California
Manual on Uniform Traffic Control Devices
for Streets and Highways

**(FHWA's MUTCD 2003 Edition
including Revisions 1 and 2,
as amended for use in California)**

PART 1
General

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

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PART 1. GENERAL

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CHAPTER 1A. GENERAL

Section 1A.01 Purpose of Traffic Control Devices

Support:

The purpose of traffic control devices, as well as the principles for their use, is to promote highway safety and efficiency by providing for the orderly movement of all road users on streets and highways throughout the Nation.

Traffic control devices notify road users of regulations and provide warning and guidance needed for the reasonably safe, uniform, and efficient operation of all elements of the traffic stream.

Standard:

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

Support:

Tourist-oriented directional signs and Specific Service signs are not considered advertising; rather, they are classified as motorist service signs.

Section 1A.02 Principles of Traffic Control Devices

Support:

This Manual contains the basic principles that govern the design and use of traffic control devices for all streets and highways open to public travel regardless of type or class or the public agency having jurisdiction. This Manual's text 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:

To be effective, a traffic control device should meet five basic requirements:

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.

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 meet the five requirements listed in the previous paragraph. Vehicle speed and geometrics should be carefully considered as an element that governs the design, operation, placement, and location of various traffic control devices.

Support:

The definition of the word "speed" varies depending on its use. The definitions of specific speed terms are contained in Section 1A.13.

Guidance:

The actions required of road users to obey regulatory devices should be specified by State statute, or in cases not covered by State statute, by local ordinance or resolution consistent with the "Uniform Vehicle Code." The proper use of traffic control devices should provide the reasonable and prudent road user with the information necessary to reasonably safely and lawfully use the streets, highways, pedestrian facilities, and bikeways.

Support:

Uniformity of the meaning of traffic control devices is vital to their effectiveness. The meanings ascribed to devices in this Manual are in general accord with the publications mentioned in Section 1A.11.

Section 1A.03 Design of Traffic Control Devices

Guidance:

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; that size, shape, color, and simplicity of message combine to produce a clear meaning; that legibility and size combine with placement

to permit adequate time for response; and that uniformity, size, legibility, and reasonableness of the message combine to command respect.

Standard:

All symbols shall be unmistakably similar to or mirror images of the adopted symbol signs, all of which are shown in the "Standard Highway Signs" book (see Section 1A.11). Symbols and colors shall not be modified unless otherwise stated herein. All symbols and colors for signs not shown in the "Standard Highway Signs" book shall follow the procedures for experimentation and change described in Section 1A.10.

Guidance:

Aspects of a device's design should be modified only if there is a demonstrated need.

Support:

An example of modifying a device's design would be to modify the Side Road (W2-2) sign to show a second offset intersecting road.

Standard:

Except as noted in the Option below, highway agencies shall not develop word message signs. In accordance with CVC Section 21401, only word message signs conforming to Department of Transportation standards and specifications shall be placed on streets and highways.

Option:

~~Highway agencies may develop word message signs to notify road users of special regulations or to warn road users of a situation that might not be readily apparent. Unlike symbol signs and colors, new word message signs may be used without the need for experimentation.~~ Highway agencies may develop place/facility name or day, date, time portion of the word message on signs to notify road users of special events/circumstances or to warn road users of a situation that might not be readily apparent. Unlike symbol signs and colors, these place/facility name or day, date, time modified word message signs may be used without the need for experimentation. With the exception of symbols and colors, minor modifications in the specific design elements of a device may be made provided the essential appearance characteristics are preserved. Although the standard design of symbol signs cannot be modified, it may be appropriate to change the orientation of the symbol to better reflect the direction of travel.

Section 1A.04 <u>Placement and Operation of Traffic Control Devices</u>

Guidance:

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.

Traffic control devices should be placed and operated in a uniform and consistent manner.

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.

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.05 <u>Maintenance of Traffic Control Devices</u>

Guidance:

Functional maintenance of traffic control devices should be used to determine if certain devices need to be changed to meet current traffic conditions.

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:

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

Section 1A.06 Uniformity of Traffic Control Devices

Support:

Uniformity of devices simplifies the task of the road user because it aids in recognition and understanding, thereby reducing perception/reaction time. Uniformity assists road users, law enforcement officers, and traffic courts by giving everyone the same interpretation. Uniformity assists public highway officials through efficiency in manufacture, installation, maintenance, and administration. Uniformity means treating similar situations in a similar way. The use of uniform traffic control devices does not, in itself, constitute uniformity. A standard device used where it is not appropriate is as objectionable as a nonstandard device; in fact, this might be worse, because such misuse might result in disrespect at those locations where the device is needed and appropriate.

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

Standard:

The responsibility for the design, placement, operation, maintenance, and uniformity of traffic control devices shall rest with the public agency or the official having jurisdiction. 23 CFR 655.603 adopts the Manual on Uniform Traffic Control Devices as the national standard for all traffic control devices installed on any street, highway, or bicycle trail open to public travel. When a State or other Federal agency manual or supplement is required, that manual or supplement shall be in substantial conformance with the national Manual on Uniform Traffic Control Devices.

This California MUTCD (including the incorporated FHWA's MUTCD) does not supersede the Department's Standard Plans, Standard Specifications or the Special Provisions publications. Nothing contained in the California MUTCD shall prevent the Department of Transportation from modifying, changing or adopting new specifications as necessary.

23 CFR 655.603 also states that traffic control devices on all streets and highways open to public travel in each State shall be in substantial conformance with standards issued or endorsed by the Federal Highway Administrator.

Support:

The "Uniform Vehicle Code" (see Section 1A.11) has the following provision in Section 15-104 for the adoption of a uniform Manual:

> "(a)The [State Highway Agency] shall adopt a manual and specification for a uniform system of traffic control devices consistent with the provisions of this code for use upon highways within this State. Such uniform system shall correlate with and so far as possible conform to the system set forth in the most recent edition of the Manual on Uniform Traffic Control Devices for Streets and Highways, and other standards issued or endorsed by the Federal Highway Administrator."
>
> "(b) The Manual adopted pursuant to subsection (a) shall have the force and effect of law."

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

Support:

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 (CTCDC). The Department of Transportation publicizes these uniform standards and specifications for traffic control devices through the California 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.

The Department of Transportation standards and specifications for traffic control devices are not applicable to privately owned and maintained roads or commercial establishments, unless the particular city or county enacts an ordinance or resolution to this effect. Refer to CVC Sections 21100, 21100.1, 21107, 21107.5, 21107.6, and 21107.7. However, the use of Department of Transportation standards and specifications for traffic control devices are encouraged on all privately owned and maintained roads or commercial establishments, in general, as a good practice.

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

Standard:

Traffic control devices, advertisements, announcements, 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, for the purpose of regulating, warning, or guiding traffic.

When the public agency or the official having jurisdiction over a street or highway has granted proper authority, others such as contractors and public utility companies shall be permitted to install temporary traffic control devices in temporary traffic control zones. Such traffic control devices shall conform with the Standards of this Manual.

This California MUTCD (including the incorporated FHWA's MUTCD) does not supersede the Department's Standard Plans, Standard Specifications or the Special Provisions publications. Nothing contained in the California MUTCD shall prevent the Department of Transportation from modifying, changing or adopting new specifications as necessary.

Guidance:

Any unauthorized traffic control device or other sign or message placed on the highway right-of-way by a private organization or individual constitutes a public nuisance and should be removed. All unofficial or nonessential traffic control devices, signs, or messages should be removed.

Standard:

All regulatory traffic control devices shall be supported by laws, ordinances, or regulations.

Support:

Provisions of this Manual are based upon the concept that effective traffic control depends upon both appropriate application of the devices and reasonable enforcement of the regulations.

California Vehicle Code (CVC) references are used throughout this California MUTCD 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 <u>Engineering Study and Engineering Judgment</u>

Standard:

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

Guidance:

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. 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 and replacement of traffic control devices, as well as in the location and design of the roads and streets that the devices complement. Jurisdictions with responsibility for traffic control that do not have engineers on their staffs should seek engineering assistance from others, such as the State transportation agency, their County, a nearby large City, or a traffic engineering consultant.

Support:

Refer to CVC 627 for definition and requirements of "Engineering and Traffic Survey". It is also abbreviated in this manual as E&TS.

Section 1A.10 <u>Interpretations, Experimentations, Changes, and Interim Approvals</u>

Standard:

Design, application, and placement of traffic control devices other than those adopted in this Manual shall be prohibited unless the provisions of this Section are followed.

Support:

Continuing advances in technology will produce changes in the highway, vehicle, and road user proficiency; therefore, portions of the system of traffic control devices in this Manual will require updating. In addition, unique situations often arise for device applications that might require interpretation or clarification of this Manual. It is important to have a procedure for recognizing these developments and for introducing new ideas and modifications into the system.

Standard:

Requests for any interpretation, permission to experiment, interim approval, or change to FHWA's MUTCD shall be sent to the Federal Highway Administration (FHWA), Office of Transportation Operations, 400 Seventh Street, SW, HOTO, Washington, DC 20590.

Support:

Requests for experimentation, interpretation, or changes relating to the California edited portion of the California MUTCD are covered later in this section.

An interpretation includes a consideration of the application and operation of standard traffic control devices, official meanings of standard traffic control devices, or the variations from standard device designs.

Guidance:

Requests for an interpretation of this Manual should contain the following information:

A. A concise statement of the interpretation being sought;

B. A description of the condition that provoked the need for an interpretation;

C. Any illustration that would be helpful to understand the request; and

D. Any supporting research data that is pertinent to the item to be interpreted.

Support:

Requests to experiment include consideration of field deployment for the purpose of testing or evaluating a new traffic control device, its application or manner of use, or a provision not specifically described in this Manual.

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.

A diagram indicating the process for experimenting with traffic control devices is shown in Figure 1A-1 and 1A-1(CA).

Guidance:

The request for permission to experiment should contain the following:

A. A statement indicating the nature of the problem.

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

C. Any illustration that would be helpful to understand the traffic control device or use of the traffic control device.

D. Any supporting data explaining how the traffic control device was developed, if it has been tried, in what ways it was found to be adequate or inadequate, and how this choice of device or application was derived.

E. A legally binding statement certifying that the concept of the traffic control device is not protected by a patent or copyright. (An example of a traffic control device concept would be countdown pedestrian signals in general. Ordinarily an entire general concept would not be patented or copyrighted, but if it were it would not be acceptable for experimentation unless the patent or copyright owner signs a waiver of rights acceptable to the FHWA. An example of a patented or copyrighted specific device within the general concept of countdown pedestrian signals would be a manufacturer's design for its specific brand of countdown signal, including the design details of the housing or electronics that are unique to that manufacturer's product. As long as the general concept is not patented or copyrighted, it is acceptable for experimentation to incorporate the use of one or more patented devices of one or several manufacturers.)

F. The time period and location(s) of the experiment.

G. A detailed research or evaluation plan that must provide for close monitoring of the experimentation, especially in the early stages of its field implementation. The evaluation plan should include before and after studies as well as quantitative data describing the performance of the experimental device.

H. An agreement to restore the site of the experiment to a condition that complies with the provisions of this Manual within 3 months following the end of the time period of the experiment. This agreement must also provide that the agency sponsoring the experimentation will terminate the experimentation at any time that it determines significant safety concerns are directly or indirectly attributable to the experimentation. The FHWA's Office of Transportation Operations has the right to terminate approval of the experimentation at any time if there is an indication of safety concerns. If, as a result of the experimentation, a request is made that this Manual be changed to include the device or application being experimented with, the device or application will be permitted to remain in place until an official rulemaking action has occurred.

I. An agreement to provide semiannual progress reports for the duration of the experimentation, and an agreement to provide a copy of the final results of the experimentation to the FHWA's Office of Transportation Operations within 3 months following completion of the experimentation. The FHWA's Office of Transportation Operations has the right to terminate approval of the experimentation if reports are not provided in accordance with this schedule.

Support:

A change includes consideration of a new device to replace a present standard device, an additional device to be added to the list of standard devices, or a revision to a traffic control device application or placement criteria.

Guidance:

Requests for a change to this Manual should contain the following information:

A. A statement indicating what change is proposed;

B. Any illustration that would be helpful to understand the request; and

C. Any supporting research data that is pertinent to the item to be reviewed.

Support:

Requests for interim approval include consideration of allowing interim use, pending official rulemaking, of a new traffic control device, a revision to the application or manner of use of an existing traffic control device, or a provision not specifically described in this Manual. If granted, interim approval will result in the traffic control device or application being placed into the next scheduled rulemaking process for revisions to this Manual. The device or application will be permitted to remain in place, under any conditions established in the interim approval, until an official rulemaking action has occurred.

Interim approval is considered based on the results of successful experimentation, results of analytical or laboratory studies, and/or review of non-U.S. experience with a traffic control device or application. Interim approval considerations include an assessment of relative risks, benefits, and costs. Interim approval includes conditions that jurisdictions agree to comply with in order to use the traffic control device or application until an official rulemaking action has occurred.

Guidance:

The request for permission to place a traffic control device under interim approval should contain the following:

A. A statement indicating the nature of the problem.

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

C. The location(s) where it will be used and any illustration that would be helpful to understand the traffic control device or use of the traffic control device.

D. A legally-binding statement certifying that the concept of the traffic control device is not protected by a patent or copyright. (An example of a traffic control device concept would be countdown pedestrian signals in general. Ordinarily an entire general concept would not be patented or copyrighted, but if it were it would not be acceptable for interim approval unless the patent or copyright owner signs a waiver of rights acceptable to the FHWA. An example of a patented or copyrighted specific device within the general concept of countdown pedestrian signals would be a manufacturer's design for its specific brand of countdown signal, including the design details of the housing or electronics that are unique to that manufacturer's product. Interim approval of a specific patented or copyrighted product is not acceptable.)

E. A detailed completed research or evaluation on this traffic control device.

F. An agreement to restore the site(s) of the interim approval to a condition that complies with the provisions in this Manual within 3 months following the issuance of a final rule on this traffic control device. This agreement must also provide that the agency sponsoring the interim approval will terminate use of the device or application installed under the interim approval at any time that it determines significant safety concerns are directly or indirectly attributable to the device or application. The FHWA's Office of Transportation Operations has the right to terminate the interim approval at any time if there is an indication of safety concerns.

Option:

A State may submit a request for interim approval for all jurisdictions in that State, as long as the request contains the information listed in the Guidance above.

Standard:

Once an interim approval is granted to any jurisdiction for a particular traffic control device or application, subsequent jurisdictions shall be granted interim approval for that device or application by submitting a letter to the FHWA Office of Transportation Operations indicating they will abide by Item F above and the specific conditions contained in the original interim approval.

A local jurisdiction using a traffic control device or application under an interim approval that was granted either directly to that jurisdiction or on a statewide basis based on the State's request shall inform the State of the locations of such use.

Support:

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

Procedures for revising this Manual are set out in the Federal Register of June 30, 1983 (48 FR 30145).

For additional information concerning interpretations, experimentation, changes, or interim approvals, write to the FHWA, 400 Seventh Street, SW, HOTO, Washington, DC 20590, or visit the MUTCD website at http://mutcd.fhwa.dot.gov.

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.

Standard:

The agency shall request and receive approval from the California Traffic Control Devices Committee prior to installation of experimentation devices on public roadways in California.

Support:

For information, contact:

Secretary,
California Traffic Control Devices Committee
(916) 654-4715.

The California MUTCD 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 edited portion of the California MUTCD 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.

Support:

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

Guidance:

Each proposal should include:

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

Secretary of the California Traffic Control Devices Committee. Status reports will describe the progress of the work, any particular deviation from the work plan and anticipated time of conclusion. The final report will contain, as a minimum, the basic information on the problem, the preliminary investigations, the proposed solutions, the study procedures, the detailed analysis of the data, the results of the work, a discussion of the results, and whatever conclusions are drawn. If a change in the California MUTCD is proposed, the recommended text (wording) for the California MUTCD should be included.

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

Termination of Experimentation

Standard:

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.

Support:

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

Section 1A.11 Relation to Other Publications

Standard:

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

Support:

The "Standard Highway Signs" book includes standard alphabets and symbols for highway signs and pavement markings.

For information about the above publications, visit the Federal Highway Administration's MUTCD website at http://mutcd.fhwa.dot.gov, or write to the FHWA, 400 Seventh Street, SW, HOTO, Washington, DC 20590.

The publication entitled "Federal-Aid Highway Program Guidance on High Occupancy Vehicle (HOV) Lanes" is available at http://www.fhwa.dot.gov/operations/hovguide01.htm, or write to the FHWA, 400 Seventh Street, SW, HOTM, Washington, DC 20590.

The publication entitled "Maintaining Traffic Sign Retroreflectivity" (2007 Edition) is available at www.fhwa.dot.gov/retro, or write to the FHWA, 1200 New Jersey Avenue, SE, HSA-1, Washington, DC 20590.

Other publications that are useful sources of information with respect to use of this Manual are listed below. See Page i of this Manual for ordering information for the following publications:

1A. "AAA School Safety Patrol Operations Manual," 2006 Edition (AAA)

1. "A Policy on Geometric Design of Highways and Streets," 2001 Edition (American Association of State Highway and Transportation Officials—AASHTO)
2. "Guide for the Development of Bicycle Facilities," 1999 Edition (AASHTO)
3. "Guide to Metric Conversion," 1993 Edition (AASHTO)

4. "Guidelines for the Selection of Supplemental Guide Signs for Traffic Generators Adjacent to Freeways," 2001 Edition (AASHTO)
5. "List of Control Cities for Use in Guide Signs on Interstate Highways," 2001 Edition (AASHTO)
6. "Roadside Design Guide," 2001 Edition (AASHTO)
7. "Standard Specifications for Movable Highway Bridges," 1988 Edition (AASHTO)
8. "Traffic Engineering Metric Conversion Folders— Addendum to the Guide to Metric Conversion," 1993 Edition (AASHTO)
9. "2000 AREMA Communications & Signals Manual," American Railway Engineering & Maintenance-of- Way Association (AREMA)
10. "Designing Sidewalks and Trails for Access—Part 2—Best Practices Design Guide," 2001 Edition (FHWA) [Publication No. FHWA-EP-01-027]
11. "Practice for Roadway Lighting," RP-8, 2001, Illuminating Engineering Society (IES)
12. "Safety Guide for the Prevention of Radio Frequency Radiation Hazards in the Use of Commercial Electric Detonators (Blasting Caps)," Safety Library Publication No. 20, Institute of Makers of Explosives
13. "American National Standard for High-Visibility Public Safety Vests," (ANSI/ISEA 207-2006), 2006 Edition (International Safety Equipment Association—ISEA)

13A. "American National Standard for High-Visibility Safety Apparel and Headwear," (ANSI/ISEA 107-2004), 2004 Edition, (ISEA).

14. "Manual of Traffic Signal Design," 1998 Edition (Institute of Transportation Engineers—ITE)
15. "Manual of Transportation Engineering Studies," 1994 Edition (ITE)
16. "Pedestrian Traffic Control Signal Indications," 1985 Edition (ITE)
17. "Preemption of Traffic Signals at or Near Railroad Grade Crossings with Active Warning Devices," (ITE)
18. "Purchase Specification for Flashing and Steady Burn Warning Lights," 1981 Edition (ITE)
19. "School Trip Safety Program Guidelines," 1984 Edition (ITE)
20. "Traffic Detector Handbook," 1991 Edition (ITE)
21. "Traffic Engineering Handbook," 1999 Edition (ITE)
22. "Traffic Signal Lamps," 1980 Edition (ITE)
23. "Traffic Control Devices Handbook," 2001 Edition (ITE)
24. "Vehicle Traffic Control Signal Heads," Part 1—1985 Edition; Part 2—1998 Edition (ITE)
25. "Uniform Vehicle Code (UVC) and Model Traffic Ordinance," 2000 Edition (National Committee on Uniform Traffic Laws and Ordinances)
26. "Occupational Safety and Health Administration Regulations (Standards - 29 CFR), General Safety and Health Provisions - 1926.20," amended June 30, 1993, Occupational Safety and Health Administration (OSHA)
27. "Highway Capacity Manual," 2000 Edition (Transportation Research Board—TRB)
28. "Recommended Procedures for the Safety Performance Evaluation of Highway Features," (NCHRP Report 350), 1993 Edition (Transportation Research Board - TRB)
29. "Accessible Pedestrian Signals," A-37, 1998 Edition, U.S. Architectural and Transportation Barriers Compliance Board (The U.S. Access Board)
30. "Building a True Community—Final Report—Public Rights-of-Way Access Advisory Committee (PRWAAC)," 2001 Edition (The U.S. Access Board)
31. "The Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG)," July 1998 Edition (The U.S. Access Board)
32. "Highway-Rail Intersection Architecture," U.S. Department of Transportation, Federal Railroad Administration (USDOT/FRA)

Standard:

The latest edition of Department of Transportation's California 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 the use of this Manual are listed below. See Appendix for a list of web sites that have direct access to some of these publications. See the Introduction Part of this California MUTCD for ordering information for the following publications:

A. "California Building Standards Code" 2001 Edition (California Building Standards Commission)
B. "California Business and Professions Code" (State of California)
C. "California Code of Regulations" (State of California)
D. "California Education Code" (State of California)
E. "California Government Code" (State of California)
F. "California Health and Safety Code" (State of California)
G. "California Streets and Highways Code" (State of California)
H. "California Vehicle Code" (CVC), 2006 Edition (Department of Motor Vehicles)
I. "Construction Manual", 2005 Edition. (Department of Transportation)
J. "Highway Design Handbook For Older Drivers And Pedestrians", 2001 Edition (Federal Highway Administration)
K. "Highway Design Manual", Fifth Edition (Department of Transportation)
L. "High-Occupancy Vehicle Guidelines", 2003 Edition (Department of Transportation)
M. "Historic Highway Bridges of California", (Department of Transportation)
N. "Maintenance Manual", 1999 Edition (Department of Transportation)
O. "Manual for Encroachment Permits on California State Highways", 2005 Edition (Department of Transportation)
P. "Plans, Specifications and Estimates Guide" (PS&E), 2006 Edition (Department of Transportation)
Q. "Project Development Procedures Manual", 2005 Edition (Department of Transportation)
R. "Ramp Meter Design Manual", 2000 Edition (Department of Transportation)
S. "Ready to List and Construction Contract Award Guide", 2009 Edition (Department of Transportation)
T. "Signal, Lighting and Electrical System Design Guide", 2007 Edition (Department of Transportation)
U. "Standard Plans", 2006 Edition (Department of Transportation)
V. "Standard Specifications", 2006 Edition (Department of Transportation)
W. "Standard Special Provisions", 2006 Edition (Department of Transportation)
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.12 <u>Color Code</u>

Support:

The following color code establishes general meanings for 10 colors of a total of 13 colors that have been identified as being appropriate for use in conveying traffic control information. Central values and tolerance limits for each color are available from the Federal Highway Administration, 400 Seventh Street, SW, HOTO, Washington, DC 20590, and at FHWA's MUTCD website at http://mutcd.fhwa.dot.gov.

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

Standard:

The general meaning of the 13 colors shall be as follows:

A. Black—regulation
B. Blue—road user services guidance, tourist information, and evacuation route
C. Brown—recreational and cultural interest area guidance
D. Coral—unassigned
E. Fluorescent Pink—incident management
F. Fluorescent Yellow-Green—pedestrian warning, bicycle warning, playground warning, school bus and school warning
G. Green—indicated movements permitted, direction guidance

H. Light Blue—unassigned
I. Orange—temporary traffic control
J. Purple—unassigned
K. Red—stop or prohibition
L. White—regulation
M. Yellow—warning

Section 1A.13 <u>Definitions of Words and Phrases in This Manual</u>
Standard:

Unless otherwise defined herein, or in the other Parts of this Manual, definitions contained in the most recent edition of the "Uniform Vehicle Code," "AASHTO Transportation Glossary (Highway Definitions)," "California Vehicle Code" and other publications specified in Section 1A.11 are also incorporated and adopted by reference.

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

1. Active Grade Crossing Warning System—the flashing-light signals, with or without warning gates, together with the necessary control equipment used to inform road users of the approach or presence of trains at highway-rail or highway-light rail transit grade crossings.
2. Approach—all lanes of traffic moving towards an intersection or a midblock location from one direction, including any adjacent parking lane(s).
3. Arterial Highway (Street)—a general term denoting a highway primarily used by through traffic, usually on a continuous route or a highway designated as part of an arterial system.
4. Average Day—a day representing traffic volumes normally and repeatedly found at a location. Where volumes are primarily influenced by employment, the average day is typically a weekday. When volumes are primarily influenced by entertainment or recreation, the average day is typically a weekend day.
5. Beacon—a highway traffic signal with one or more signal sections that operates in a flashing mode.
6. Bicycle—a pedal-powered vehicle upon which the human operator sits.
7. Bicycle Lane—a portion of a roadway that has been designated by signs and pavement markings for preferential or exclusive use by bicyclists.
7A. CVC – California Vehicle Code.
7B. California Sign Specifications – Detailed drawings of signs approved by the Department of Transportation for use in California.
8. Centerline Markings—the yellow pavement marking line(s) that delineates the separation of traffic lanes that have opposite directions of travel on a roadway. These markings need not be at the geometrical center of the pavement.
9. Changeable Message Sign—a sign that is capable of displaying more than one message, changeable manually, by remote control, or by automatic control. These signs are referred to as Dynamic Message Signs in the National Intelligent Transportation Systems (ITS) Architecture.
10. Channelizing Line Marking—a wide or double solid white line used to form islands where traffic in the same direction of travel is permitted on both sides of the island.
11. Circular Intersection—an intersection that has an island, generally circular in design, located in the center of the intersection where traffic passes to the right of the island. Circular intersections include roundabouts, rotaries, and traffic circles.
12. Clear Zone—the total roadside border area, starting at the edge of the traveled way, that is available for an errant driver to stop or regain control of a vehicle. This area might consist of a shoulder, a recoverable slope, and/or a nonrecoverable, traversable slope with a clear run-out area at its toe.
13. Concurrent Flow HOV Lane—an HOV lane that is operated in the same direction as the adjacent mixed flow lanes, separated from the adjacent general purpose freeway lanes by a standard lane stripe, painted buffer, or barrier.

14. Contraflow Lane—a lane operating in a direction opposite to the normal flow of traffic designated for peak direction of travel during at least a portion of the day. Contraflow lanes are usually separated from the off-peak direction lanes by plastic pylons, or by moveable or permanent barrier.

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

16. Collector Highway—a term denoting a highway that in rural areas connects small towns and local highways to arterial highways, and in urban areas provides land access and traffic circulation within residential, commercial, and business areas and connects local highways to the arterial highways.

17. Crashworthy—a characteristic of a roadside appurtenance that has been successfully crash tested in accordance with a national standard such as the National Cooperative Highway Research Program Report 350, "Recommended Procedures for the Safety Performance Evaluation of Highway Features."

18. Crosswalk—(a) that part of a roadway at an intersection included within the connections of the lateral lines of the sidewalks on opposite sides of the highway measured from the curbs or in the absence of curbs, from the edges of the traversable roadway, and in the absence of a sidewalk on one side of the roadway, the part of a roadway included within the extension of the lateral lines of the sidewalk at right angles to the centerline; (b) any portion of a roadway at an intersection or elsewhere distinctly indicated as a pedestrian crossing by lines on the surface, which may be supplemented by contrasting pavement texture, style, or color.

19. Crosswalk Lines—white pavement marking lines that identify a crosswalk.

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

20A. Department of Transportation – California Department of Transportation or Caltrans.

21. Detectable—having a continuous edge within 150 mm (6 in) of the surface so that pedestrians who have visual disabilities can sense its presence and receive usable guidance information.

21A. Divided Highway – A highway with separated roadbeds for traffic in opposing directions.

22. Dynamic Envelope—the clearance required for the train and its cargo overhang due to any combination of loading, lateral motion, or suspension failure.

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

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

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

26. Engineering Study—the comprehensive analysis and evaluation of available pertinent information, and the application of appropriate principles, engineering judgment, experience, education, discretion, Standards, Guidance, and practices as contained in this Manual and other sources, for the purpose of deciding upon the applicability, design, operation, or installation of a traffic control device. An engineering study shall be performed by an engineer, or by an individual working under the supervision of an engineer, through the application of procedures and criteria established by the engineer. An engineering study shall be documented.

27. Expressway—a divided highway with partial control of access.

28. Flashing—an operation in which a signal indication is turned on and off repetitively.

29. Freeway—a divided highway with full control of access.

30. Guide Sign—a sign that shows route designations, destinations, directions, distances, services, points of interest, or other geographical, recreational, or cultural information.
31. High Occupancy Vehicle (HOV)—a motor vehicle carrying at least two or more persons, including carpools, vanpools, and buses.
32. Highway—a general term for denoting a public way for purposes of travel by vehicular travel, including the entire area within the right-of-way.
33. Highway-Rail Grade Crossing—the general area where a highway and a railroad's right-of-way cross at the same level, within which are included the railroad tracks, highway, and traffic control devices for highway traffic traversing that area.
34. Highway Traffic Signal—a power-operated traffic control device by which traffic is warned or directed to take some specific action. These devices do not include signals at toll plazas, power operated signs, illuminated pavement markers, warning lights (see Section 6F.78), or steady burning electric lamps.
35. HOV Lane—any preferential lane designated for exclusive use by high-occupancy vehicles for all or part of a day—including a designated lane on a freeway, other highway, street, or independent roadway on a separate right-of-way.
36. Inherently Low Emission Vehicle (ILEV)—any kind of vehicle that is certified by the U.S. Environmental Protection Agency and that because of inherent properties of the fuel system design, will not have significant evaporative emissions, even if its evaporative emission control system has failed.
37. Interchange—a system of interconnecting roadways providing for traffic movement between two or more highways that do not intersect at grade.
38. Intermediate Interchange—an interchange with an urban or rural route that is not a major or minor interchange as defined herein.
39. Intersection—(a) the area embraced within the prolongation or connection of the lateral curb lines, or if none, the lateral boundary lines of the roadways of two highways that join one another at, or approximately at, right angles, or the area within which vehicles traveling on different highways that join at any other angle might come into conflict; (b) the junction of an alley or driveway with a roadway or highway shall not constitute an intersection.
40. Island—a defined area between traffic lanes for control of vehicular movements or for pedestrian refuge. It includes all end protection and approach treatments. Within an intersection area, a median or an outer separation is considered to be an island.
41. Lane Line Markings—white pavement marking lines that delineate the separation of traffic lanes that have the same direction of travel on a roadway.
42. Lane-Use Control Signal—a signal face displaying indications to permit or prohibit the use of specific lanes of a roadway or to indicate the impending prohibition of such use.
43. Legend—see Sign Legend.
44. Logo—a distinctive emblem, symbol, or trademark that identifies a product or service.
45. Longitudinal Markings—pavement markings that are generally placed parallel and adjacent to the flow of traffic such as lane lines, centerlines, edge lines, channelizing lines, and others.
46. Major Interchange—an interchange with another freeway or expressway, or an interchange with a high-volume multi-lane highway, principal urban arterial, or major rural route where the interchanging traffic is heavy or includes many road users unfamiliar with the area.
47. Major Street—the street normally carrying the higher volume of vehicular traffic.
47A. Markings – All lines, words, or symbols, except signs, officially placed within the roadway to regulate, warn or guide traffic.
48. Median—the area between two roadways of a divided highway measured from edge of traveled way to edge of traveled way. The median excludes turn lanes. The median width might be different between intersections, interchanges, and at opposite approaches of the same intersection.

49. Minor Interchange—an interchange where traffic is local and very light, such as interchanges with land service access roads. Where the sum of the exit volumes is estimated to be lower than 100 vehicles per day in the design year, the interchange is classified as local.
50. Minor Street—the street normally carrying the lower volume of vehicular traffic.
51. Object Marker—a device used to mark obstructions within or adjacent to the roadway.
52. Occupancy Requirement—any restriction that regulates the use of a facility for any period of the day based on a specified number of persons in a vehicle.
53. Occupant—a person driving or riding in a car, truck, bus, or other vehicle.
54. Paved—a bituminous surface treatment, mixed bituminous concrete, or Portland cement concrete roadway surface that has both a structural (weight bearing) and a sealing purpose for the roadway.
55. Pedestrian—a person afoot, in a wheelchair, on skates, or on a skateboard.
56. Pedestrian Facilities—a general term denoting improvements and provisions made to accommodate or encourage walking.
57. Platoon—a group of vehicles or pedestrians traveling together as a group, either voluntarily or involuntarily, because of traffic signal controls, geometrics, or other factors.
58. Principal Legend—place names, street names, and route numbers placed on guide signs.
59. Public Road—any road or street under the jurisdiction of and maintained by a public agency and open to public travel.
60. Raised Pavement Marker—a device with a height of at least 10 mm (0.4 in) mounted on or in a road surface that is intended to be used as a positioning guide or to supplement or substitute for pavement markings or to mark the position of a fire hydrant.
61. Regulatory Sign—a sign that gives notice to road users of traffic laws or regulations.
62. Retroreflectivity—a property of a surface that allows a large portion of the light coming from a point source to be returned directly back to a point near its origin.
63. Right-of-Way [Assignment]—the permitting of vehicles and/or pedestrians to proceed in a lawful manner in preference to other vehicles or pedestrians by the display of sign or signal indications.
64. Road—see Roadway.
65. Roadway—that portion of a highway improved, designed, or ordinarily used for vehicular travel and parking lanes, but exclusive of the sidewalk, berm, or shoulder even though such sidewalk, berm, or shoulder is used by persons riding bicycles or other human-powered vehicles. In the event a highway includes two or more separate roadways, the term roadway as used herein shall refer to any such roadway separately, but not to all such roadways collectively.
66. Roadway Network—a geographical arrangement of intersecting roadways.
67. Road User—a vehicle operator, bicyclist, or pedestrian within the highway, including persons with disabilities.
68. Roundabout Intersection—a circular intersection with yield control of all entering traffic, channelized approaches, and appropriate geometric curvature, such that travel speeds on the circulatory roadway are typically less than 50 km/h (30 mph).
69. Rumble Strip - a series of intermittent, narrow, transverse areas of rough-textured, slightly raised, or depressed road surface that is installed to alert road users to unusual traffic conditions.
70. Rural Highway—a type of roadway normally characterized by lower volumes, higher speeds, fewer turning conflicts, and less conflict with pedestrians.
70A. 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.
71. Shared Roadway—a roadway that is officially designated and marked as a bicycle route, but which is open to motor vehicle travel and upon which no bicycle lane is designated.
72. Shared-Use Path—a bikeway outside the traveled way and physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent alignment. Shared-use paths are also used by pedestrians

(including skaters, users of manual and motorized wheelchairs, and joggers) and other authorized motorized and nonmotorized users.

72A. 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.

73. Sidewalk—that portion of a street between the curb line, or the lateral line of a roadway, and the adjacent property line or on easements of private property that is paved or improved and intended for use by pedestrians.

74. Sign—any traffic control device that is intended to communicate specific information to road users through a word or symbol legend. Signs do not include traffic control signals, pavement markings, delineators, or channelization devices.

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

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

77. Sign Legend—all word messages, logos, and symbol designs that are intended to convey specific meanings.

78. Sign Panel—a separate panel or piece of material containing a word or symbol legend that is affixed to the face of a sign.

79. Speed—speed is defined based on the following classifications:

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

(b) Average Speed—the summation of the instantaneous or spot-measured speeds at a specific location of vehicles divided by the number of vehicles observed.

(c) Design Speed—a selected speed used to determine the various geometric design features of a roadway.

(d) 85th-Percentile Speed—The speed at or below which 85 percent of the motor vehicles travel.

(e) Operating Speed—a speed at which a typical vehicle or the overall traffic operates. Operating speed might be defined with speed values such as the average, pace, or 85th-percentile speeds.

(f) Pace Speed—the highest speed within a specific range of speeds that represents more vehicles than in any other like range of speed. The range of speeds typically used is 10 km/h or 10 mph.

(g) Posted Speed—the speed limit determined by law and shown on Speed Limit signs.

(h) Statutory Speed—a speed limit established by legislative action that typically is applicable for highways with specified design, functional, jurisdictional and/or location characteristic and is not necessarily shown on Speed Limit signs.

80. Speed Limit—the maximum (or minimum) speed applicable to a section of highway as established by law.

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

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

82A. State Highway – Any highway owned and operated by the Department of Transportation.

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

84. Street—see Highway.

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

86. Traffic—pedestrians, bicyclists, ridden or herded animals, vehicles, streetcars, and other conveyances either singularly or together while using any highway for purposes of travel.

87. Traffic Control Device—a sign, signal, marking, or other device used to regulate, warn, or guide traffic, placed on, over, or adjacent to a street, highway, pedestrian facility, or shared-use path by authority of a public agency having jurisdiction.

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

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

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

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

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

93. Vehicle—every device in, upon, or by which any person or property can be transported or drawn upon a highway, except trains and light rail transit operating in exclusive or semiexclusive alignments. Light rail transit operating in a mixed-use alignment, to which other traffic is not required to yield the right-of-way by law, is a vehicle.

94. Warning Sign—a sign that gives notice to road users of a situation that might not be readily apparent.

95. Warrant—a warrant describes threshold conditions to the engineer in evaluating the potential safety and operational benefits of traffic control devices and is based upon average or normal conditions. Warrants are not a substitute for engineering judgment. The fact that a warrant for a particular traffic control device is met is not conclusive justification for the installation of the device.

95A. Worker—people on foot whose duties place them within the right-of-way of a street or highway, such as street or highway construction and maintenance forces; survey crews; utility crews; responders to incidents within the street or highway right-of-way; firefighters and other emergency responders when they are not directly exposed to flame, fire, heat, and/or hazardous materials; and law enforcement personnel when directing traffic, investigating crashes, and handling lane closures, obstructed roadways, and disasters within the right-of-way of a street or highway.

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

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.

Section 1A.14 <u>Abbreviations Used on Traffic Control Devices</u>

Standard:

When the word messages shown in Table 1A-1 need to be abbreviated in connection with traffic control devices, the abbreviations shown in Table 1A-1 shall be used.

Guidance:

The abbreviations for the words listed in Table 1A-2 should not be used in connection with traffic control devices unless the prompt word shown in Table 1A-2 either precedes or follows the abbreviation.

Standard:

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

Guidance:

Where multiple abbreviations are permitted in Tables 1A-1 or 1A-2, the same abbreviation should be used throughout a single jurisdiction.

Figure 1A-1. Example of Process for Requesting and Conducting Experimentations for New Traffic Control Devices

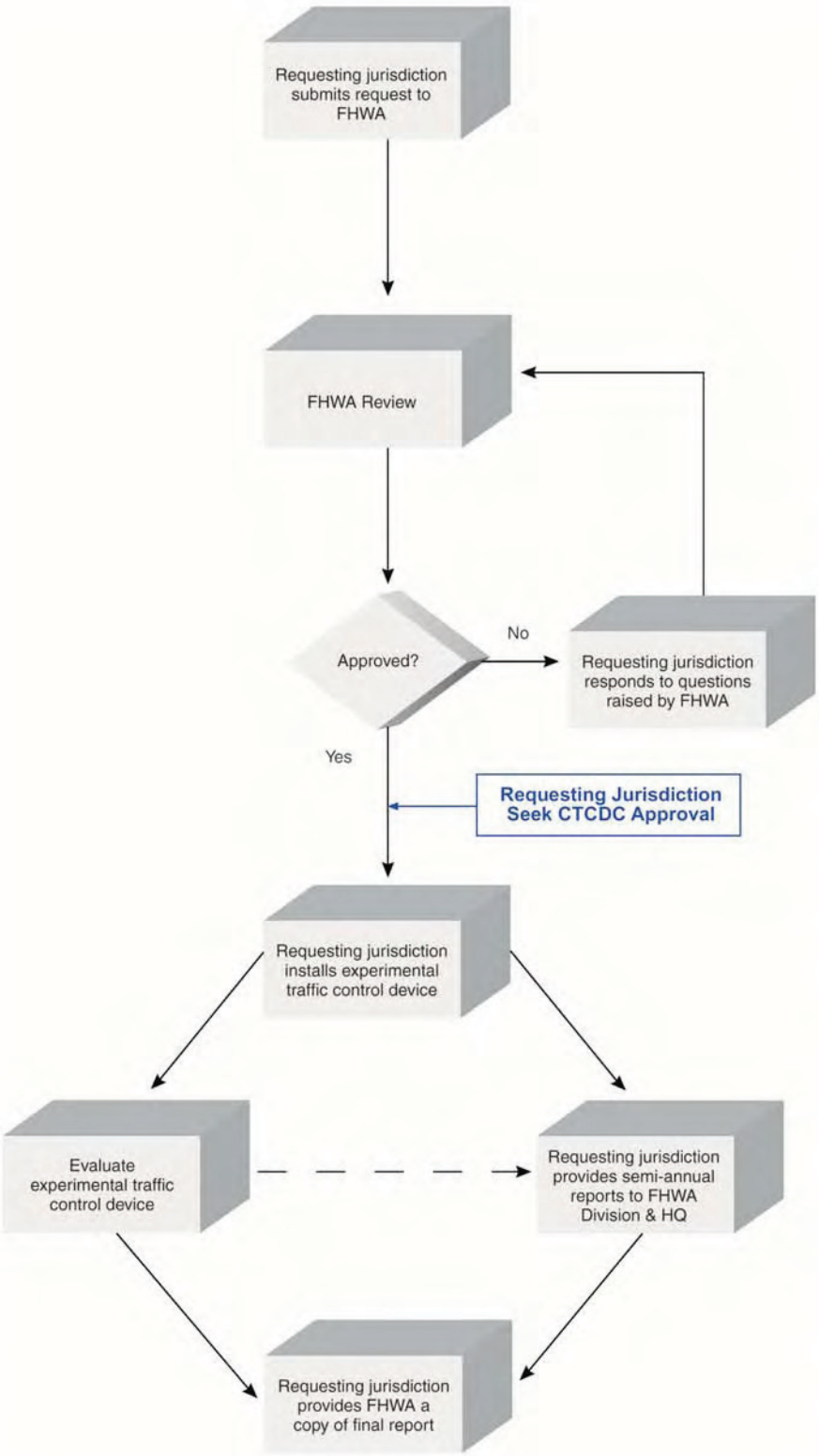

Figure 1A-1 (CA). Example for Requesting and Conducting Experimentations for New Traffic Control Devices in California

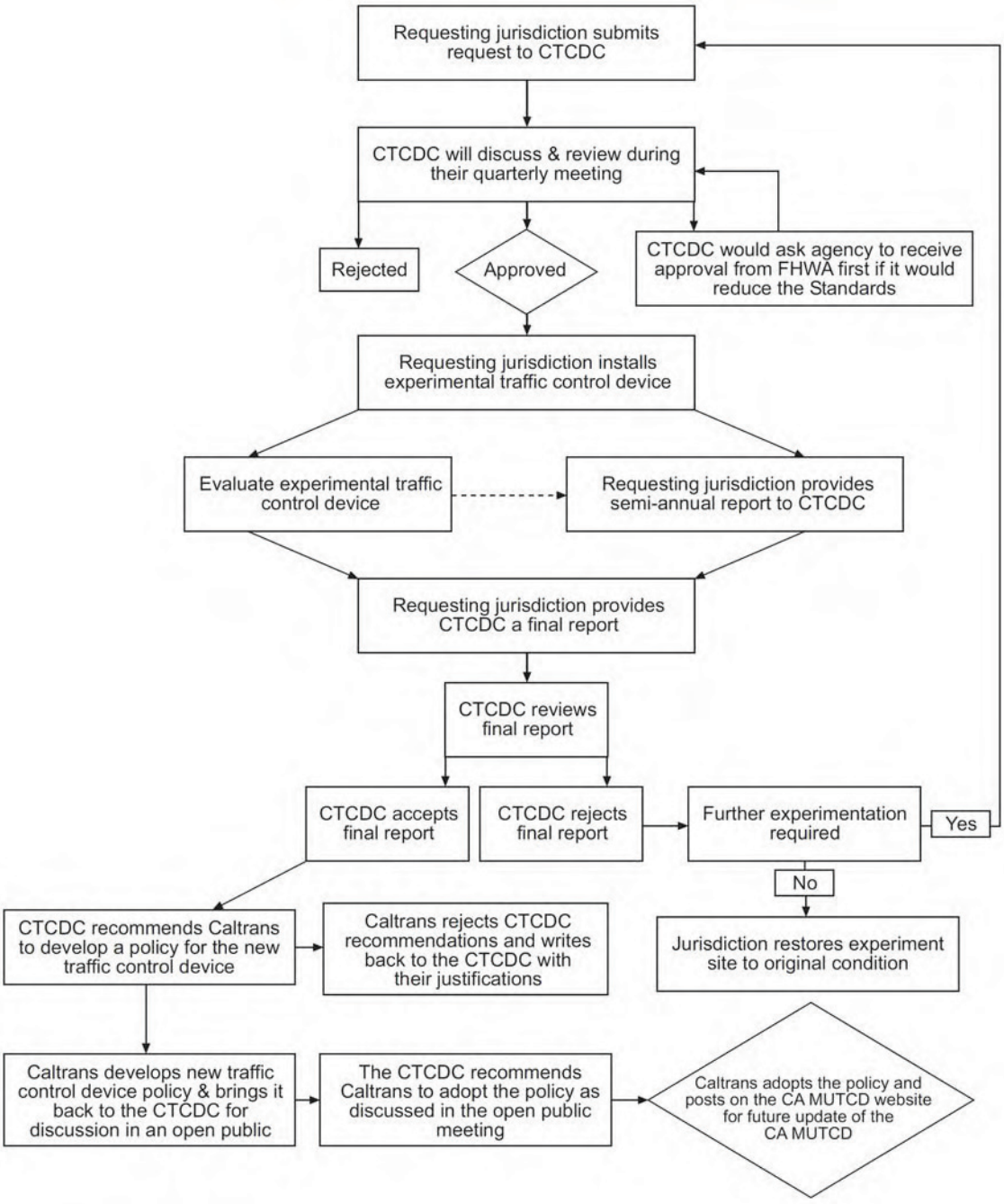

Figure 1A-2. Example of Process for Incorporating New Traffic Control Devices into the MUTCD

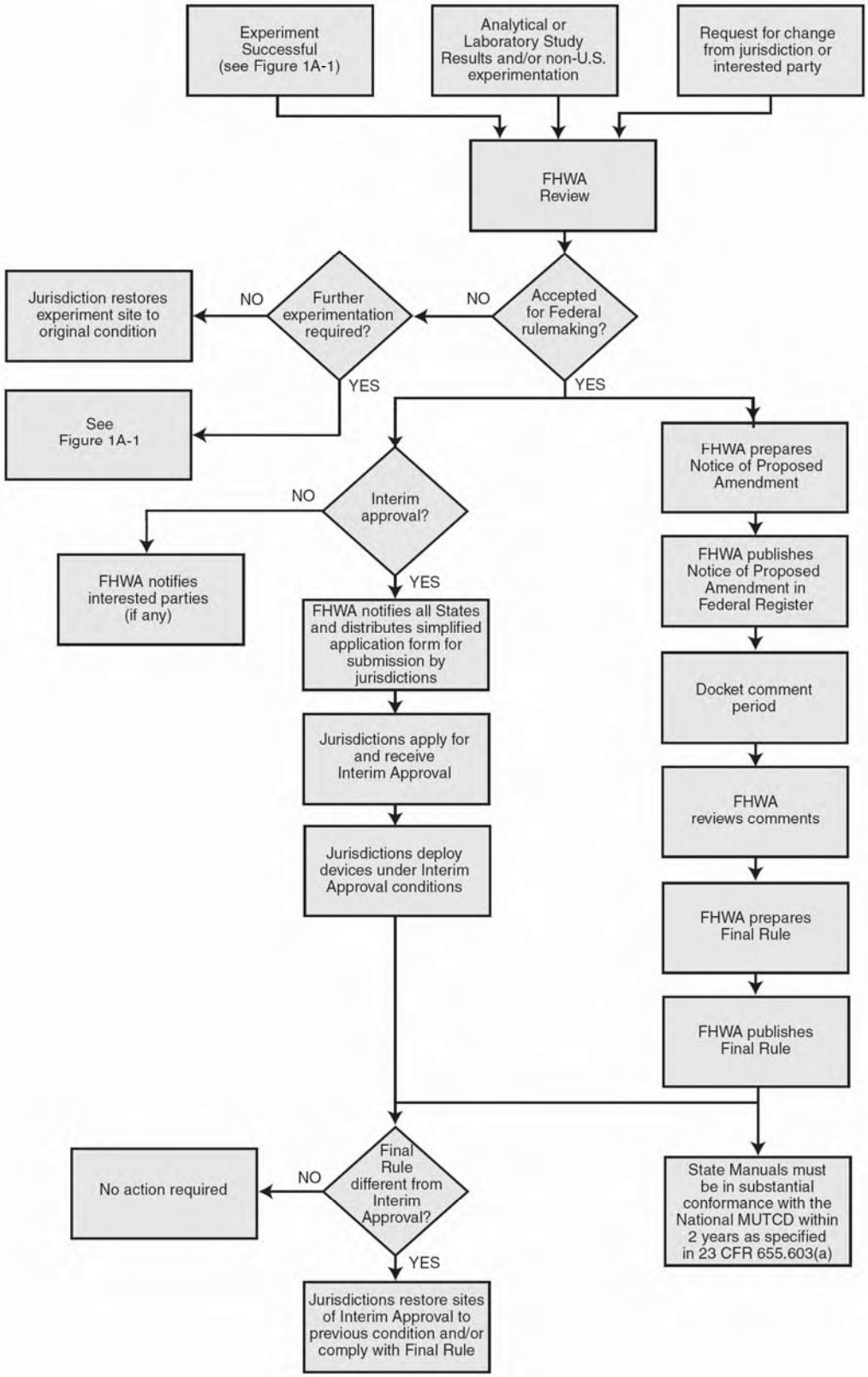

Figure 1A-2 (CA). Example for Process for the Use of Traffic Control Devices in California Approved as Interim Approval (IA) by FHWA

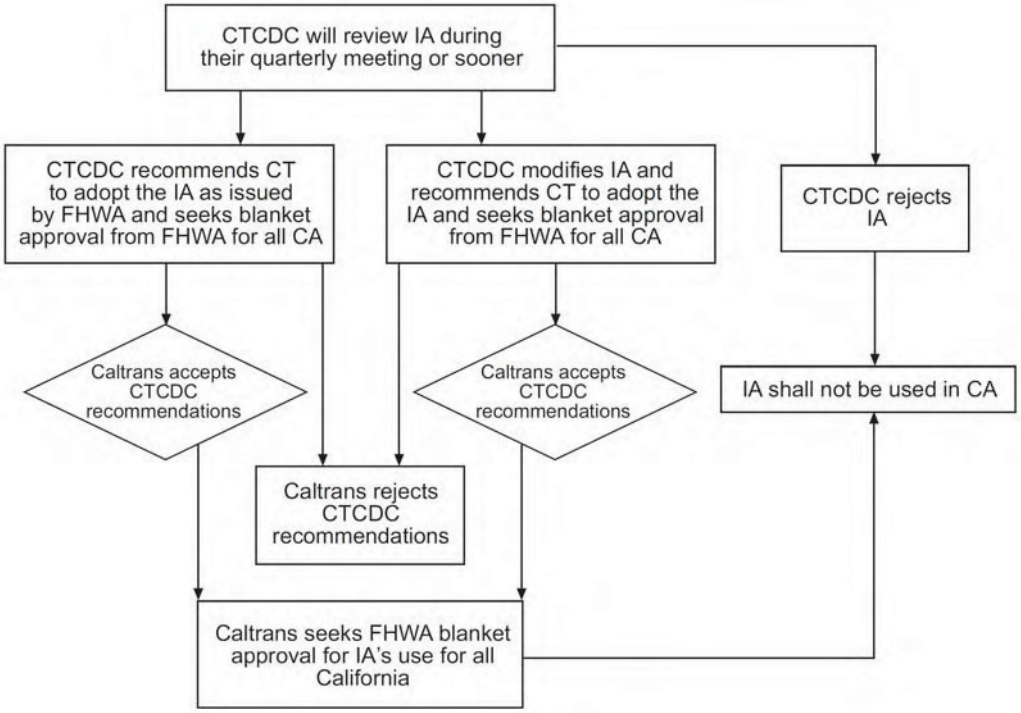

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Table 1A-1. Acceptable Abbreviations

Word Message	Standard Abbreviation
Afternoon / Evening	PM
Alternate	ALT
Avenue	AVE, AV
Bicycle	BIKE
Boulevard	BLVD
Cannot	CANT
CB Radio	CB
Center	CNTR
Circle	CIR
Civil Defense	CD
Compressed Natural Gas	CNG
Court	CT
Crossing (other than highway-rail)	XING
Diesel Fuel	D
Do Not	DONT
Drive	DR
East	E
Eastbound	E-BND
Electric Vehicle	EV
Emergency	EMER
Entrance, Enter	ENT
Expressway	EXPWY
Feet	FT
FM Radio	FM
Freeway	FRWY, FWY
Friday	FRI
Hazardous Material	HAZMAT
High Occupancy Vehicle	HOV
Highway	HWY
Highway-Rail Grade Crossing Pavement Marking	RXR
Hospital	H
Hour(s)	HR
Information	INFO
Inherently Low Emission Vehicle	ILEV
It Is	ITS
Junction / Intersection	JCT
Kilogram	kg
Kilometer(s)	km
Kilometers Per Hour	km/h
Lane	LN
Left	LFT
Liquid Propane Gas	LP-GAS

Word Message	Standard Abbreviation
Maintenance	MAINT
Meter(s)	m
Metric Ton	t
Mile(s)	MI
Miles Per Hour	MPH
Minute(s)	MIN
Monday	MON
Morning / Late Night	AM
Normal	NORM
North	N
Northbound	N-BND
Parking	PKING
Parkway	PKWY
Pedestrian	PED
Place	PL
Pounds	LBS
Right	RHT
Road	RD
Saturday	SAT
Service	SERV
Shoulder	SHLDR
Slippery	SLIP
South	S
Southbound	S-BND
Speed	SPD
Street	ST
Sunday	SUN
Telephone	PHONE
Temporary	TEMP
Terrace	TER
Thursday	THURS
Tires With Lugs	LUGS
Tons of Weight	T
Traffic	TRAF
Trail	TR
Travelers	TRAVLRS
Tuesday	TUES
Two-Way Intersection	2-WAY
Two-Wheeled Vehicles	CYCLES
US Numbered Route	US
Vehicle(s)	VEH
Warning	WARN
Wednesday	WED
West	W
Westbound	W-BND
Will Not	WONT

Table 1A-2. Abbreviations That Are Acceptable Only with a Prompt Word

Word	Abbreviation	Prompt Word
Access	ACCS	Road
Ahead	AHD	Fog*
Blocked	BLKD	Lane*
Bridge	BRDG	[Name]*
Chemical	CHEM	Spill
Condition	COND	Traffic*
Congested	CONG	Traffic*
Construction	CONST	Ahead
Downtown	DWNTN	Traffic
Exit	EX, EXT	Next*
Express	EXP	Lane
Frontage	FRNTG	Road
Hazardous	HAZ	Driving
Interstate	I	[Number]
Local	LOC	Traffic
Lower	LWR	Level
Major	MAJ	Accident
Minor	MNR	Accident
Oversized	OVRSZ	Load
Prepare	PREP	To Stop
Pavement	PVMT	Wet*
Quality	QLTY	Air*
Roadwork	RDWK	Ahead [Distance]
Route	RT, RTE	Best*
Township	TWNSHP	Limits
Turnpike	TRNPK	[Name]*
Upper	UPR	Level

* These prompt words should precede the abbreviation

Table 1A-3. Unacceptable Abbreviations

Abbreviation	Intended Word	Common Misinterpretations
ACC	Accident	Access (Road)
CLRS	Clears	Colors
DLY	Delay	Daily
FDR	Feeder	Federal
L	Left	Lane (Merge)
LT	Light (Traffic)	Left
PARK	Parking	Park
POLL	Pollution (Index)	Poll
RED	Reduce	Red
STAD	Stadium	Standard
WRNG	Warning	Wrong

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