	250.00	333.00	416.00	500.00	583.00	667.00	750.00	833.00	917.00	1000.00
65	18.06	180.60	271.00	361.00	452.00	542.00	632.00	722.00	813.00	903.00	993.00	1084.00
70	19.44	194.40	292.00	389.00	486.00	583.00	680.00	778.00	875.00	972.00	1069.00	1166.00
75	20.83	208.30	312.00	417.00	521.00	625.00	729.00	833.00	937.00	1042.00	1146.00	1250.00
80	22.22	222.20	333.00	444.00	555.00	667.00	778.00	889.00	1000.00	1111.00	1222.00	1333.00
85	23.61	236.10	354.00	472.00	590.00	708.00	826.00	944.00	1062.00	1180.00	1298.00	1416.00
90	25.00	250.00	375.00	500.00	625.00	750.00	875.00	1000.00	1125.00	1250.00	1375.00	1500.00
95	26.39	263.90	396.00	528.00	660.00	792.00	924.00	1056.00	1188.00	1320.00	1452.00	1584.00
100	27.78	277.80	417.00	556.00	695.00	834.00	972.00	1112.00	1251.00	1390.00	1529.00	1668.00
105	29.17	291.70	437.00	583.00	729.00	875.00	1021.00	1167.00	1313.00	1458.00	1604.00	1750.00
110	30.56	305.60	458.00	611.00	764.00	917.00	1070.00	1222.00	1375.00	1528.00	1681.00	1834.00

Table 4D-104. Signal Operations - Vehicular Speed (English Units)

SECONDS		10	15	20	25	30	35	40	45	50	55	60
mph	ft/s	DISTANCE TRAVELED IN FEET										
1	1.46	14.6	21.9	29.3	36.6	44.0	51.3	58.6	66.0	73.3	80.6	88.0
2	2.93	29.3	44.0	58.6	73.3	88.0	102.6	117.3	132.0	146.6	161.3	176.0
3	4.40	44.0	66.0	88.0	110.0	132.0	154.0	176.0	198.0	220.0	242.0	264.0
4	5.86	58.6	88.0	117.3	146.6	176.0	205.3	234.6	264.0	293.3	322.6	352.0
5	7.30	73.0	110.0	147.0	183.0	220.0	257.0	293.0	330.0	367.0	403.0	440.0
10	14.60	146.0	220.0	293.0	366.0	440.0	513.0	587.0	660.0	733.0	807.0	880.0
15	22.00	220.0	330.0	440.0	550.0	660.0	770.0	880.0	990.0	1,100.0	1,210.0	1,320.0
20	29.30	293.0	440.0	587.0	733.0	880.0	1,027.0	1,173.0	1,320.0	1,467.0	1,613.0	1,760.0
25	36.70	367.0	550.0	733.0	917.0	1,100.0	1,283.0	1,467.0	1,650.0	1,833.0	2,017.0	2,200.0
30	44.00	440.0	660.0	880.0	1,100.0	1,320.0	1,540.0	1,760.0	1,980.0	2,200.0	2,420.0	2,640.0
35	51.30	513.0	770.0	1,027.0	1,283.0	1,540.0	1,797.0	2,053.0	2,310.0	2,567.0	2,823.0	3,080.0
40	58.70	587.0	880.0	1,173.0	1,467.0	1,760.0	2,053.0	2,347.0	2,640.0	2,933.0	3,227.0	3,520.0
45	66.00	660.0	990.0	1,320.0	1,650.0	1,980.0	2,310.0	2,640.0	2,970.0	3,300.0	3,630.0	3,960.0
50	73.30	733.0	1,100.0	1,467.0	1,833.0	2,200.0	2,567.0	2,933.0	3,300.0	3,667.0	4,033.0	4,400.0
55	80.70	807.0	1,210.0	1,613.0	2,017.0	2,420.0	2,823.0	3,227.0	3,630.0	4,033.0	4,437.0	4,840.0
60	88.00	880.0	1,320.0	1,760.0	2,200.0	2,640.0	3,080.0	3,520.0	3,960.0	4,400.0	4,840.0	5,280.0
65	95.30	953.0	1,430.0	1,907.0	2,383.0	2,860.0	3,337.0	3,813.0	4,290.0	4,767.0	5,243.0	5,720.0
70	102.70	1,027.0	1,540.0	2,053.0	2,567.0	3,080.0	3,593.0	4,107.0	4,620.0	5,133.0	5,647.0	6,160.0
75	110.00	1,100.0	1,650.0	2,200.0	2,750.0	3,300.0	3,850.0	4,400.0	4,950.0	5,500.0	6,050.0	6,600.0
80	117.30	1,173.0	1,760.0	2,347.0	2,933.0	3,520.0	4,107.0	4,693.0	5,280.0	5,867.0	6,453.0	7,040.0
85	124.70	1,247.0	1,870.0	2,493.0	3,117.0	3,740.0	4,363.0	4,987.0	5,610.0	6,233.0	6,858.0	7,480.0
90	132.00	1,320.0	1,980.0	2,640.0	3,300.0	3,960.0	4,620.0	5,280.0	5,940.0	6,600.0	7,260.0	7,920.0
95	139.30	1,393.0	2,090.0	2,787.0	3,483.0	4,180.0	4,877.0	5,573.0	6,270.0	6,967.0	7,663.0	8,360.0
100	146.70	1,467.0	2,200.0	2,933.0	3,667.0	4,400.0	5,133.0	5,867.0	6,600.0	7,333.0	8,067.0	8,800.0
105	154.00	1,540.0	2,310.0	3,080.0	3,850.0	4,620.0	5,390.0	6,160.0	6,930.0	7,700.0	8,470.0	9,240.0
110	161.30	1,613.0	2,420.0	3,227.0	4,033.0	4,840.0	5,647.0	6,453.0	7,260.0	8,067.0	8,873.0	9,680.0
115	168.60	1,686.0	2,530.0	3,373.0	4,217.0	5,060.0	5,903.0	6,747.0	7,590.0	8,434.0	9,277.0	10,120.0
120	176.00	1,760.0	2,640.0	3,520.0	4,400.0	5,280.0	6,160.0	7,040.0	7,920.0	8,800.0	9,680.0	10,560.0

Table 4D-105. Signal Operation - Cycle Percentage Conversion (Sheet 1 of 2)

PERCENT	50	60	70	80	90	100	110	120	150	180	240
1	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.5	1.8	2.4
2	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	3.0	3.6	4.8
3	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	4.5	5.4	7.2
4	2.0	2.4	2.8	3.2	3.6	4.0	4.4	4.8	6.0	7.2	9.6
5	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	7.5	9.0	12.0
6	3.0	3.6	4.2	4.8	5.4	6.0	6.6	7.2	9.0	10.8	14.4
7	3.5	4.2	4.9	5.6	6.3	7.0	7.7	8.4	10.5	12.6	16.8
8	4.0	4.8	5.6	6.4	7.2	8.0	8.8	9.6	12.0	14.4	19.2
9	4.5	5.4	6.3	7.2	8.1	9.0	9.9	10.8	13.5	16.2	21.6
10	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	15.0	18.0	24.0
11	5.5	6.6	7.7	8.8	9.9	11.0	12.1	13.2	16.5	19.8	26.4
12	6.0	7.2	8.4	9.6	10.8	12.0	13.2	14.4	18.0	21.6	28.8
13	6.5	7.8	9.1	10.4	11.7	13.0	14.3	15.6	19.5	23.4	31.2
14	7.0	8.4	9.8	11.2	12.6	14.0	15.4	16.8	21.0	25.2	33.6
15	7.5	9.0	10.5	12.0	13.5	15.0	16.5	18.0	22.5	27.0	36.0
16	8.0	9.6	11.2	12.8	14.4	16.0	17.6	19.2	24.0	28.8	38.4
17	8.5	10.2	11.9	13.6	15.3	17.0	18.7	20.4	25.5	30.6	40.8
18	9.0	10.8	12.6	14.4	16.2	18.0	19.8	21.6	27.0	32.4	43.2
19	9.5	11.4	13.3	15.2	17.1	19.0	20.9	22.8	28.5	34.2	45.6
20	10.0	12.0	14.0	16.0	18.0	20.0	22.0	24.0	30.0	36.0	48.0
21	10.5	12.6	14.7	16.8	18.9	21.0	23.1	25.2	31.5	37.8	50.4
22	11.0	13.2	15.4	17.6	19.8	22.0	24.2	26.4	33.0	39.6	52.8
23	11.5	13.8	16.1	18.4	20.7	23.0	25.3	27.6	34.5	41.4	55.2
24	12.0	14.4	16.8	19.2	21.6	24.0	26.4	28.8	36.0	43.2	57.6
25	12.5	15.0	17.5	20.0	22.5	25.0	27.5	30.0	37.5	45.0	60.0
26	13.0	15.6	18.2	20.8	23.4	26.0	28.6	31.2	39.0	46.8	62.4
27	13.5	16.2	18.9	21.6	24.3	27.0	29.7	32.4	40.5	48.6	64.8
28	14.0	16.8	19.6	22.4	25.2	28.0	30.8	33.6	42.0	50.4	67.2
29	14.5	17.4	20.3	23.2	26.1	29.0	31.9	34.8	43.5	52.2	69.6
30	15.0	18.0	21.0	24.0	27.0	30.0	33.0	36.0	45.0	54.0	72.0
31	15.5	18.6	21.7	24.8	27.9	31.0	34.1	37.2	46.5	55.8	74.4
32	16.0	19.2	22.4	25.6	28.8	32.0	35.2	38.4	48.0	57.6	76.8
33	16.5	19.8	23.1	26.4	29.7	33.0	36.3	39.6	49.5	59.4	79.2
34	17.0	20.4	23.8	27.2	30.6	34.0	37.4	40.8	51.0	61.2	81.6
35	17.5	21.0	24.5	28.0	31.5	35.0	38.5	42.0	52.5	63.0	84.0
36	18.0	21.6	25.2	28.8	32.4	36.0	39.6	43.2	54.0	64.8	86.4
37	18.5	22.2	25.9	29.6	33.3	37.0	40.7	44.4	55.5	66.6	88.8
38	19.0	22.8	26.6	30.4	34.2	38.0	41.8	45.6	57.0	68.4	91.2
39	19.5	23.4	27.3	31.2	35.1	39.0	42.9	46.8	58.5	70.2	93.6
40	20.0	24.0	28.0	32.0	36.0	40.0	44.0	48.0	60.0	72.0	96.0
41	20.5	24.6	28.7	32.8	36.9	41.0	45.1	49.2	61.5	73.8	96.4
42	21.0	25.2	29.4	33.6	37.8	42.0	46.2	50.4	63.0	75.6	100.8
43	21.5	25.8	30.1	34.4	38.7	43.0	47.3	51.6	64.5	77.4	103.2
44	22.0	26.4	30.8	35.2	39.6	44.0	48.4	52.8	66.0	79.2	105.6
45	22.5	27.0	31.5	36.0	40.5	45.0	49.5	54.0	67.5	81.0	108.0
46	23.0	27.6	32.2	36.8	41.4	46.0	50.6	55.2	69.0	82.8	110.4
47	23.5	28.2	32.9	37.6	42.3	47.0	51.7	56.4	70.5	84.6	112.8
48	24.0	28.8	33.6	38.4	43.2	48.0	52.8	57.6	72.0	86.4	115.2
49	24.5	29.4	34.3	39.2	44.1	49.0	53.9	58.8	73.5	88.2	117.6
50	25.0	30.0	35.0	40.0	45.0	50.0	55.0	60.0	75.0	90.0	120.0

Table 4D-105. Signal Operation - Cycle Percentage Conversion (Sheet 2 of 2)

PERCENT	50	60	70	80	90	100	110	120	150	180	240
51	25.5	30.6	35.7	40.8	45.9	51.0	56.1	61.2	76.5	91.8	122.4
52	26.0	31.2	36.4	41.6	46.8	52.0	57.2	62.4	78.0	93.6	124.8
53	26.5	31.8	37.1	42.4	47.7	53.0	58.3	63.6	79.5	95.4	127.2
54	27.0	32.4	37.8	43.2	48.6	54.0	59.4	64.8	81.0	97.2	129.6
55	27.5	33.0	38.5	44.0	49.5	55.0	60.5	66.0	82.5	99.0	132.0
56	28.0	33.6	39.2	44.8	50.4	56.0	61.6	67.2	84.0	100.8	134.4
57	28.5	34.2	39.9	45.6	51.3	57.0	62.7	68.4	85.5	102.6	136.8
58	29.0	34.8	40.6	46.4	52.2	58.0	63.8	69.6	87.0	104.4	139.2
59	29.5	35.4	41.3	47.2	53.1	59.0	64.9	70.8	88.5	106.2	141.6
60	30.0	36.0	42.0	48.0	54.0	60.0	66.0	72.0	90.0	108.0	144.0
61	30.5	36.6	42.7	48.8	54.9	61.0	67.1	73.2	91.5	109.8	146.4
62	31.0	37.2	43.4	49.6	55.8	62.0	68.2	74.4	93.0	111.6	148.8
63	31.5	37.8	44.1	50.4	56.7	63.0	69.3	75.6	94.5	113.4	151.2
64	32.0	38.4	44.8	51.2	57.6	64.0	70.4	76.8	96.0	115.2	153.6
65	32.5	39.0	45.5	52.0	58.5	65.0	71.5	78.0	97.5	117.0	156.0
66	33.0	39.6	46.2	52.8	59.4	66.0	72.6	79.2	99.0	118.8	158.4
67	33.5	40.2	46.9	53.6	60.3	67.0	73.7	80.4	100.5	120.6	160.8
68	34.0	40.8	47.6	54.4	61.2	68.0	74.8	81.6	102.0	122.4	163.2
69	34.5	41.4	48.3	55.2	62.1	69.0	75.9	82.8	103.5	124.2	165.6
70	35.0	42.0	49.0	56.0	63.0	70.0	77.0	84.0	105.0	126.0	168.0
71	35.5	42.6	49.7	56.8	63.9	71.0	78.1	85.2	106.5	127.8	170.4
72	36.0	43.2	50.4	57.6	64.8	72.0	79.2	86.4	108.0	129.6	172.8
73	36.5	43.8	51.1	58.4	65.7	73.0	80.3	87.6	109.5	131.4	175.2
74	37.0	44.4	51.8	59.2	66.6	74.0	81.4	88.8	111.0	133.2	177.6
75	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0	112.5	135.0	180.0
76	38.0	45.6	53.2	60.8	68.4	76.0	83.6	91.2	114.0	136.8	182.4
77	38.5	46.2	53.9	61.6	69.3	77.0	84.7	92.4	115.5	138.6	184.8
78	39.0	46.8	54.6	62.4	70.2	78.0	85.8	93.6	117.0	140.4	187.2
79	39.5	47.4	55.3	63.2	71.1	79.0	86.9	94.8	118.5	142.2	189.6
80	40.0	48.0	56.0	64.0	72.0	80.0	88.0	96.0	120.0	144.0	192.0
81	40.5	48.6	56.7	64.8	72.9	81.0	89.1	97.2	121.5	145.8	194.4
82	41.0	49.2	57.4	65.6	73.8	82.0	90.2	98.4	123.0	147.6	196.8
83	41.5	49.8	58.1	66.4	74.7	83.0	91.3	99.6	124.5	149.4	199.2
84	42.0	50.4	58.8	67.2	75.6	84.0	92.4	100.8	126.0	151.2	201.6
85	42.5	51.0	59.5	68.0	76.5	85.0	93.5	102.0	127.5	153.0	204.0
86	43.0	51.6	60.2	68.8	77.4	86.0	94.6	103.2	129.0	154.8	206.4
87	43.5	52.2	60.9	69.6	78.3	87.0	95.7	104.4	130.5	156.6	208.8
88	44.0	52.8	61.6	70.4	79.2	88.0	96.8	105.6	132.0	158.4	211.2
89	44.5	53.4	62.3	71.2	80.1	89.0	97.9	106.8	133.5	160.2	213.6
90	45.0	54.0	63.0	72.0	81.0	90.0	99.0	108.0	135.0	162.0	216.0
91	45.5	54.6	63.7	72.8	81.9	91.0	100.1	109.2	136.5	163.8	218.4
92	46.0	55.2	64.4	73.6	82.8	92.0	101.2	110.4	138.0	165.6	220.8
93	46.5	55.8	65.1	74.4	83.7	93.0	102.3	111.6	139.5	167.4	223.2
94	47.0	56.4	65.8	75.2	84.6	94.0	103.4	112.8	141.0	169.2	225.6
95	47.5	57.0	66.5	76.0	85.5	95.0	104.5	114.0	142.5	171.0	228.0
96	48.0	57.6	67.2	76.8	86.4	96.0	105.6	115.2	144.0	172.8	230.4
97	48.5	58.2	67.9	77.6	87.3	97.0	106.7	116.4	145.5	174.6	232.8
98	49.0	58.8	68.6	78.4	88.2	98.0	107.8	117.6	147.0	176.4	235.2
99	49.5	59.4	69.3	79.2	89.1	99.0	108.9	118.8	148.5	178.2	237.6

Table 4D-106. Pole and Equipment Schedule

	STANDARD						VEHICLE SIGNAL MAST		PED. SIGNAL MTG.	PPB		HPS LUM.	SPECIAL REQUIREMENTS
	TYPE		SIGNAL MAST ARM		LUMINAIRE MAST ARM								
	Wind Velocity km/h	Wind Velocity mph	Meters	Feet	Meters	Feet	MAST	POLE		Ø	ARROW		
A	24-4-129	24-4-80	10.7	35	3.7	12	MAT MAS	SV-1-T	SP-1-T	4	←	200W	Interally Illuminated Street Name Sign "Local Streets"
B	1A							TV-1-T	SP-1-T	6	→		
C	19-1-129	19-1-80	4.6	15	3.7	12	MAS	SV-1-T	SP-1-T	6	←	200W	
D	1A							TV-2-T	SP-1-T	8	→		
E	24-4-129	24-4-80	10.7	35	3.7	12	MAT MAS	SV-1-T	SP-1-T	8	←	200W	Interally Illuminated Street Name Sign "Local Streets"
F	1A							TV-1-T	SP-1-T	2	→		
G	19-1-129	19-1-80	4.6	15	3.7	12	MAS	SV-1-T	SP-1-T	2	←	200W	
H	1A							TV-2-T	SP-1-T	4	→		

Note: Designer should verify structure requirements before adding side mounting vehicle signals.

Table 4D-107. Conductor and Conduit Schedule

AWG or CABLE	CONDUCTOR RUN	1	2	3	4	5	6	7	8	9	10
# 14	Ø1	3								3	3
	Ø2	3					3	3	3	3	3
	Ø4	3						3	3	3	3
	Ø5	6	3	3	3		3	3	3	3	3
	Ø6	6	3	3	3						3
	Ø8	3	3	3							
	Ø2P	2					2	2	2	2	2
	Ø4P	4	2						2	2	2
	Ø6P	4	2	2	2						2
	Ø8P	4	2	2				2	2	2	2
	Ø2PPB	1						1	1	1	1
	Ø4PPB	1								1	1
	Ø6PPB	1	1	1							
	Ø8PPB	2	1	1	1		1	1	1	1	1
	PPB Common	2	1	1	1		1	1	1	1	1
	P.E.C.										3
	Spares	6	3	3	3		3	3	3	3	
	Total # 14	51	21	19	13		13	19	21	25	35
# 10	Internally Illuminated Street Name Sign						2	2	2	2	2
	Luminaires			2			2	2	2	2	2
	Signal Common	2	1	1	1		1	1	1	1	1
	Total # 10	2	1	3	1		5	5	5	5	5
# 6	Signal Service	2									
Detector-Lead-In Cable	Ø 1 Detectors	1					1	1	1	1	1
	Ø 2 Detectors	4								4	4
	Ø 4 Detectors	2	2								
	Ø 5 Detectors	1									1
	Ø 6 Detectors	4	4	4	4						
	Ø 8 Detectors	2						2	2	2	2
	TOTAL DLC	14	6	4	4		1	3	3	7	8
CONDUIT SIZE		2-78C	78C	63C	53C	78C	53C	63C	63C	78C	78C

Table 4D-108. Available Conduit Area

SQUARE MILLIMETERS					
CONDUIT SIZE	PERCENT OF FILL				
	26%	35%	40%	50%	100%
35	145	194	220	277	555
41	340	460	526	658	1316
53	563	759	867	1084	2168
63	803	1081	1236	1545	3090
78	1237	1666	1904	2380	4761
91	1661	2235	2554	3193	6387
103	2134	2872	3282	4103	8206

As a practical limit, projects for new installations should be designed to the 26% fill limitation.

SQUARE INCHES					
CONDUIT SIZE	PERCENT OF FILL				
	26%	35%	40%	50%	100%
1”	0.23	0.30	0.35	0.43	0.86
1-1/2”	0.53	0.72	0.82	1.02	2.04
2”	0.87	1.18	1.34	1.68	3.36
2-1/2”	1.24	1.68	1.92	2.45	4.79
3”	1.92	2.58	2.96	3.69	7.38
3-1/2”	2.57	3.47	3.96	4.95	9.90
4”	3.31	4.45	5.09	6.36	12.72

As a practical limit, projects for new installations should be designed to the 26% fill limitation.

Table 4D-109. Conductor Size

METRIC UNITS			
CONDUCTOR SIZE (AWG)	TYPES TW,THW, USE, RHH & RHN		D.C. RESISTANCE Ohms/1000 m
	INSULATION THICKNESS (mm)	TOTAL AREA (Sq mm)	
#14	1.14	14	10.67
#12	1.14	16	6.33
#10	1.14	20	3.97
#8 Stranded	1.50	40	2.56
#6 Stranded	1.50	53	1.61
#4 Stranded	1.50	70	1.02
#2 Stranded	1.50	95	0.62
Type B Loop DetectorLead-in Cable (DLC)		47	
Type C Loop Detector Lead-in Cable (MLC)		42	
Magnetometer Detector Lead-in Cable (MLC)		32	
Signal Interconnect Cable (3-Pair)		60	
Signal Interconnect Cable (6-Pair)		117	

ENGLISH UNITS			
CONDUCTOR SIZE (AWG)	TYPES TW,THW, USE, RHH & RHN		D.C. RESISTANCE Ohms/1000 ft
	INSULATION THICKNESS (Inches)	TOTAL AREA (Sq Inches)	
#14	0.045	0.021	3.07
#12	0.045	0.025	1.93
#10	0.045	0.031	1.21
#8 Stranded	0.060	0.060	0.78
#6 Stranded	0.060	0.082	0.49
#4 Stranded	0.060	0.109	0.31
#2 Stranded	0.060	0.147	0.19
Type B Loop DetectorLead-in Cable (DLC)		0.073	
Type C Loop Detector Lead-in Cable (MLC)		0.064	
Magnetometer Detector Lead-in Cable (MLC)		0.049	
Signal Interconnect Cable (3-Pair)		0.091	
Signal Interconnect Cable (6-Pair)		0.181	

CHAPTER 4E. PEDESTRIAN CONTROL SIGNALS

Section 4E.01 Pedestrian Signal Heads

The following is added to this section:

Standard:

Signal design shall provide for or prohibit pedestrian movements.

Section 4E.06 Accessible Pedestrian Signals

The following is added to this section:

Option:

New signalized intersections and planned upgrades to signalized intersections that are equipped with pedestrian crosswalks as well as the following characteristics may be considered for accessible pedestrian signals when the need and viability are confirmed by an engineering study:

a. Intersections near blind centers and senior centers
b. Transit terminals
c. T-type intersections
d. Wide intersections
e. Intersections with unusual geometry
f. Skewed intersections
g. Mid-block crosswalks
h. Intersections with exclusive phasing
i. Intersections with leading pedestrian intervals
j. Intersections with frequent side street calls, and;
k. Intersections with high turning volumes

Option:

The installation of Audible Accessible Pedestrian Signals may be considered when an engineering study and evaluation have been conducted and the following minimum conditions have been met:

a. The proposed intersection crosswalk must be signalized.
b. The audible devices should be retrofittable to the existing traffic signal hardware.
c. The signalized intersection should be equipped with pedestrian push buttons.
c. The selected crosswalk must be suitable for the installation of audible signals, in terms of surrounding land use and traffic patterns.
e. There must be a demonstrated need for the audible signals in the form of a request from an individual or group that would use the audible signal.
f. The individual or group requesting the device should agree to train the visually impaired users of the audible signals.

Guidance:

If the “Cuckoo” /“Peep-Peep” walk sound is chosen, the audible devices selected should emit a “Cuckoo” walk sound for North-South direction and a “Peep-Peep” walk sound for a crosswalk in the East-West direction.

Standard:

The tone of the walk signal shall not be similar to the pushbutton locator tones.

Section 4E.101 Financing

Standard:

The cost of installing Audible Pedestrian Signals shall be shared with the local agency in the same manner as a traffic signal. See Section 4B.104.

CHAPTER 4F. TRAFFIC CONTROL SIGNALS FOR EMERGENCY VEHICLE ACCESS

Support:

No Comments.

This MUTCD Chapter is adopted as is for California.

CHAPTER 4G. TRAFFIC CONTROL SIGNALS FOR ONE-LANE, TWO-WAY FACILITIES

Support:

No Comments.

This MUTCD Chapter is adopted as is for California.

CHAPTER 4H. TRAFFIC CONTROL SIGNALS FOR FREEWAY ENTRANCE RAMPS

Support:

No Comments.

This MUTCD Chapter is adopted as is for California.

CHAPTER 4I. TRAFFIC CONTROL FOR MOVABLE BRIDGES

Support:

No Comments.

This MUTCD Chapter is adopted as is for California.

CHAPTER 4J. LANE-USE CONTROL SIGNALS

Support:

No Comments.

This MUTCD Chapter is adopted as is for California.

CHAPTER 4K. FLASHING BEACONS

Section 4K.01 – General Design and Operation of Flashing Beacons

The following is added to this section:

Support:

Typical applications for flashing beacons include the following:

1. Signal Ahead
2. Stop Signs
3. Speed Limit Signs
4. Other Warning and Regulatory Signs
5. Schools
6. Fire Stations
7. Intersection Control
8. Freeway Bus Stops
9. At Intersections Where a More Visible Warning is Desired.

Typical uses include:

1. Obstructions in or immediately adjacent to the roadway.
2. Supplemental to advance warning signs.
3. At mid-block crosswalks.
4. At intersections where a warning is appropriate.

Option:

Only warning, regulatory or construction signs may be supplemented by flashing beacons.

Section 4K.02 Intersection Control Beacon

The following is added to this section:

Standard:

New installations of overhead intersection control flashing beacon shall consist of red indications for each approach.

The cost of installing an Intersection Control Beacon and intersection lighting shall be shared with the local agency in the same manner as a traffic signal.

Section 4K.101 Warning Beacon Financing

Standard:

The cost of installing a Warning or Regulatory Sign Flashing Beacon on a State highway shall be at 100% State expense.

Section 4K.102 Signal Ahead Flashing

Option:

Yellow flashing beacons may be used with Signal Ahead (W3-3) signs in advance of:

1. An isolated traffic signal on either a conventional highway or on an expressway in a rural area.
2. The first traffic signal approaching an urban area.
3. Any traffic signal with limited approach visibility, or where approach speeds exceed 80 km/h (50 mph).

On divided highways where the median is 2.5 m (8 ft) wide, or greater, the installation may consist of:

1. Two Type 1 standards, each with a Signal Ahead (W3-3) sign and a 300 mm (12 in) signal face, with one standard located in the median and the other off of the right shoulder; or

2. A Type 9 cantilever flashing beacon installation with a Signal Ahead (W3-3) or SIGNAL AHEAD (W3-3a) sign and two 300 mm (12 in) signal faces as shown in the Department of Transportation's Standard Plans. See Section 1A.11 for information regarding this publication.

The above installation designs may result in noncompliance with the Department of Transportation's Highway Design Manual mandatory standards for horizontal clearance and shoulder width, and the advisory design standard for clear recovery zones. If such nonstandard features cannot be avoided, the designer must obtain approval in accordance with Topic 82 of the Department of Transportation's Highway Design Manual and the current instructions pertaining to exceptions from mandatory and advisory design standards. See Section 1A.11 for information regarding this publication.

On undivided highways or on highways where the median is less than 2.5 m (8 ft) wide, the installation may consist of a single standard located off of the right shoulder as described for use on divided highways, or it may be a Type 9 cantilever flashing beacon installation.

Support:

The cost of installing a Signal Ahead Flashing Beacon is normally included in the traffic signal project and the cost shared with the local agency.

Section 4K.103 Flashing Beacons at School Crosswalks

Option:

Flashing beacons at school crosswalks may be installed on State highways in accordance with CVC Sections 21372 and 21373.

Flashing yellow beacons may be installed to supplement standard school signing and markings for the purpose of providing advanced warning during specified times of operation when justified.

A flashing yellow beacon may be justified when ALL of the following conditions are fulfilled:

1. The uncontrolled school crossing is on the "Suggested Route to School"; and
2. At least 40 school pedestrians use the crossing during each of any two hours (not necessarily consecutive) of a normal school day; and
3. The crossing is at least 180 m (600 ft) from the nearest alternate crossing controlled by traffic signals, stop signs or crossing guards; and
4. The vehicular volume through the crossing exceeds 200 vehicles per hour in urban areas or 140 vehicles per hour in rural areas during the same hour the students are going to and from school during normal school hours; and
5. The critical approach speeds exceeds 55 km/h (35 mph) or the approach visibility is less than the stopping sight distance.

Standard:

If school authorities are to operate flashing yellow beacon, an inter-agency agreement shall be executed to assure designations of a responsible adult to operate the beacon controls and to provide accessibility for necessary equipment maintenance.

Where traffic signals and/or flashing beacons are justified only by the School Area Traffic Signal Warrant on a State highway, the installation shall be at 100% State expense. When any other warrant is met also, the cost is shared in the usual manner.

Support:

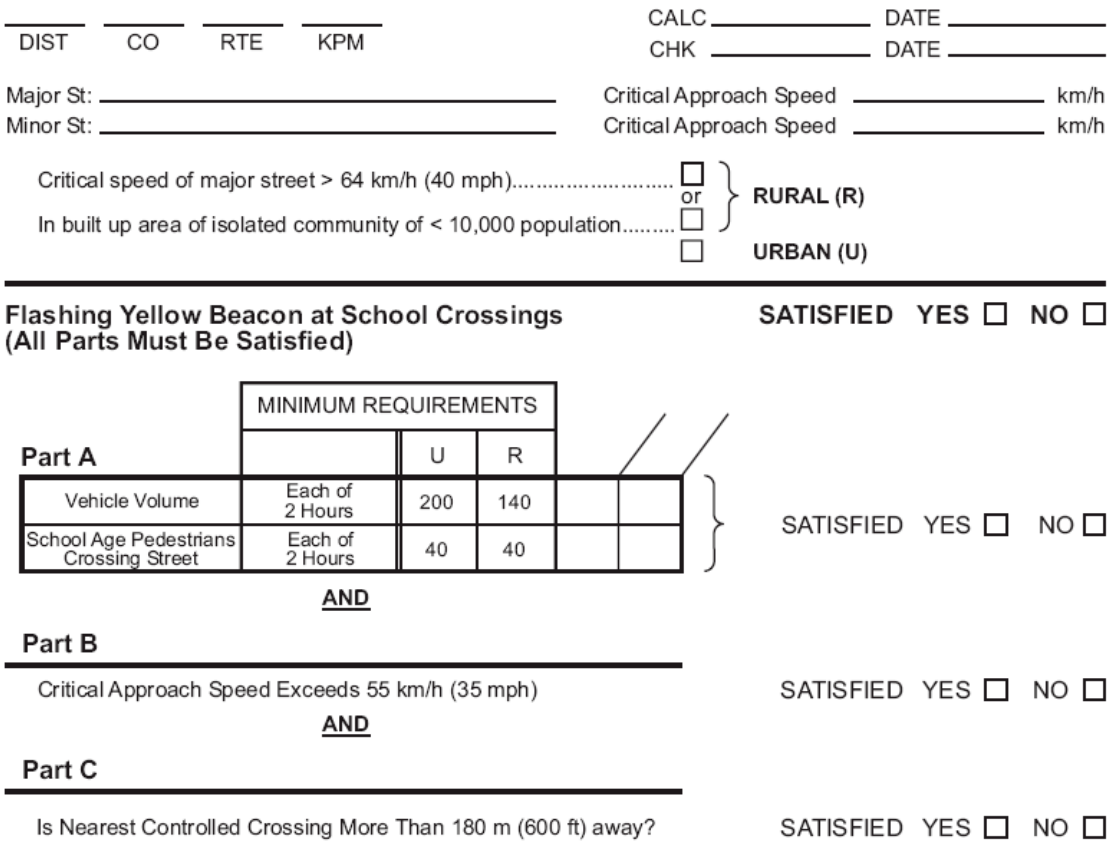
Figure 4K-101 shows the worksheet for flashing beacon at school crossings.

Section 4K.104 Speed Limit Sign Beacon

Guidance:

When a Speed Limit Sign Flashing Beacon is installed at the request of a local agency, or installed by the local agency under an encroachment permit the costs of installing and maintaining the beacon should be at 100% local agency expense.

Figure 4K-101. Flashing Beacon at School Crossings Worksheet



Section 4K.105 Flashing Beacons for Fire Stations

Option:

Flashing beacons at fire station driveways or at intersections immediately adjacent to a fire station may be installed on State highways.

Standard:

The flashing beacon shall be used only to supplement an appropriate warning or regulatory sign. The flashing beacon shall be actuated from an non-illuminated condition by a switch at the fire station.

The costs of installing and maintaining the flashing beacon for the fire station shall be at 100% local agency or fire department expense.

Section 4K.106 Stop Sign Flashing Beacons

Support:

A Stop Sign Flashing Beacon consists of one or two signal sections with a flashing circular red indication in each section.

Standard:

The bottom of the housing of a Stop Sign Flashing Beacon shall not be less than 305 mm (12 in) nor more than 610 mm (24 in) above the top of the stop sign.

The cost of installing a Stop Sign Beacon shall be shared with the local agency in the same manner as a traffic signal.

Section 4K.107 Flashing Beacons at Bus Stops on Freeway Interchanges

Option:

At locations of approved bus stops within interchange areas, a flashing beacon may be provided near the top of a lighting standard to provide a flag stop.

Standard:

The following design and operational requirements shall be met:

1. **A push button shall be provided on the lighting standard with a sign explaining the purpose and operation. The sign shall state that if no bus has arrived within 15 minutes (or other time) after the button has been actuated it will be necessary to actuate it again.**
2. **The flashing beacon shall consist of a 200 mm (8 in), signal section with an uncolored or white lens mounted on the lighting standard in such a position that an approaching bus driver can see it on the freeway.**
3. **The operation of the control shall be such that the flashing beacon will operate for 15 minutes after the button has been actuated and then go out.**

The cost of installing and maintaining Flashing Beacons at Bus Stops on Freeway Interchanges shall be 100% State expense.

CHAPTER 4L. IN-ROADWAY LIGHTS

Section 4L.02 In-Roadway Warning Lights at Crosswalks

The following is added to this section:

Standard:

In-Roadway Warning Lights shall not be placed on or within the crosswalk markings. If the In-Roadway Warning Lights are activated by a push button, the CA Code R62E sign (PUSH BUTTON FOR PEDESTRIAN WARNING LIGHTS, CROSS WITH CAUTION) shall be used.

The following shall be considered when evaluating the need for In-Roadway Warning Lights:

a. Whether the crossing is controlled or uncontrolled.

b. An engineering traffic study to determine if In-Roadway Warning Lights are compatible with the safety and operation of nearby intersections, which may or may not be, controlled by traffic signals or STOP/YIELD signs.

c. Standard traffic signs for crossings and crosswalk pavement markings are provided.

d. At least 40 pedestrians regularly use the crossing during each of any two hours (not necessarily consecutive) during a 24-hour period.

e. The vehicular volume through the crossing exceeds 200 vehicles per hour in urban areas or 140 vehicles per hour in rural areas during peak-hour pedestrian usage.

f. The critical approach speed (85th percentile) is 45 mph or less.

g. In-Roadway Warning Lights are visible to drivers at the minimum stopping sight distance for the posted speed limit.

h. Public education on In-Roadway Warning Lights is conducted for new installations.

Option:

Overhead or roadside Flashing Yellow Beacons may be installed in conjunction with In-Roadway Warning Lights. In-Roadway Warning Lights may be installed independently, but are not necessarily intended to be a substitute for standard flashing beacons. Engineering judgement should be exercised.

Guidance:

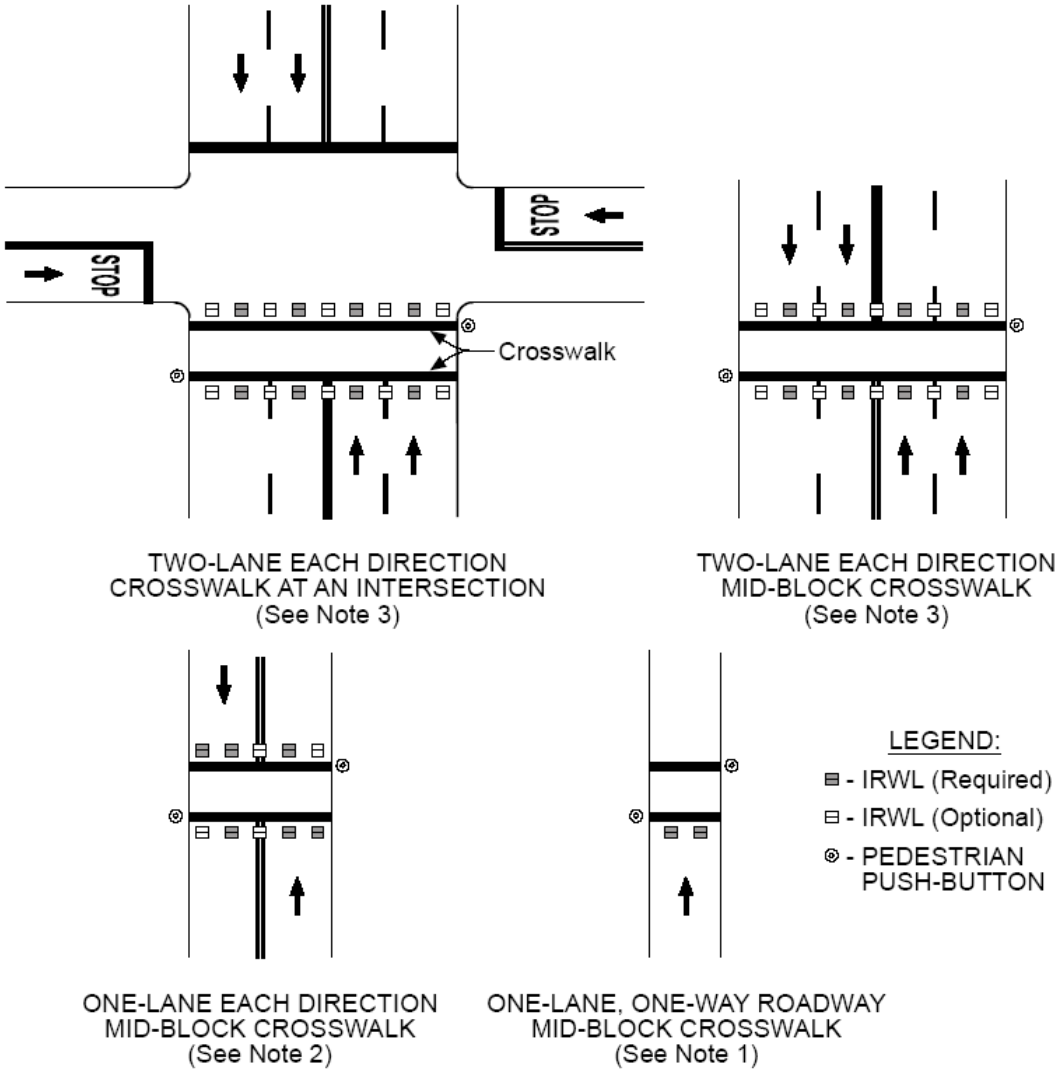
Typical applications of In-Roadway Warning Lights are shown in Figure 4L-101.

4L.101 In-Roadway Warning Lights at Crosswalks Financing and Maintenance-State Highways

Standard:

When In-Roadway Warning Lights are proposed by Caltrans on State highways, Caltrans shall pay the costs of installation and maintenance. When In-Roadway Warning Lights are proposed and installed by a local agency on State highways, the installation of In-Roadway Warning Lights shall be covered by an Encroachment Permit issued by the local District Director of Caltrans. The local agency shall be responsible for installation and maintenance of the In-Roadway Warning Lights.

Figure 4L-101
Typical Layout for In-Roadway Warning Lights (IRWLs)



NOTES:
1. One-Lane, One-Way Roadways, a minimum of two IRWLs shall be installed on the approach side ot the crosswalk.
2. One-Lane each direction, a minimum of three IRWLs shall be installed along both sides of the crosswalk.
3. Two-Lanes each direction, a minimum of one IRWLs per lane, shall be installed along both sides of the crosswalk.
4. IRWLs should be located off the tire tracks.

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CALIFORNIA SUPPLEMENT

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PART 5
TRAFFIC CONTROL DEVICES FOR LOW-VOLUME ROADS

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

PART 5. TRAFFIC CONTROL DEVICES FOR LOW-VOLUME ROADS

TABLE OF CONTENTS

CHAPTER 5A. GENERAL

Support:

No Comments.

This MUTCD Chapter is adopted as is for California.

CHAPTER 5B. REGULATORY SIGNS

Figure 5B-1. Regulatory Signs on Low-Volume Roads

Standard:

No sign shall have a metric unit or message, except per CVC 21351.3. Hence, the following signs shall not be used in California with metric messages unless specifically allowed per CVC 21351.3.

Speed Limit (R2-1) Metric version.

ROAD CLOSED ___ LOCAL TRAFFIC ONLY (R11-3a) Metric version.

Weight Limit (R12-1) Metric version.

METRIC (R12-6) Plaque.

CHAPTER 5C. WARNING SIGNS

Figure 5C-1. Horizontal Alignment and Intersection Warning Signs on Low-Volume Roads
Standard:

No sign shall have a metric unit or message, except per CVC 21351.3. Hence, the following signs shall not be used in California with metric messages unless specifically allowed per CVC 21351.3.

Advisory Speed Plaque (W13-1) Metric version.

Figure 5C-2. Other Warning Signs on Low-Volume Roads
Standard:

No sign shall have a metric unit or message, except per CVC 21351.3. Hence, the following signs shall not be used in California with metric messages unless specifically allowed per CVC 21351.3.

Next Distance Plaque (W7-3a) Metric version.

Section 5C.06 ONE LANE BRIDGE Sign (W5-3)
The following is added to this section:
Guidance:

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

CHAPTER 5D. GUIDE SIGNS

Support:

No Comments.

This MUTCD Chapter is adopted as is for California.

CHAPTER 5E. MARKINGS

Section 5E.03 Edge Line Markings

The following is added to this section:

Option:

If edge line markings are placed without centerline markings, the Two-Way Traffic (W6-3) sign may be used where road users could perceive that they are on a one-way roadway when, in fact, they are on a two lane, two-way highway.

CHAPTER 5F. TRAFFIC CONTROL FOR HIGHWAY-RAIL GRADE CROSSINGS

Section 5F.03 Highway-Rail Grade Crossing Advance Warning Signs (W10 Series)
Standard:

This section is deleted and replaced with the following:

The Highway-Rail Grade Crossing Advance Warning (W10 Series) signs shall be placed in conformance with Parts 2, 8 and 10.

Section 5F.05 Pavement Markings
Standard:

This section is deleted and replaced with the following:

Pavement markings at highway-rail grade crossings shall be placed in conformance with Parts 2, 8 and 10.

CHAPTER 5G. TEMPORARY TRAFFIC CONTROL ZONES

Figure 5G-1. Temporary Traffic Control Signs on Low-Volume Roads

Standard:

No sign shall have a metric unit or message, except per CVC 21351.3. Hence, the following signs shall not be used in California with metric messages unless specifically allowed per CVC 21351.3.

Advisory Speed Plaque (W13-1) Metric version.

Supplemental Distance Plaque (W16-2) Metric version.

ROAD (STREET) WORK (W20-1) Metric version.

The MUTCD Flagger symbol (W20-7a) sign shall not be used in California, the California Flagger symbol (CA Code C9A) sign shall be used, instead. Refer Chapter 6F of this Supplement.

MUTCD 2003
CALIFORNIA SUPPLEMENT

May 20, 2004

PART 6
TEMPORARY TRAFFIC CONTROL

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

PART 6. TEMPORARY TRAFFIC CONTROL

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FIGURES

TABLES

CHAPTER 6A. GENERAL

Section 6A.01 General

The following is added to this section:

Support:

Per the provisions of the Construction Safety Orders in the California Code of Regulations (Title 8, Division 1, Chapter 4, Subchapter 4, Article 11, Sections 1598 and 1599), this Part of the MUTCD and this Supplement is incorporated by reference as part of those regulations.

It is the responsibility of the Contractor or Organization performing work on, or adjacent to, a highway to install and maintain such devices which are necessary to provide passage for the traveling public (including pedestrians and bicyclists) through the work, as well as for the safeguard of workers.

Standard:

Before work begins, traffic control plans, when developed for handling traffic through a construction or maintenance project, shall be approved by the Engineer of the public agency or authority having jurisdiction over the highway.

Support:

The following references from the California Vehicle Code relate to temporary traffic control:

- Section 112 – Amber.
- Section 165 – Authorized Emergency Vehicle.
- Section 291 – Department of Transportation.
- Section 385 – Local Authorities.
- Section 21351.3 – Use of Metric System Designations.
- Section 21363 – Detour Signs.
- Section 21367 – Traffic Control: Highway Construction.
- Section 21466.5 – Light Impairing Driver's Vision.
- Section 22362 – Speed Limit Where Persons at Work.

CHAPTER 6B. FUNDAMENTAL PRINCIPLES

Section 6B.01 Fundamental Principles of Temporary Traffic Control

Standard:

In Paragraph 9 ("General plans…"), sub-heading B, second sentence ("Any changes in…"), the word "should" is changed to "shall".

The following is added to this section:

Support:

Refer to Department of Transportation's Highway Design Manual Section 110.7 for Traffic Control Plans. See Section 1A.11 for information regarding this publication.

Standard:

On State highways, covers for temporary traffic control signs shall be of sufficient size and density to completely block out the message so that it is not visible either during the day or at night. Covers shall be fastened securely to prevent movement caused by wind action. Refer to Department of Transportation's Standard Specifications Section 12-3.06. See Section 1A.11 for information regarding this publication.

CHAPTER 6C. TEMPORARY TRAFFIC CONTROL ELEMENTS

Section 6C.01 Temporary Traffic Control Plans

The following is added to this section:

Support:

On State highways, refer to Department of Transportation's Construction Manual Chapter 2 (Safety and Traffic) for temporary traffic control plans, speed zones, night work, transportation management plans and Construction Zone Enhanced Enforcement Program (COZEEP). See Section 1A.11 for information regarding this publication.

See Section 2B.116 for more information on speed limits and zones.

Construction Speed Zones

Support:

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

Guidance:

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

Standard:

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

Guidance:

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

Option:

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

Guidance:

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

Option:

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

Guidance:

The speed limit should not be lowered more than 15 km/h (10 mph) below the posted or maximum speed.

Option:

If the project falls within an established 105 km/h (65 mph) zone, and a 70 km/h (45 mph) speed limit is considered necessary, it may be posted only if the approaching speed limits are lowered in two stages (i.e., first to a 90 km/h (55 mph) speed limit followed by a reduction to the desired 70 km/h (45 mph).

Guidance:

Speed Limit and End Zone signs should be installed at locations jointly agreed upon by the Traffic Engineer and the Construction Engineer. The speed zone should be verified by an engineering and traffic survey.

Support:

Orders for construction speed zones are ordinarily issued for the entire length of the construction project. This avoids the necessity and resulting delay of obtaining a new order each time the speed restriction signs require relocation to fit the conditions. It is not the intention, however, that the entire length be posted for the duration of the contract.

Standard:

Speed restriction signs shall be posted only in areas where the traveling public is affected by construction operations.

Guidance:

As the construction progresses, signs should be moved as appropriate.

Standard:

Signs shall be removed immediately following completion of the construction or change in the conditions for which they were installed. When the construction is completed or the speed restriction is no longer necessary, the formal speed zone orders shall be revoked.

Section 6C.04 Advance Warning Area

Option

Last Paragraph ("Advance warning may…"), the phrase "sufficiently removed from the road users' path" is deleted and substituted with the text "behind a barrier, more than 600 mm (24 in) behind the curb, or 4.5 m (15 ft) or more from the edge of any roadway".

Section 6C.06 Activity Area

Guidance:

In Paragraph 10 ("The longitudinal buffer…"), the phrase "may also" is changed to "should".

Figure 6C-2. Types of Tapers and Buffer Spaces

Standard:

MUTCD Figure 6C-2 is deleted and replaced with Figure 6C-2 (CA).

Section 6C.07 Termination Area

The following is added to this section:

Option

Conditions may be such that posting of END ROAD WORK (G20-2) signs is not helpful. For example, they should normally not be used if other temporary traffic control zones begin within 1.6 km (1 mi) of the end of the workspace in rural areas, or about 0.4 km (0.25 mi) within urban areas. For normal daytime maintenance operations, the G20-2 sign is optional.

Section 6C.08 Tapers

The following is added to this section:

Standard:

On State highways, Department of Transportation's Standard Plans for Traffic Control Systems (Standard Plans T10 through T17)shall be used. See Section 1A.11 for information regarding this publication.

Table 6C-3. Taper Length Criteria for Temporary Traffic Control Zones

Option:

Table 6C-3(CA) may be used instead of the MUTCD Table 6C-3.

Table 6C-4. Formulas for Determining Taper Lengths

Option:

Table 6C-3(CA) may be used instead of the MUTCD Table 6C-4.

Figure 6C-2 (CA). Types of Tapers and Buffer Spaces

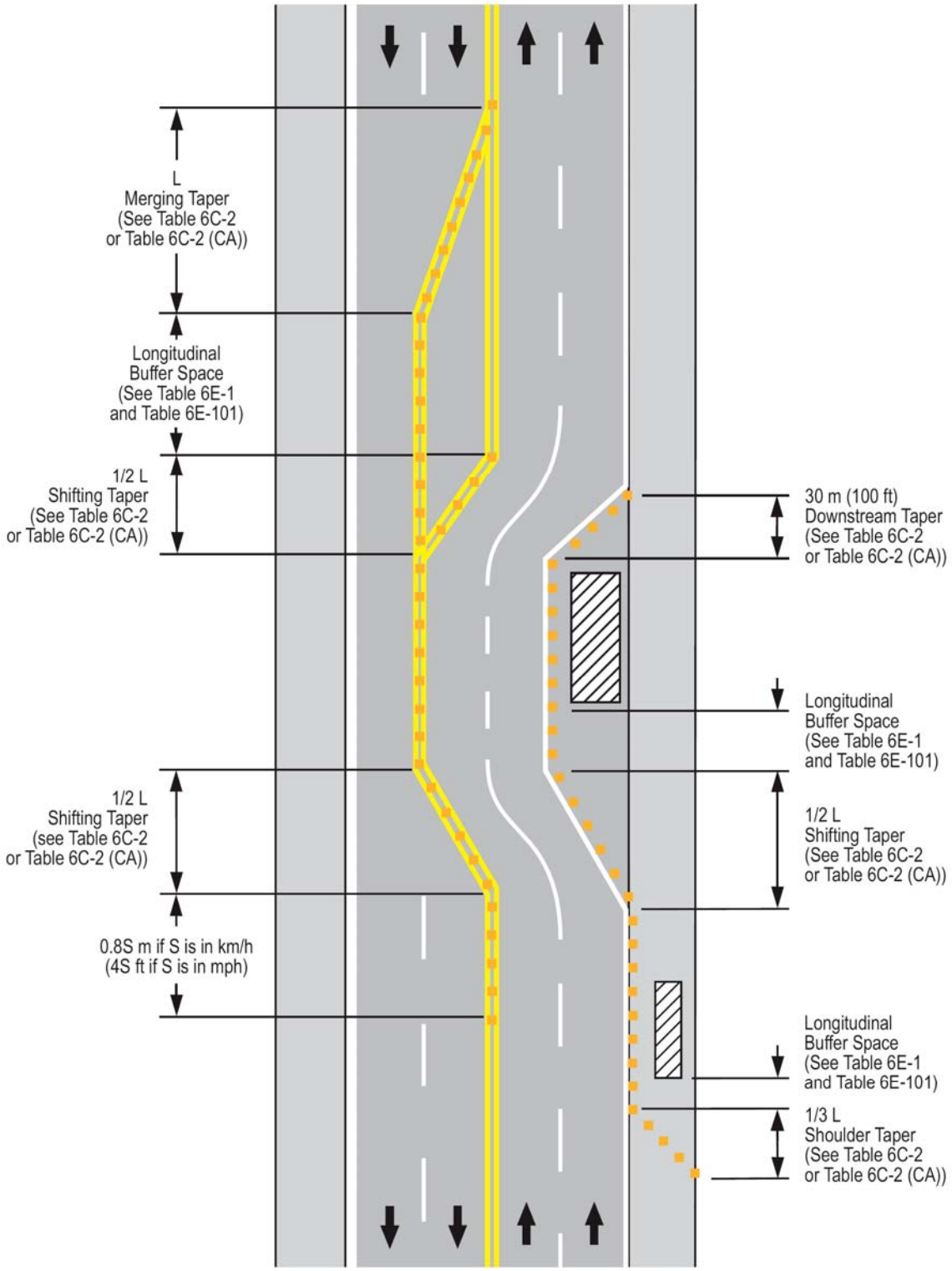


Table 6C-3(CA). Taper Length Criteria for Temporary Traffic Control Zones

Speed* S (km/h)	Minimum Taper Length** for Width of Offset 3.6 m (W)			
	Merging L (m)	Shifting L/2 (m)	Shoulder L/3 (m)	Down Stream (m)
30	21	10	7	30
40	37	19	12	30
50	58	29	19	30
60	84	42	28	30
70	158	79	53	30
80	180	90	60	30
90	203	101	68	30
100	225	113	75	30
110	248	124	83	30

Speed* S (mph)	Minimum Taper Length** for Width of Offset 12 ft (W)			
	Merging L (ft)	Shifting L/2 (ft)	Shoulder L/3 (ft)	Down Stream (ft)
20	80	40	27	100
25	125	63	42	100
30	180	90	60	100
35	245	123	82	100
40	320	160	107	100
45	540	270	180	100
50	600	300	200	100
55	660	330	220	100
60	720	360	240	100
65	780	390	260	100
70	840	420	280	100

* Posted Speed, off-peak 85th percentile speed prior to work starting, or the anticipated operating speed.

** For other offsets use the following merging taper length formula for L:

For speeds of 65 km/h (40 mph) or less, L=WSS/155 (L=WSS/60)

For speeds of 70 km/h (45 mph) or more, L=WS/1.6 (L=WS)

On State highways use Traffic Control Systems in the Caltrans Standard Plans.

Section 6C.09 Detours and Diversions

The following is added to this section:

Standard:

The detour route shall be evaluated for height, weight, and size restrictions. Appropriate signs shall be posted along the route to advise motorists of any restrictions. Refer to CVC 21363 for detour signs.

Option:

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

Section 6C.13 Pilot Car Method of One-Lane, Two-Way Traffic Control

The following is added to this section:

Option:

Two or more pilot cars may be used to guide two-way traffic through a particularly complex detour.

Section 6C.15 Stop or Yield Control Method of One-Lane, Two-Way Traffic Control

The following is added to this section:

Standard:

The approach to the side that is not closed shall be visible (for a distance equal to the safe passing sight distance for that approach) to the driver who must yield or stop.

Support:

See Section 3B.02 and Figure 6H-11.

CHAPTER 6D. PEDESTRIAN AND WORKER SAFETY

Section 6D.03 Worker Safety Considerations

Support:

The following is added to Paragraph 3 ("The following are the…"), sub-heading D:

The use of regulatory speed zone signing tends to be more effective with law enforcement.

Guidance:

The following is added to Paragraph 4 ("The following are additional…"), sub-heading D:

Care should be taken to ensure that the lighting used for nighttime work does not cause blinding. Refer to CVC 21466.5 for light impairing driver's vision.

Option:

The following is added to Paragraph 4 ("The following are additional…"):

Public Information - Improved driver performance may be realized through a well-prepared and complete public relations effort that covers the nature of the work, the time and duration of its execution, its anticipated effects on traffic, and possible alternate routes and modes of travel. Such programs can encourage the use of alternate routes, thus allowing consideration of temporary lane closures for additional buffer space.

Section 6D.101 Bicycle Considerations

Support:

There are several considerations in planning for bicyclists in temporary traffic control zones on highways and streets:

- A travel route that replicates the most desirable characteristics of a wide paved shoulder or bikeway through or around the traffic control zone is desirable for bicyclists.
- If the traffic control zone interrupts the continuity of an existing bikeway system, signs directing bicyclists through or around the zone and back to the bikeway is desirable.
- Unless a separate bike path through or around the traffic control zone is provided, adequate roadway lane width to allow bicyclists and motor vehicles to travel side by side through or around the zone is desirable.
- Bicyclists should not be led into direct conflicts with mainline traffic, work site vehicles, or equipment moving through or around the traffic control zone.

CHAPTER 6E. FLAGGER CONTROL

Section 6E.02 High-Visibility Safety Apparel

The following is added to this section:

Standard:

The retroreflective clothing, or the retroreflective material added to the clothing, shall have a minimum of one horizontal stripe around the torso.

Option:

White outer garments with retroreflective material may be worn during hours of darkness in lieu of colored vests, jackets and/or shirts.

Section 6E.03 Hand-Signaling Devices

Standard:

In Paragraph 2 ("The STOP/SLOW paddle…"), in both sentences, the word "should" is changed to "shall".

The following is added to this section:

Option:

The STOP/SLOW paddle may be used with either a 300 mm (12 in) short handle or 1650 mm (66 in) long handle.

The 600 x 600 mm (24 x 24 in) size of the STOP/SLOW paddle may be used where greater emphasis is needed and speeds are 50 km/h (30 mph) or more.

Support:

Refer to Department of Transportation's Flagging Instruction Handbook for fundamentals of flagging. See Section 1A.11 for information regarding this publication.

Section 6E.05 Flagger Stations

The following is added to this section:

Option:

The distances shown in MUTCD Table 6E-1 may be increased for downgrades, as shown in Table 6E-101.

Table 6E-101. Longitudinal Buffer Space on Downgrades*

Speed (km/h)	Downgrade		
	-3% (m)	-6% (m)	-9% (m)
30	32	35	35
40	50	50	53
50	66	70	74
60	87	92	97
70	110	116	124
80	136	144	154
90	164	174	187
100	194	207	223
110	227	243	262

Speed (mph)	Downgrade		
	-3% (ft)	-6% (ft)	-9% (ft)
20	116	120	126
25	158	165	173
30	205	215	227
35	257	271	287
40	315	333	354
45	378	400	427
50	446	474	507
55	520	553	593
60	598	638	686
65	682	728	785
70	771	825	891

* Exhibit 3-2. A Policy on Geometric Design of Highways and Streets, AASHTO, 2001, p.115.

CHAPTER 6F. TEMPORARY TRAFFIC CONTROL ZONE DEVICES

Section 6F.02 General Characteristics of Signs

The following is added to this section:

Support:

Sign design details are contained in FHWA's "Standard Highway Signs" book and Department of Transportation's "Traffic Sign Specifications". See Section 1A.11 for information regarding these publications.

Table 6F-101 shows a list of California Temporary Traffic Control Signs.

Figure 6F-101 shows California Temporary Traffic Control Signs.

Section 6F.03 Sign Placement

Guidance:

In Paragraph 8 ("Neither portable nor…"), the first sentence is deleted and replaced as follows:

Sign supports should be located so as to accommodate pedestrians and bicyclists in areas designated for their use. A minimum lateral width of 1.2 m (4 ft) should be maintained for pedestrian pathways.

Figure 6F-3. Regulatory Signs in Temporary Traffic Control Zones

Standard:

No sign shall have a metric unit or message, except per CVC 21351.3. Hence, the following signs shall not be used in California with metric messages unless specifically allowed per CVC 21351.3.

Speed Limit (R2-1) Metric version.
Weight Limit (R12-1) Metric version.
Axle Weight Limit (R12-2) Metric version.
Weight Limit (R12-5) Metric version.
METRIC (R12-6) Plaque.

Section 6F.05 Regulatory Sign Authority

The following is added to this section:

Support:

Some of the California regulatory signs used in temporary traffic control zones are shown in Figure 6F-101.

Section 6F.08 ROAD (STREET) CLOSED Sign (R11-2)

The following is added to this section:

Option:

The words RAMP CLOSED may be substituted for ROAD (STREET) CLOSED where applicable.

Section 6F.09 Local Traffic Only Signs (R11-3a, R11-4)

The following is added to this section:

Option:

The words RAMP CLOSED may be substituted for ROAD (STREET) CLOSED where applicable.

Section 6F.14 Special Regulatory Signs

The following is added to this section:

Support:

See Section 6C.01 for construction speed zones.

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

California (CA) Code	MUTCD Code	Title of Sign	Supplement Section	MUTCD Section
C1	W20-2	DETOUR	6F.18	6F.18
C2	R11-2	ROAD (STREET) CLOSED	6F.08, 6F.28	6F.08
C3	R11-3a	ROAD CLOSED XX MILES AHEAD, LOCAL TRAFFIC ONLY	6F.09	6F.09
C3A	R11-4	ROAD (STREET) CLOSED TO THRU TRAFFIC	6F.09	6F.09
C4	W21-2	FRESH OIL (TAR)	None	6F.32
C5	M4-10	Detour Arrow	None	6F.53
C5A	M4-8	DETOUR	6F.53	6F.53
C6	W8-7	LOOSE GRAVEL	6F.102	None
C7	M4-8a	END DETOUR	None	6F.53
C8	W21-3	ROAD MACHINERY AHEAD	None	6F.33
C9A	None	Flagger Symbol	6F.29	None
C11	G20-1	ROAD WORK NEXT XX MILES	None	6F.51
C12	None	NARROW LANE(S)	6F.103	None
C14	G20-2	END ROAD WORK	6F.52	6F.52
C16	W20-4	ONE LANE ROAD	None	6F.20
C17	None	Road Work/Speed Limit	6F.104	None
C19	W20-3	ROAD (STREET) CLOSED	6F.19	6F.19
C20	None	RIGHT LANE CLOSED AHEAD	6F.21	None
C20A	None	LEFT Plaque	6F.21	None
C20B	None	Numeral Plaque	6F.21	None
C22B	W21-1a	Workers	None	6F.31
C22C	W21-1	WORKERS	None	6F.31
C23	W20-1	ROAD (STREET) WORK	6F.17	6F.17
C23B	None	ROAD (STREET) WORK Informational Plaque	6F.17	None
C24	W21-5b	SHOULDER WORK AHEAD	None	6F.35
C25	W21-6	SURVEY CREW	None	6F.36
C26	G20-4	PILOT CAR FOLLOW ME	None	6F.54
C27	None	OPEN TRENCH	6F.105	None
C28A	Not Assigned	STOP Paddle	6E.03, 7E.05	6E.03, 7E.05
C28B	Not Assigned	SLOW Paddle	6E.03	6E.03
C29	None	XXX FT	6F.49	None
C30	None	LANE CLOSED	6F.21	None
C30A	None	SHOULDER CLOSED	6F.35	None
C30B	W21-5b	RIGHT (LEFT) SHOULDER CLOSED XXX FT	None	6F.35

Table 6F-101. List of California Temporary Traffic Control Signs (Sheet 2 of 2)

California (CA) Code	MUTCD Code	Title of Sign	Supplement Section	MUTCD Section
C31	W8-9	LOW SHOULDER	6F.105	6F.42
C31A	None	NO SHOULDER	6F.41, 6F.105	None
C33	W22-1	BLASTING ZONE AHEAD	None	6F.39
C34	W22-2	TURN OFF 2-WAY RADIO AND PHONE	None	6F.40
C35	W22-3	END BLASTING ZONE	None	6F.41
C36	W3-4	BE PREPARED TO STOP	None	6F.29
C37	None	TRAFFIC CONTROL – WAIT AND FOLLOW PILOT CAR	6F.54	None
C38	None	USE NEXT EXIT	6F.28	None
C40	None	TRAFFIC FINES DOUBLED IN CONSTRUCTION ZONES	6F.106	None
C40A	None	TRAFFIC FINES DOUBLED IN WORK ZONES	6F.106	None
C42	R9-11a	SIDEWALK CLOSED, (ARROW) CROSS HERE	None	6F.13
SC3	None	DETOUR with Arrow	6F.53	None
SC5	None	SPECIAL EVENT AHEAD	6F.17	None
SC6A	None	Day/Month Plaque	6F.28	None
SC6B	None	Time Plaque	6F.28	None
SC6-3	None	RAMP CLOSED (Not more than one day)	6F.28	None
SC6-4	None	RAMP CLOSED (More than one day)	6F.28	None
SC7	None	RAMP CLOSED, USE RAMP AT ___	6F.28	None
SC8	None	___ EXIT – RAMP CLOSED	6F.28	None
SC9	None	FWY DETOUR with Arrow	6F.53	None
SC10	None	LANE CLOSED AHEAD	6F.107	None
SC11	None	LANE CLOSED	6F.107	None
SC12	W23-1	SLOW TRAFFIC AHEAD	6F.107	6F.27
SC13	None	DO NOT PASS	6F.107	None
SC15	None	CAUTION	6F.107	None
SC16	W8-12	NO CENTER STRIPE	6F.44	6F.44

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


C9A

C12

C17 (Front)

C17 (Back)

C20

C20A

C20B

C23B

C27

C29

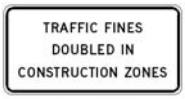
C30

C30A

C31A

C37

C38



C40

C40A

SC3

SC5

SC6A

SC6B

SC6-3

SC6-4

SC7

SC8

Note: All sign codes are California (CA) Codes.

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

SC9

SC10

SC11

SC13

SC15

Note: All sign codes are California (CA) Codes.

Section 6F.15 Warning Sign Function, Design and Application

Standard:

Paragraphs 11 ("Because of their…") through 14 ("On secondary roads…") are deleted for application and shall not be used in California as "higher-speed", "moderately low" and "very low" are not defined in the MUTCD. Use Table 2C-2 in Part 2 for size of warning signs.

The following is added to this section:

Support:

Some of the California warning signs used in temporary traffic control zones are shown in Figure 6F-101.

Section 6F.17 ROAD (STREET) WORK Sign (W20-1)

The following is added to this section:

Option:

The words RAMP WORK or RAMP WORK AHEAD may be substituted for ROAD (STREET) WORK or ROAD (STREET) WORK AHEAD where applicable.

The ROAD (STREET) WORK Informational Plaque (CA Code C23B) may be used with ROAD (STREET) WORK (W20-1) sign.

Standard:

The message displayed on the ROAD (STREET) WORK Informational Plaque (CA Code C23B) shall be worded in terms common to motorists, as shown in examples below. The height and width of the plate will vary according to the lettering size and message. The width of the plate shall not exceed the overall width of the W20-1 sign.

Support:

Following are some example messages:

BRIDGE REPLACEMENT
BRIDGE WIDENING
BRIDGE REPAIR
CURVE IMPROVEMENT
HIGHWAY REALIGNMENT
HIGHWAY WIDENING
HIGHWAY WIDENING AND PAVING
HIGHWAY REHABILITATION
STORM REPAIR
PAVING
SIGNING IMPROVEMENT
PAVEMENT MAINTENANCE
SAFETY IMPROVEMENT

Guidance:

The SPECIAL EVENT AHEAD (CA Code SC5) sign should be used in lieu of the ROAD (STREET) WORK (W20-1) sign for special events, such as bike races, movie filming, etc., where the event is on the travel way or close enough or of such a nature as to cause a potential danger to motorists.

Section 6F.18 DETOUR Sign (W20-2)

Standard:

In Paragraph 1 ("The DETOUR…"), the word "should" is changed to "shall". Refer to CVC 21363 for detour signs.

Section 6F.19 ROAD (STREET) CLOSED Sign (W20-3)

The following is added to this section:

Option:

The words RAMP CLOSED or RAMP CLOSED AHEAD may be substituted for ROAD (STREET) CLOSED or ROAD (STREET) CLOSED AHEAD where applicable.

Figure 6F-4. Warning Signs in Temporary Traffic Control Zones

Standard:

No sign shall have a metric unit or message, except per CVC 21351.3. Hence, the following signs shall not be used in California with metric messages unless specifically allowed per CVC 21351.3.

Speed Reduction (W3-5a) Metric version.
Low Clearance (W12-2) Metric version.
Advisory Speed Plaque (W13-1) Metric version.
ROAD (STREET) WORK (W20-1) Metric version.
DETOUR (W20-2) Metric version.
ROAD (STREET) CLOSED (W20-3) Metric version.
ONE LANE ROAD (W20-4) Metric version.
RIGHT LANE CLOSED (W20-5) Metric version.
RIGHT TWO LANES CLOSED (W20-5a) Metric version.
Distance (W16-2) Plaque Metric version.
RIGHT SHOULDER CLOSED (W21-5b) Metric version.
ROAD WORK NEXT X KM (G20-1) Metric version.

The Reverse Curve (W1-4b and W1-4c) signs shall not be used in California. The Reverse Curve (W1-4) sign shall be used instead. See Section 2C.06.

The RAMP NARROWS (W5-4) sign shall not be used in California. The ROAD NARROWS (W5-1) sign or NARROW LANE(S) (CA Code C12) sign, as appropriate, shall be used instead. See Sections 2C.15 and 6F.103.

The ON RAMP (W13-4) Plaque shall not be used in California. See Section 6F.25.

The MUTCD Flagger symbol (W20-7a) sign shall not be used in California, the California Flagger symbol (CA Code C9A) sign shall be used, instead. See Section 6F.29.

Section 6F.21 Lane(s) Closed Signs (W20-5, W20-5a)

The following is added to this section:

Option:

The RIGHT LANE CLOSED AHEAD (CA Code C20) sign by itself, or in combination with LEFT plaque (CA Code C20A) and/or Numeral plaque (CA Code C20B) may be used in lieu of the MUTCD's Lane Closed (W20-5) sign.

The LANE CLOSED (CA Code C30) sign may be used within a closed lane of a multilane highway as follow-up information to the appropriate advance warning signs. The C30 (CA Code) may be repeated at intervals, throughout long lane closures, as a reminder to motorists.

The word RAMP CLOSED may be used as an alternate message on surface streets to warn that the upcoming freeway/expressway on ramp is closed.

Section 6F.22 CENTER LANE CLOSED AHEAD Signs (W9-3, W9-3a)

Support:

For moving lane closures on State highways, see Department of Transportation's Standard Plan T-16. See Section 1A.11 for information regarding this publication.

Do not use the CENTER LANE CLOSED AHEAD (W9-3) and Center Lane Closed Ahead (W9-3a) signs for moving lane closures on State highways.

Section 6F.23 THRU TRAFFIC MERGE LEFT (RIGHT) Sign (W4-7)

The following is added to this section:

Support:

Refer to Section 2C.33 for Lane Ends (W4-2, W9-1 and W9-2) signs and 2C.109 for Lane Drop (CA Code W73, W73A and MUTCD Code W4-1a) signs.

Section 6F.24 Lane Ends Sign (W4-2)

Guidance:

The word "may" is changed to "should".

Section 6F.25 ON RAMP Plaque (W13-4)

Standard:

This section is deleted for application and shall not be used in California due to the potential for conflict if it is used when the work is being done on an off ramp.

Section 6F.26 RAMP NARROWS Sign (W5-4)

Standard:

This section is deleted for application and shall not be used in California. The ROAD NARROWS (W5-1) sign or NARROW LANE(S) (CA Code C12) sign, as appropriate, shall be used instead. See Sections 2C.15 and 6F.103.

Section 6F.28 EXIT OPEN, EXIT CLOSED, EXIT ONLY Signs (E5-2, E5-2a, E5-3)

The following is added to this section:

Option:

The USE NEXT EXIT (CA Code C38) sign may be used with the RAMP CLOSED (R11-2, alternate message per Section 6F.08) sign on freeways if the next exit provides access to destinations from the closed ramp.

Guidance:

The RAMP CLOSED (Not more than one day) (CA Code SC6-3) sign should be used to inform motorists of the temporary closing of a freeway or expressway entrance or exit ramp for not more than one day.

The RAMP CLOSED (More than one day) (CA Code SC6-4) sign should be used to inform motorists of the temporary closing of a freeway or expressway entrance or exit ramp for more than one day.

The SC6-3 and SC6-4 (CA Codes) signs should be removed when the ramp is reopened to traffic.

Standard:

The SC6-3 and SC6-4 (CA Codes) signs shall display the correct day of the week, month, calendar day and times the ramp is closed.

Support:

The Day/Month Plaque (CA Code SC6A) is used on the RAMP CLOSED (CA Code SC6-3 and SC6-4) signs, to provide the appropriate day of the week and month a freeway or expressway entrance or exit ramp is closed.

The Time Plaque (CA Code SC6B) is used on the RAMP CLOSED (CA Code SC6-3 and SC6-4) signs, to provide the appropriate time of the day a freeway or expressway entrance or exit ramp is closed.

Option:

The RAMP CLOSED, USE RAMP AT ___ (CA Code SC7) sign may be used in lieu of the RAMP CLOSED (R11-2, alternate message per Section 6F.08) sign and USE NEXT EXIT (CA Code C38) signs as shown on Department of Transportation's Standard Plan T-14 to inform motorists of a closed entrance or exit ramp and to provide an alternate route. See Section 1A.11 for information regarding these publication.

Guidance:

The ___ EXIT – RAMP CLOSED (CA Code SC8) sign should be used to inform motorists of a closed exit ramp.

Standard:

The SC8 (CA Code) sign shall be placed on the right shoulder, upstream of the preceding exit ramp.

Section 6F.29 Flagger Sign (W20-7a, W20-7)

Standard:

The MUTCD Flagger symbol (W20-7a) sign shall not be used, the California Flagger symbol (CA Code C9A) sign shall be used, instead.

Section 6F.30 Two-Way Traffic Sign (W6-3)

The following is added to this section:

Guidance:

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

Support:

Following are some typical situations:

- Construction sites where a two-lane highway is being converted to a freeway or an expressway.
- Two-lane, two-way highways where ultimate freeway or expressway right-of-way has been purchased and grading for the full width has been completed.
- Two-lane, two-way highways following long sections of multi-lane freeway or expressway.

Section 6F.35 Shoulder Work Signs (W21-5, W21-5a, W21-5b)

The following is added to this section:

The SHOULDER CLOSED (CA Code C30A) sign may be used within a shoulder area that has been closed due to work near the traveled way. The C30A (CA Code) sign is supplemental to appropriate advance warning signs.

Section 6F.42 Shoulder Signs (W8-4, W8-9, W8-9a)

The following is added to this section:

The NO SHOULDER (CA Code C31A) sign may be used where no earth, gravel or paved shoulders are available for vehicles to pull off the roadway.

Section 6F.43 UNEVEN LANES Sign (W8-11)

Guidance:

The following is added at the end of the paragraph in this section:

"…of 50 mm (2 in) or more."

Section 6F.44 NO CENTER STRIPE Sign (W8-12)

The following is added to this section:

Standard:

The NO CENTER STRIPE (W8-12) sign shall not be used on State highways. Whenever construction or maintenance work causes obliteration of center stripe, temporary or permanent center stripe shall be in place prior to opening the State highway to public traffic.

Section 6F.49 Supplementary Distance Plaque (W7-3a)

The following is added to this section:

Option:

The XXX FT (CA Code C29) Plaque may be used on the face of a warning sign to indicate the length of highway over which a work activity is being conducted, or over which a condition exists in the temporary traffic control zone.

Section 6F.52 END ROAD WORK Sign (G20-2)

The following is added to this section:

Option:

The END ROAD WORK (G20-2) sign may not be used if the end of the work zone is obvious to motorists or falls within a larger project's limits.

Section 6F.53 Detour Signs (M4-8, M4-8a, M4-8b, M4-9, M4-9a, M4-9b, M4-9c, and M4-10)

The following is added to this section:

Guidance:

The DETOUR (M4-8) sign should be placed on tangent sections at intervals not to exceed 400 m (1300 ft) and at major intersections.

Option:

In urban areas, the M4-8 signs may be placed at every intersection.

Guidance:

The DETOUR with Arrow (CA Code SC3) sign should be used for unnumbered highways, for emergency situations, for periods of short duration, or where, over relatively short distances, road users are guided along the detour and back to the desired highway without route markers.

The FWY DETOUR with Arrow (CA Code SC9) sign should be used to inform motorists of the direction to follow for a freeway detour.

Section 6F.54 PILOT CAR FOLLOW ME Sign (G20-4)

The following is added to this section:

Guidance:

The TRAFFIC CONTROL – WAIT AND FOLLOW PILOT CAR (CA Code C37) sign should be used at intersecting approaches to a work zone when pilot cars are controlling reversible lane traffic.

Section 6F.55 Portable Changeable Message Signs

The following is added to this section:

Standard:

On State highways, the message displayed on Portable Changeable Message signs shall be visible from a distance of 460 m (1500 ft) and shall be legible from a distance of 230 m (750 ft), at noon on a cloudless day, by persons with vision of or corrected to 20/20.

Guidance:

On local roads, the message displayed on Portable Changeable Message signs should be visible from a distance of 460 m (1500 ft) and shall be legible from a distance of 230 m (750 ft), at noon on a cloudless day, by persons with vision of or corrected to 20/20.

Support:

Refer to Department of Transportation's Standard Specifications Section 12-3.12 for visibility criteria cited. See Section 1A.11 for information regarding this publication.

Section 6F.56 Arrow Panels

The following is added to this section:

Standard:

The arrow panel shall be located behind any channelizing devices used to transition traffic from the closed lane.

Support:

Department of Transportation's Standard Specifications for flashing arrow panels are in Section 12-3.03. See Section 1A.11 for information regarding this publication.

Figure 6F-6. Advance Warning Arrow Display Specifications

Standard:

For State highways, the panel type B shall mean type II and the panel type C shall mean type I.

For State highways, the panel type B (or type II) shall have a minimum size of 1800 x 900 mm (72 x 36 in).

The minimum legibility distance is the distance at which flashing arrow panels shall be legible at noon on a cloudless day and at night by persons with vision of or corrected to 20/20.

Support:

Refer to Department of Transportation's Standard Specifications Section 12-3.03 for visibility criteria cited. See Section 1A.11 for information regarding this publication.

Section 6F.58 Channelizing Devices

The following is added to this section:

Guidance:

The spacing of channelizing devices should not exceed the maximum distances shown in Table 6F-102 of This Supplement.

Section 6F.59 Cones

The following is added to this section:

Option:

Retroreflectorization of 700 mm (28 in) or larger cones may be provided by a 325 mm (13 in) band (sleeve).

Standard:

On State highways, the retroreflectorized bands shall be visible at 300 m (1000 ft) at night under illumination of legal high beam headlights, by persons with vision of or corrected to 20/20.

Guidance:

On local roads, the retroreflectorized bands should be visible at 300 m (1000 ft) at night under illumination of legal high beam headlights, by persons with vision of or corrected to 20/20.

Support:

Refer to Department of Transportation's Standard Specifications Section 12-3.10 for visibility criteria cited. See Section 1A.11 for information regarding this publication.

Section 6F.60 Tubular Markers

The following is added to this section:

Standard:

On State highways, the retroreflectorized bands shall be visible at 300 m (1000 ft) at night under illumination of legal high beam headlights, by persons with vision of or corrected to 20/20.

Guidance:

On local roads, the retroreflectorized bands should be visible at 300 m (1000 ft) at night under illumination of legal high beam headlights, by persons with vision of or corrected to 20/20.

Table 6F-102. Maximum Spacing of Channelizing Devices

Speed (km/h)	Maximum Channelizer Spacing		
	Taper* (m)	Tangent (m)	Conflict** (m)
30	6	12	3
40	8	16	4
50	10	20	5
60	12	24	6
70	14	28	7
80	16	32	8
90	18	36	9
100	20	40	10
110	22	44	11

Speed (mph)	Maximum Channelizer Spacing		
	Taper* (ft)	Tangent (ft)	Conflict** (ft)
20	21	42	10
25	26	53	13
30	32	63	15
35	37	74	18
40	42	84	20
45	48	95	23
50	53	106	25
55	58	116	28
60	63	127	30
65	69	137	33
70	74	148	35

* Maximum channelizer spacing for all speeds on one-lane/two-way tapers is 6.1 m (20 ft).
Maximum channelizer spacing for all speeds on downstream tapers is 6.1 m (20 ft).
All other tapers are as shown.

** Use on intermediate and short-term projects for taper and tangent sections where there are no pavement markings or where there is a conflict between existing pavement markings and channelizers.

On State highways a spacing of 3 m (10 ft) is recommended for taper and tangent sections shown on TA-31 and TA-32.

Support:

Refer to Department of Transportation's Standard Specifications Section 12-3.04 for visibility criteria cited. See Section 1A.11 for information regarding this publication.

Section 6F.62 Drums

The following is added to this section:

Standard:

On State highways, the retroreflectorized bands shall be visible at 300 m (1000 ft) at night under illumination of legal high beam headlights, by persons with vision of or corrected to 20/20.

Guidance:

On State highways, the retroreflectorized bands should be visible at 300 m (1000 ft) at night under illumination of legal high beam headlights, by persons with vision of or corrected to 20/20.

Support:

Refer to Department of Transportation's Standard Specifications Section 12-3.04 for visibility criteria cited. See Section 1A.11 for information regarding this publication.

Section 6F.70 Opposing Traffic Lane Divider

The following is added to this section:

Guidance:

The Opposing Traffic Lane Divider (W6-4) sign should only be used to supplement a channelizing device that is being used to separate opposing traffic in a maintenance or construction work zone.

Section 6F.71 Pavement Markings

The following is added to this section:

Guidance:

Centerlines and lane lines should be placed, replaced, or delineated where appropriate before the roadway is opened to traffic.

Section 6F.72 Temporary Pavement Markings

The following is added to this section:

Standard:

Temporary lane lines and/or centerlines shall consist of retroreflectorized lines approximately 600 mm (24 in) long, 100 mm (4 in) wide, spaced approximately 7.3 m (24 ft) apart.

Option:

Day/night raised retroreflectorized pavement markers, approved by the Department of Transportation, may be used in lieu of 600 mm (24 in) lines, spaced approximately 7.3 m (24 ft) apart.

Guidance:

Right edge lines should not be simulated with dashed lines or raised pavement markers because they could confuse motorists.

Option:

Portable delineators, permanent type delineators, etc., may be used where it is considered desirable to enhance the edge of traveled way due to curvilinear alignment, narrowing pavement, etc.

Standard:

Locations on two-lane conventional highways where no-passing zone centerline delineation has been obliterated shall be posted with a sign package consisting of a ROAD (STREET) WORK (W20-1) sign and a DO NOT PASS (R4-1) sign.

Guidance:

The R4-1 sign should be posted at 600 m (2000 ft) intervals throughout the extended no-pass zone. A PASS WITH CARE (R4-2) sign should also be placed at the end of the zone.

Section 6F.73 Raised Pavement Markers

Standard:

Paragraph 1 ("If raised pavement…") is deleted and replaced with the following:

If raised pavement markers are used to substitute for broken line segments, at least two retroreflective markers shall be placed, one at each end of a segment of 0.9 m (3 ft). For segments over 2.4 m (8 ft), a group of at least three retroreflective markers shall be equally spaced at no greater than 1.2 m (4 ft). See Section 3A.05 for more details.

Section 6F.74 Delineators

The following is added to this section:

Standard:

On State highways, the retroreflectorized bands shall be visible at 300 m (1000 ft) at night under illumination of legal high beam headlights, by persons with vision of or corrected to 20/20.

The delineators shall be placed 0.6 m (2 ft) to 1.8 m (6 ft) outside the outer edge of the shoulder. They shall be 75 x 300 mm (3 x 12 in) minimum size.

Guidance:

On local roads, the retroreflectorized bands should be visible at 300 m (1000 ft) at night under illumination of legal high beam headlights, by persons with vision of or corrected to 20/20.

Support:

Refer to Department of Transportation's Standard Specifications Section 12-3.04 for visibility criteria cited. See Section 1A.11 for information regarding this publication.

Section 6F.77 Flashing Warning Beacons

Standard:

In Paragraph 2 ("Flashing warning beacons…"), the phrase "200 mm (8 in)" is changed to "300 mm (12 in)".

The following is added to this section:

Standard:

The beacon lens shall have a visible diameter of 300 mm (12 in) and shall conform to Department of Transportation's standards for signal lenses, and the lighting unit shall have a visor and back plate or other suitable means of providing adequate contrast.

The mounting height shall be between 1.8 m (6 ft) and 3 m (10 ft), measured from the bottom of the base to the center of the lens.

Section 6F.80 Temporary Traffic Control Signals

Standard:

For State highways, the following is added at the end of Paragraph 1 ("Temporary traffic control…"):

"…and/or the Department of Transportation's Standard Plans and Special Provisions. See Section 1A.11 for information regarding this publication."

Section 6F.81 Temporary Traffic Barriers

The following is added to this section:

Support:

More specific information on the use of portable barriers and crash cushions can be obtained from the Department of Transportation's Standard Plans and Standard Specifications. See Section 1A.11 for information regarding this publication.

Section 6F.82 Crash Cushions

The following is added to this section:

Support:

Information about designs and types of crash cushions currently approved for use on State highways is available from Department of Transportation's Division of Traffic Operations in Sacramento.

Section 6F.84 Rumble Strips

The following is added to this section:

Support:

Rumble strips are not suitable as a riding surface for bicycles and motorcycles.

Refer to Section 3B.106 for more details on rumble strips.

Guidance:

Where cyclists are permitted, provisions should be made to allow passage through or around the rumble strips.

Section 6F.101 Channelizers (Permanent type, flexible post)

Support:

Channelizers are implanted in the ground or affixed to the pavement, and are not susceptible to displacement, and are capable of normally withstanding numerous vehicular impacts.

Channelizers are generally used in series to create a visual fence/barrier, to provide additional guidance and/or restriction to traffic.

Option:

They also may be used in lieu of cones, portable delineators, or drums, to channelize traffic, divide opposing lanes of traffic, etc.

Standard:

The design of a channelizer shall be as shown in Figure 6F-102.

The height shall be 900 mm (36 in) minimum (700 mm (28 in) where speeds are 65 km/h (40 mph) or less), the width of the post shall be 56 mm (2 ¼ in) minimum and the color predominantly orange. The 75 x 300 mm (3 x 24 in) minimum retroreflective unit shall be visible at 300 m (1000 ft) at night under illumination of legal high beam headlights, by persons with vision of or corrected to 20/20.

The color of the channelizer retroreflective unit shall be white and posts shall be orange.

Support:

Refer to Department of Transportation's Standard Specifications Section 12-3.07 for visibility criteria cited. See Section 1A.11 for information regarding this publication.

Refer Chapter 3F for other details and requirements of channelizers.

Section 6F.102 LOOSE GRAVEL Sign (W8-7)

Guidance:

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

Standard:

When used, the W8-7 sign shall be placed at the beginning of work and at maximum 610 m (2000 ft) intervals.

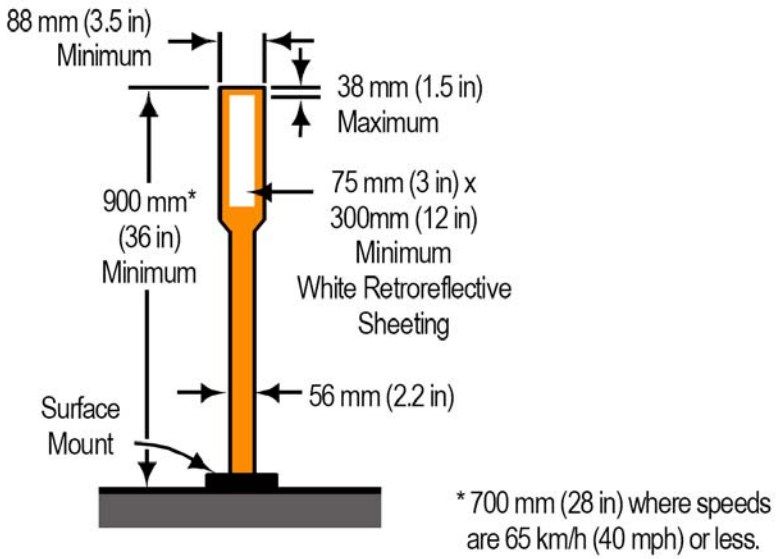
Option:

The Advisory Speed Plaque (W13-1) may be used in combination with the W8-7 sign to indicate the need to decrease speed at a particular location.

Guidance:

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

Figure 6F-102. Channelizer



Standard:

On State highways for seal coat projects, the W13-1 (35) Plaque shall supplement the W8-7 sign during placing and/or brooming of screenings.

Section 6F.103 NARROW LANE(S) Sign (CA Code C12)

Option:

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

Guidance:

When used, the C12 (CA Code) sign should be used in conjunction with an Advisory Speed Plaque (W13-1). See Section 2C.46.

Section 6F.104 Road Work/Speed Limit Sign (CA Code C17)

Standard:

The Road Work/Speed Limit (CA Code C17) sign shall not be used on State highways.

The C17 (CA Code) sign shall only be used in conjunction with appropriate advance warning signs.

The C17 (CA Code) signs shall be removed promptly when no longer applicable.

Support:

The C17 (CA Code) sign is authorized for use by CVC Section 22362. This section provides authority to post a speed limit of not less than 40 km/h (25 mph) at locations where employees of any contractor, or of the agency in charge of the job, are engaged in work upon the roadway.

Posting unrealistically low speed limits will result in loss of sign credibility and a high violation rate.

Guidance:

Before using a C17 (CA Code) sign, work zone conditions should be analyzed to determine what maximum speed limit would be appropriate for that particular location.

The C17 (CA Code) sign should be placed within 120 m (400 ft) of the zone where workers are on the roadway or so nearly adjacent as to be endangered by traffic.

Option:

The C17 (CA Code) sign may be provided by the agency having jurisdiction over the street or road.

Section 6F.105 OPEN TRENCH Sign (CA Code C27)

Standard:

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

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

Support:

The 900 x 900 mm (36 x 36 in) size is for conventional state highways and the 1200 x 1200 mm (48 x 48 in) size is for use on freeways and expressways.

Guidance:

Trenches in excess of 48 mm (0.15 ft) in depth but not exceeding 76 mm (0.25 ft) in depth that are less than 2.4 m (8 ft) from the edge of traveled way should be identified by LOW SHOULDER (W8-9) portable signs on Type II barricades set in the trench adjacent to the edge of pavement at intervals not to exceed 610 m (2,000 ft).

Option:

Portable delineators may be placed at intervals not to exceed 30 m (100 ft) in lieu of edge line delineation.

Standard:

Trenches in excess of 76 mm (0.25 ft) in depth that are less than 2.4 m (8 ft) from the edge of traveled way shall be identified by C27 (CA Code) and NO SHOULDER (CA Code C31A) portable signs on Type II or Type III barricades alternately set in the trench at intervals not to exceed 610 m (2,000 ft).

Guidance:

Channelizers or delineators should be placed 0.6 m (2 ft) to 1.8 m (6 ft) outside of the edge line at 30 m (100 ft) intervals.

Trenches in excess of 76 mm (0.25 ft) in depth but not exceeding 762 mm (2.5 ft) in depth that are 2.4 m (8 ft) to 4.6 m (15 ft) from the edge of traveled way should be identified by C27 (CA Code) portable signs on Type II or Type III barricades set in the trench at intervals not to exceed 610 m (2,000 ft). Delineators should be placed at 60 m (200 ft) intervals within 0.6 m (2 ft) from the edge of the trench and at 30 m (100 ft) intervals for edge conditions exceeding 152 mm (0.5 ft) in depth.

Trenches in excess of 152 mm (0.5 ft) in depth but not exceeding 762 mm (2.5 ft) in depth that are more than 4.6 m (15 ft) from the edge of traveled way at locations where a recovery area was available prior to construction should be identified by placing delineators at 60 m (200 ft) intervals within 0.6 m (2 ft) from the edge of the trench and by placing C27 (CA Code) signs in the trench at intervals not to exceed 610 m (2,000 ft).

Standard:

Signing for trenches in excess of 762 mm (2.5 ft) in depth shall be based upon engineering judgement or studies (as noted in Section 1A.09) to ensure proper visibility of barricades and signing.

Section 6F.106 Traffic Fines Signs (CA Code C40 and C40A)

Option:

The TRAFFIC FINES DOUBLED IN CONSTRUCTION ZONES (CA Code C40) and TRAFFIC FINES DOUBLED IN WORK ZONES (CA Code C40A) signs may be placed approximately 150 m (500 ft) in advance of the first required Temporary Traffic Control sign(s). The placement of the C40 and C40A (CA Codes) signs is at the discretion of the person(s) in responsible charge of the work zone.

Guidance:

The C40A (CA Code) sign is intended to be manufactured as a fabric sign and should be used on a short term (daily) basis only. Longer term situations should use the C40 (CA Code) sign.

Section 6F.107 Moving Lane Closure Signs (W23-1 and CA Code SC10, SC11, SC13 , SC15)

Standard:

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

LANE CLOSED AHEAD (CA Code SC10).
LANE CLOSED (CA Code SC11).
SLOW TRAFFIC AHEAD (W23-1).
DO NOT PASS (CA Code SC13).
CAUTION (CA Code SC15).

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

If used, the SC10 (CA Code) sign and a Type II flashing arrow sign shall be mounted on the rear of the designated sign vehicle.

The SC11 (CA Code) sign and a Type II flashing arrow sign shall be mounted on the rear of the designated sign vehicle.

If used, the W23-1 sign shall be mounted on the rear of the designated sign vehicle.

The SC13 (CA Code) sign shall be mounted on the rear and/or the front of the designated sign vehicle.

If used, the SC15 (CA Code) sign shall be mounted on the front of the designated sign vehicle.

Section 6F.108 Object Markers

Standard:

When used in work zones, the CA Type N-3 (OM1-3) object markers shall have an orange retroreflective background.

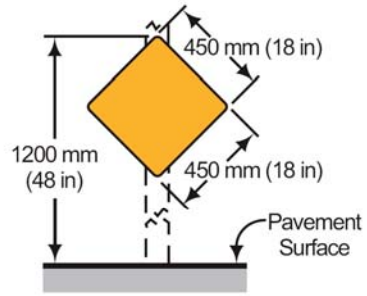
When used in work zones, the CA Type P and R (OM-3L, OM-3R and OM-3C) object marker shall have alternating retroreflective orange and white stripes.

Support:

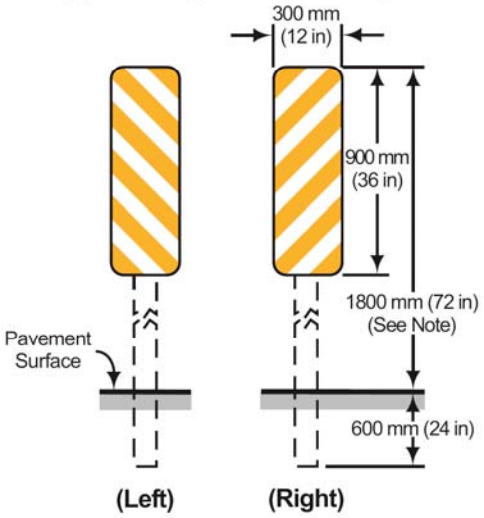
See Chapter 3C for more details.

Figure 6F-103. Examples of Object Markers in Temporary Traffic Control Zones

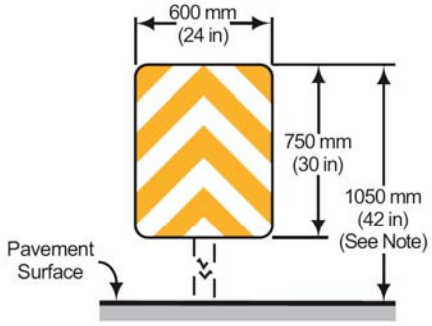
CA Type N-3 Object Marker (OM1-3)



CA Type P Object Markers (OM-3L&R)



CA Type R Object Marker (OM-3C)



Note:
The bottom of the marker is normally mounted 0.3 m (1 ft) above the pavement surface.

CHAPTER 6G. TYPE OF TEMPORARY TRAFFIC CONTROL ZONE ACTIVITIES

Section 6G.06 Work Outside of Shoulder

Guidance:

In Pragraph 3 ("Where the above…"), the sign "ROAD WORK AHEAD" is deleted and substituted with the sign "SHOULDER WORK AHEAD (W21-5) sign".

Support:

Refer to Section 6F.35 for Shoulder Work Signs.

Section 6G.10 Work Within the Traveled Way of Two-Lane Highways

The following is added to this section:

Support:

Refer to CVC 21363 for detour signs.

Section 6G.12 Work Within the Traveled Way of Multi-Lane, Nonaccess Controlled Highways

The following is added to this section:

Guidance:

When multiple lanes in one direction are closed, traffic should be moved over one lane at a time as shown in Department of Transportation's Standard Plan T10. See Section 1A.11 for information regarding this publication.

Section 6G.14 Work Within the Traveled Way of Freeways and Expressways

The following is added to this section:

Support:

The temporary traffic controls for short duration and mobile operations on State highways are shown in Department of Transportation's Standard Plans T15, T16 and T17.

A typical layout of closing lanes to direct traffic around a workspace is shown in Department of Transportation's Standard Plan T10.

See Section 1A.11 for information regarding this publication.

Section 6G.15 Two-Lane, Two-Way Traffic on One Roadway of a Normally Divided Highway

The following is added to this section:

Support:

Treatments for entrance and exit ramps within the two-way roadway segment of this type of work are shown in Department of Transportation's Standard Plans T10 and T14. See Section 1A.11 for information regarding this publication.

Section 6G.17 Interchanges

The following is added to this section:

Option:

A temporary traffic control zone in the entrance and exit ramps may be handled as shown in Department of Transportation's Standard Plans T10 and T14. See Section 1A.11 for information regarding this publication.

CHAPTER 6H. TYPICAL APPLICATIONS

Section 6H.01 Typical Applications

The following is added to this section:

Guidance:

The spacing of channelizing devices should not exceed the maximum distances shown in Table 6F-102.

Notes for Figure 6H-1 – Typical Application 1

Option:

In Note 2, the sign "ROAD WORK AHEAD" is deleted and substituted with the sign "Workers (W21-1a) sign".

Figure 6H-1 Work Beyond the Shoulder (TA-1)

Standard:

Figure 6H-1 is deleted and replaced with Figure 6H-1 (CA).

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

Standard:

Figure 6H-4 is deleted and replaced with Figure 6H-4 (CA).

Notes for Figure 6H-5 – Typical Application 5

The following new note is added:

Standard:

7. The minimum offset from the upstream end of the barrier to the edge of the traveled way shall be at least 4.6 m (15 ft) unless protected by a crash cushion.

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

Standard:

Figure 6H-5 is deleted and replaced with Figure 6H-5 (CA).

Notes for Figure 6H-6 – Typical Application 6

Standard:

Note 3 shall not be applicable to State highways. Note 1 shall be used instead for State highways.

Notes for Figure 6H-7 – Typical Application 7

The following new note is added:

Option:

11. If the tangent distance along the temporary diversion is less than 180 m (600 ft), additional One-Direction Large Arrow (W1-6) and Chevron Alignment (W1-8) signs may be used.

Figure 6H-7 Road Closure with Diversion (TA-7)

Standard:

Figure 6H-7 is deleted and replaced with Figure 6H-7 (CA).

Notes for Figure 6H-10 – Typical Application 10

Guidance:

In Note 6, the word "between" is changed to "after".

The following is added to this section:
Support:

For State highways, see Department of Transportation's Standard Plan T13. See Section 1A.11 for information regarding this publication.

Figure 6H-10 Lane Closure on Two-Lane Road Using Flaggers (TA-10)
Standard:

Figure 6H-10 is deleted and replaced with Figure 6H-10 (CA).

Figure 6H-12 Lane Closure on Two-Lane Road Using Traffic Control Signals (TA-12)
Standard:

Figure 6H-12 is deleted and replaced with Figure 6H-12 (CA).

Notes for Figure 6H-13 – Typical Application 13
Guidance:

In Note 5, the word "before" is changed to "after".

Figure 6H-13 Temporary Road Closure (TA-13)
Standard:

Figure 6H-13 is deleted and replaced with Figure 6H-13 (CA).

Figure 6H-14 Temporary Road Closure (TA-14)
Standard:

Figure 6H-14 is deleted and replaced with Figure 6H-14 (CA).

Notes for Figure 6H-15 – Typical Application 15
Standard:

Note 5 shall not be applicable to State highways. Note 1 shall be used instead for State highways.

Notes for Figure 6H-16 – Typical Application 16
Guidance:

In Note 13, the word "before" is changed to "after".

Notes for Figure 6H-19 – Typical Application 19
The following new notes are added:
Guidance:

9. The DETOUR (CA Code C5A) sign should be placed on tangent sections at intervals not to exceed 400 m (1300 ft) and at major intersections.

Option:

10. In urban areas, the C5A (CA Code) signs may be placed at every intersection.

Notes for Figure 6H-21 – Typical Application 21
The following new note is added:
Option:

9. A vehicle-mounted arrow panel may be used to supplement this package.

Notes for Figure 6H-26 – Typical Application 26
Standard:

Note 3 shall not be applicable to State highways. Note 1 shall be used instead for State highways.

Notes for Figure 6H-27 – Typical Application 27

Guidance:

In Note 8, the word "before" is changed to "after".

Notes for Figure 6H-29 – Typical Application 29

Guidance:

Note 2 is deleted and replaced with the following:

2. Parking should be prohibited in advance of mid-block crosswalks. Mid-block crosswalks should be avoided, when possible. See Section 3B.17.

Notes for Figure 6H-30 – Typical Application 30

The following new note is added:

Option:

6. The RIGHT (LEFT) LANE(S) CLOSED (W20-5) sign may be used instead of the Lane Reduction (W4-2) sign.

Notes for Figure 6H-31 – Typical Application 31

Guidance:

In Note 4, the spacing of channelizing devices should not exceed the maximum distances shown in Table 6F-102 of this Supplement. Refer to Section 6F.58 for spacing of channelizing devices.

In Note 7, use the Reverse Curve (W1-4) signs for both locations instead of the Double Reverse Curve or Two Lane Reverse Curve signs.

Option:

In Note 9, use Reverse Curve (W1-4) sign instead of ALL LANES THRU Plaque..

Figure 6H-31 Lane Closures on Street with Uneven Directional Volumes (TA-31)

Standard:

Figure 6H-31 is deleted and replaced with Figure 6H-31 (CA).

Notes for Figure 6H-32 – Typical Application 32

Guidance:

In Note 3, the spacing of channelizing devices should not exceed the maximum distances shown in Table 6F-102 of this Supplement. Refer to Section 6F.58 for spacing of channelizing devices.

Figure 6H-32 Half Road Closure on Multi-Lane, High-Speed Highway (TA-32)

Standard:

Figure 6H-32 is deleted and replaced with Figure 6H-32 (CA).

Notes for Figure 6H-35 – Typical Application 35

Standard:

Note 1 is deleted for State highways and replaced with the following:

1. For State highways, the arrow panels shall, as a minimum, be type B (or type II), with a size of 1800 x 900 mm (72 x 36 in).

Support:

Refer to Department of Transportation's Standard Specifications Section 12-3.03 for minimum size and type of arrow panels cited above. See Section 1A.11 for information regarding this publication.

Notes for Figure 6H-36 – Typical Application 36

Guidance:

In Note 6, use the Reverse Curve (W1-4) signs for both locations instead of the Double Reverse Curve sign.

In Note 11, use the Reverse Curve (W1-4) signs instead of the Three Lane Reverse Curve or ALL LANES THRU Plaque.

The following new note is added to this typical application:

Option:

Detail 11 (see Figure 3A-102) may be used instead of the temporary solid white lane line, which is shown in the MUTCD Figure 6H-36.

Notes for Figure 6H-37 – Typical Application 37

Standard:

This typical application is deleted for application and shall not be used in California. Department of Transportation's Standard Plan T10 shall be used instead.

Support:

See Section 1A.11 for information regarding this publication.

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

Standard:

This typical application is deleted for application and shall not be used in California. Department of Transportation's Standard Plan T10 shall be used instead.

Support:

See Section 1A.11 for information regarding this publication.

Notes for Figure 6H-38 – Typical Application 38

Standard:

This typical application is deleted for application and shall not be used on freeways in California. Department of Transportation's Standard Plan T-16 for moving lane closures shall be used instead.

Support:

See Section 1A.11 for information regarding this publication.

Figure 6H-38 Interior Lane Closure on Freeway (TA-38)

Standard:

This typical application is deleted for application and shall not be used on freeways in California. Department of Transportation's Standard Plan T-16 for moving lane closures shall be used instead.

Support:

See Section 1A.11 for information regarding this publication.

Notes for Figure 6H-42 – Typical Application 42

The following is added:

Option:

The Department of Transportation's Standard Plan T10 may be used instead of this typical application.

Support:

See Section 1A.11 for information regarding this publication.

Figure 6H-42 Work in Vicinity of Exit Ramp (TA-42)

The following is added:

Option:

The Department of Transportation's Standard Plan T10 may be used instead of this typical application.

Support:

See Section 1A.11 for information regarding this publication.

Notes for Figure 6H-43 – Typical Application 43

The following new note is added:

Standard:

2. The RAMP NARROWS (W5-4) sign shall not be used in California. The ROAD NARROWS (W5-1) sign or NARROW LANE(S) (CA Code C12) sign, as appropriate, shall be used instead. See Sections 2C.15 and 6F.103.

Guidance:

3. For planned partial ramp closure, consideration should be given to closing the entire exit ramp. Refer to Department of Transportation's Standard Plan T14. See Section 1A.11 for information regarding this publication.

Notes for Figure 6H-44 – Typical Application 44

The following is added to this typical application:

Option:

The Department of Transportation's Standard Plan T10 may be used instead of this typical application.

Support:

See Section 1A.11 for information regarding this publication.

Figure 6H-44 Work in Vicinity of Entrance Ramp (TA-44)

The following is added to this typical application:

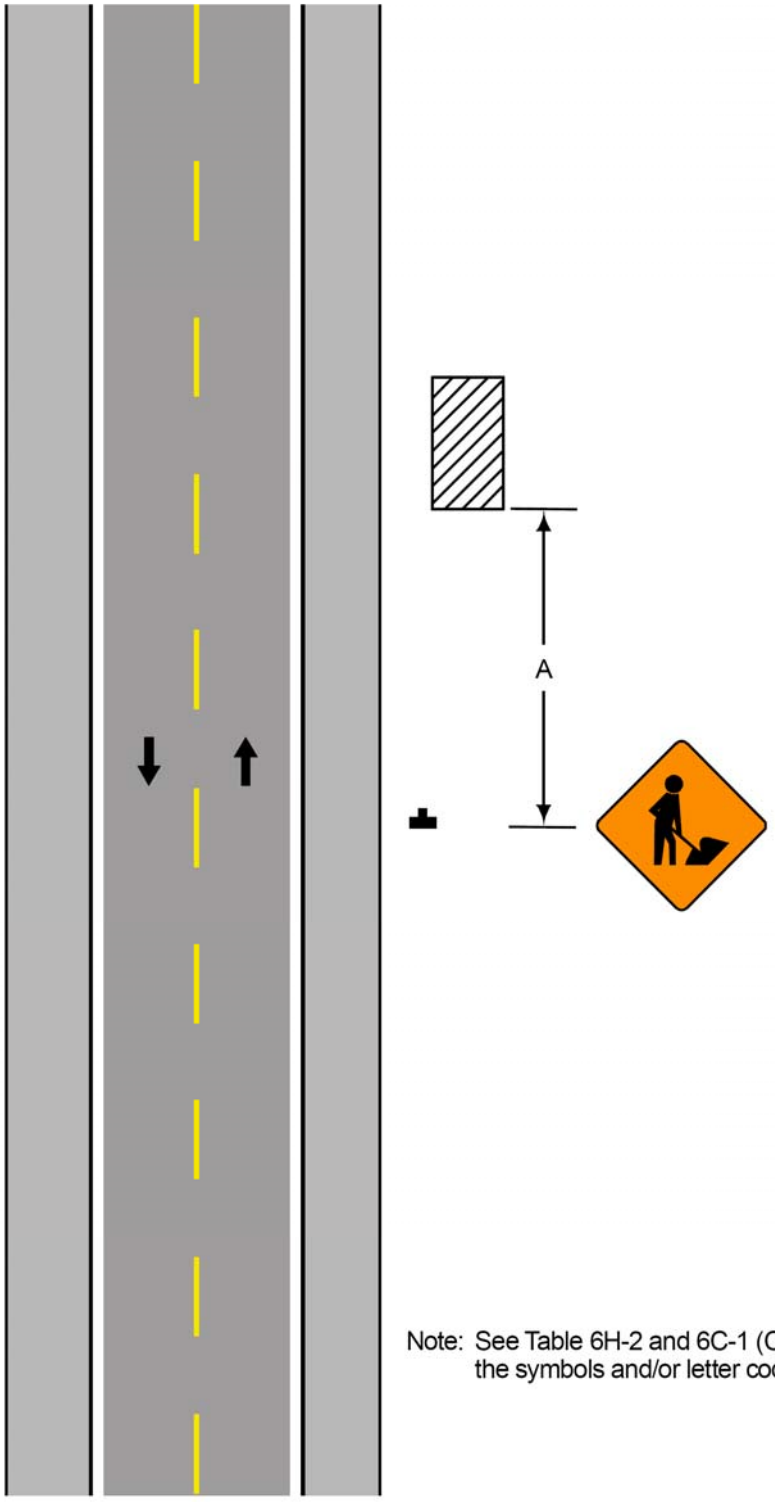
Option:

The Department of Transportation's Standard Plan T10 may be used instead of this typical application.

Support:

See Section 1A.11 for information regarding this publication.

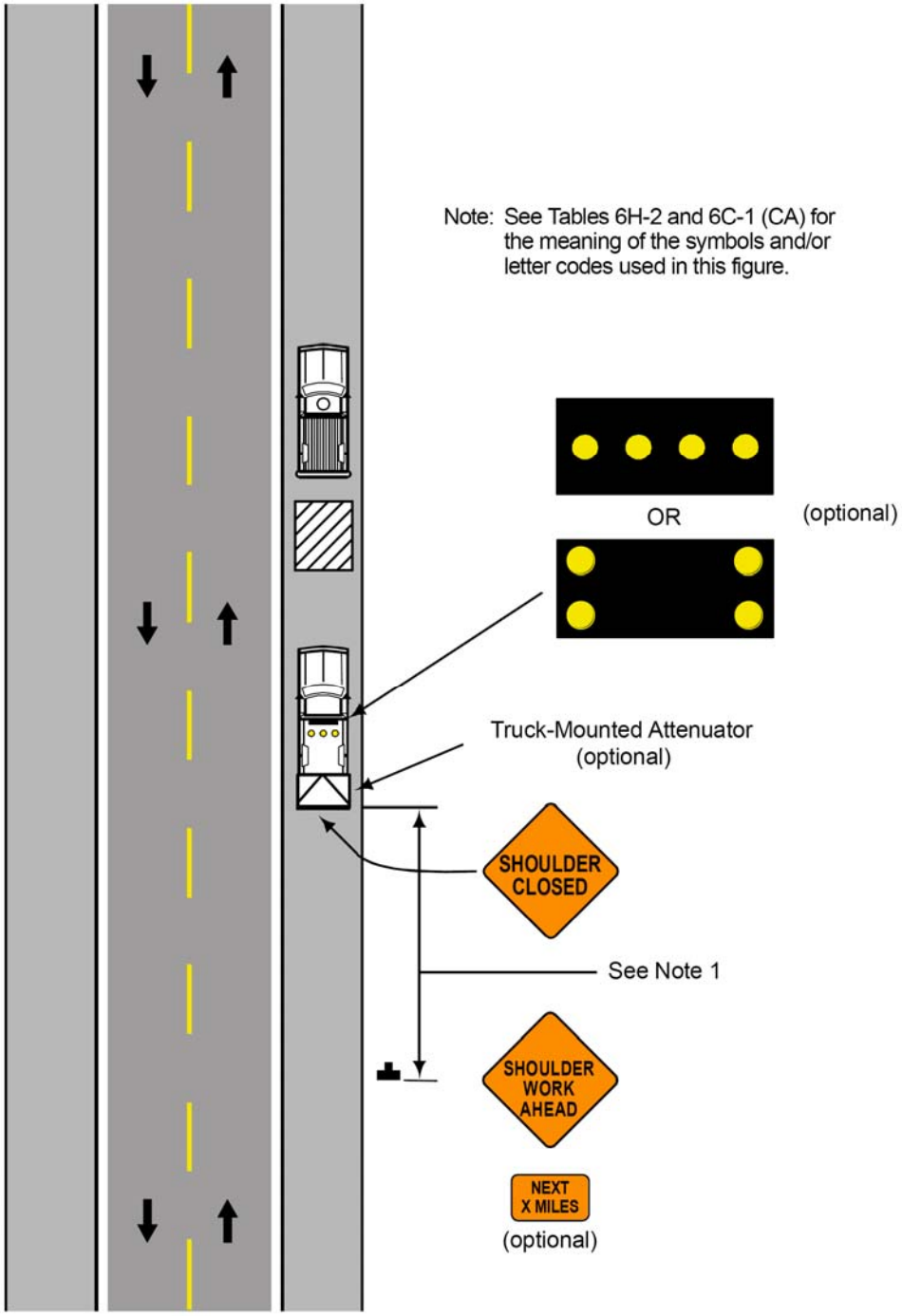
Figure 6H-1 (CA). Work Beyond the Shoulder (TA-1)



Typical Application 1

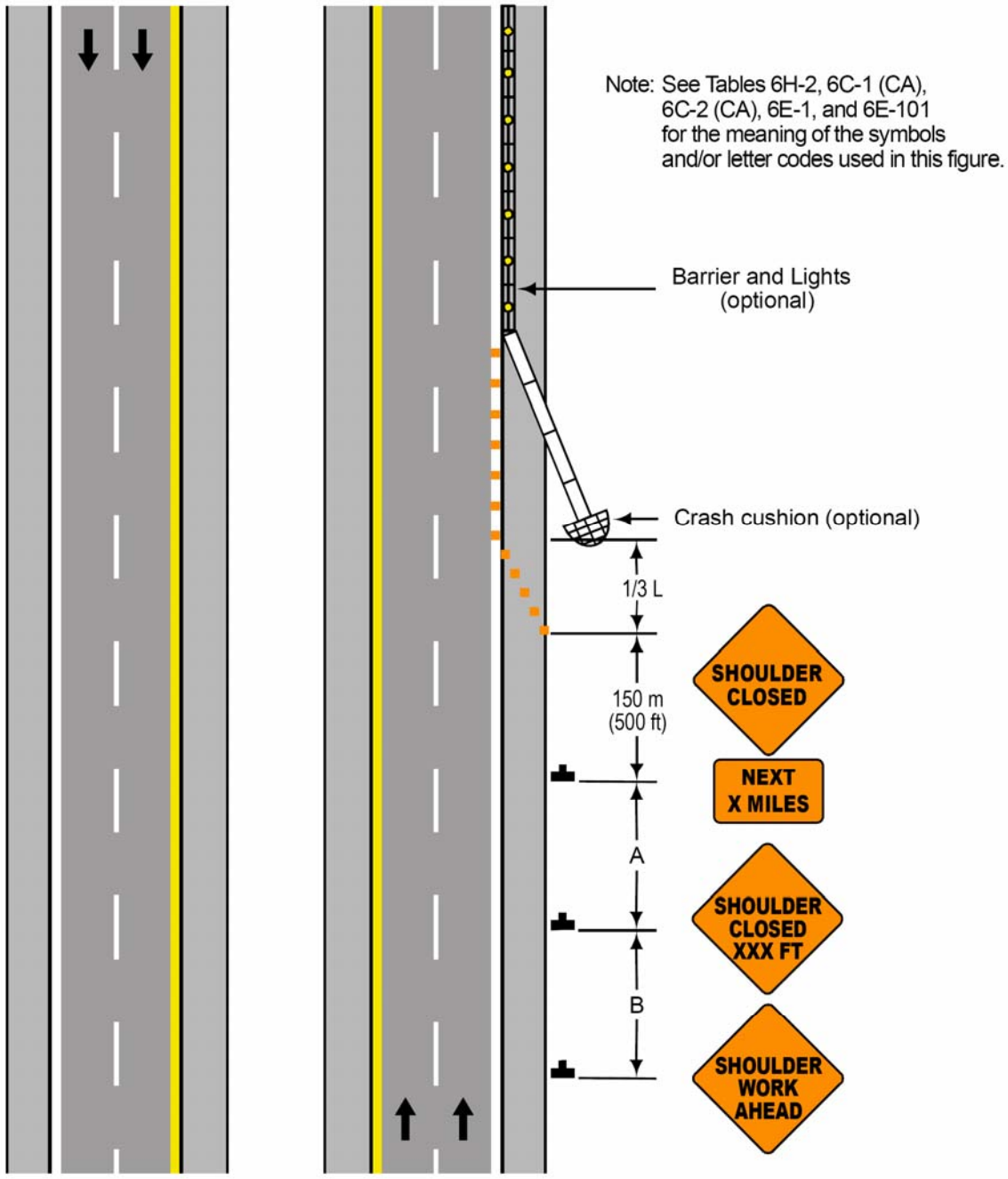
Note: See Table 6H-2 and 6C-1 (CA) for the meaning of the symbols and/or letter codes used in this figure.

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



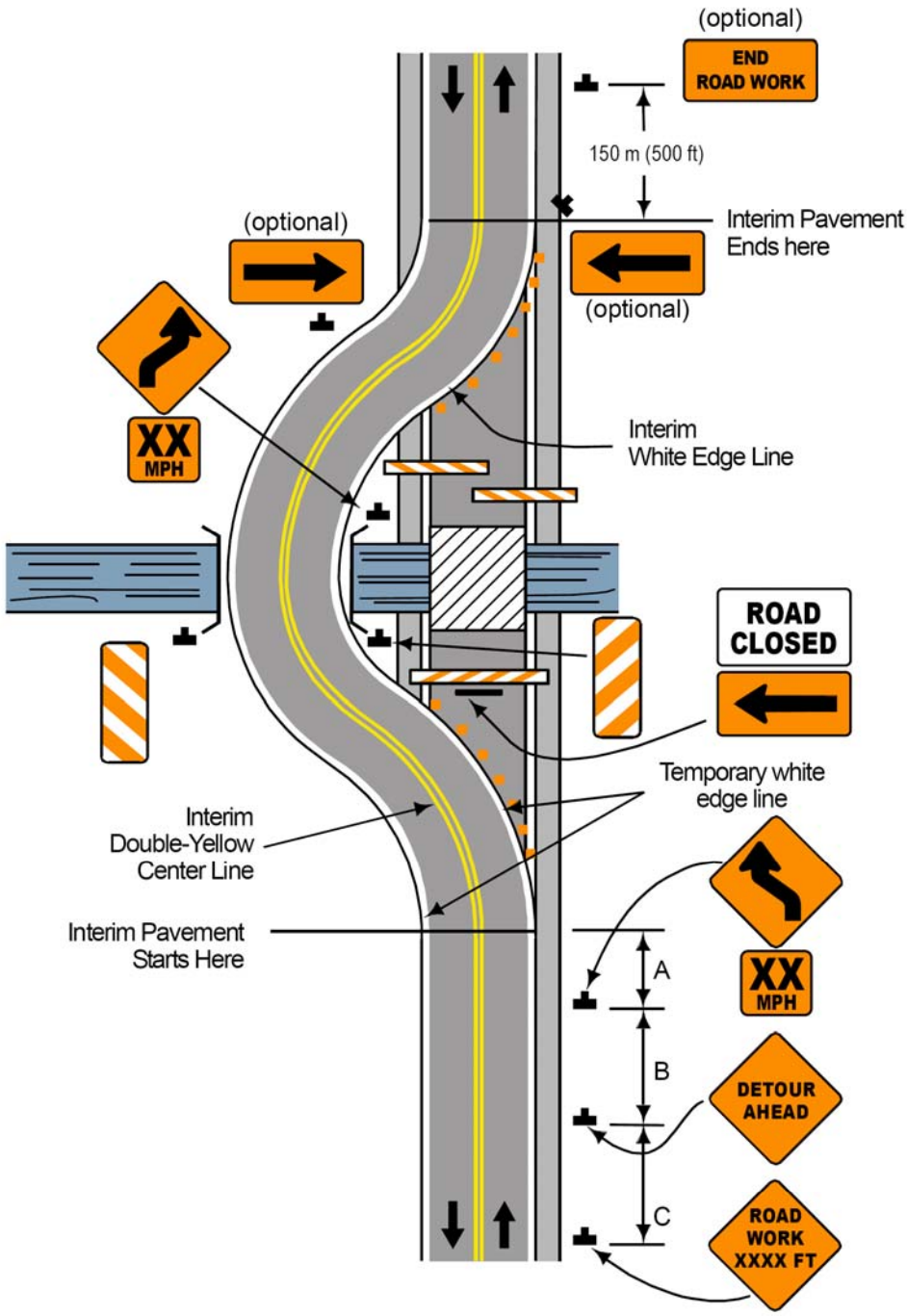
Typical Application 4

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



Typical Application 5

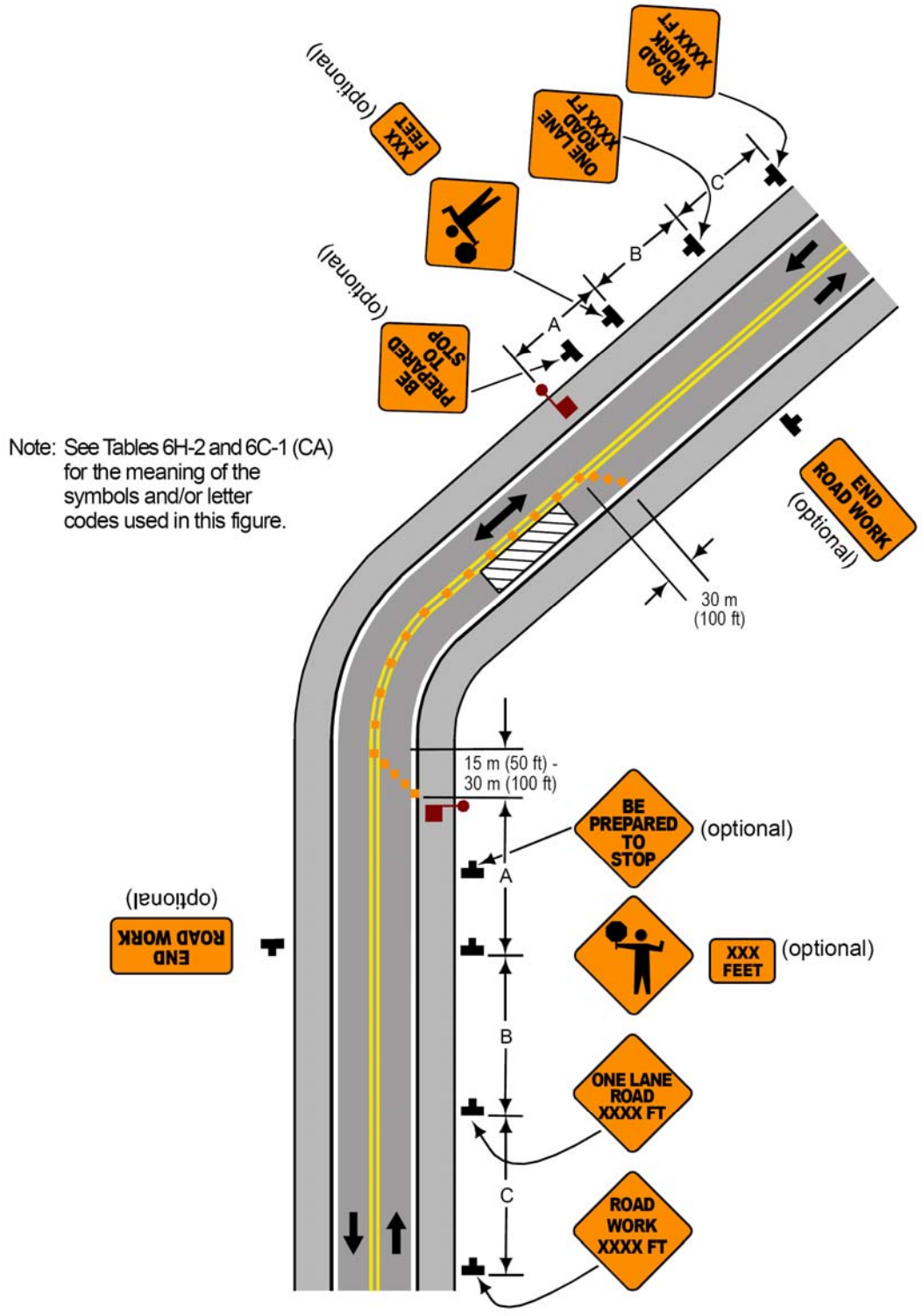
Figure 6H-7 (CA). Road Closure with Diversion (TA-7)



Typical Application 7

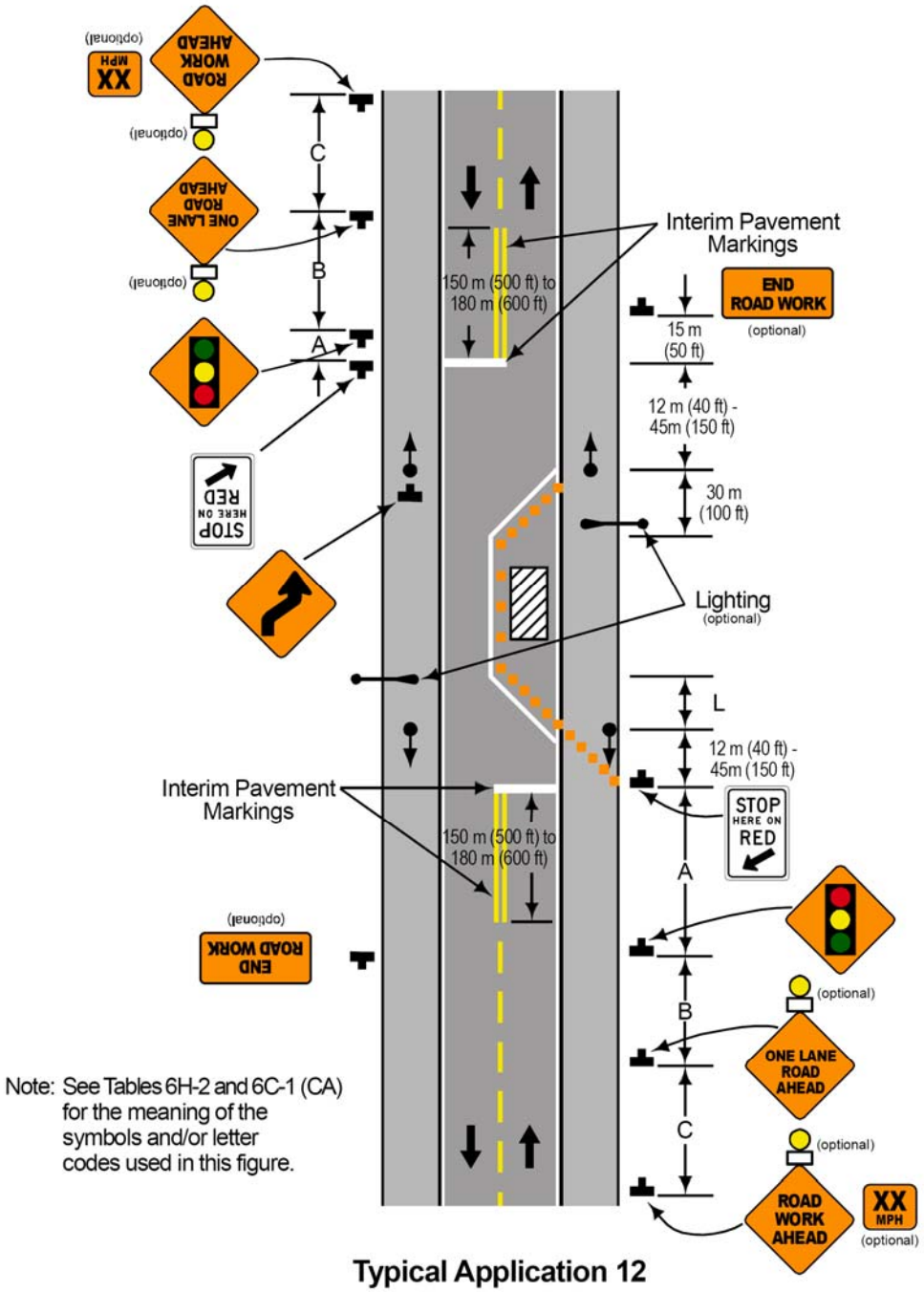
Note: See Tables 6H-2 and 6C-1 (CA) for the meaning of the symbols and/or letter codes used in this figure.

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



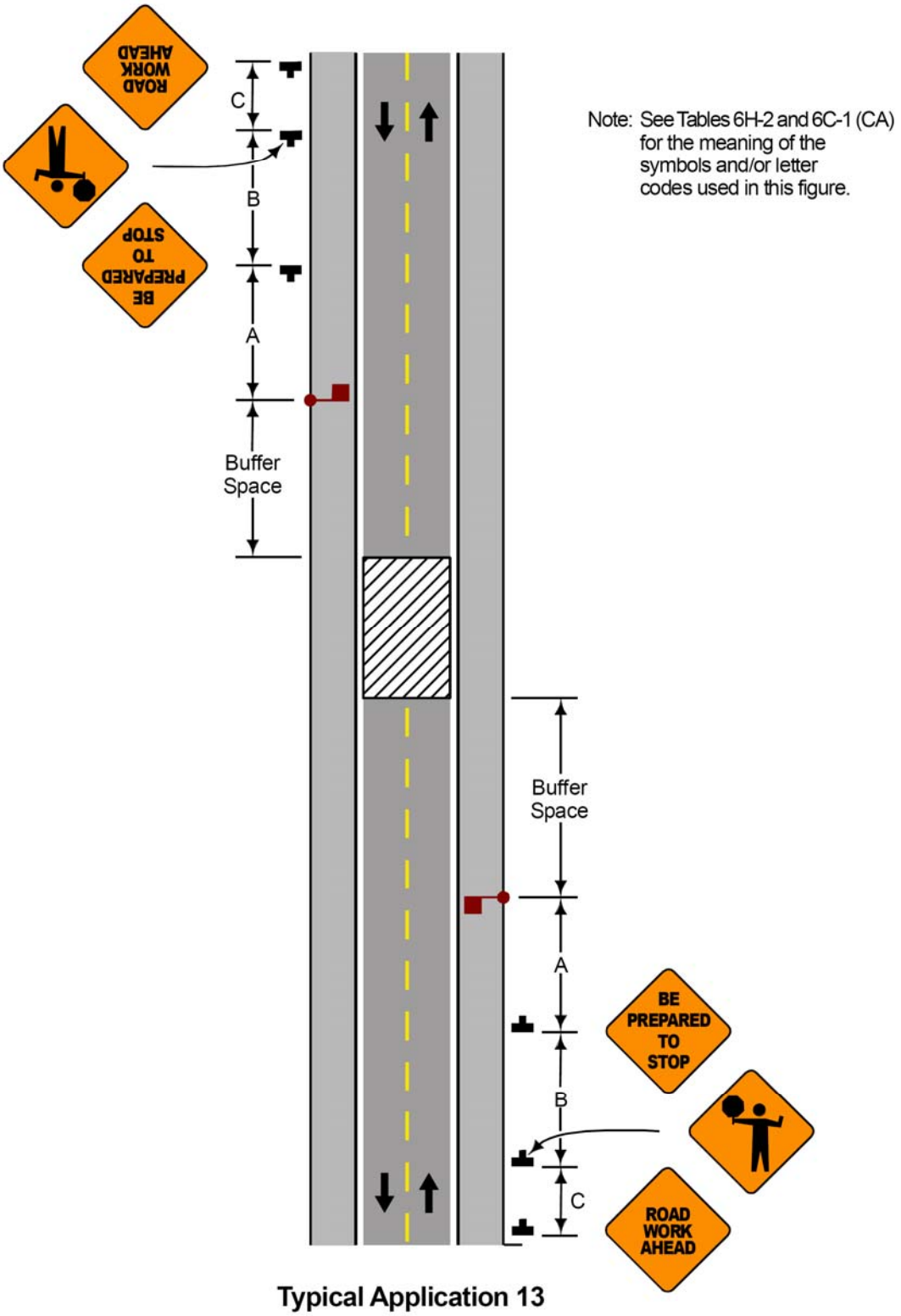
Typical Application 10

Figure 6H-12 (CA). Lane Closure on Two-Lane Road Using Traffic Control Signals (TA-12)



Typical Application 12

Figure 6H-13 (CA). Temporary Road Closure (TA-13)



Typical Application 13

Figure 6H-14 (CA). Haul Road Crossing (TA-14)

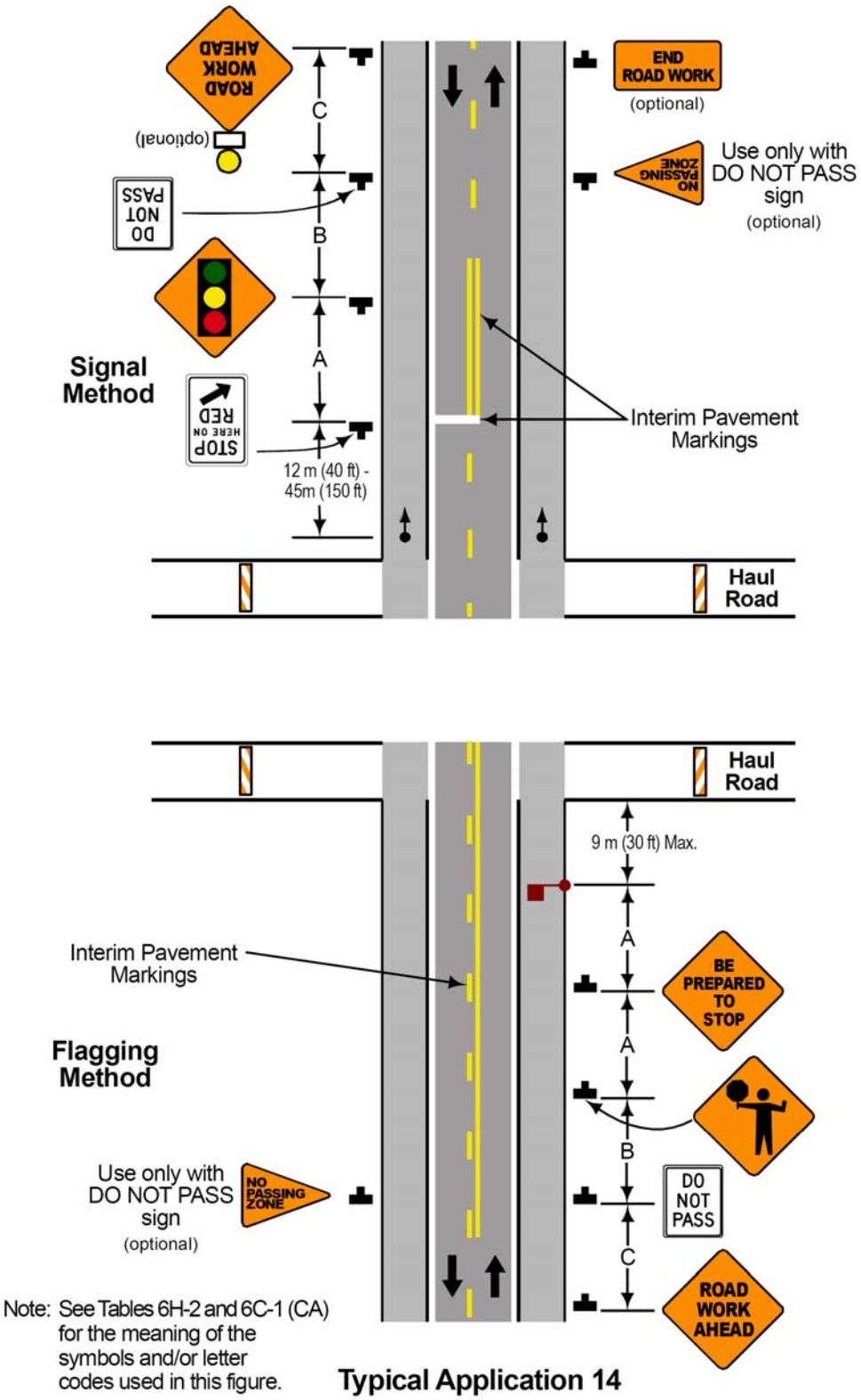
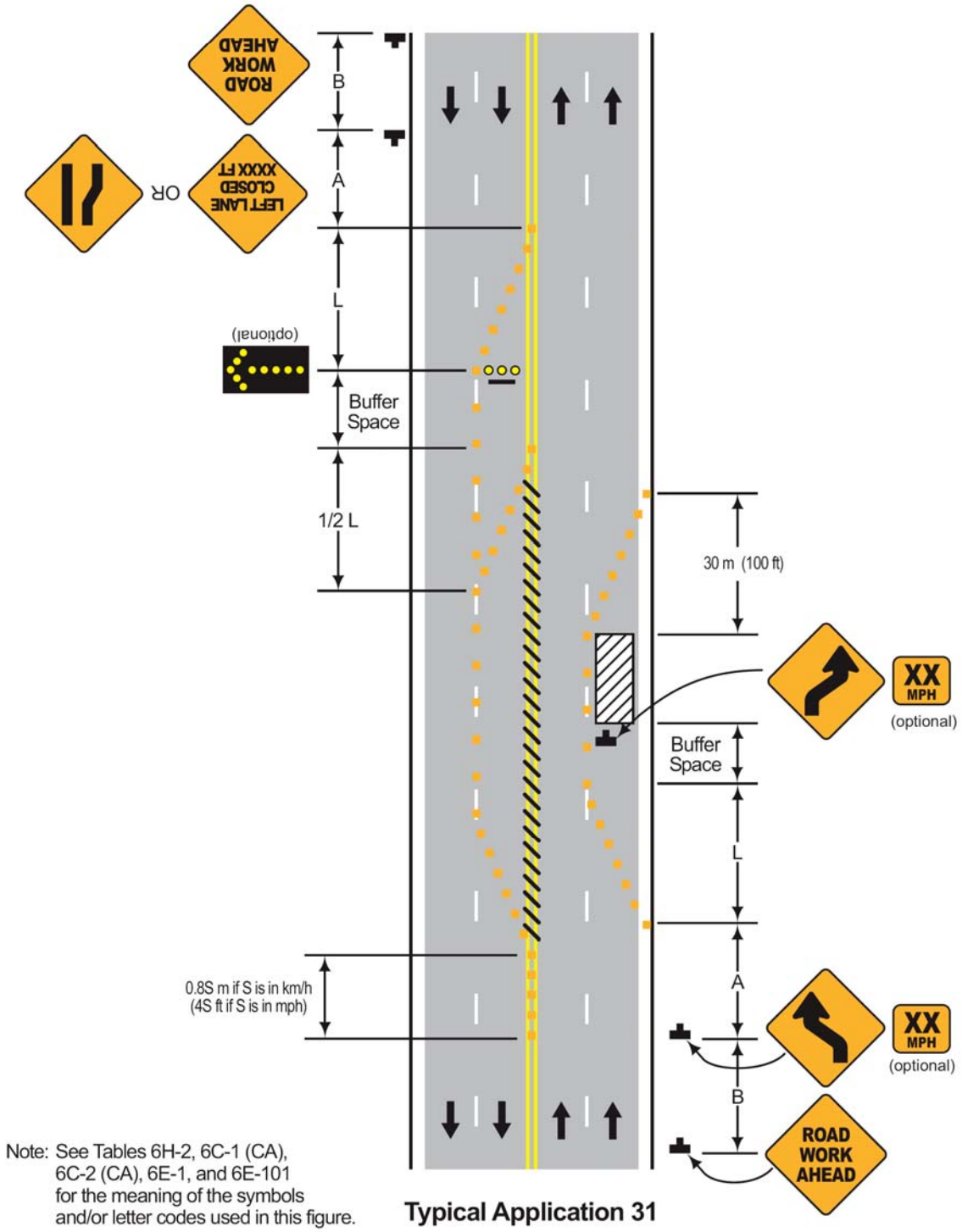


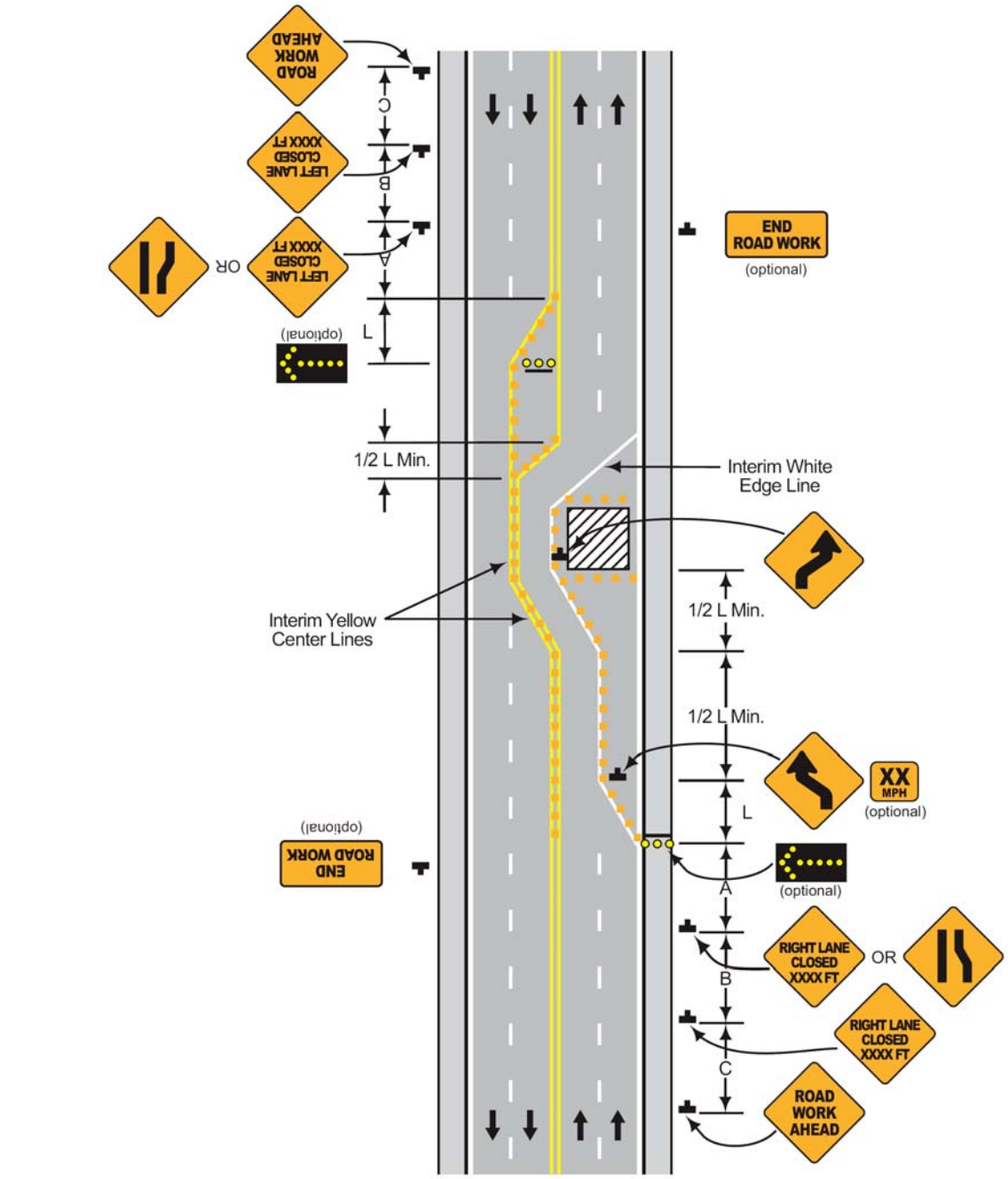
Figure 6H-31 (CA). Lane Closures on Street with Uneven Directional Volumes (TA-31)



Note: See Tables 6H-2, 6C-1 (CA), 6C-2 (CA), 6E-1, and 6E-101 for the meaning of the symbols and/or letter codes used in this figure.

Typical Application 31

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



Note: See Tables 6H-2, 6C-1 (CA), 6C-2 (CA), 6E-1, and 6E-101 for the meaning of the symbols and/or letter codes used in this figure.

Typical Application 32

CHAPTER 6I. CONTROL OF TRAFFIC THROUGH TRAFFIC INCIDENT MANAGEMENT AREAS

Support:

No Comments.

This MUTCD Chapter is adopted as is for California.

MUTCD 2003
CALIFORNIA SUPPLEMENT

May 20, 2004

PART 7
TRAFFIC CONTROLS FOR SCHOOL AREAS

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

PART 7. TRAFFIC CONTROLS FOR SCHOOL AREAS

TABLE OF CONTENTS

CHAPTER 7A. GENERAL

Section 7A.01 Need for Standards

The following is added to this section:

Support:

Parents, school administrators, traffic officials, civic leaders, and vehicle drivers share the responsibility of educating school pedestrians on the use of traffic control devices. Programs in the home and school to train the child as a responsible pedestrian are an important factor in improving their understanding of traffic control devices.

The words “School Pedestrians”, “Children”, and “Students” are used interchangeably and could include student bicyclists for the purpose of determining appropriate cross protection measures.

Section 7A.02 School Routes and Established School Crossings

The following is added to this section:

Policy

Support:

There is a need in each school district to establish an organization concerned with students enroute to and from school. Through such an organization, the school district can be responsibly involved in processing requests for traffic safety controls and for safety programs and can coordinate activities within and between the community and public agencies.

In order to provide a responsible administrative structure for the school area, each school district is encouraged to:

1. Assign student pedestrian responsibilities to a competent staff member and/or
2. Organize a school student pedestrian advisory committee to serve the needs of each public and private school.

Guidance:

When the advisory committee structure is used, the committee should include governmental and school district staff who has the responsibility and authority to initiate and provide programs and projects.

Representatives from the city and/or county superintendent of schools office should be the official members. Advisors should include representatives of the local area Safety Council, traffic engineers, police authorities, the Parent-Teachers Association, Automobile Clubs (AAA), plus others as needed.

Staff and Committee Responsibility

Guidance:

The duties of staff members and/or each committee should be to guide and coordinate all activities connected with the school traffic safety program, such as:

1. Establish traffic safety policies and procedures.
2. Recommend priorities for proposed improvement projects.
3. Notify the responsible agencies of school-pedestrian-traffic related issues.
4. Review and approve the various phases of the school student traffic safety program.
5. Review and process requests and complaints.
6. Promote good public relations.

The County Superintendent of School's office should coordinate all student pedestrian committees' actions in establishing and promoting uniform practices for school pedestrian safety throughout the county.

School Responsibility

Guidance:

Traffic related issues about school pedestrians on the approaches to the school should be referred to the school district or local school principal for review and transmission to the appropriate staff person or to the school student pedestrian advisory committee.

Support:

Refer to CVC 21373 for school board request for traffic control devices.

Government Traffic Agency Responsibility

Standard:

Upon request of the local school district, responsible traffic authorities shall investigate all locations along the school route and recommend appropriate traffic control measures. Refer to CVC 21373.

Section 7A.03 School Crossing Control Criteria

The following is added to this section:

Support:

Properly conducted engineering and traffic studies will determine the appropriate measures to be developed at school crossings. Types of school pedestrian measures that can be considered can include:

1. Warning signs and markings.
2. Variable speed limits.
3. Intersection stop signs.
4. Flashing yellow beacons.
5. Traffic signals.
6. Remove visibility obstructions.
7. School Safety Patrol.
8. Adult Crossing Guard.
9. Pedestrian separation structures.
10. Pedestrian walkways along the roadway.
11. Pedestrian walkways separated from the roadway.
12. Parking controls and curb-use zones.
13. Bus transportation.

Section 7A.08 Placement Authority

The following is added to this section:

Support:

The following references from the California Vehicle Code relate to traffic controls for school areas:

1. Section 377 – Limit Line.
2. Section 627 – Engineering and Traffic Survey.
3. Section 21102 – Local Authority to Close Streets.
4. Section 21368 – Crosswalks Near Schools.
5. Section 21372 – Guidelines for Traffic Control Devices Near Schools.
6. Section 21373 – School Board Request for Traffic Control Devices.
7. Section 21458 – Curb Markings.
8. Section 21949 through 21971 – Pedestrians' Rights and Duties.
9. Section 22350 – Basic Speed Law.
10. Section 22352 – Prima Facie Speed Limits.
11. Section 22358.4 – Decrease of Local Limits Near Schools or Senior Centers.
12. Section 22504 – Unincorporated Area Parking; School Bus Stops.
13. Section 40802 – Speed Traps.
14. Section 42200 – Disposition by Cities and Other Local Entities.
15. Section 42201 – Disposition by County.
16. Section 42011 – Fine Enhancement; Passing a School.

CHAPTER 7B. SIGNS

Section 7B.01 Size of School Signs

The following is added to this section:

Standard:

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

Section 7B.03 Position of Signs

The following is added to this section:

Support:

Section 2A.16 contains information regarding standardization of location for signs.

Section 7B.05 Installation of Signs

The following is added to this section:

Support:

Examples of school area signing, markings, flashing beacons and overhead school signs are shown in Figures 7B-101 through 7B-104 of this Supplement.

Section 7B.08 School Advance Warning Assembly (S1-1 with Supplemental Plaque)

Standard:

In last paragraph ("A 300 mm …") the In-Street Pedestrian Crossing (R1-6a) sign is deleted as a stop is not required in California per CVC 21950.

This section is deleted and replaced with the following:

The School Advance Warning Assembly D (CA Code) shall be used in advance of any School Crosswalk Warning Assembly B (CA Code), unless the School Speed Limit Assembly C (CA Code) is already posted.

The School Advance Warning Assembly D (CA Code) shall be used in advance of the School Speed Limit Assembly C (CA Code).

The School Warning Assembly A (CA Code) shall be used on streets with prima facie 40 km/h (25 mph) speed limits that are contiguous to a school building or school grounds.

The SCHOOL (S4-3) plaque shall not be used alone.

Guidance:

If used, the School Warning Assembly A (CA Code) should be posted at the school boundary. Refer to CVC 22352.

Option:

If used, the School Warning Assembly A (CA Code) may be posted up to 150 m (500 ft) in advance of the school boundary. Refer to CVC 22352.

Support:

The School Advance Warning Assembly A (CA Code) does not need to be posted if there are no school pedestrians using the highway and the school grounds are separated from the highway by a fence, gate or other physical barrier. Refer to CVC 22352.

The School Warning Assemblies A and D (CA Code) are shown in Figure 7B-101.

Section 7B.09 School Crosswalk Warning Assembly (S1-1 with Diagonal Arrow)
Standard:

The following is added at the end of Paragraph 3 ("The School Crosswalk…"):

"…a yield sign or a traffic signal."

Paragraph 4 ("The School Crosswalk…") is deleted as it conflicts with the amended Paragraph 3.

The following is added to this section:

Standard:

The School Crosswalk Warning Assembly B (CA Code) shall be posted at all yellow school crosswalks that are not controlled by a STOP (R1-1) sign, a YIELD (R1-2) sign or a traffic signal.

Guidance:

The School Crosswalk Warning Assembly B (CA Code) should be posted at all white school crosswalks that are not controlled by a STOP (R1-1) sign, a YIELD (R1-2) sign or a traffic signal.

Support:

The School Crosswalk Warning Assembly B (CA Code) is shown in Figure 7B-101.

Section 7B.10 SCHOOL BUS STOP AHEAD Sign (S3-1)

The following is added to this section:

Standard:

The SCHOOL BUS STOP AHEAD (S3-1) sign shall be installed in advance of approved school bus stops where a school bus, when stopped to pick up or discharge passengers, is not visible for a distance of 60 m (200 ft) in each direction. Refer to CVC 22504.

Figure 7B-1. School Area Signs
Standard:

MUTCD Figure 7B-1 is deleted and replaced with Figure 7B-101.

Figure 7B-4. In-Street Signs in School Areas
Standard:

The In-Street Pedestrian Crossing (R1-6a) sign is deleted as a stop is not required in California per CVC 21950.

Section 7B.11 School Speed Limit Assembly (S4-1, S4-2, S4-3, S4-4, S4-6, S5-1)

Guidance:

Paragraph 2 ("The reduced speed …") is deleted. Refer Figures 7B-102 and 7B-103.

The following is added to this section:

Standard:

The School Speed Limit Assembly C (CA Code) shall be used on streets with speed limits greater than 40 km/h (25 mph) that are contiguous to a school building or school grounds.

Support:

The School Speed Limit Assembly C (CA Code) is shown in Figure 7B-101.

Option:

If used, the School Speed Limit Assembly C (CA Code) may be posted up to 150 m (500 ft) in advance of the school boundary.

Standard:

The "WHEN FLASHING" and specific time period messages shall not be used in school areas in California as they are not supported by CVC 22352. Hence, the Specific Time Period Plaque (S4-1), WHEN FLASHING (S4-4) and SCHOOL SPEED LIMIT 20 WHEN FLASHING (S5-1) signs shall not be used in California.

Support:

The "WHEN FLASHING" message is misleading because it suggests that the speed limit is in force only when the flashing beacons are in operation. The prima facie speed limit of 40 km/h (25 mph) is in effect based on the presence of children per CVC 22353, not on the operation of the flashing beacons.

The non-use of "WHEN FLASHING" message also addresses the situation when children are present but the flashing beacons are inoperative for any reason.

The non-use of "WHEN FLASHING" message does not alter the warrants or the use of a flashing yellow beacon or its effectiveness as an attention-getting device.

The specific time period message is misleading because it suggests that the speed limit is in force only during the time period specified. The prima facie speed limit of 40 km/h (25 mph) is in effect based on the presence of children per CVC 22353, not on the time period specified.

Section 7B.12 Reduced Speed School Zone Ahead Sign (S4-5, S4-5a)

Option:

The following is added at the end of Paragraph 1 ("The Reduced Speed …"):

"…the School Advance Warning Assembly D (CA Code)."

Section 7B.14 Parking and Stopping Signs (R7 and R8 Series)

The following is added to this section:

Support:

Street closures are authorized by local ordinance or resolution on streets crossing or dividing school grounds when necessary for the protection of persons attending the school. Refer to CVC 21102.

Section 7B.101 TRAFFIC FINES DOUBLED Sign (CA Code SR59)

Standard:

When used, the TRAFFIC FINES DOUBLED (CA Code SR59) sign shall be placed below the School Advance Warning (S1-1) sign. It shall only be used in specially posted school zones in Alameda, Santa Barbara and Ventura Counties or in a city in any of these counties as specified in CVC 42011. The SR59 (CA Code) sign shall remain in effect only until January 1, 2007, unless an enacted statue deletes or extends this date.

Figure 7B-101. School Area Signs

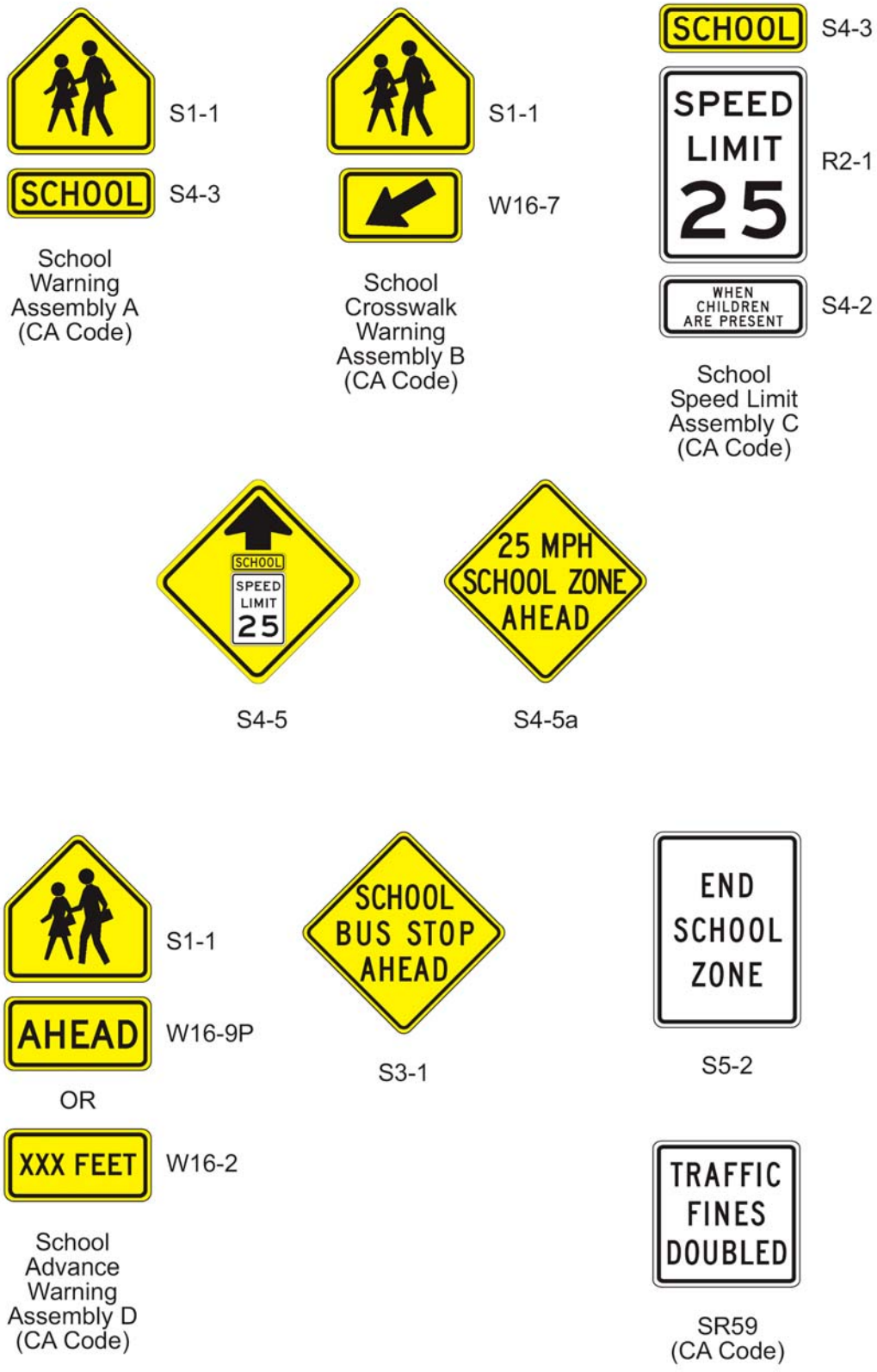


Figure 7B-102. Example of Signing for Traffic Control in School Areas (Sheet 1 of 2)

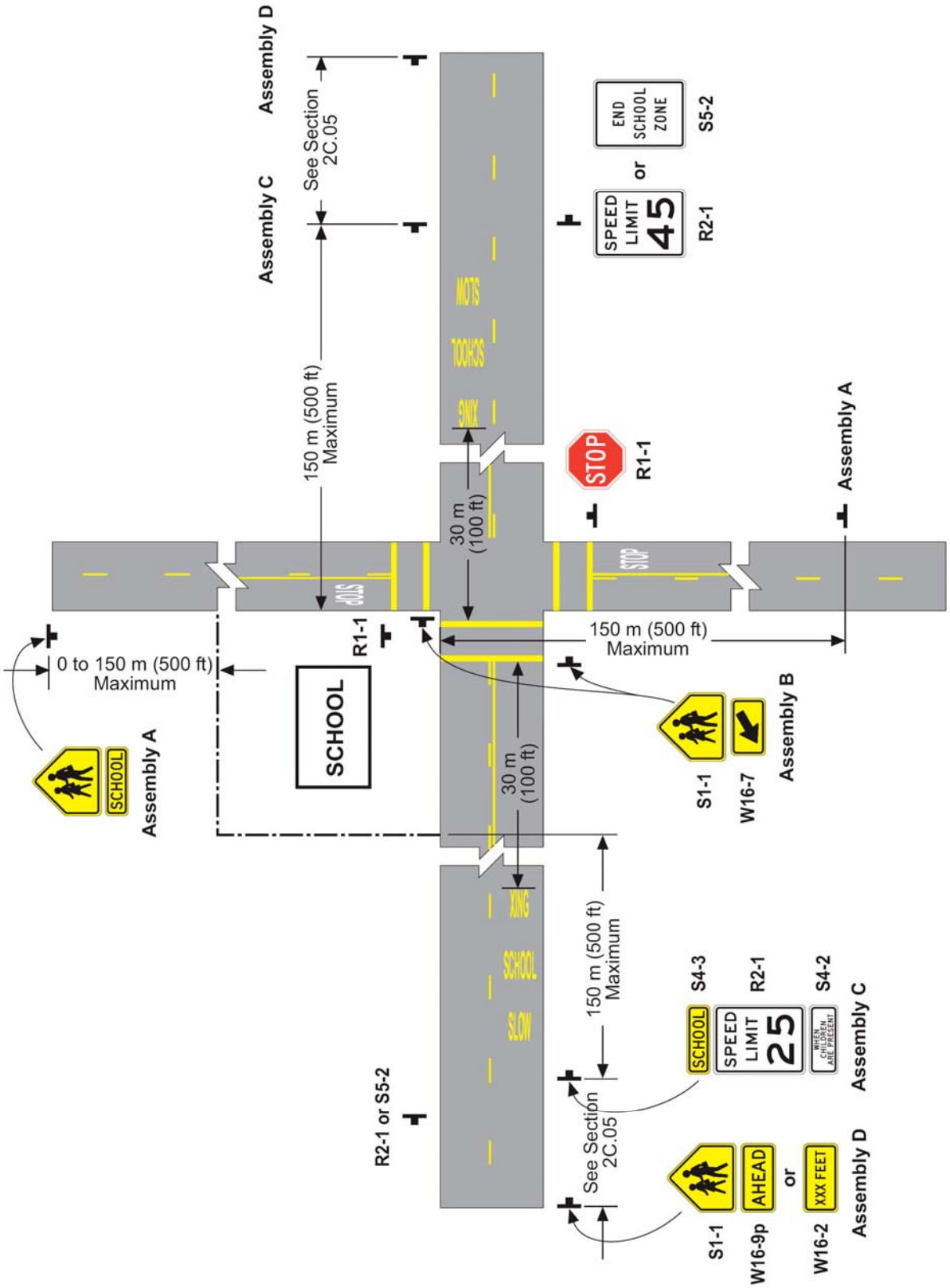


Figure 7B-102. Example of Signing for Traffic Control in School Areas (Sheet 2 of 2)

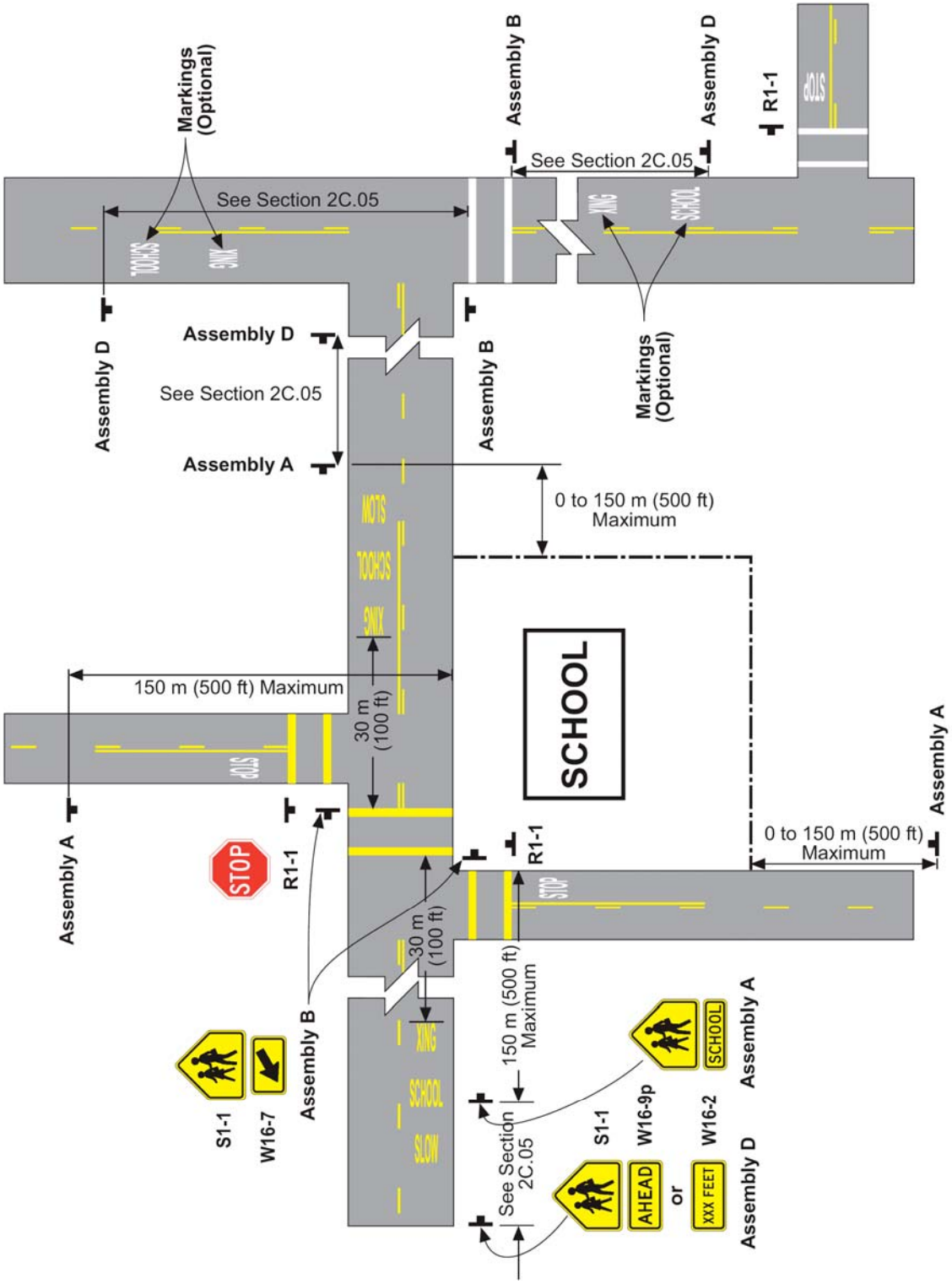


Figure 7B-103. Example of Signing for Traffic Control in School Areas with Flashing Yellow Beacons

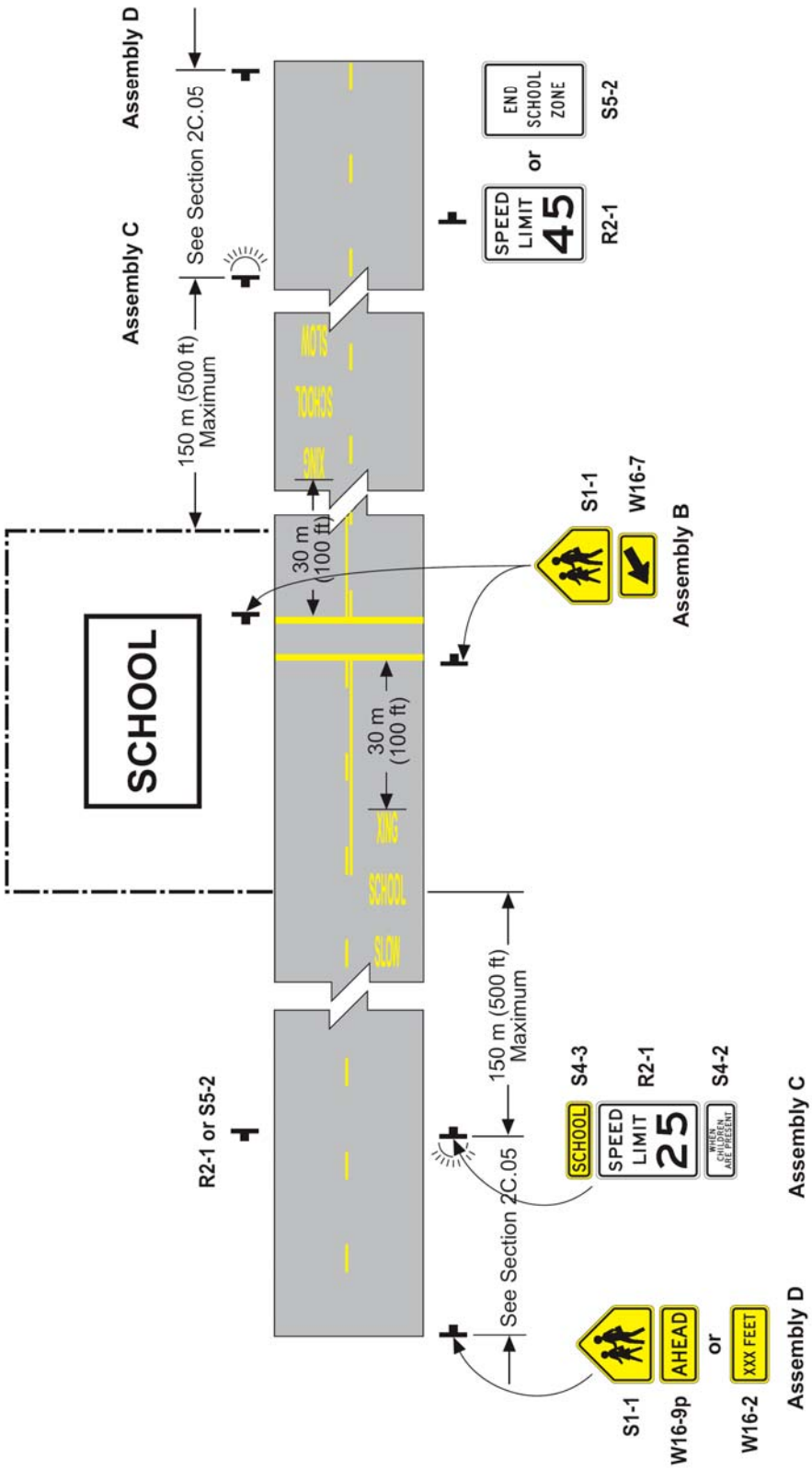
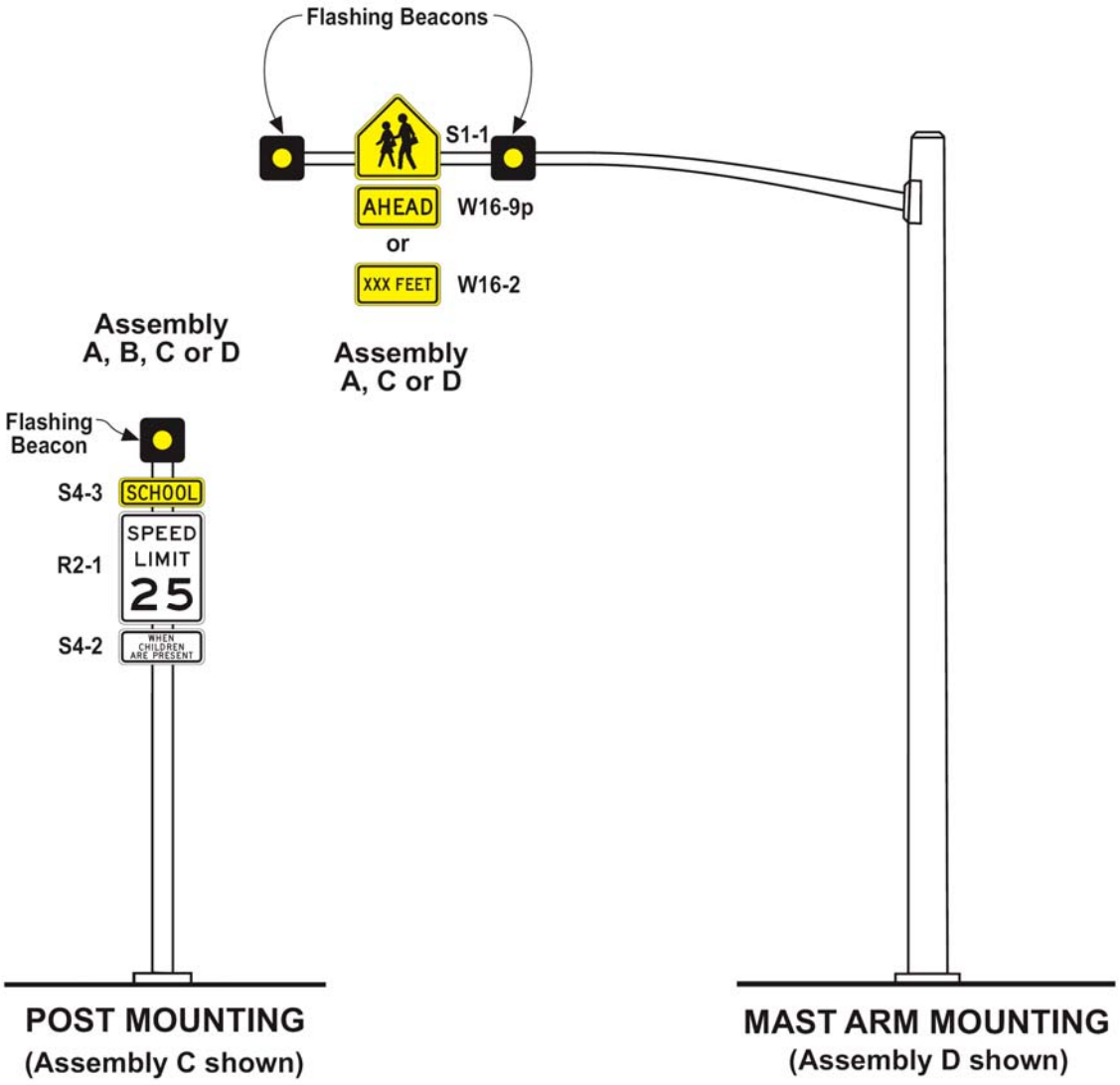


Figure 7B-104. Example of School Area Signs with Flashing Yellow Beacons



CHAPTER 7C. MARKINGS

Section 7C.03 Crosswalk Markings

Standard:

In Paragraph 4 ("When transverse…") first sentence, the phrase "they shall be solid white" is changed to "they shall be solid white or yellow". Refer to CVC 21368.

In Paragraph 4 ("When transverse…") second sentence, the phrase "150 mm (6 in)" is changed to "300 mm (12 in)"

Option:

In Paragraph 9 ("For added visibility…") first sentence, the phrase "with white diagonal lines" is changed to "with white or yellow diagonal lines". Refer to CVC 21368.

The following is added to this section:

Support:

Examples of school area signing, markings, flashing beacons and overhead school signs are shown in Figures 7B-101 through 7B-104 of this Supplement.

Refer to CVC 21368 for crosswalks near schools.

Refer to Section 3B.17 for more details on crosswalk markings.

Standard:

Whenever a marked pedestrian crosswalk has been established in a roadway contiguous to a school building or school grounds, it shall be yellow. If any one of the crosswalks is required to be yellow at an intersection, then all other marked pedestrian crosswalks at that intersection shall also be yellow. Refer to CVC 21368.

Option:

A marked pedestrian crosswalk may be yellow if the nearest point of the crosswalk is not more than 180 m (600 ft) from a school building or school grounds. Refer to CVC 21368.

A marked pedestrian crosswalk may be yellow if the nearest point of the crosswalk is not more than 850 m (2800 ft) from a school building or school grounds and there are no intervening crosswalks other than those contiguous to the school grounds, and it appears that the facts and circumstances require special marking for the protection and safety of persons attending the school. Refer to CVC 21368.

Section 7C.04 Stop and Yield Lines

The following is added to this section:

Support:

As defined in CVC 377, a "limit line" is a solid white line not less than 300 mm (12 in) nor more than 600 mm (24 in) wide, extending across a roadway or any portion thereof to indicate the point at which traffic is required to stop in compliance with legal requirements.

Standard:

For all purposes, limit line(s) shall mean stop line(s) as referenced in the MUTCD.

Support:

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

Refer to Section 3B.16 for more details on stop and yield line markings.

Section 7C.05 Curb Markings for Parking Regulations

The following is added to this section:

Support:

Refer to Section 2B.39 and 3B.21 for Parking Regulations.

Standard:

Paragraph 3 ("Local highway …") in this section is deleted. The color of curb markings shall conform to CVC 21458 as quoted below:

(a) Whenever local authorities enact local parking regulations and indicate them by the use of paint upon curbs, the following colors only shall be used, and the colors indicate as follows:

(1) Red indicates no stopping, standing, or parking, whether the vehicle is attended or unattended, except that a bus may stop in a red zone marked or sign posted as a bus loading zone.

(2) Yellow indicates stopping only for the purpose of loading or unloading passengers or freight for the time as may be specified by local ordinance.

(3) White indicates stopping for either of the following purposes:

(A) Loading or unloading of passengers for the time as may be specified by local ordinance.

(B) Depositing mail in an adjacent mailbox.

(4) Green indicates time limit parking specified by local ordinance.

(5) Blue indicates parking limited exclusively to the vehicles of disabled persons and disabled veterans.

(b) Regulations adopted pursuant to subdivision (a) shall be effective on days and during hours or times as prescribed by local ordinances.

Option:

Curb markings may supplement standard signs.

Section 7C.06 <u>Pavement Word and Symbol Markings</u>

Standard:

In Paragraph 2 ("Word and symbol…") first sentence, the phrase "shall be white" is changed to "shall be white or yellow". Refer to CVC 21368.

Paragraphs 9 ("The SCHOOL word …") and 10 ("If the two-lane …") are deleted. If used, the SCHOOL pavement marking shown in Figure 3B-20 (CA) shall be used and it shall be restricted to a single lane.

Guidance:

In Paragraph 3 ("Letters and numerals…") first sentence, the phrase "1.8 m (6 ft)" is changed to "2.44 m (8 ft)".

The following is added to this section:

Guidance:

On State highways, all letters, numerals, and symbols should be in accordance with the Department of Transportation's Standard Plans publication. See Section 1A.11 for more information regarding this publication.

Standard:

The SLOW SCHOOL XING marking shall be used in accordance with the provisions of CVC 21368 in advance of all yellow school crosswalks (see Figure 7C-101). They shall not be used where the crossing is controlled by stop signs, traffic signals, or yield signs. They shall be yellow, with the word XING at least 30 m (100 ft) in advance of the school crosswalk.

Option:

The SCHOOL XING marking and crosswalks may be used at remote locations outside of the school zone.

Support:

Remote crosswalk locations are locations near schools, which are not included in CVC 21368 criteria. Also refer to Section 7C.03.

Standard:

If the SCHOOL XING marking and crosswalks are used at remote locations outside of the school zone, they shall not be yellow (Refer to CVC 21368), but white.

Guidance:

The SCHOOL XING marking should be used in advance of all white school crosswalks.

Option:

The SCHOOL marking may be used with the School Assemblies A or C (CA Code), except at locations where SLOW SCHOOL XING markings are required.

Standard:

If the SCHOOL marking is used with the School Assemblies A or C (Section 7B.11), it shall be yellow.

Guidance:

If used, the SCHOOL marking should be located adjacent to the School Assemblies A or C (Section 7B.11).

Support:

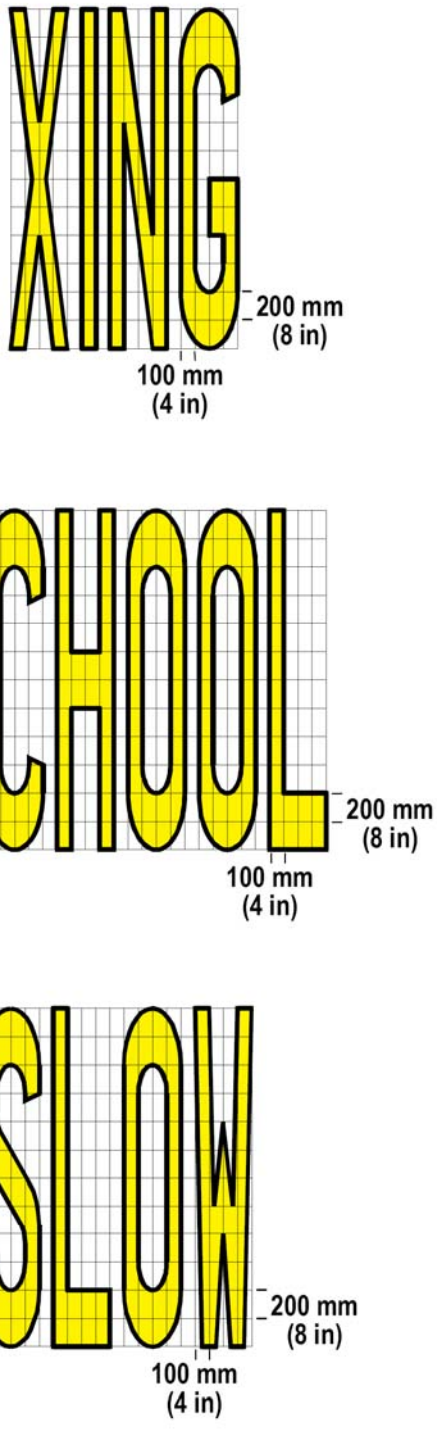
Refer to Section 3B.19 for more details on SCHOOL marking.

Figure 7C-1. Two-Lane Pavement Marking of "SCHOOL"

Standard:

This Figure is deleted. See Section 7C.06 and Figure 3B-20 (CA).

Figure 7C-101. Pavement Word Markings for School Areas



NOT TO SCALE

CHAPTER 7D. SIGNALS

Section 7D.01 General

The following is added to this section:

Support:

Also refer to Part 4 for highway traffic signals and flashing beacons in school areas.

Examples of school area flashing beacons and overhead school signs are shown in Figures 7B-103 and 7B-104.

CHAPTER 7E. CROSSING SUPERVISION

Section 7E.02 Adult Crossing Guards

The following is added to this section:

Option:

Adult Crossing Guards may be assigned at designated school crossings to assist school pedestrians at specified hours when going to or from school. The following suggested policy for their assignment applies only to crossings.

Guidance:

An Adult Crossing Guard should be considered when:

1. Special situations make it necessary to assist elementary school pedestrians in crossing the street.
2. A change in the school crossing location is being made, but prevailing conditions require school crossing supervision until the change is constructed and it is not reasonable to install another form of traffic control or technique for this period.

Criteria for Adult Crossing Guards

Support:

Adult Crossing Guards normally are assigned where official supervision of school pedestrians is desirable while they cross a public highway, and at least 40 school pedestrians for each of any two hours (not necessarily consecutive) daily use the crossing while going to or from school.

Option:

Adult crossing guards may be used under the following conditions:

1. At uncontrolled crossings where there is no alternate controlled crossing within 180 m (600 ft); and
   a. In urban areas where the vehicular traffic volume exceeds 350 during each of any two hours (not necessarily consecutive) in which 40 or more school pedestrians cross daily while going to or from school; or
   b. In rural areas where the vehicular traffic volume exceeds 300 during each of any two hours (not necessarily consecutive) in which 30 or more school pedestrians cross daily while going to or from school.

   Whenever the critical (85th percentile) approach speed exceeds 64 km/h (40 mph), the guidelines for rural areas should be applied.
2. At stop sign-controlled crossing:
   Where the vehicular traffic volumes on undivided highways of four or more lanes exceeds 500 per hour during any period when the school pedestrians are going to or from school.
3. At traffic signal-controlled crossings:
   a. Where the number of vehicular turning movements through the school crosswalk exceeds 300 per hour while school pedestrians are going to or from school; or
   b. Where justified through analysis of the operations of the intersection.

Legal Authority and Program Funding for Adult Crossing Guards

Option:

Cities and counties may designate local law enforcement agencies, the governing board of any school district or a county superintendent of schools to recruit and assign adult crossing guards to intersections that meet approved guidelines for adult supervision.

Support:

There are various methods for funding a school adult crossing guard program. One of these methods is through the use of fines and forfeitures received under the Penal Code. Disposition of these fines and forfeitures is defined in CVC Sections 42200 and 42201.

An example of these dispositions by cities and counties is as follows:

- Disposition by cities (CVC 42200). Fines and forfeitures received by cities and deposited into a "Traffic Safety Fund" may be used to pay the compensation of school crossing guards who are not regular full-time members of the police department of the city.
- Disposition by county (CVC 42201). Fines and forfeitures received by a county and deposited in the road fund of the county may be used to pay the compensation of school crossing guards, and necessary equipment and administrative costs. The board of supervisors may adopt standards for crossing guards and has final authority over the total cost of the crossing guard program.

Section 7E.03 Qualifications of Adult Crossing Guards

The following is added to this section:

Training Programs for Adult Crossing Guards

Guidance:

Adequate training should be provided in adult crossing guard responsibilities and authority. This function can usually be performed effectively by a law enforcement agency responsible for traffic control.

Training programs should be designed to acquaint newly employed crossing guards with their specific duties, local traffic regulations, and crossing techniques. Training workshops may be used as a method of advising experienced employees of recent changes in existing traffic laws and program procedures. For example, crossing guards should be familiar with the California law which provides that any person who disregards any traffic signal or direction given by a non-student school crossing guard authorized by a law enforcement agency, any board of supervisors of a county or school district shall be guilty of an infraction and subject to the penalties of Section 42001 of the CVC (Section 2815).

Section 7E.04 Uniform of Adult Crossing Guards and Student Patrols

The following is added to this section:

Standard:

The use of the School Safety Patrol uniforms and insignia shall adhere to the following regulations (California Code of Regulations 576):

(a) A school safety patrol member (except a member of the R.O.T.C. or California Cadet Corps on traffic duty in his official uniform) shall wear, at all times while on duty, the basic standard uniform specified in this section, except that the rainy day uniform may be worn under appropriate weather conditions. Only the optional additions specified in this section may be added to the uniform.

(b) The basic standard uniform for patrol members is the white or fluorescent orange Sam Browne belt and either an overseas type federal yellow or fluorescent orange cap or a yellow or fluorescent orange helmet.

Optional additions to the basic standard uniform are any or all of the following:

(1) Colored piping on the federal yellow cap.

(2) Colored striping on the yellow helmet.

(3) A red or fluorescent orange upper garment

(4) Insignia or a special badge identifying the organization, to be worn on the left breast, left arm, or cap.

(c) The rainy-day uniform is a federal yellow raincoat and a federal yellow rain hat. The Sam Browne belt may be worn over the raincoat.

(d) The insignia, or special badge and cap shall be worn only during official school safety patrol duty, except that the governing board may authorize members of the school safety patrol to wear the uniform and insignia for special school safety patrol functions.

Section 7E.05 Operating Procedures for Adult Crossing Guards

Standard:

In Paragraph 2 ("Adult crossing guards…") second sentence ("The STOP paddle…"), the word "should" is changed to "shall".

The following is added to this section:

Option:

The 600 x 600 mm (24 x 24 in) size of the STOP paddle may be used where greater emphasis is needed and speeds are 50 km/h (30 mph) or more.

Section 7E.07 Student Patrols

The following is added to this section:

Standard:

For all purposes in this Supplement, "School Safety Patrols" shall mean "Student Patrols" as referenced in the MUTCD.

Legal Authority for School Safety Patrols

Standard:

School Safety Patrols shall be authorized by the local school board. School authorities shall be responsible for organizing, instructing and supervising patrols with the assistance of the local police.

Support:

The California Education Code, Sections 49300 to 49307, and the California Code of Regulations, Sections 570 to 576 and 632, authorize the development of School Safety Patrols and outline rules for implementing these programs within the state.

Section 7E.08 Choice of Student Patrols

Standard:

In Paragraph 1 ("Student patrols…"), second sentence ("They should be…") is deleted and replaced with the following:

They shall be students from the fifth grade or higher and shall be at least 10 years of age. Refer to California Code of Regulations Section 571.

In Paragraph 2 ("Parental approval…"), the word "should" is changed to "shall". Refer to California Education Code Section 49302.

Section 7E.09 Operating Procedures for Student Patrols

The following is added to this section:

Support:

School Safety Patrols control children, not vehicles.

Standard:

School Safety Patrols shall stop children back of the curb or edge of the roadway and allow them to cross only when there is an adequate gap in traffic (see California Code of Regulations Sections 570 to 576 and 632 for School Safety Patrols operating procedures and requirements).

Criteria for Student Patrols

Option:

A student patrol may be established at locations where an existing traffic control device, police officer or adult crossing guard is in operation. They may also be used where there are adequate crossing gaps in vehicular flow at an uncontrolled crossing and it is desirable to use student patrols to guide the school pedestrians.

Support:

To determine the frequency and adequacy of gaps in the traffic stream, refer to Section 7A.03.

CHAPTER 7F. GRADE-SEPARATED CROSSINGS

Support:

No Comments.

This MUTCD Chapter is adopted as is for California.

MUTCD 2003

CALIFORNIA SUPPLEMENT

May 20, 2004

PART 8
TRAFFIC CONTROLS FOR HIGHWAY-RAIL GRADE CROSSINGS

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

PART 8. TRAFFIC CONTROLS FOR HIGHWAY-RAIL GRADE CROSSINGS

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CHAPTER 8A. GENERAL

Section 8A.01 Introduction

Support:

Paragraph 3 ("The highway agency…") is deleted and replaced with the following:

The highway agency or authority with jurisdiction over the roadway and the light rail transit agency or authority jointly conduct an engineering study to determine the need and selection of the traffic control devices at a highway-light rail transit grade crossing. The engineering study is reviewed by the California Public Utilities Commission (CPUC), the state regulatory agency with statutory authority over highway-light rail transit grade crossings. Refer to Public Utilities Code Sections 1201 through 1205 and 7537.

Section 8A.02 Use of Standard Devices, Systems, and Practices

Guidance:

Paragraph 2 ("The appropriate traffic…") is deleted and replaced with the following:

The appropriate traffic control system to be used at a highway-rail grade crossing should be determined by an engineering study presented to the California Public Utilities Commission by the highway agency and/or the railroad company. Refer to CPUC General Order 88, as amended, and Public Utilities Code Section 1202(a).

Standard:

Paragraph 6 ("Before any new…") is deleted and replaced with the following:

Before any new highway-rail grade crossing traffic control system is installed or before modifications are made to an existing system, approval shall be obtained from the California Public Utilities Commission. Refer to CPUC General Order 88, as amended, and Public Utilities Code Sections 1201 through 1205 and 7537.

Section 8A.101 Relation to Other Documents

Support:

The following documents are useful sources of information:

A. "Preemption of Traffic Signals at or near Railroad Grade Crossings with Active Warning Devices – A Recommended Practice", Institute of Transportation Engineers (ITE), Committee TENC-4M-35, 1997.
B. "Traffic Signal Operations Near Highway-Rail Grade Crossings" NCHRP 271, Synthesis 271, Transportation Research Board (TRB), 1996.
C. "Guidance on Traffic Control Devices at Highway-Rail Grade Crossings", USDOT Technical Working Group (TWG) for Highway Rail Grade Crossings, November 2002. Available from USDOT's web site.

The following regulations govern warning devices at highway-rail grade crossings in the State and are available through the California Public Utilities Commission's website:

A. General Order No. 75 (as amended), REGULATIONS GOVERNING THE PROTECTION OF CROSSINGS AT GRADE OF ROADS, HIGHWAYS AND STREETS WITH RAILROADS IN THE STATE OF CALIFORNIA, Public Utilities Commission of the State of California.
B. General Order No. 88 (as amended), RULES FOR ALTERING PUBLIC HIGHWAY-RAIL CROSSINGS, Public Utilities Commission of the State of California.
C. General Order No. 145 (as amended), REGULATIONS GOVERNING RAILROAD GRADE CROSSINGS TO BE CLASSIFIED EXEMPT FROM THE MANDATORY STOP REQUIREMENTS OF SECTION 22452 OF THE VEHICLE CODE, Public Utilities Commission of the State of California.

CHAPTER 8B. SIGNS AND MARKINGS

Section 8B.03 Highway-Rail Grade Crossing (Crossbuck) Sign (R15-1) and Number of Tracks Sign (R15-2)

Standard:

Paragraph 3 ("If automatic gates…") and 4 ("The supplemental…") are deleted and replaced with the following:

If there are two or more tracks at the highway-rail grade crossing, the number of tracks shall be indicated on a supplemental Number of Tracks (R15-2) sign of inverted T shape mounted below the Crossbuck (R15-1) sign in the manner and at the height indicated in Figure 8B-1.

Section 8B.04 Highway-Rail Grade Crossing Advance Warning Signs (W10 Series)

Standard:

In Paragraph 1 ("A Highway-Rail Grade…"), sub-headings B, C and D are deleted in their entirety. Refer to CVC 21362.

Paragraph 2 ("Placement of…") is deleted. Placement of the Highway-Rail Grade Crossing Advance Warning (W10 Series) sign shall be in accordance with Figure 8B-6 (CA).

The following is added to this section:

Standard:

The Highway-Rail Grade Crossing Advance Warning (W10 Series) signs shall be placed by the roadway authority in advance of highway-rail grade crossings on State highways, and roadways under local jurisdiction, in accordance with CVC 21362.

The Number of Tracks (CA Code W48) sign shall be placed below the Highway-Rail Grade Crossing Advance Warning (W10-1) sign at grade crossings with two or more tracks.

Support:

The Number of Tracks (CA Code W48) sign is shown in Figure 8B-101.

Section 8B.05 EXEMPT Highway-Rail Grade Crossing Signs (R15-3, W10-1a)

Standard:

This section is deleted and replaced with the following:

Highway-rail grade crossings shall be established as "exempt" from the stop requirements specified in CVC 22452 only with authorization of the California Public Utilities Commission (CPUC), pursuant to CVC 22452.5 and CPUC General Order 145, as amended.

The EXEMPT (W10-1a) sign (see Figure 8B-5), having a yellow background, shall be placed and maintained by the roadway authority below Highway-Rail Grade Crossing Advance Warning (W10 series) signs on each approach to an exempt crossing that was established after January 1, 1978. This sign shall not be replaced with a W46A (CA Code) or R15-3 sign.

The EXEMPT (CA Code W46A) sign (see Figure 8B-101), having a black background, shall be placed and maintained by the roadway authority below the Highway-Rail Grade Crossing Advance Warning (W10 series) signs on each approach to an exempt crossing that was established prior to January 1, 1978. The W46A sign displays the word EXEMPT above the crossing number assigned by the CPUC to the crossing which the sign governs. This sign shall have dimensions of 375mm (15 in) in width and 225 mm (9 in) in height. This W46A (CA Code) sign shall not be replaced with a W10-1a sign unless authorized by the CPUC.

The EXEMPT (R15-3) sign (see Figure 8B-3), having a white background, shall not be used.

Support:

These EXEMPT signs (R15-3, W10-1a, CA Code W46A) inform drivers of certain vehicles that a stop may not be required at certain designated highway-rail grade crossings, per the CVC 22452.

At crossings where the W10-1a sign is installed, the CVC provides that any vehicle listed in CVC 22452(a), other than any school bus or any school pupil activity bus, is exempted from the highway-rail grade crossing stop requirements.

At crossings where the W46A (CA Code) sign is installed and was approved prior to January 1, 1978, the CVC provides that any vehicle listed in CVC 22452(a) is exempted from the highway-rail grade crossing stop requirements.

Section 8B.07 DO NOT STOP ON TRACKS Sign (R8-8)

Guidance:

In Paragraph 4 ("On divided highways…"), the word "may" is changed to "should".

Section 8B.08 STOP (R1-1) or YIELD (R1-2) Signs at Highway-Rail Grade Crossings

The following is added to this section:

Standard:

STOP signs shall not be installed at any highway-rail grade crossing which is controlled by automatic traffic control devices except as provided in CVC 21355 and in the Options in this section of the MUTCD.

Section 8B.09 TRACKS OUT OF SERVICE Sign (R8-9)

Standard:

Paragraph 2 ("When tracks are…") is deleted and replaced with the following:

The R8-9 sign shall only be installed with authorization of the Public Utilities Commission. Upon placement of the R8-9 sign, traffic control devices and gate arms shall be removed and the signal heads shall be removed, covered, or turned from view to clearly indicate that they are not in operation.

Section 8B.12 Emergency Notification Sign (I-13 or I-13a)

Guidance:

Paragraph 2 ("Location and placement…") first sentence is deleted and replaced with the following:

Location and placement should be decided cooperatively by the railroad company, the Public Utilities Commission and the public or private highway agencies based on specific site conditions.

The following is added to this section:

Standard:

Each railroad shall at each public grade crossing of its track, paint or otherwise maintain on the crossing sign post or other structure an identification number which has been assigned by the Commission. Such number shall be placed so as to be readily legible from the highway. Refer CPUC General Order 75, as amended.

Figure 8B-5. Warning Signs

Standard:

No sign shall have a metric unit or message, except per CVC 21351.3. Hence, the following signs shall not be used in California with metric messages unless specifically allowed per CVC 21351.3.

TRAINS MAY EXCEED 130 km/h (W10-8) Metric version.

Storage Space Plaque (W10-11a) Metric version.

Storage Space Plaque (W10-11b) Metric version.

Section 8B.19 Skewed Crossing Sign (W10-12)

The following is added to this section:

Guidance:

The Skewed Crossing (W10-12) sign should be used on State highways at skewed highway-rail grade crossings, that are skewed 30 degrees or less from the roadway centerline, to warn road users that the railroad tracks are not perpendicular to the highway.

Option:

The Skewed Crossing (W10-12) sign may be used on local streets at skewed highway-rail grade crossings, that are skewed 30 degrees or less from the roadway centerline, to warn road users that the railroad tracks are not perpendicular to the street.

Guidance:

If used, the symbol on the Skewed Crossing sign should show the direction and approximate angle of the crossing.

The W10-12 sign should be erected approximately midway between the crossing and the Highway-Rail Grade Crossing Advance Warning (W10-1) sign.

Section 8B.20 Pavement Markings

Standard:

The MUTCD Figures 8B-6 and 8B-7 are deleted and replaced with Figures 8B-6 (CA) and 8B-7 (CA), respectively.

Paragraph 3 ("Identical markings…") and 4 ("Pavement markings shall…") are deleted and replaced with the following:

Identical (RXR) markings shall be placed in each approach lane on all paved approaches to highway-rail grade crossings.

Guidance:

Paragraph 5 ("When pavement markings…") is deleted. Figures 8B-6 (CA) and 8B-7 (CA) should be used instead.

The following is added to this section:

Option:

Pavement markings and no-passing zone markings may be omitted at exempt highway-rail grade crossings as provided in CVC 22452 and 22452.5.

Pavement (RXR) markings may be omitted where the distance between a cross street and the track is less than 15 m (50ft).

Section 8B.21 Stop Lines

The following is added to this section:

Guidance:

Double stop lines should be used as shown in Figures 8B-6 (CA) and 8B-7 (CA).

Section 8B.101 Train Station Signs (I-7 and CA Code G95F, G95G, G97A)

Option:

The Train Station (I-7) sign may be used to direct motorists to a train station facility.

The Train Station NEXT RIGHT (CA Code G95F) or Specific Train Station NEXT RIGHT (CA Code G95G) sign may be used on freeways and conventional highways to direct motorists to a transit authority facility. The G95G (CA Code) may be used in place of the G95F (CA Code) sign only when it is determined that the name of the station is needed to avoid confusion.

Standard:

The AMTRAK (CA Code G97A) plaque shall be used for all new installations to identify Amtrak facilities.

Figure 8B-101. California Signs for Highway-Rail Grade Crossings

W46A

W48

G95F

G95G

G97A

Note: All sign codes are California (CA) Codes.

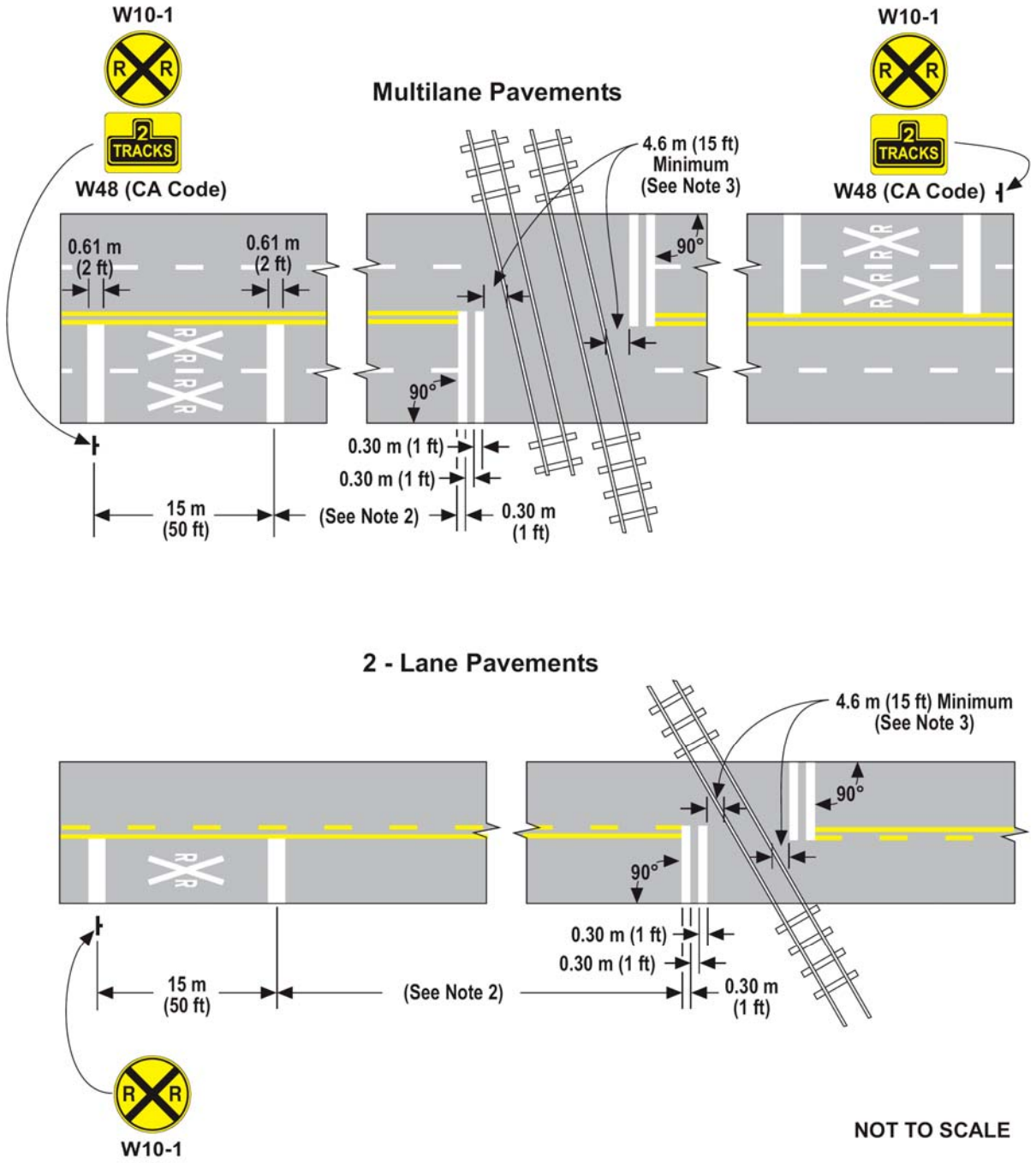
Option:

Alternatively, CALTRAIN, BART or other names of the transit system may be used, as appropriate.

Support:

The G95F, G95G and G97A (CA Codes) signs are shown in Figure 8B-101.

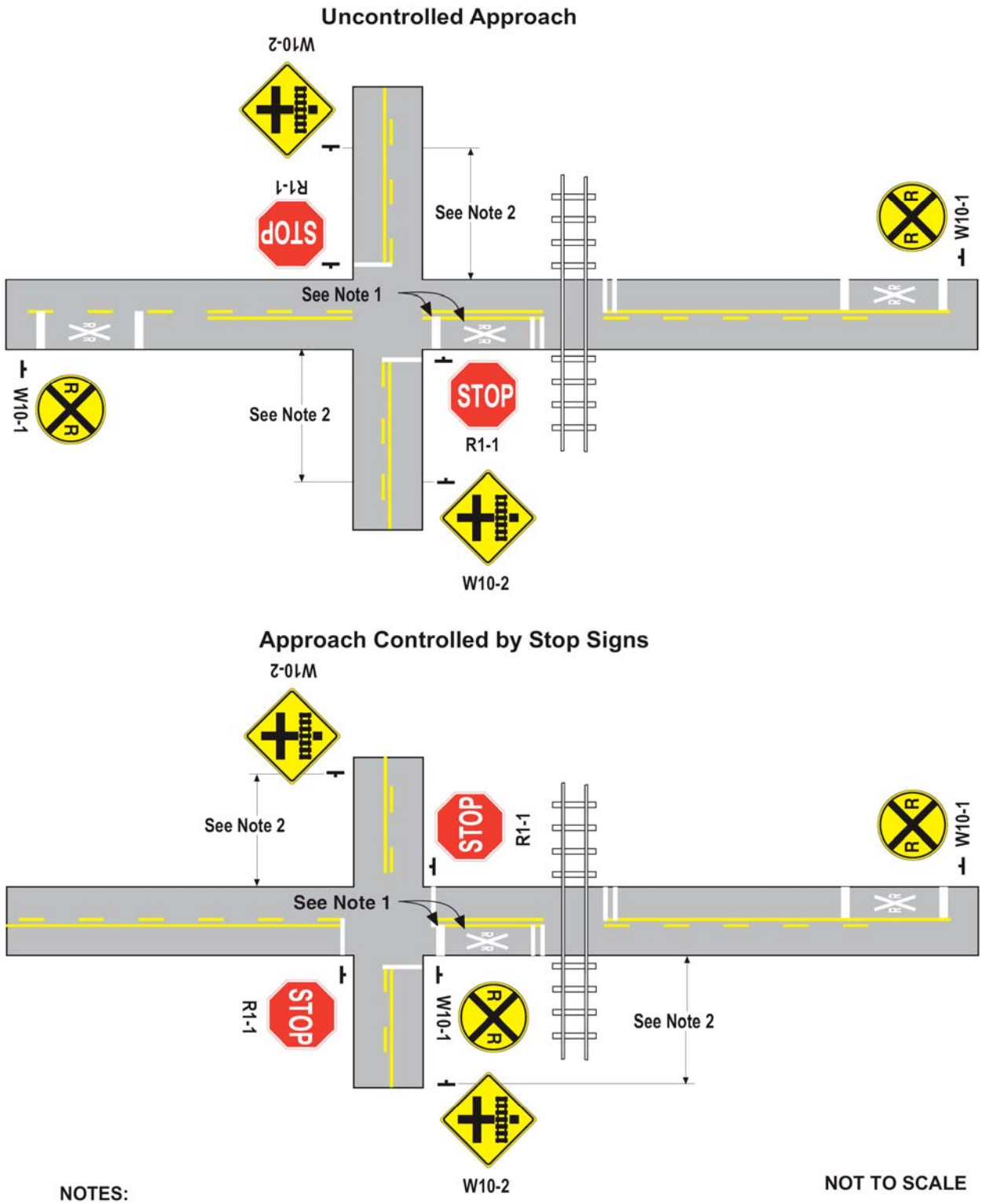
Figure 8B-6 (CA). Example of Placement of Warning Signs and Pavement Markings at Highway-Rail Grade Crossings (Sheet 1 of 4)



NOTES:

1. The centerline stripe may be extended across the tracks at unusually long crossings, due to extreme crossing angles and/or multiple tracks, where the motorist may need additional delineation.
2. Use Table 2C-4 Condition B in Chapter 2C. Minimum 15 m (50 ft).
3. Increase distance if necessary when crossing gates are used.

Figure 8B-6 (CA). Example of Placement of Warning Signs and Pavement Markings at Highway-Rail Grade Crossings (Sheet 2 of 4)

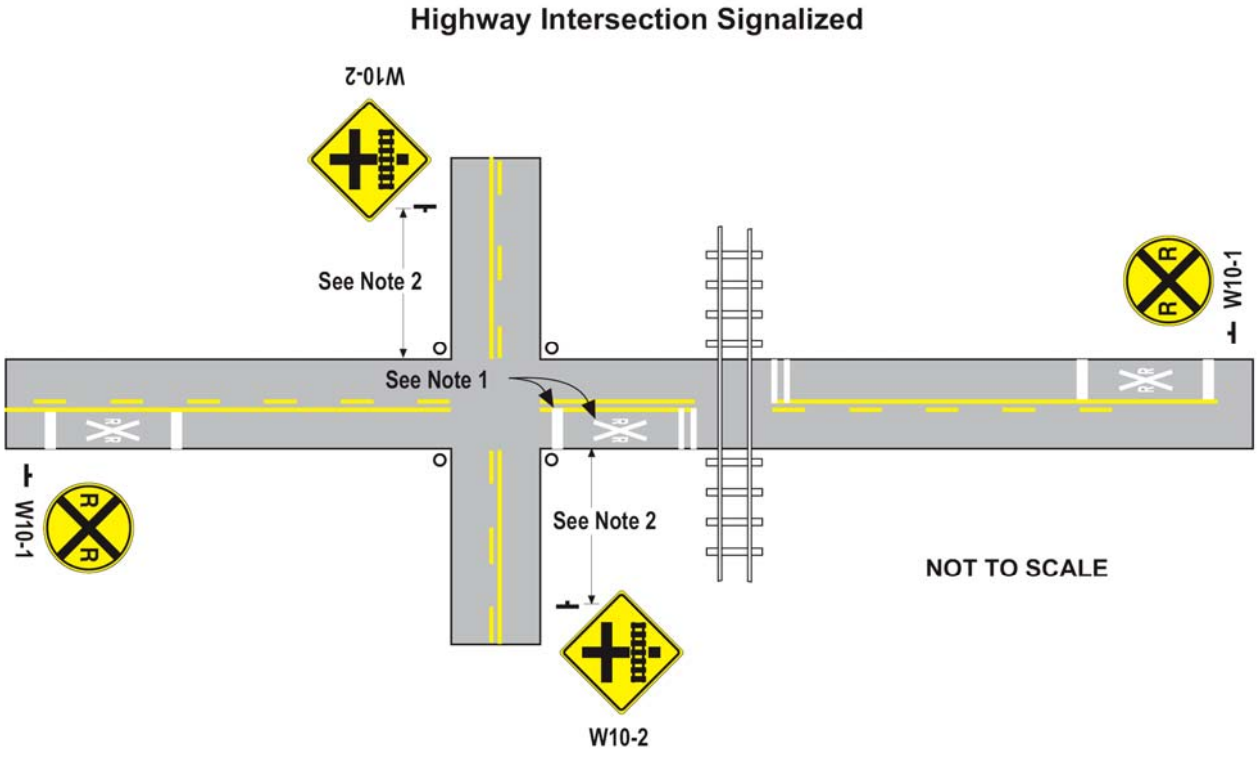


NOT TO SCALE

NOTES:

1. Not required if the distance between the cross street and railroad is less than 15 m (50 ft).
2. Sign placement shall be in accordance with Table 2C-4 in Chapter 2C (using the speed of the turning maneuver), and shall be measured from the highway intersection.

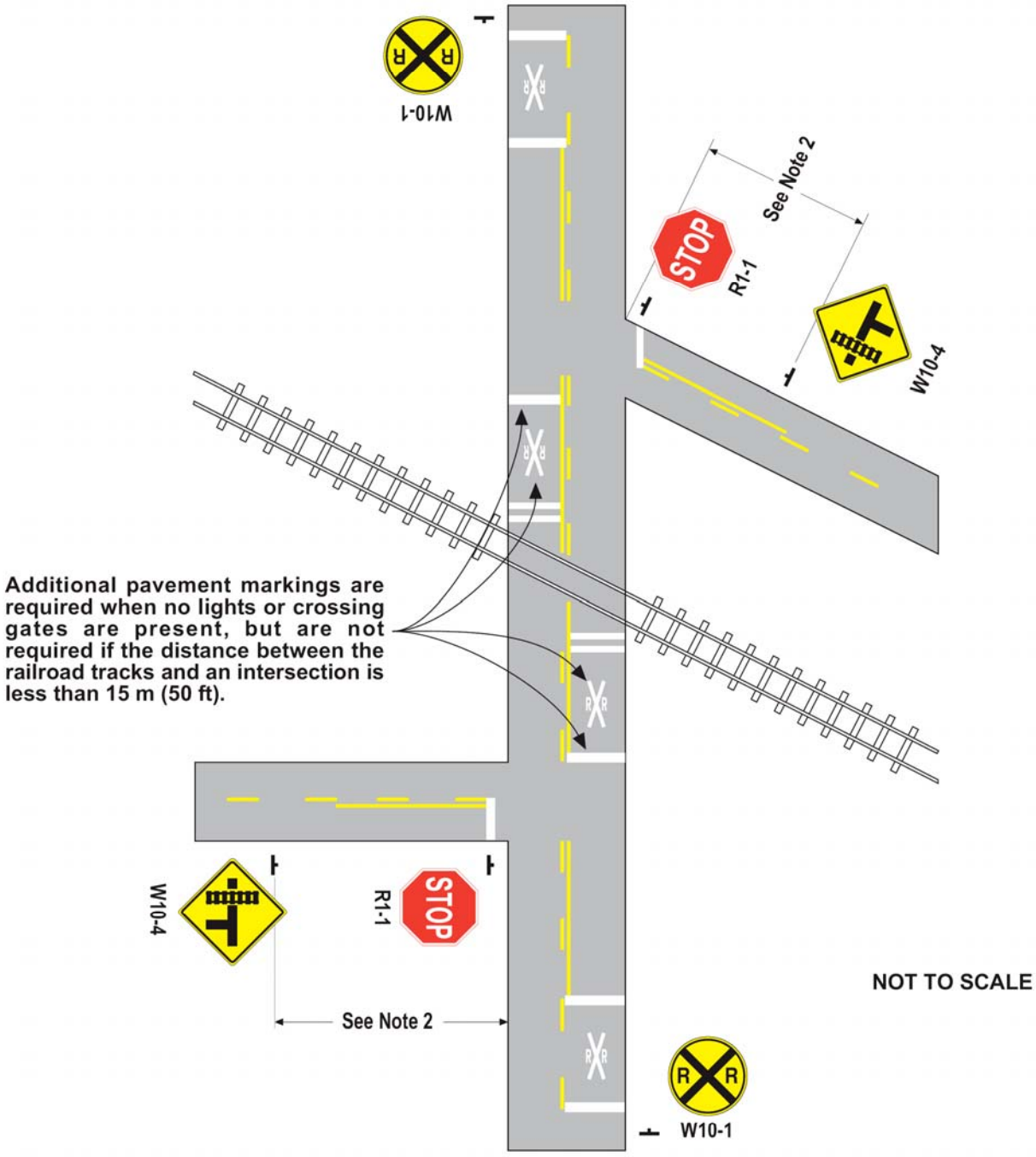
Figure 8B-6 (CA). Example of Placement of Warning Signs and Pavement Markings at Highway-Rail Grade Crossings (Sheet 3 of 4)



NOTES:

1. Not required if the distance between the cross street and railroad is less than 15 m (50 ft).
2. Sign placement shall be in accordance with Table 2C-4 in Chapter 2C (using the speed of the turning maneuver), and shall be measured from the highway intersection.

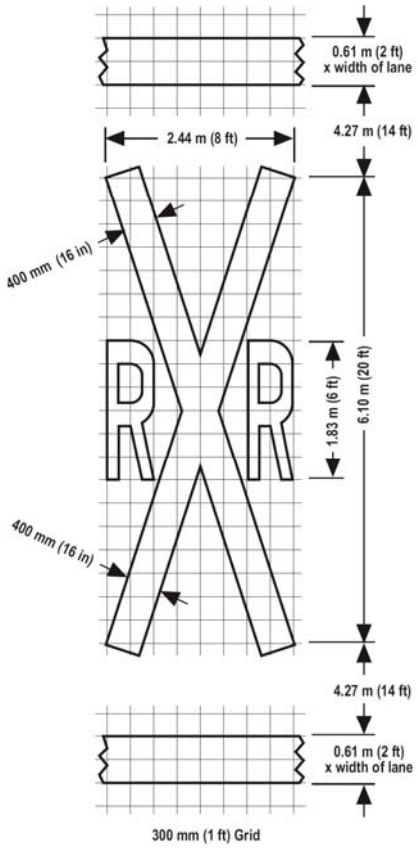
Figure 8B-6 (CA). Example of Placement of Warning Signs and Pavement Markings at Highway-Rail Grade Crossings (Sheet 4 of 4)



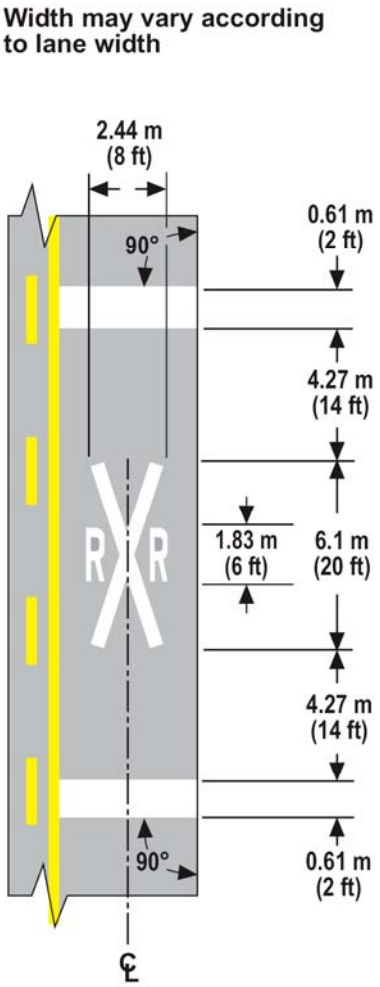
NOTES:

1. The centerline stripe may be extended across the tracks at unusually long crossings, due to extreme crossing angles and/or multiple tracks where the motorist may need additional delineation.
2. Sign placement shall be in accordance with Table 2C-4 in Chapter 2C (using the speed of the turning maneuver), and shall be measured from the highway intersection.

Figure 8B-7 (CA). Examples of Highway-Rail Grade Crossing Pavement Markings



RAILROAD CROSSING SYMBOL



NOT TO SCALE

NOTE: The design detail is also shown in the Standard Plans published by Caltrans.

CHAPTER 8C. ILLUMINATION

Support:

No Comments.

This MUTCD Chapter is adopted as is for California.

CHAPTER 8D. FLASHING-LIGHT SIGNALS, GATES, AND TRAFFIC CONTROL SIGNALS

Section 8D.02 Flashing-Light Signals, Post-Mounted

Standard:

Paragraph 2 ("Bells or other…") is deleted and replaced with the following:

Bells or other audible warning devices shall be included in the assembly and shall be operated in conjunction with the flashing light signals, pursuant to CPUC General Order 75, as amended.

Section 8D.05 Four-Quadrant Gate Systems

Standard:

Paragraph 7 ("Except as noted…") is deleted and replaced with the following:

The exit gate arm mechanism shall be designed to fail-safe in the up position. Refer to CPUC General Order 75, as amended.

Option:

Paragraph 19 ("Exit gate arms may fail…") is deleted.

Section 8D.07 Traffic Control Signals at or Near Highway-Rail Grade Crossings

Standard:

In Paragraph 1 ("Traffic control signals…"), the term "very slow" shall be defined as "where train speed does not exceed 16 km/h (10 mph)".

Support:

Refer to Section 4D.115 for railroad preemption.

MUTCD 2003
CALIFORNIA SUPPLEMENT

May 20, 2004

PART 9
TRAFFIC CONTROLS FOR BICYCLE FACILITIES

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

PART 9. TRAFFIC CONTROLS FOR BICYCLE FACILITIES

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CHAPTER 9A. GENERAL

Section 9A.03 Definitions Relating to Bicycles

The following is added to this section:

Standard:

The following words and phrases, when used in Part 9 of this Supplement, shall have the following meanings:

1. **Bikeway – All facilities that provide primarily for bicycle travel. Refer California Streets and Highways Code Section 890.4.**
2. **Bike Lane – See Class II Bikeway.**
3. **Bike Path – See Class I Bikeway.**
4. **Bike Route – See Class III Bikeway.**
5. **Class I Bikeway (Bike Path) – Provides a completely separated right of way for the exclusive use of bicycles and pedestrians with crossflow minimized. Refer California Streets and Highways Code Section 890.4.**
6. **Class II Bikeway (Bike Lane) – Provides a striped lane for one-way bike travel on a street or highway. Refer California Streets and Highways Code Section 890.4.**
7. **Class III Bikeway (Bike Route) – Provides for shared use with pedestrian or motor vehicle traffic. Refer California Streets and Highways Code Section 890.4.**
8. **Nonmotorized Traffic – Bicycle and pedestrian component of traffic.**
9. **Shared Roadway (No Bikeway Designation) – A roadway that permits bicycle use but is not officially designated as a bikeway.**

Section 9A.05 Relation to Other Documents

The following is added to this section:

Support:

The following is added to the list of informational documents in this section:

D. "Highway Design Manual", 2001 Edition (Department of Transportation)

Section 9A.06 Placement Authority

The following is added to this section:

Support:

The following references from the California Streets and Highways Code relate to bicycles:

1. Section 887 – Definition of nonmotorized transportation facility.
2. Section 887.6 – Agreements with local agencies to construct and maintain nonmotorized transportation facilities.
3. Section 888 – Severance of existing major nonmotorized route by freeway construction.
4. Section 888.2 – Incorporation of nonmotorized transportation facilities in the design of freeways.
5. Section 890.2 – Definition of bicycle.
6. Section 890.4 – Definitions of Class I, II, and III bikeways.
7. Section 890.6 – The Department of Transportation, 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.
8. Section 890.8 - The Department of Transportation to establish uniform specifications and symbols for signs, markers, and traffic control devices for bikeways and roadways where bicycle travel is permitted.
9. Section 891 – Local agencies must comply with design criteria and uniform specifications and symbols for signs, markers, and traffic control devices established by the Department of Transportation.

10. Section 891.2 – Local agencies bicycle transportation plan.
11. Section 892 – Use of abandoned right of way as a nonmotorized transportation facility.

The following references from the California Vehicle Code relate to bicycles:

1. Section 231 – Definition of bicycle.
2. Section 21100 – Local rules and regulations of bicycles on public sidewalks.
3. Section 21113 – Use of bicycles on public grounds.
4. Section 21200 – Laws applicable to bicycle use and peace officer exemption.
5. Section 21202 – Operation on roadway.
6. Section 21206 – Local Regulation.
7. Section 21207 – Bicycle lanes.
8. Section 21207.5 – Prohibited operation of motorized bicycles.
9. Section 21208 – Permitted movements from bicycle lanes.
10. Section 21209 – Motor vehicles and motorized bicycles in bicycle lanes.
11. Section 21210 – Bicycle parking.
12. Section 21211 – Obstruction of bikeways or bicycle paths or trails.
13. Section 21212 – Youth bicycle helmets.
14. Section 21229 – Operation of motorized scooters in bicycle lanes.
15. Section 21230 – Operation of motorized scooters on bicycle paths, trails or bikeways.
16. Section 21456.2 – Bicycles and traffic signals.
17. Section 21456.3 – Bicycle signals.
18. Section 21650.1 – Bicycle operated on roadway or highway shoulder.
19. Section 21717 – Turning across bicycle lane.
20. Section 21750 – Overtake and pass to left.
21. Section 21960 – Use of freeway shoulder by bicyclists.
22. Section 21966 – Pedestrians in bicycle lanes.

Section 9A.101 <u>Traffic Controls for Bicycle Facilities at Rail Crossings</u>

Standard:

Any bicycle facility traversing an at-grade railroad crossing shall conform to Parts 8 and 10.

CHAPTER 9B. SIGNS

Section 9B.01 Application and Placement of Signs

The following is added to this section:

Support:

California signs for bicycle facilities are shown in Figure 9B-101 of this Supplement.

Section 9B.04 Bicycle Lane Signs (R3-17, R3-17a, R3-17b)

The following is added to this section:

Standard:

This section is deleted and replaced with the following:

The Bike Lane (CA Code R81) sign shall be placed at the beginning of each designated Bike Lane and along each Bike Lane at every arterial street, at all major changes in direction, and at maximum 800 m (1/2 mile) intervals. The R81 (CA Code) sign shall be used to regulate bicycle and motor vehicle traffic, in accordance with CVC Sections 21207, 21207.5, 21208, 21209 and 21717.

Option:

The BEGIN and END (CA Codes R81A and R81B) signs may be used below the R81 (CA Code) sign to mark the beginning or end of a bike lane.

Figure 9B-2 Regulatory Signs for Bicycle Facilities

Standard:

The following signs shall not be used in California and are deleted and replaced as follows:

- **NO MOTOR VEHICLES (R5-3). Use R44A (CA Code) sign, instead. Refer Section 9B.07 of this Supplement.**
- **Bicycle Regulatory Sign R9-5. Use R62C (CA Code) sign, instead. Refer Section 9B.10 of this Supplement.**

Section 9B.07 NO MOTOR VEHICLES Sign (R5-3)

Standard:

This section is deleted and replaced with the following:

Option:

The Bike Path Exclusion (CA Code R44A) 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:

The R44A (CA Code) sign is shown in Figure 9B-101.

Section 9B.08 No Bicycles Sign (R5-6)

Option:

In Paragraph 1 (“Where bicyclists…”), the word “should” is changed to “may”.

Section 9B.10 Bicycle Regulatory Signs (R9-5, R9-6, R10-3)

Standard:

The R9-5 sign is deleted in this section. The Bike/Push Button for Green Light (CA Code R62C) sign shall be used instead.

Figure 9B-101. California Signs for Bicycle Facilities

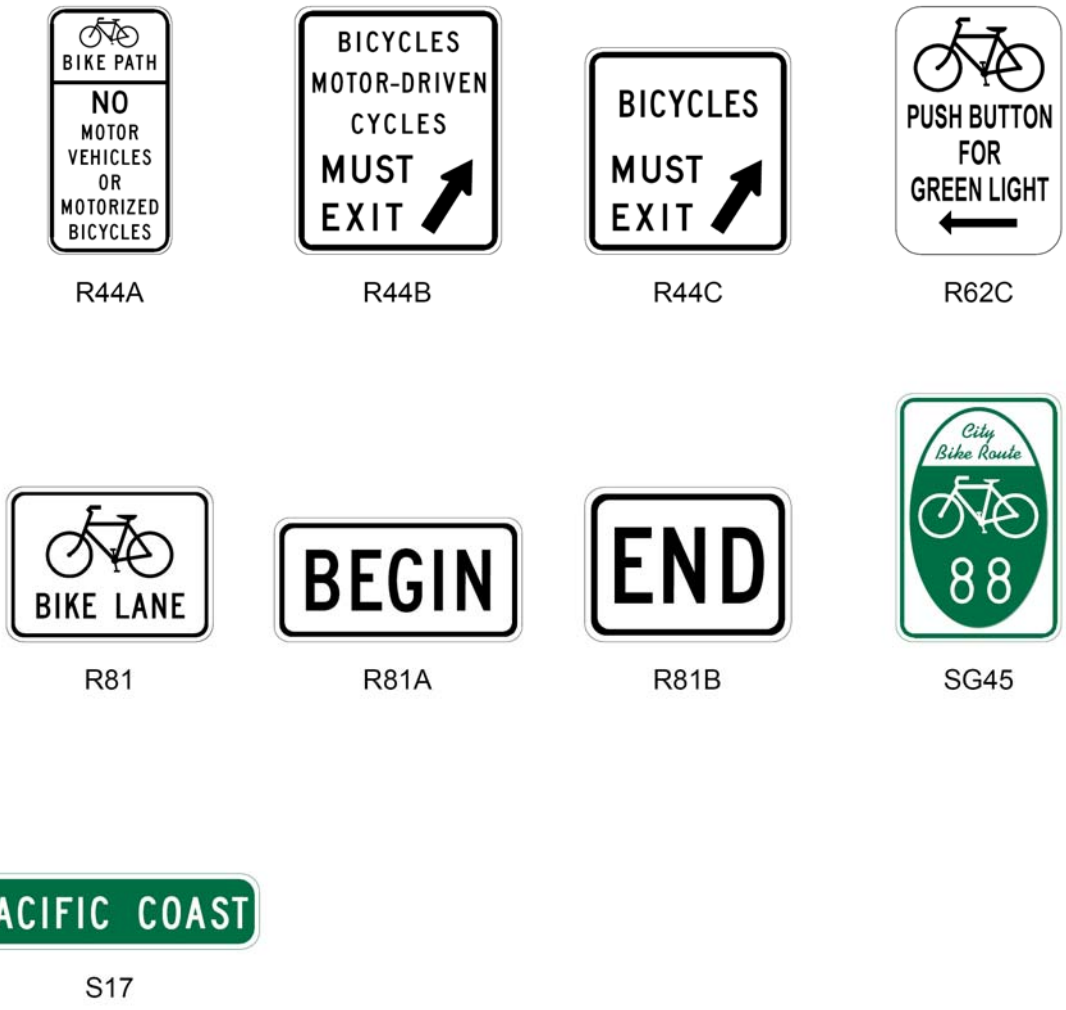


Figure 9B-3 <u>Warning Signs for Bicycle Facilities</u>
Standard:

No sign shall have a metric unit or message, except per CVC 21351.3. Hence, the Low Clearance (W12-2) sign shall not be used in California with a metric message unless specifically allowed per CVC 21351.3.

Section 9B.18 <u>Other Bicycle Warning Signs</u>
The following is added to this section:
Support:
Refer Section 8B.19 for Skewed Crossing Sign (W10-12).

Section 9B.20 Bicycle Route Signs (M1-8, M1-9)

The following is added to this section:

Option:

The Bicycle Route Number Marker (CA Code SG45) sign may be used on public highways/bikeways where a numerical designation for bike routes is desired. The local agency that requests the SG45 (CA Code) sign on State highways is responsible for furnishing, installing and maintaining the signs.

Guidance:

For numbered bike routes initiated by the State, the Bike Route (D11-1) sign should be used on State highways. The District Traffic Engineer is responsible for approving the use of SG45 (CA Code) signs on State highways.

Option:

The Bicycle Route Name Marker (CA Code S17) sign may be installed above the Bike Route (D11-1) sign for those bicycle routes where a community or the responsible agency has given a designated name to selected routes.

Section 9B.101 Freeway Bicycle Signs

Support:

Refer Section 2B.36 and CVC 21960 for restrictions on use of freeways.

Refer Section 2B.36 for PEDESTRIANS BICYCLES MOTOR-DRIVEN CYCLES PROHIBITED (R5-10a) sign.

Standard:

The BICYCLES MOTOR-DRIVEN CYCLES MUST EXIT (CA Code R44B) sign shall be used on freeways in advance of an exit ramp where bicycles and motor-driven cycles must exit.

Guidance:

The PEDESTRIANS BICYCLES MOTOR-DRIVEN CYCLES PROHIBITED (R5-10a) sign should be placed beyond the exit ramp gore as a follow-up message to the R44B (CA Code) sign.

Standard:

The BICYCLES MUST EXIT (CA Code R44C) sign shall be used on freeways where bicycles are required to exit.

Support:

The R44B and R44C (CA Codes) signs are shown in Figure 9B-101.

CHAPTER 9C. MARKINGS

Section 9C.02 General Principles

The following is added to this section:

Standard:

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

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

The following is added to this section:

Support:

Class III Bikeways (Bike Route) are shared routes and do not require pavement markings. In some instances, a 100 mm (4 in) 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.

Section 9C.04 Markings for Bicycle Lanes

Guidance:

In Paragraph 8 ("When the right …"), the phrase "at least 100 feet" is changed to "30 to 60 m (100 to 200 ft)".

The following is added to this section:

Option:

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

Bicycle Lane Markings on Class II Bikeways (Bike Lane)

Guidance:

Bicycle lane markings on Class II Bikeways (Bike Lane) should be placed a constant distance from the outside motor vehicle lane. Bike lanes with parking permitted (3.3 m (11 ft) to 3.9 m (13 ft) between the bike lane line and the curb) should not be directed toward the curb at intersections or localized areas where parking is prohibited. Such a practice prevents bicyclists from following a straight course. Where transitions from one type of bike lane to another are necessary, smooth tapers should be provided.

Support:

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

Guidance:

Where motor vehicle right turns are not permitted, the solid bike lane stripe should extend to the edge of the intersection, and begin again on the far side. Where right turns are permitted, the solid stripe should terminate 30 m (100 ft) to 60 m (200 ft) prior to the intersection.

Option:

A dashed line, as shown in Figure 9C-102, may be carried to, or near, the intersection. Where city blocks are short (less than 120 m (400 ft)), the length of dashed stripe may be 30 m (100 ft).

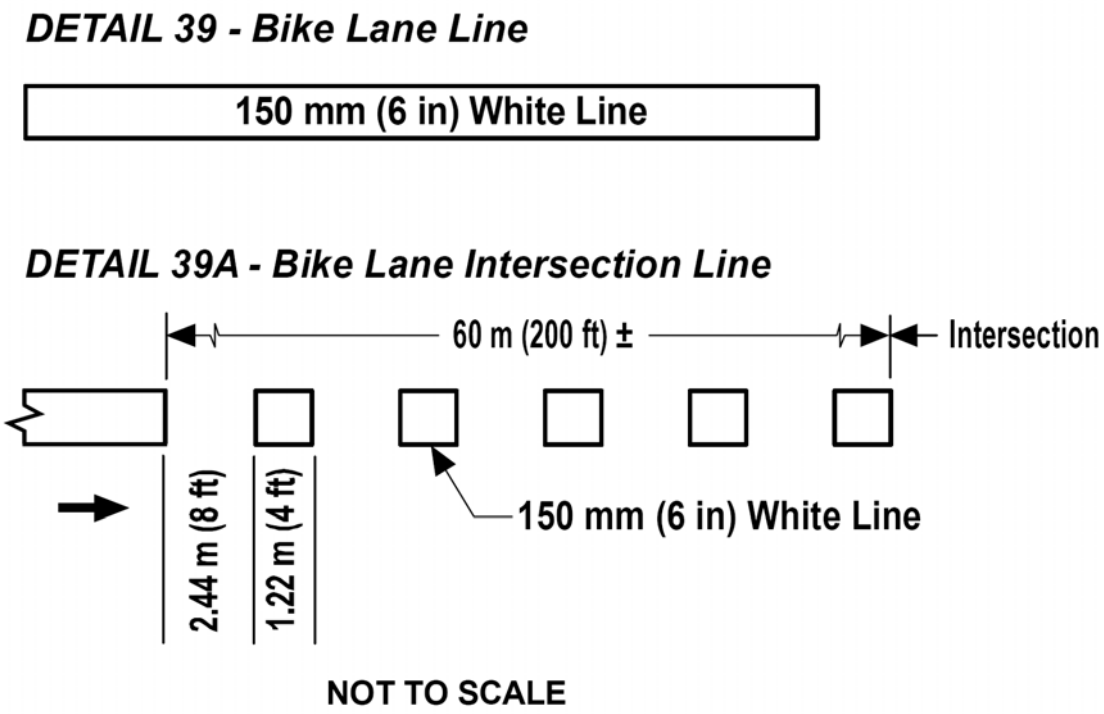
Guidance:

Where blocks are longer or vehicle speeds are high (greater than 60 km/h (35 mph)), the length of dashed stripe should be increased to 60 m (200 ft).

Standard:

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).

Figure 9C-101. Markings for Bicycle Lanes



Support:

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

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.

Bicycle Lane Treatment at Right Turn Only Lanes

Guidance:

Markings shown in Figure 9C-103 of this Supplement should be used for bike lanes crossing a motorist right-turn-only lane.

Support:

When confronted with such intersections, bicyclists will have to merge with right-turning motorists. Since bicyclists are typically traveling at speeds less than motorists, they need to signal and merge where there is sufficient gap in right-turning traffic, rather than at any predetermined location.

Guidance:

For this reason, all delineation should be dropped at the approach of the right-turn lane. A pair of parallel lines (delineating a bike lane crossing) to channel the bike merge should not be used, as bicyclists

will be encouraged to cross at a predetermined location, rather than when there is a safe gap in right-turning traffic.

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:

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

When a bike lane approaches a ramp intersection that intersects the local facility at or close to 90°(typical of a compact or spread diamond configuration), then Figure 9C-103 may be the appropriate method of getting bike lanes through the interchange.

Guidance:

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-104 should be used.

Bicycle Lane Treatment through Interchanges

Support:

Markings for a bike lane through a typical interchange are shown in Figure 9C-104 of this Supplement.

Guidance:

The 150 mm (6 in) bike lane stripe should be dropped 30 m (100 ft) prior to the ramp intersection as shown in Figure 9C-104 to allow for adequate weaving distance.

Option:

Figure 9C-104 may also be used where the preferred designation is a Class III Bikeway (Bike Route), with the Bike Lane (CA Code R81) signs being replaced with Bike Route (D11-1) signs and the bike lane delineation eliminated. A 100 mm (4 in) stripe may be used to delineate the shoulder through out the bike route designation.

Standard:

Signing and striping as shown in Figure 9C-104 shall be repeated at additional onramps within the interchange.

Guidance:

Where the onramps intersect at the local road at or near 90º, the striping should be per Figure 9C-103.

Standard:

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 1.2 m (4 ft), or 1.5 m (5 ft) 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:

Markings for a bike lane where vehicle parking is prohibited or permitted are shown in Figure 9C-102 of this Supplement.

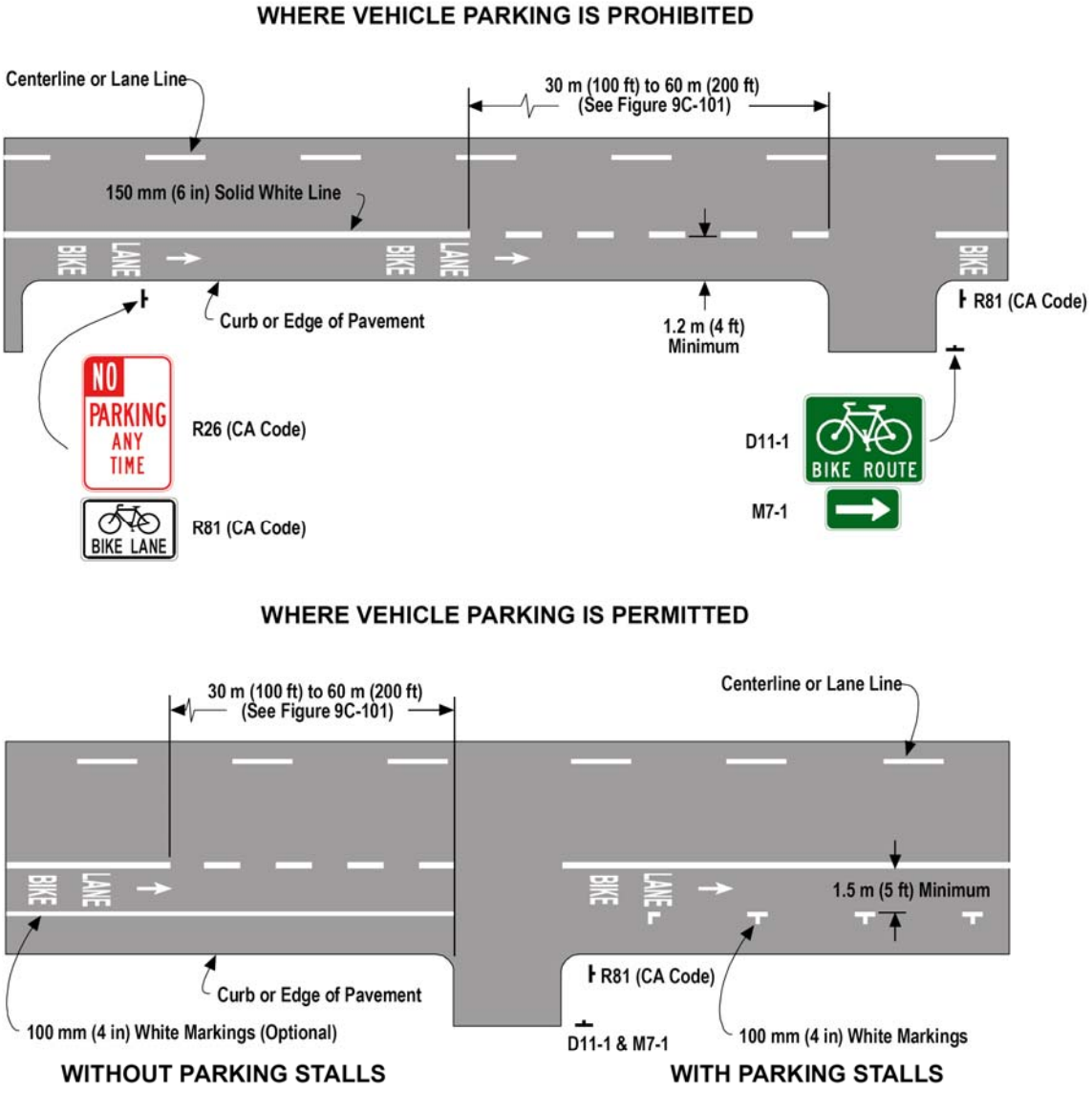
Standard:

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) beginning at a point between 30 m (100 ft) and 60 m (200 ft) in advance of the intersection.

Option:

In areas where parking stalls are not necessary (because parking is light), a 100 mm (4 in) 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.

Figure 9C-102. Examples of Bicycle Lane Treatment Where Vehicle Parking is Prohibited/Permitted



NOTE: For rolled curb and curb and gutter applications, refer to the Department of Transportation's Highway Design Manual, Figure 1003.2A.

Figure 9C-103. Examples of Bicycle Lane Treatment at Right Turn Only Lanes

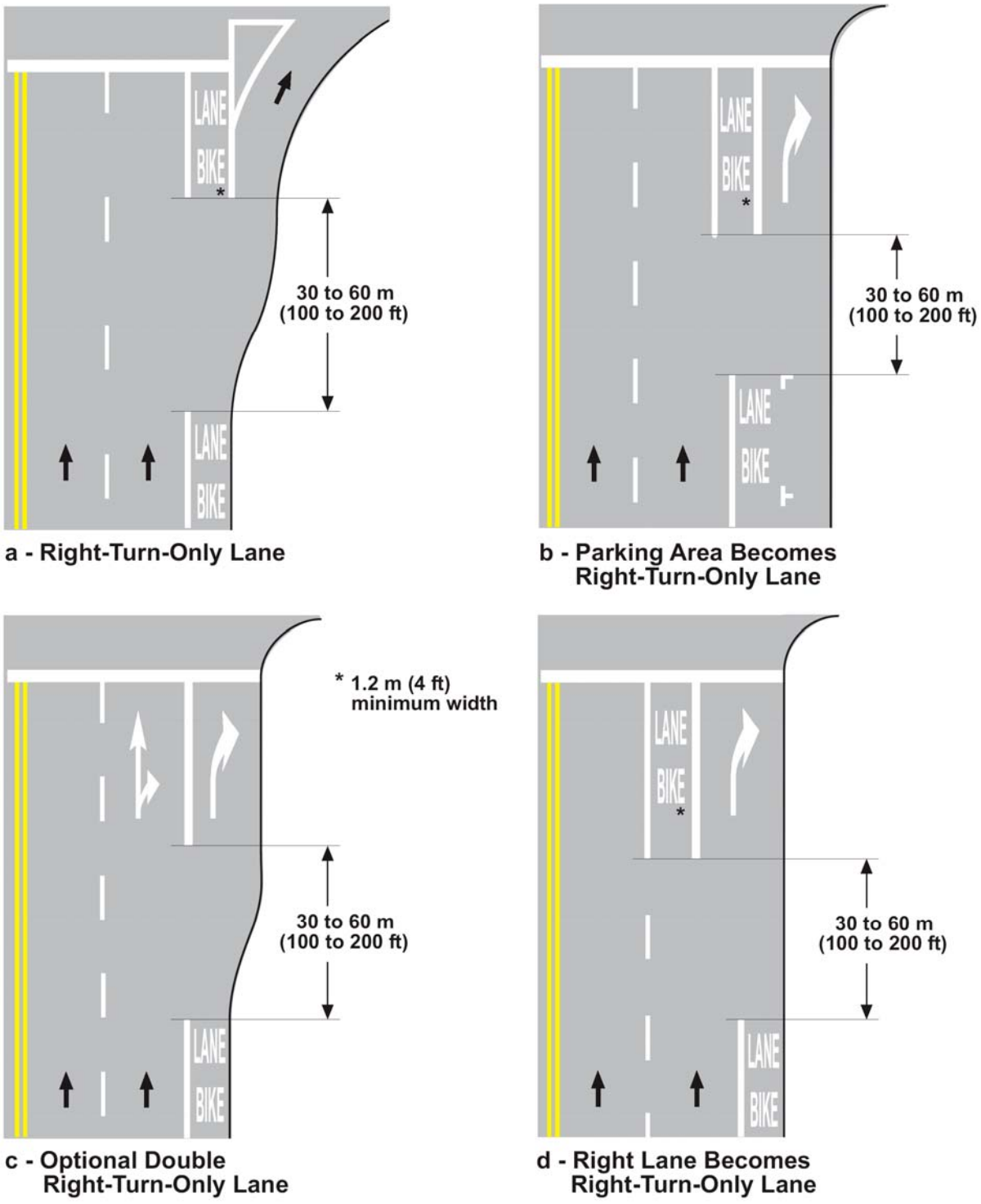
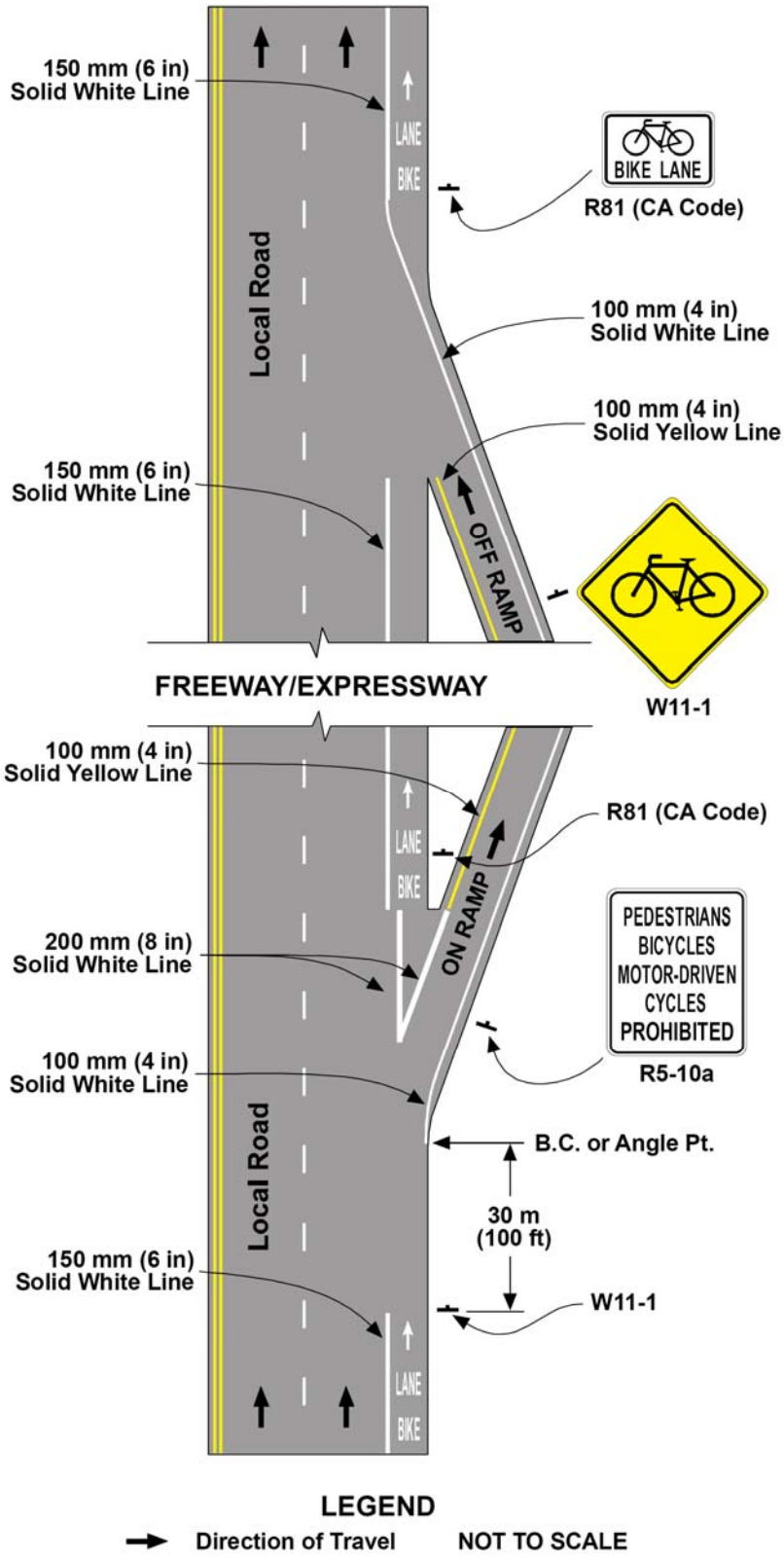


Figure 9C-104. Examples of Bicycle Lane Treatment Through Interchanges



BIKE LANE Pavement Markings

Standard:

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

Option:

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

Support:

An example of BIKE LANE pavement markings is shown in Figure 9C-102.

Option:

Optional word, arrow and symbol markings shown in Figure 9C-105 may be used.

Figure 9C-7. Example of Bicycle Detector Pavement Marking

Standard:

MUTCD Figure 9C-7 is deleted and replaced with Figure 9C-7 (CA).

Section 9C.101 Barrier Posts on Class I Bikeways

Support:

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:

An envelope around the barriers should be striped as shown in Figure 9C-106. If sight distance is limited, special advance warning signs or painted pavement warnings should be provided. Where more than one post is necessary, 1.5 m (5 ft) 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:

Generally, barrier configurations that preclude entry by motorcycles present safety and convenience problems for bicyclists.

Guidance:

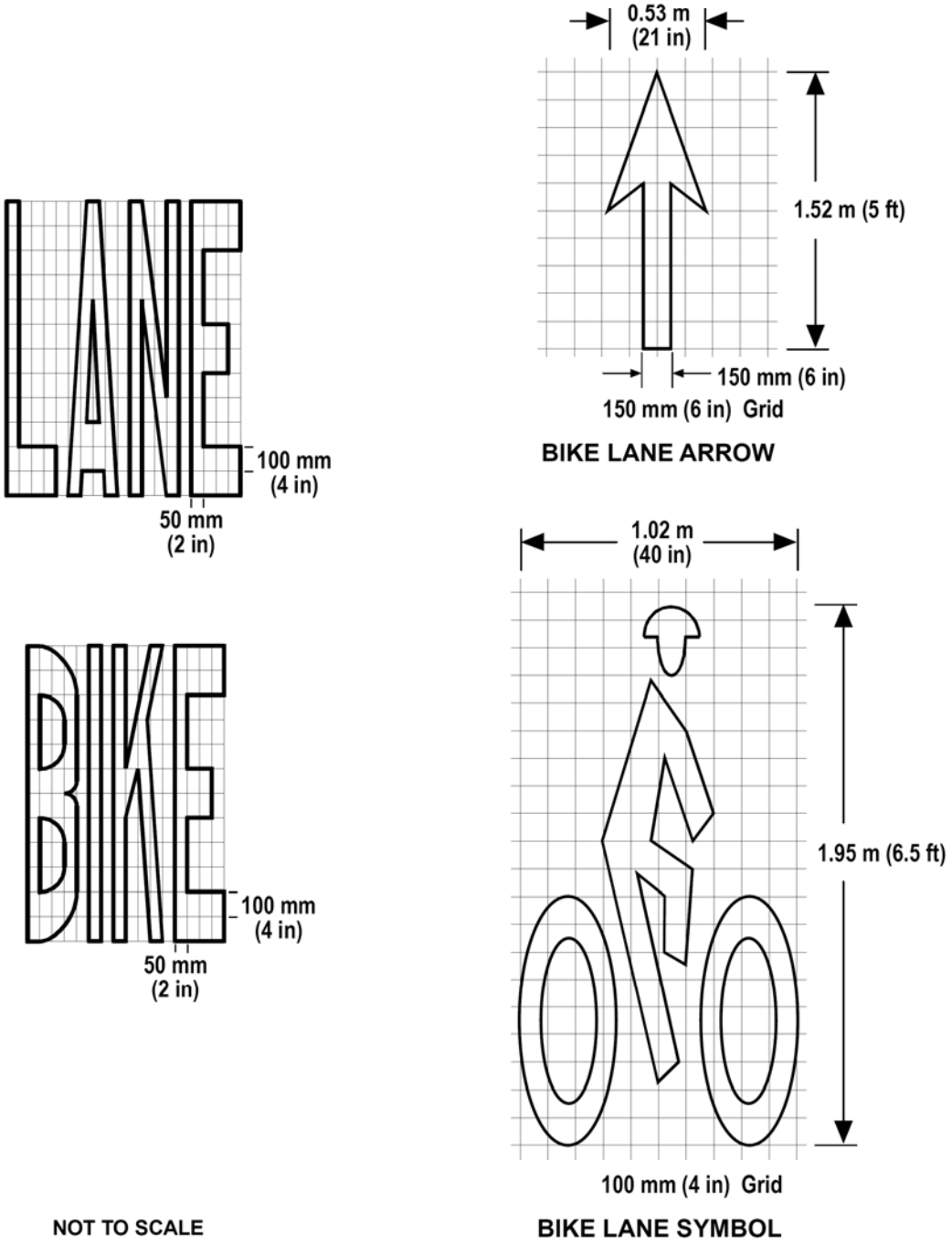
Such devices should be used only where extreme problems are encountered.

Section 9C.102 Rumble Strips

Support:

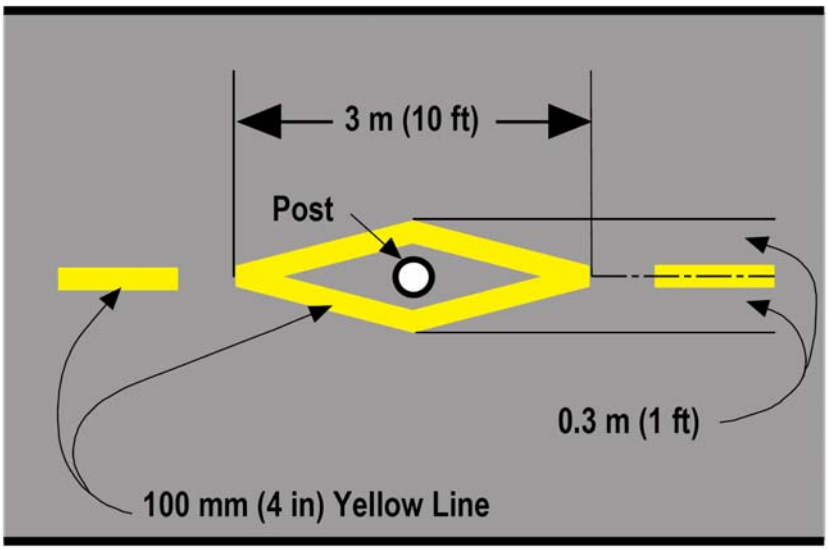
Shoulder rumble strips are not suitable as a riding surface for bicycles. Refer to Section 3B.106 of this Supplement for more information on rumble strips and bicyclists.

Figure 9C-105. Word, Arrow, and Symbol Pavement Markings for Bicycle Lanes



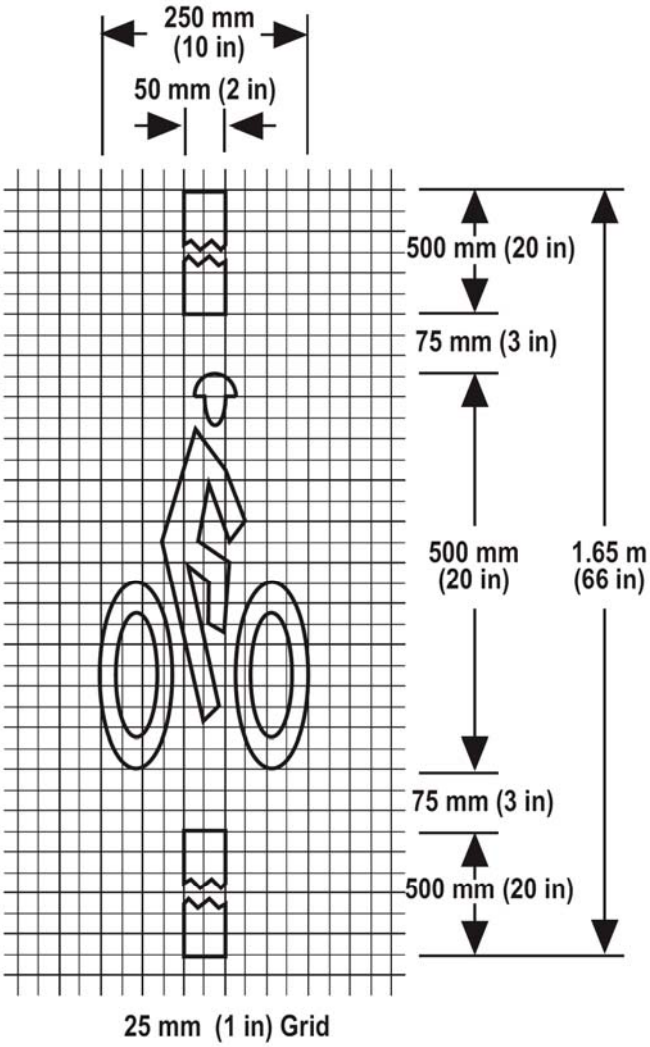
NOTE: The design details for various arrows and symbols are also shown in the Standard Plans published by the Department of Transportation.

Figure 9C-106. Barrier Post Markings



Barrier Post Markings

Figure 9C-7 (CA). Example of Bicycle Detector Pavement Marking



BICYCLE DETECTOR SYMBOL

NOT TO SCALE

NOTE: The design details for various arrows and symbols are also shown in the Standard Plans published by the Department of Transportation.

CHAPTER 9D. SIGNALS

Section 9D.01 Application

The following is added to this section:

Support:

Also refer Part 4 of this Supplement for highway traffic signals.

MUTCD 2003

CALIFORNIA SUPPLEMENT

May 20, 2004

PART 10
TRAFFIC CONTROLS FOR HIGHWAY-LIGHT RAIL TRANSIT GRADE CROSSINGS

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

PART 10. TRAFFIC CONTROLS FOR HIGHWAY-LIGHT RAIL TRANSIT GRADE CROSSINGS

TABLE OF CONTENTS

CHAPTER 10A. GENERAL

Section 10A.01 Introduction

The following is added to this section:

Support:

The highway agency or authority with jurisdiction over the roadway and the light rail transit agency or authority jointly conduct an engineering study to determine the need and selection of the traffic control devices at a highway-light rail transit grade crossing. The engineering study is reviewed by the California Public Utilities Commission (CPUC), the state regulatory agency with statutory authority over highway-light rail transit grade crossings. Refer to Public Utilities Code Section 1202(a).

Section 10A.02 Use of Standard Devices, Systems, and Practices

Standard:

Paragraph 5 ("Before any new…") is deleted and replaced with the following:

Before any new highway-light rail transit grade crossing traffic control system is installed or modifications are made to an existing system, approval shall be obtained from the California Public Utilities Commission. Refer to California Public Utilities Commission General Order 88, as amended, and Public Utilities Code, Sections 1201 – 1205, 7537, and 99152.

CHAPTER 10B. HIGHWAY-LIGHT RAIL TRANSIT GRADE CROSSING CONTROL SYSTEMS

Support:

No Comments.

This MUTCD Chapter is adopted as is for California.

CHAPTER 10C. SIGNS, ILLUMINATION, AND MARKINGS

Section 10C.02 Highway-Rail Grade Crossing (Crossbuck) Sign (R15-1) and Number of Tracks Sign (R15-2)

Standard:

Paragraph 4 ("If automatic gates…") is deleted and replaced with the following:

If a Crossbuck (R15-1) sign is being used and if there are two or more tracks at the highway-light rail transit grade crossing, the number of tracks shall be indicated on a supplemental Number of Tracks (R15-2) sign of inverted T shape mounted below the Crossbuck sign in the manner and at the height indicated in Figure 10C-1.

Section 10C.05 DO NOT STOP ON TRACKS Sign (R8-8)

Guidance:

In Paragraph 3 ("On divided highways…"), the word "may" is changed to "should".

Section 10C.15 Highway-Rail Grade Crossing Advance Warning Signs (W10 Series)

Standard:

In Paragraph 1 ("A Highway-Rail Grade…"), sub-headings B, C and D are deleted in their entirety. Refer to CVC 21362.

Paragraph 2 ("Placement of…") is deleted. Placement of the Highway-Rail Grade Crossing Advance Warning (W10 Series) signs shall be in accordance with Figure 8B-6 (CA).

The following is added to this section:

Standard:

The Highway-Rail Grade Crossing Advance Warning (W10 Series) signs shall be placed by the roadway authority in advance of highway-light rail transit grade crossings on State highways, and roadways under local jurisdiction, in accordance with CVC 21362.

The Number of Tracks (CA Code W48) sign shall be placed below the Highway-Rail Grade Crossing Advance Warning (W10-1) sign and at grade crossings with two or more tracks.

Support:

The Number of Tracks (CA Code W48) sign is shown in Figure 10C-101.

Section 10C.23 Pavement Markings

Standard:

The MUTCD Figures 10C-5 and 10C-6 are deleted and replaced with Figures 8B-6 (CA) and 8B-7 (CA), respectively.

Paragraph 3 ("Identical markings…") and 4 ("Pavement markings shall…") are deleted and replaced with the following:

Identical (RXR) markings shall be placed in each approach lane on all paved approaches to highway-light rail transit grade crossings.

Guidance:

Paragraph 5 ("When pavement markings…") is deleted. Figures 8B-6 (CA) and 8B-7 (CA) should be used instead.

The following is added to this section:

Option:

Pavement markings and no-passing zone markings may be omitted at exempt highway-light rail transit grade crossings as provided in CVC 22452 and 22452.5.

Pavement (RXR) markings may be omitted where the distance between a cross street and a railroad is less than 15 m (50ft).

Figure 10C-101. California Signs for Highway-Light Rail Transit Grade Crossings

W48

W82

W82-1

Note: All sign codes are California (CA) Codes.

Section 10C.101 <u>Trolley Crossing Signs (CA Code W82 and W82-1)</u>

Option:

The Light Rail Transit (Trolley) Crossing sign (CA Code W82) may be used in advance of a light rail transit crossing controlled by traffic signals or stop signs.

The Light Rail Transit (Trolley) Crossing /LOOK BOTH WAYS sign (CA Code W82-1) may be used on driveways and alleys that cross a one-way street with two-way light rail transit side running operation, to alert vehicle drivers and pedestrians that the light rail transit vehicles approach from both directions.

Support:

The W82 and W82-1 (CA Codes) signs are shown in Figure 10C-101.

CHAPTER 10D. HIGHWAY-LIGHT RAIL TRANSIT ACTIVE TRAFFIC CONTROL GRADE CROSSING SYSTEMS

Section 10D.01 Introduction

Standard:

Paragraph 4 ("Audible devices…") is deleted and replaced with the following:

Where flashing light signals are installed, audible devices shall conform to the provisions of Section 8D.02.

Support:

California Public Utilities Commission General Order 143, "Safety Rules and Regulations Governing Light-Rail Transit", as amended, governs the operation and allowable speeds of light rail transit systems.

Section 10D.04 Four-Quadrant Gate Systems

Standard:

Paragraph 7 ("Except as noted…") is deleted and replaced with the following:

The exit gate arm mechanism shall be designed to fail-safe in the up position. Refer to CPUC General Order 75, as amended.

Option:

Paragraph 19 ("Exit gate arms may fail…") is deleted. Refer to CPUC General Order 75, as amended.

Section 10D.08 Pedestrian and Bicycle Signals and Crossings

Guidance:

In Paragraph 3 ("Flashing-light signals…"), the phrase "Flashing-light signals (see Figure 10D-2) with a Crossbuck (R15-1) sign should be installed …" is changed to "Flashing-light signals (see Figure 10D-2) with a Crossbuck (R15-1) sign and audible warning device shall be installed …". Refer to CPUC General Order 75-C.

The following is added to this section:

Standard:

Flashing light signals shall conform to the provisions of Section 8D.02.