

CHAPTER 1D. PROVISIONS APPLICABLE TO TRAFFIC CONTROL DEVICES IN GENERAL

Section 1D.01 Purpose and Principles of Traffic Control Devices

Support:

- 01 The purpose of traffic control devices, as well as the principles for their use, is to promote highway safety, inclusion and mobility of all road users, and efficiency by providing for the orderly movement of road users on streets, highways, bikeways, and site roadways open to public travel throughout the Nation. Section 1A.03 contains additional information on target road users.
- 02 This Manual contains the basic principles that govern the design and use of traffic control devices for all streets, highways, bikeways, and site roadways open to public travel (see definition in Section 1C.02) regardless of type or class or the public agency, official, or owner having jurisdiction. The text of this Manual specifies the restriction on the use of a device if it is intended for limited application or for a specific system. It is important that these principles be given primary consideration in the selection and application of each device.

Guidance:

- 03 *To be effective, a traffic control device should:*
- A. *Fulfill a need;*
 - B. *Command attention;*
 - C. *Convey a clear, simple meaning;*
 - D. *Command respect from road users; and*
 - E. *Give adequate time for proper response.*
- 04 *Design, placement, operation, maintenance, and uniformity are aspects that should be carefully considered by the engineer in order to maximize the ability of a traffic control device to be consistent with the five principles listed in Paragraph 3 of this Section. Vehicle speed, geometrics and other relevant factors and road-user types should be carefully considered as an element elements that governs govern the design, operation, placement, and location of various traffic control devices.*
- 05 *The proper use of traffic control devices should provide the road user with the information necessary to safely, efficiently, and lawfully use the streets, highways, pedestrian facilities, and bikeways.*

Standard:

- 06 **Traffic control devices used on site roadways open to public travel shall have the same shape, color, and meaning as those required by the MUTCD for use on public highways, except as provided otherwise elsewhere in this Manual. Sign size exceptions are noted in each Part as applicable.**

Section 1D.02 Responsibility and Authority for Traffic Control Devices

Standard:

- 01 **The responsibility for the design, placement, operation, maintenance, and uniformity of traffic control devices in compliance with the provisions of this Manual shall rest with the public agency or the official having jurisdiction, or, in the case of site roadways open to public travel, with the private owner or private official having jurisdiction.**

Support:

- 01a In addition to California MUTCD, Caltrans publishes various supplemental documents, which in addition to other topics, also contain specifications and requirements for traffic control devices, including their use and placement, when performing work on State highways. These documents include Standard Plans, Standard Specifications, Standard Special Provisions, Proven Safety Countermeasure publications, California Manual for Setting Speed Limits, Traffic Calming Guide, Flagging Instructions Handbook, Traffic Safety Bulletins, Traffic Operation Policy Directives (TOPD) and memos (see Section 1B.02). In some cases, the specifications and requirements for traffic control devices contained in these publications, although in compliance with the minimum standards of the California MUTCD and the National MUTCD, can be more stringent (higher standard) than those shown in the California MUTCD and would be applicable to the projects on the State highway system.

Standard:

- 02 **All regulatory traffic control devices shall be supported by laws, ordinances, or regulations.**
- 03 **Traffic control devices, public announcements or notices, and other signs or messages within the highway right-of-way shall be placed only as authorized by a public authority or the official having jurisdiction, or, in the case of site roadways or private toll roads open to public travel, by the private owner or private official having**

jurisdiction, for the purpose of regulating, warning, or guiding traffic.

Support:

- 03a Refer to Sections 1A.01, 1B.01, 1C.02 (phrase “Site Roadways Open to Public Travel”) for authority and applicability of CA MUTCD on various types of public and private roadway facilities.
- 03b The delegation of maintenance activities to local authorities is usually exercised under the authority of Streets and Highways Code Section 130.

Standard:

- 04 **When the public agency or the official having jurisdiction over a street or highway or, in the case of site roadways open to public travel, the private owner or private official having jurisdiction, has granted proper authority, others such as contractors and public utility companies shall be allowed to install temporary traffic control devices in temporary traffic control zones. Such traffic control devices shall comply with the provisions of this Manual.**
- 05 **Signs and other devices that do not have any traffic control purpose that are placed within the highway right-of-way shall not be located where they will interfere with, or detract from, traffic control devices.**

Support:

- 06 States are encouraged to adopt, through policy or legislation, the provisions of 23 CFR 750.108 that restrict outdoor advertising from resembling traffic control devices.
- 07 CVC references are used throughout this California MUTCD when the subject matter relates to State law.

Standard:

- 08 **CVC 21400 provides that Caltrans 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.**
- 09 **CVC 21401 provides that only those official traffic control devices that conform to the uniform standards and specifications promulgated by Caltrans shall be placed upon a street or highway.**
- 10 **CVC 21350 and 21351 give basic authority to Caltrans and local authorities, in their respective jurisdictions, to place and maintain such official traffic control devices.**

Option:

- 11 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:

- 12 **Except as provided in Paragraph #14 of this Section, local agencies responsible for the development or operation of bikeways or roadways where bicycle travel is permitted shall:**
- A. **Utilize the minimum safety design criteria established by Caltrans for the planning and construction of bikeways and roadways where bicycle travel is permitted.**
 - B. **Also utilize the uniform specifications and symbols for signs, markers, and traffic control devices established by Caltrans to designate bikeways, regulate traffic, improve safety and convenience for bicyclists, and alert pedestrians and motorists of the presence of bicyclists on bikeways and on roadways where bicycle travel is permitted.**

Support:

- 13 Refer to Streets and Highways Code 890.4, 890.6, 890.8 and 891.

Option:

- 14 Local agencies may utilize minimum safety design criteria other than those established by Caltrans (Refer to Streets and Highways Code Sections 890.6 and 891), if all of the following conditions are met:
- A. The alternative criteria have been reviewed and approved by a qualified engineer with consideration for the unique characteristics and features of the proposed bikeway and surrounding environs.
 - B. The alternative criteria, or the description of the project with reference to the alternative criteria, are adopted by resolution at a public meeting, after having provided proper notice of the public meeting and opportunity for public comment.
 - C. The alternative criteria adhere to guidelines established by a national association of public agency transportation officials.

Support:

- 15 The use of unauthorized traffic control devices is prohibited by CVC 21465.

Standard:

- 16 **Prohibited traffic control devices constitute a public nuisance and shall be removed per CVC 21467.**

Support:

- 17 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.
- 18 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. Also refer to CVC 360 for definition of "highway".
- 19 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 1D.03 Engineering Study and Engineering Judgment

Support:

- 01 Definitions of professional engineer, engineering study, and engineering judgment are provided in Section 1C.02.
- 01a Refer to CVC 627 for definition and requirements of "Engineering and Traffic Survey". It is also abbreviated in this manual as E&TS.
- 02 The application of engineering study and engineering judgment is a fundamental principle of the use of traffic control devices. It is for this reason that, in most cases, the selection of a particular device is not required by a Standard provision but is determined by engineering study or engineering judgment. Many Standard provisions in this Manual specifically require, by explicit language in the individual provisions or by implication, the application of engineering study or engineering judgment in applying those Standards. Site-specific conditions might result in the determination that it is impossible or impracticable to comply with a Standard at that location. In such a case, a deviation from the requirement of a particular Standard at that location might be the only possibility. In such limited, specific cases, the deviation is allowed, provided that the agency or official having jurisdiction fully documents, through an engineering study, the engineering basis for the deviation.

Standard:

- 03 **This Manual describes the application of traffic control devices, but shall not be a legal requirement for their installation.**

Support:

- 04 The MUTCD does not mandate, and is not intending to imply, that an engineer must make the final decision whether to implement or execute the determination or advice of an engineer by installing or constructing the traffic control device to the engineer's specification in the field. Rather, the engineer, individual under supervision of an engineer, or other individual as duly authorized by State law to engage in the practice of engineering, develops an engineering-based solution that includes the specifications for selection and placement of traffic control devices, but the responsibility for a final decision to implement that solution rests with the agency having jurisdiction over the roadway, after consultation with and based on advice from the engineer.

Guidance:

- 05 *The decision to use a particular device at a particular location should be made on the basis of either an engineering study or the application of engineering judgment by an engineer, someone under the direct supervision of an engineer, or other individual as duly authorized by State law to engage in the practice of engineering. Thus, while this Manual provides Standards, Guidance, and Options for design and application of traffic control devices, this Manual should not be considered a substitute for engineering judgment. Engineering judgment should be exercised in the selection and application of traffic control devices, as well as in the location and design of roads and streets that the devices complement.*
- 06 *Early in the processes of location and design of roads and streets, engineers should coordinate such location and design with the design and placement of the traffic control devices to be used with such roads and streets.*
- 07 *Jurisdictions, or owners of site roadways or private toll roads open to public travel, with responsibility for traffic control that do not have an engineer on their staff who is trained and/or experienced in traffic control devices should seek engineering assistance from others, such as the State transportation agency, their county, a nearby large city, or a traffic engineering consultant.*

Support:

- 08 The provisions of this Manual are intended to be interpreted and applied by engineers or those under the supervision of an engineer. The construction of the provisions of this Manual, therefore, are informed by bases referenced in Paragraphs 9 and 10 of this Section.

- 09 The National Council of Examiners for Engineering and Surveying (NCEES) has defined the practice of engineering as “any service or creative work requiring engineering education, training, and experience in the application of engineering principles and the interpretation of engineering data to engineering activities that potentially impact the health, safety, and welfare of the public.” The practice of engineering is, therefore, subject to regulation in the public interest and is regulated by the State licensing boards in order to safeguard the health, safety, and welfare of the public. The NCEES has defined an engineer as “an individual who is qualified to practice engineering by reason of engineering education, training, and experience in the application of engineering principles and the interpretation of engineering data.”
- 10 The U.S. Office of Personnel Management (OPM) has defined the professional knowledge of engineering as “the comprehensive, in-depth knowledge of mathematical, physical, and engineering sciences applicable to a specialty field of engineering that characterizes a full 4-year engineering program leading to a bachelor's degree, or the equivalent.” The OPM has defined professional ability to apply engineering knowledge as “the ability to (a) apply fundamental and diversified professional engineering concepts, theories, and practices to achieve engineering objectives with versatility, judgment, and perception; (b) adapt and apply methods and techniques of related scientific disciplines; and (c) organize, analyze, interpret, and evaluate scientific data in the solution of engineering problems.”
- 11 Requisite technical training in the application of the principles of the MUTCD might be available from the State’s Local Technical Assistance Program (LTAP) for needed engineering guidance and assistance.

Section 1D.04 Design of Traffic Control Devices

Guidance:

- 01 *Devices should be designed so that features such as size, shape, color, composition, lighting or retroreflection, and contrast are combined to draw attention to the devices; so that size, shape, color, and simplicity of message combine to produce a clear meaning; so that legibility and size combine with placement to provide adequate time for response; and so that uniformity, size, legibility, and reasonableness of the message combine to command respect.*

Standard:

- 01a **Traffic control devices shall comply with the provisions of CVC Section 21466.5 for light brilliance so as not to impair the vision of drivers.**

Option:

- 02 Except for symbols and colors, minor modifications in the specific design elements of a device may be made based on an engineering study or engineering judgment, in accordance with Paragraph 3 of this Section, provided the essential appearance characteristics are preserved.

Guidance:

- 03 *Aspects of the standard design of a traffic control device should not be modified unless there is a demonstrated need in unusual circumstances, based on an engineering study or engineering judgment.*

Support:

- 04 An example of acceptably modifying the design of a device would be to modify the Combination Horizontal Alignment/Intersection (W1-10) sign to show intersecting side roads on both sides rather than on just one side of the major road within the curve.

Section 1D.05 Color Code

Support:

- 01 The following color code establishes general meanings for 11 colors of a total of 13 colors that have been identified as being appropriate for use in conveying traffic control information.

Standard:

- 02 **The general meaning of the 13 colors shall be as follows:**
- A. Black—regulation**
 - B. Blue—road-user services guidance, tourist information, and evacuation route**
 - C. Brown—recreational and cultural interest area guidance**
 - D. Coral—reserved for future designation (see Paragraph 4 of this Section)**
 - E. Fluorescent Pink—incident management**
 - F. Fluorescent Yellow-Green—pedestrian warning, bicycle warning, playground warning, school bus warning, and school warning**
 - G. Green—indicated movements or actions permitted and direction guidance**

H. Light Blue—reserved for future designation (see Paragraph 4 of this Section)

I. Orange—temporary traffic control

J. Purple—restricted to use only by vehicles with registered electronic toll collection (ETC) accounts

K. Red—stop or prohibition

L. White—regulation

M. Yellow—warning

03 **These colors shall be used only as prescribed for the specific devices or applications throughout this Manual.**
Support:

04 The two colors for which general meanings have not yet been assigned are being reserved for future applications that will be determined only by the FHWA after consultation with the States, the engineering community, and the general public. The meanings described in this Section are of a general nature. More specific assignments of colors are given in the individual Parts of this Manual relating to each class of devices.

05 Tolerance limits for each color are contained in 23 CFR Part 655, Appendix to Subpart F and are available at the Federal Highway Administration's MUTCD Web site at <http://mutcd.fhwa.dot.gov>.

Section 1D.06 Public Domain, Copyrights, and Patents

Standard:

01 **Traffic control device design or application provisions contained in this Manual shall be in the public domain. Traffic control devices contained in this Manual shall not be protected by a patent, trademark, or copyright, except for the Interstate Shield, 511 Travel Information pictograph, National Scenic Byway graphic, and any items under the stewardship of or owned by FHWA. The Caltrans logos consisting of the "CT" symbol and the "Caltrans" logotype are registered service marks and when used on any traffic control device they shall be presented in a uniform and consistent manner as outlined in Caltrans' Deputy Directive DD-33-R1.**

02 **A traffic control device design or application shall not be eligible for official experimentation (see Section 1B.05) or interim approval (see Section 1B.07) unless it is in the public domain. Express abandonment of any and all forms of proprietary protection, such as patents, trademarks, or copyrights, related to the design and application of the traffic control device shall satisfy the requirement for the traffic control device to be in the public domain.**

03 **The requirement for the traffic control device to be in the public domain shall not apply to individual components used in the assembly or manufacture of the traffic control device.**

Support:

04 The limitation on patented, trademarked, or copyrighted traffic control devices applies to the message that the device conveys to the road user. If a patent or other protection covers the device's communication to the road user by virtue of its appearance, audible message, or other aspects of the message conveyed (such as the order in which traffic control signal indications change from green to yellow and red), then the device is considered to be protected and not in the public domain. Such a device is precluded from inclusion in this Manual. The purpose of this limitation is to ensure uniformity of the messaging of individually approved traffic control devices. This limitation does not apply to other aspects of a device (such as internal controls, circuitry, electronics, mechanics, or housing) so long as the appearance, audible message, or other aspects of the message conveyed, including the manner of conveyance, remain freely reproducible by all without infringing on any proprietary rights or interests. This Manual does not prohibit such other aspects of a traffic control device that meet the legal requirements from being protected through patent, trademark, or copyright; and does not restrict components, parts, manufacturing processes, or similar aspects of traffic control devices from being patented or otherwise protected. Examples of acceptable protected traffic control device components or parts might include sign sheeting or retroreflectivity technology, internal electronic components of traffic signal controllers, and breakaway sign support mechanisms.

05 Pictographs, as defined in Section 1C.02, are embedded in traffic control devices, but the pictographs themselves are not considered traffic control devices for the purposes of Paragraph 4 of this Section.

06 Business identification logos, as defined in Section 1C.02, are embedded in traffic control devices, but the logos themselves are not considered traffic control devices for the purposes of Paragraph 4 of this Section.

Section 1D.07 Advertising

Standard:

- 01 **Traffic control devices or their supports shall not bear any advertising message or any other message that is not related to traffic control.**

Support:

- 02 Acknowledgment signs (see Section 2H.13), Specific Service signs (see Chapter 2J), and Tourist- Oriented Directional signs (see Chapter 2K) are not considered advertising.

Section 1D.08 Abbreviations Used on Traffic Control Devices

Standard:

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

Guidance:

- 03 *The abbreviations for the words listed in Table 1D-2 that also show a prompt word should not be used on a portable changeable message sign (or on a static sign if indicated in Table 1D-2 by an asterisk) unless the prompt word shown in Table 1D-2 either precedes or follows the abbreviation, as applicable.*

Standard:

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

Guidance:

- 05 *If Table 1D-1 or 1D-2 indicates that more than one abbreviation is allowed for a given word or phrase, the same abbreviation should be used throughout a single jurisdiction.*
- 06 *Except as otherwise provided in Table 1D-1 or 1D-2 or unless necessary to avoid confusion, periods, commas, apostrophes, question marks, ampersands, and other punctuation marks or characters that are not letters or numerals should not be used in any abbreviation.*

Section 1D.09 Placement and Operation of Traffic Control Devices

Standard:

- 01 **Before any highway, site roadway open to public travel (see definition in Section 1C.02), detour, or temporary route is opened to public travel, all traffic control devices necessary for safe operation shall be in place. Detour signs shall be erected at the nearest points of detour from that portion of a highway, or from any bridge, which is closed to traffic while under construction or repair per CVC 21363 and Section 6I.02.**

Option:

- 02 Temporary traffic control devices, as provided for in Part 6 of this Manual, may be used in place of permanent devices that have yet to be installed for safe operation.

Guidance:

- 03 *Placement of a traffic control device should be within the road user's view so that adequate visibility is provided. To aid in conveying the proper meaning, the traffic control device should be appropriately positioned with respect to the location, object, or situation to which it applies. The location and legibility of the traffic control device should be such that a road user has adequate time to make the proper response in both day and night conditions.*

- 04 *Traffic control devices should be placed and operated in a uniform and consistent manner as part of maintaining uniformity in traffic control.*

- 04a *Traffic control devices, which are used on a part-time basis, should be in operation only during the time periods that they are required.*

Support:

- 05 Inconsistent placement or use of a device can result in disrespect for the device at locations where the device is needed and appropriate.

Guidance:

- 06 *Unnecessary traffic control devices should be removed. The fact that a device is in good physical condition should not be a basis for deferring needed removal or change.*

Support:

- 07 Section 2A.02 contains information on excessive use of signs and other considerations that can reduce their effectiveness and the effectiveness of other traffic control devices.

Section 1D.10 Maintenance of Traffic Control Devices

Guidance:

- 01 *Functional maintenance of traffic control devices should be used to determine if certain devices need to be changed to meet current traffic conditions.*
- 02 *Physical maintenance of traffic control devices should be performed to retain the legibility and visibility of the device, and to retain the proper functioning of the device.*

Support:

- 03 Clean, legible, properly mounted devices in good working condition command the respect of road users.

Section 1D.11 Crashworthiness of Traffic Control Devices and Other Roadside Appurtenances

Standard:

- 01 **In accordance with various Sections of this Manual, certain traffic control devices and their supports, and/or related appurtenances shall be crashworthy (see definition in Section 1C.02). Crashworthiness provisions in this Manual shall apply to all streets, highways, and site roadways open to public travel.**

Support:

- 02 Roadside appurtenances include permanent and portable sign supports, other permanent or temporary traffic control devices, and other roadside fixtures that are not traffic control devices, such as longitudinal barriers, bridge railings, and crash cushions, within the clear zone. Crashworthiness of a device or appurtenance is determined by nationally established standards such as the “Manual for Assessing Safety Hardware” (MASH), 2016, AASHTO. Information on the FHWA’s policy on crashworthiness of devices on the National Highway System and other roadways is available at the FHWA Office of Safety Web site at

https://safety.fhwa.dot.gov/roadway_dept/countermeasures/reduce_crash_severity/policy_memo_guidance.cfm.

- 03 Refer to Caltrans' Traffic Safety Systems Manual and Supplement to Traffic Safety Systems Manual for uniform practices and guidance for the traffic safety systems. See Section 1A.05 for information regarding this publication.