



California Traffic Control Devices Committee Agenda Item Report



Meeting Date: August 04, 2022	From: Gurinderpal (Johnny) Bhullar, PE, TE, Secretary, CTCDC
Item Number: 21-16	
Sponsored By: Yue Wang, PE, Caltrans	Presented By: Gurinderpal (Johnny) Bhullar, PE, TE, Secretary, CTCDC
Description: Revisions to Speed Limit policy to comply with Assembly Bill AB-43's (on Traffic Safety) provisions revising Vehicle Code Sections beginning January 1, 2022.	

Recommendation:

Motion by committee to recommend inclusion of the proposed changes to the CA MUTCD Section 2B.13 "Speed Limit Sign (R2-1)", Table 2B-101 (CA) and Table 2B-102(CA) to comply with 9 of the total 16 Assembly Bill AB-43's (on Traffic Safety) provisions revising Vehicle Code Sections beginning January 1, 2022.

Agency Making Request/Sponsor:

Caltrans.

Background:

Assembly Bill AB-43 titled "Traffic Safety" authored by Friedman (D), Chiu (D), Gipson (D), Quirk (D) and Ting (D), et al., was voted upon and passed by California Assembly on September 9, 2021 and approved by Governor and Filed with Secretary of State on October 08, 2021.

AB-43 provides Caltrans and local authorities greater flexibility in setting and reducing speed limits based on recommendations the Zero Traffic Fatality Task Force (Task Force) made in January 2020. In 2018 AB 2363 required the Secretary of the State Transportation Agency to convene a task force to develop policies for reducing traffic fatalities to zero. The task force commissioned research on speed setting from the UC Institute of Transportation Studies (UC ITS) and issued a report on its findings based on that research in January 2020 entitled "CalSTA Report of Findings; AB 2363 Zero Traffic Fatalities Task Force". The report included 27 policy recommendations, and 16 findings recommendations that are broken into four categories: establishing speed limits, engineering, enforcement and education. This bill includes seven policy recommendations on establishing speed limits outlined in the report.

AB-43 includes the following provisions which have been summarized for brevity, please refer to the links provided below for the detailed AB-43 provisions:

- Increased considerations for vulnerable pedestrian groups, when performing E&TS.
- To lower the speed limit to as low as 15 mph pursuant to an ETS.
- Provides rounding speed limit from the 85th percentile speed either up or down.



California Traffic Control Devices Committee Agenda Item Report



- To reduce speed limit by 5 mph for highway designated as a safety corridor, or the portion of highway is adjacent to any land or facility that generates high concentrations of bicyclists or pedestrians.
- Allows retaining the current speed limit or restore the immediately prior speed limit if no additional general-purpose lanes have been added to the roadway since completion of E&TS.
- Defines a business activity district and allows 25 mph or 20 mph prima facie speed limit in it, when highway has a maximum of four traffic lanes.

AB-43 amends Sections 627, 21400, 22352, 22354, 22358, and 40802, and adds Sections 22358.6, 22358.7, 22358.8, and 22358.9 to, the Vehicle Code, relating to traffic safety effective January 1, 2022.

Refer to the following for more background and information on AB-43:

1. Text of AB-43 Traffic safety:
https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220AB43
2. AB-43 Bill Analyses:
https://leginfo.legislature.ca.gov/faces/billAnalysisClient.xhtml?bill_id=202120220AB43#
3. AB-43 Today's Law As Amended:
https://leginfo.legislature.ca.gov/faces/billCompareClient.xhtml?bill_id=202120220AB43&showamends=false

Pursuant to the motion passed by CTCDC during the November 4, 2021, meeting, a subcommittee was formed to review Agenda Item 21-16, which is a Caltrans proposal to revise current CA MUTCD policy for setting speed limits, to comply with the recently approved Assembly Bill (AB-43). This bill (AB-43) revised specific Vehicle Code sections, beginning January 1, 2022. The subcommittee is comprised of 16 members affiliated with California Cities, Counties, Caltrans, CHP, automobile club, regional planning organization representatives and private consultants. The subcommittee members reviewed AB-43's revisions of the Vehicle Code and compared it to CA MUTCD current policy and the CA MUTCD policy revision proposal in a series of three, 3-hour meetings conducted virtually in December 2021. The subcommittee meeting discussions and outcome with recommendation on the proposal was shared with Caltrans management in January 2022 to ensure compliance with AB-43.

Caltrans initial proposal submitted under Agenda Item 21-16 for the November 4, 2021, CTCDC Meeting did not include the new Vehicle Code section 22358.7, that requires developing a definition for "safety corridor" and developing criteria to determine what constitutes land or facilities that generate high concentrations of bicyclists and pedestrians. This effort has been initiated and a draft proposal was prepared. The draft proposal was reviewed internally by Caltrans and then shared



California Traffic Control Devices Committee Agenda Item Report



and discussed with CTCDC subcommittee members in three meetings in June (June 9, 2022 & June 23, 2022) and July (July 6, 2022) for their review and to solicit input. The proposal for CVC Section 22358.7 is being revised based on the input and comments received from subcommittee members and will be brought to the CTCDC for further review and recommendation in a future CTCDC meeting.

Caltrans proposal, including CTCDC Subcommittee recommendations is pending Caltrans management review and California State Transportation Agency (CalSTA) review and decision to ensure compliance with AB-43 provisions due to interpretation concerns on AB-43 intent and clarification on specific AB-43 text.

AB-43 authors-initiated AB-1938 to clarify AB-43 text and intent. Assembly Bill AB-1938 titled "Traffic Safety: speed limits" authored by Friedman (D), Quirk (D) and Ting (D), et al., was introduced in California Assembly on February 10, 2022 (2021-2022 legislative cycle) and is currently pending further legislative actions.

AB-1938 clarifies the circumstances where and how much a local authority may lower the speed limit below that indicated by an ETS. Following are some excerpts from this bill's analysis and comments in the Senate Committee on Transportation document:

- DIGEST: This bill would, if the speed limit needs to be rounded down to the nearest 5 miles per hour increment of the 85th-percentile speed, authorize Caltrans or a local authority to lower the speed limit by 5 miles per hour from the nearest 5 miles per hour of the 85th percentile, as specified.
- COMMENTS:
 - 1) Author's Statement. "Last year the Governor signed my bill AB 43 to give cities more flexibility to lower speed limits. Unfortunately, some have interpreted AB 43 in a manner that removed pre-existing authority to deviate from the 85th percentile speed, an interpretation that would give cities less, not more flexibility on setting speed limits. AB 1938 simply codifies the pre-existing authority on setting speed limits and clarifies that the additional authority granted by AB 43 was meant to supplement, not supplant, that authority."
 - 2) Speed Limit Setting. Last year the Legislature enacted major reforms, in the form of AB 43, to the process for setting speed limits with the intent of giving local governments specified authority to lower speed limits to reduce crashes and accidents. The implementation of those reforms has hit a speed bump with the Administration requesting a change in the law to implement the bill as intended. Without this change local government supporters of AB 43 are concerned that they will be required to increase speed limits rather than decrease them.



California Traffic Control Devices Committee Agenda Item Report



3) Clarifying amendments. There is some uncertainty about the impact of this bill, particularly if the provisions are challenged in court. Since there is widespread agreement that the purpose of this bill is to implement AB 43 as intended, and the intent of AB 43 was to lower speed limits by not more than 12.4 miles per hour from what would have resulted from an ETS, the author may wish to state this intent in the text of the bill. Also, subdivision (b) of the bill would be clearer if the reference to Sections 22358.3 and 22360 were deleted as they stand alone and are not related to the ETS. Finally, in subdivision (d) the reference to “22358.7 and 22358.8” should be replaced with “22358.7 or 22358.8” so that it's clear either subdivision can be used to lower the speed limit but that the two sections cannot be combined to lower the speed limit twice.

Refer to the following for more background and information on AB-1938:

1. Text of AB-1938 Traffic safety:
https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=202120220AB1938
2. AB-1938 Bill Analyses:
https://leginfo.legislature.ca.gov/faces/billAnalysisClient.xhtml?bill_id=202120220AB1938
3. AB-43 Today's Law As Amended:
https://leginfo.legislature.ca.gov/faces/billCompareClient.xhtml?bill_id=202120220AB1938&showamends=false

As a result of the concerns on AB-43 provisions' interpretation and intent and pending AB-1938 legislative action, Caltrans overall proposal is pending finalization of AB-1938 legislative action before finalizing the speed limit revision proposal and bringing it to CTCDC meeting for formal recommendation to incorporate into CA MUTCD. In reviewing AB-43 provisions, Caltrans identified 16 specific revisions of Vehicle Code Sections. Summary of these 16 provisions and intended actions follows.

Proceeding with the following 9 of 16 AB-43 provisions that were clear with straightforward interpretations as CTCDC agenda item at this meeting (August 4, 2022) to gain formal recommendation from CTCDC for CA MUTCD incorporation. This will alleviate effort involved in processing the remaining AB-43 provisions and not keep all provisions pending AB1938 legislative action.

- 627c2 revision: extending the considerations for ped and bike safety to increase consideration for children, seniors, persons with disability, and the unhoused
- 22352b1 revision: extending prima-facie speed limit to be applicable to state highways also



- 22354a revision: allowing the lower limit of prima-facie speed limit on the state highway to 20 or 15 (25 was the prior lower limit). Please note there are other unchanged statutes that describe how/when to set those limits.
- 22358a revision: allowing the lower limit of prima-facie speed limit on the non-state highway to 25, 20 or 15 (30 was the prior lower limit). Please note there are other unchanged statutes that describe how/when to set those limits.
- 40802a2 revision: adding the new senior zone and business activity districts to the list of prima facie listing within the citation
- 40802b3 new: adding definition of senior zone as explicitly defined in the citation
- 40802b4 new: adding definition of business activity district as explicitly defined in the citation
- 40802c2Bi(II) revision: extends the maximum length of time an engineering and traffic survey may be used from 10 to 14 years
- 40802c2Bii revision: add senior zone and business activity district to the list of prima facie listing within the citation

Holding the following 5 of 16 AB-43 provisions that are being addressed by AB-1938 legislation and pending further legislative action, before including them as CTCDC agenda item in a future meeting to gain formal recommendation from CTCDC for CA MUTCD incorporation.

- 22358.6 Rounding and ETS reductions from the 85th percentile for any speed survey
- 21400(b) (pre-AB43 before 1/1/22) Deleted text to be replaced by 22358.6
- 22358.7 Reduction provisions for Safety Corridor & High Concentrations of Ped/Bikes
- 22358.8 Reduction provisions for retaining current/prior speed limits
- 22358.9 Reduction provisions for Business Activity Districts

No plans to include the following 2 of 16 AB-43 provisions as the text pertaining to these Vehicle Code sections is not included in current or previous CA MUTCD versions, so there is no text that needed to be changed in CA MUTCD.

- 22352a1 terminology change from “flagman” to “flagperson”
- 40802b1 deletion of “California Road System Maps” reference.



California Traffic Control Devices Committee Agenda Item Report



Attachments:

- Attachment A – Proposed Revisions to CA MUTCD Section 2B.13.
- Attachment B - Proposed Revisions to CA MUTCD Table 2B-101 (CA).
- Attachment C - Proposed Revisions to CA MUTCD Table 2B-102(CA).



ATTACHMENT A

Attachment E – Proposed Revisions to CA MUTCD Section 2B.13.

Proposal:

Note:

Black text is unedited National MUTCD text adopted for use in current CA MUTCD.

~~Black strikethrough text~~ is National MUTCD text that is not applicable in California as shown in current CA MUTCD.

Blue text is California text additions adopted for use in current CA MUTCD.

~~Red strikethrough text~~ is text that is proposed to be deleted from the current CA MUTCD by this proposal.

Red text is text that is proposed to be included in the current CA MUTCD by this proposal.

Modify Section 2B.13 as shown:

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

Support:

⁰⁰ The setting of speed limits can be controversial and requires a rational and defensible determination to maintain public confidence. Speed limits are normally set near the 85th-percentile speed that statistically represents one standard deviation above the average speed and establishes the upper limit of what is considered reasonable and prudent. As with most laws, speed limits need to depend on the voluntary compliance of the greater majority of motorists. Speed limits cannot be set arbitrarily low, as this would create violators of the majority of drivers and would not command the respect of the public.

Standard:

⁰¹ **Speed zones (other than statutory speed limits) shall only be established on the basis of an engineering and traffic survey (E&TS) study that has been performed in accordance with traffic engineering practices. The engineering study shall include an analysis of the current speed distribution of free-flowing vehicles.**

⁰² **The Speed Limit (R2-1) sign (see Figure 2B-3) shall display the limit established by law, ordinance, regulation, or as adopted by the authorized agency based on the engineering study. The speed limits displayed shall be in multiples of 5 mph.**

⁰³ **Speed Limit (R2-1) signs, indicating speed limits for which posting is required by law, shall be located at the points of change from one speed limit to another.**

⁰⁴ **At the downstream end of the section to which a speed limit applies, a Speed Limit sign showing the next speed limit shall be installed. Additional Speed Limit signs shall be installed beyond major intersections and at other locations where it is necessary to remind road users of the speed limit that is applicable.**

⁰⁵ **Speed Limit signs indicating the statutory speed limits shall be installed at entrances to the State and, where appropriate, at jurisdictional boundaries in urban areas.**

Support:

⁰⁶ In general, the maximum speed limits applicable to rural and urban roads are established:

- A. Statutorily – a maximum speed limit applicable to a particular class of road, such as freeways or city streets, that is established by State law; or
- B. As altered speed zones – based on engineering studies.

⁰⁷ State statutory limits might restrict the maximum speed limit that can be established on a particular road, notwithstanding what an engineering study might indicate.

Option:

~~⁰⁸ If a jurisdiction has a policy of installing Speed Limit signs in accordance with statutory requirements only on the streets that enter a city, neighborhood, or residential area to indicate the speed limit that is applicable to the entire city, neighborhood, or residential area unless otherwise posted, a CITYWIDE (R2-5aP), NEIGHBORHOOD (R2-5bP), or RESIDENTIAL (R2-5cP) plaque may be mounted above the Speed Limit sign and an UNLESS OTHERWISE POSTED (R2-5P) plaque may be mounted below the Speed Limit sign (see Figure 2B-3).~~

Guidance:

⁰⁹ A Reduced Speed Limit Ahead (W3-5 or W3-5a) sign (see Section 2C.38) should be used to inform road users of a reduced speed zone where the speed limit is being reduced by more than 10 mph, or where engineering judgment indicates the need for advance notice to comply with the posted speed limit ahead.

¹⁰ States and local agencies should conduct engineering studies **at least once every 5, 7 or 14 years**, in compliance with CVC Section 40802 to reevaluate non-statutory speed limits on segments of their roadways that have undergone significant changes since the last review, such as the addition or elimination of parking or driveways, changes in the number of travel lanes, changes in the configuration of bicycle lanes, changes in traffic control signal coordination, or significant changes in traffic volumes.

¹¹ No more than three speed limits should be displayed on any one Speed Limit sign or assembly.

~~¹² When a speed limit within a speed zone is posted, it should be within 5 mph of the 85th percentile speed of free-flowing traffic.~~

Standard:

12a When a speed limit is to be posted, it shall be established at the nearest 5 mph increment of the 85th-percentile speed of free-flowing traffic, except as shown in the two Options below.

Option:

1. The posted speed may be reduced by 5 mph from the nearest 5 mph increment of the 85th-percentile speed, in compliance with CVC Sections 627 and 22358.5. See Standard below for documentation requirements.
2. For cases in which the nearest 5 mph increment of the 85th-percentile speed would require a rounding up, then the speed limit may be rounded down to the nearest 5 mph increment below the 85th percentile speed, if no further reduction is used. Refer to CVC Section 21400(b).

Standard:

^{12b} If the speed limit to be posted has had the 5 mph reduction applied, then an E&TS shall document in writing the conditions and justification for the lower speed limit and be approved by a registered Civil or Traffic Engineer. The reasons for the lower speed limit shall be in compliance with CVC Sections 627 and 22358.5.

Support:

^{12c} The following examples are provided to explain the application of these speed limit criteria:

Example 1. Using Option 1 above and first step is to round down: If the 85th percentile speed in a speed survey for a location was 37 mph, then the speed limit would be established at 35 mph since it is the closest 5 mph increment to the 37 mph speed. As indicated by the option, this 35 mph established speed limit could be reduced by 5 mph to 30 mph if the conditions and justification for using this lower speed limit are documented in the E&TS and approved by a registered Civil or Traffic Engineer.

Example 2. Using Option 1 above and first step is to round up: If the 85th percentile speed in a speed survey for a location was 33 mph, then the speed limit would be established at 35 mph since it is the closest 5 mph increment to the 33 mph speed. As indicated by the option, this 35 mph speed limit could be reduced by 5 mph to 30 mph if the conditions and justification for using this lower speed limit are documented in the E&TS and approved by a registered Civil or Traffic Engineer.

Example 3. Using Option 2 above and first step is to round up: If the 85th percentile speed in a speed survey for a location was 33 mph, instead of rounding up to 35mph, the speed limit can be established at 30mph, but no further reductions can be applied (which is allowed in the two examples above).

Standard:

^{12d} **Examples 1 and 2 for establishing posted speed limits shall apply to engineering and traffic surveys (E&TS) performed on or after July 1, 2009 in accordance with Caltrans' Traffic Operations Policy Directive Number 09-04 dated June 29, 2009.**

Option:

^{12e} After January 1, 2012, Example 3 may be used to establish speed limits. Refer to CVC 21400(b).

Support:

^{12f} Any existing E&TS that was performed before ~~July 1, 2009~~ **January 1, 2022** in accordance with previous traffic control device standards is not required to ~~comply with the new criteria~~ **updated** until it is due for reevaluation per the 5, 7 or ~~10~~ **14** year criteria.

¹³ *Speed studies for signalized intersection approaches should be taken outside the influence area of the traffic control signal, which is generally considered to be approximately 1/2 mile, to avoid obtaining skewed results for the 85th-percentile speed.*

Support:

¹⁴ Advance warning signs and other traffic control devices to attract the motorist's attention to a signalized intersection are usually more effective than a reduced speed limit zone.

Guidance:

¹⁵ *An advisory speed plaque (see Section 2C.08) mounted below a warning sign should be used to warn road users of an advisory speed for a roadway condition. A Speed Limit sign should not be used for this situation.*

Option:

¹⁶ Other factors that may be considered when establishing or reevaluating speed limits are the following:

- A. Road characteristics, shoulder condition, grade, alignment, and sight distance;
- B. The pace;
- C. Roadside development and environment;
- D. Parking practices and pedestrian activity; and
- E. Reported crash experience for at least a 12-month period.

¹⁷ Two types of Speed Limit signs may be used: one to designate passenger car speeds, including any nighttime information or minimum speed limit that might apply; and the other to show any special speed limits for trucks and other vehicles.

¹⁸ A changeable message sign that changes the speed limit for traffic and ambient conditions may be installed provided that the appropriate speed limit is displayed at the proper times.

¹⁹ A changeable message sign that displays to approaching drivers the speed at which they are traveling may be installed in conjunction with a Speed Limit sign.

Guidance:

²⁰ *If a changeable message sign displaying approach speeds is installed, the legend YOUR SPEED XX MPH or such similar legend should be displayed. The color of the changeable message legend should be a yellow legend on a black background or the reverse of these colors.*

Support:

²¹ Advisory Speed signs and plaques are discussed in Sections 2C.08 and 2C.14. Temporary Traffic Control Zone Speed signs are discussed in Part 6. The WORK ZONE (G20-5aP) plaque intended for installation above a Speed Limit sign is discussed in Section 6F.12. School Speed Limit signs are discussed in Section 7B.15.

²² Speed limits in California are governed by the California Vehicle Code (CVC), Sections 22348 through 22413; also, pertinent sections are found in Sections 627 and 40802 and others referenced in this section. See Section 1A.11 for information regarding this publication.

²³ Refer to Part 6, Section 6C.01 for speed limit signs in temporary traffic control zones. Refer to Part 7 for speed limit signs in school areas.

Engineering and Traffic Survey (E&TS)

Support:

²⁴ CVC Section 627 defines the term “Engineering and traffic survey” and lists its requirements.

Standard:

²⁵ **An engineering and traffic survey (E&TS) shall include, among other requirements deemed necessary by Caltrans, consideration of all of the following:**

- A. Prevailing speeds as determined by traffic engineering measurements.**
- B. Collision records.**
- C. Highway, traffic, and roadside conditions not readily apparent to the driver.**

Guidance:

²⁶ *The E&TS should contain sufficient information to document that the required three items of CVC Section 627 are provided and that other conditions not readily apparent to a driver are properly identified.*

²⁷ *Prevailing speeds are determined by a speed zone survey. A speed zone survey should include:*

- A. The intent of the speed measurements is to determine the actual speed of unimpeded traffic. The speed of traffic should not be altered by concentrated law enforcement, or other means, just prior to, or while taking the speed measurements.*
- B. Only one person is required for the field work. Speeds should be read directly from a radar or other electronic speed measuring devices; or,*
- C. Devices, other than radar, capable of accurately distinguishing and measuring the unimpeded speed of free flowing vehicles may be used.*
- D. A location should be selected where prevailing speeds are representative of the entire speed zone section. If speeds vary on a given route, more than one speed zone section may be required, with separate measurements for each section. Locations for measurements should be chosen so as to minimize the effects of traffic signals or stop signs.*
- E. Speed measurements should be taken during off-peak hours between peak traffic periods on weekdays. If there is difficulty in obtaining the desired quantity, speed measurements may be taken during any period with free flowing traffic.*
- F. The weather should be fair (dry pavement) with no unusual conditions prevailing.*
- G. The surveyor and equipment should not affect the traffic speeds. For this reason, an unmarked car is recommended, and the radar speed meter located as inconspicuously as possible.*

- H. In order for the sample to be representative of the actual traffic flow, the minimum sample should be 100 vehicles in each survey. In no case should the sample contain less than 50 vehicles.
- I. Short speed zones of less than 0.5 miles should be avoided, except in transition areas.
- J. Speed zone changes should be coordinated with changes in roadway conditions or roadside development.
- K. Speed zoning should be in 10 mph increments except in urban areas where 5 mph increments are preferable.
- L. Speed zoning should be coordinated with adjacent jurisdictions.

Support:

²⁸ Physical conditions such as width, curvature, grade and surface conditions, or any other condition readily apparent to the driver, in the absence of other factors, would not require special downward speed zoning. Refer to CVC 22358.5.

Option:

- ²⁹ When qualifying an appropriate speed limit, local authorities may also consider all of the following findings:
- A. Residential density, if any of the following conditions exist on the particular portion of highway and the property contiguous thereto, other than a business district:
 - 1. Upon one side of the highway, within 0.25 miles, the contiguous property fronting thereon is occupied by 13 or more separate dwelling houses or business structures.
 - 2. Upon both sides of the highway, collectively, within a distance of 0.25 miles the contiguous property fronting thereon is occupied by 16 or more separate dwelling houses or business structures.
 - 3. The portion of highway is larger than 0.25 miles but has the ratio of separate dwelling houses or business structures to the length of the highway described in either subparagraph 1 or 2 above.
 - B. ~~Pedestrian and bicyclist safety.~~ Safety of bicyclists and pedestrians, with increased consideration for vulnerable pedestrian groups including children, seniors, persons with disabilities, users of personal assistive mobility devices, and the unhoused.

³⁰ The following two methods of conducting E&TS may be used to establish speed limits:

- 1. State Highways - The E&TS for State highways is made under the direction of the Caltrans District Traffic Engineer. The data includes:
 - a. One copy of the Example of Speed Zone Survey Sheet (See Figure 2B-101(CA)) showing:
 - A north arrow
 - Engineer's station or post mileage
 - Limits of the proposed zones
 - Appropriate notations showing type of roadside development, such as "scattered business," "solid residential," etc. Schools adjacent to the highway are shown, but other buildings need not be plotted unless they are a factor in the speed recommendation or the point of termination of a speed zone.
 - Collision rates for the zones involved
 - Average daily traffic volume
 - Location of traffic signals, signs and markings
 - If the highway is divided, the limits of zones for each direction of travel
 - Plotted 85th percentile and pace speeds at location taken showing speed profile
 - b. A report to the District Director that includes:
 - The reason for the initiation of speed zone survey.
 - Recommendations and supporting reasons.

- The enforcement jurisdictions involved and the recommendations and opinions of those officials.
- The stationing or reference post in mileage at the beginning and ending of each proposed zone and any intermediate equations. Location ties must be given to readily identifiable physical features.

2. City and County Through Highways, Arterials, Collector Roads and Local Streets.

- a. The short method of speed zoning is based on the premise that a reasonable speed limit is one that conforms to the actual behavior of the majority of motorists, and that by measuring motorists' speeds, one will be able to select a speed limit that is both reasonable and effective. Other factors that need to be considered include but are not limited to: the most recent two-year collision record, roadway design speed, safe stopping sight distance, superelevation, shoulder conditions, profile conditions, intersection spacing and offsets, commercial driveway characteristics, and pedestrian traffic in the roadway without sidewalks.
- b. Determination of Existing Speed Limits - Figures 2B-103(CA) & 2B-104(CA) show examples of data sheets which may be used to record speed observations. Specific types of vehicles may be tallied by use of letter symbols in appropriate squares.

³¹ In most situations, the short form for local streets and roads will be adequate; however, the procedure used on State highways may be used at the option of the local agency.

Guidance:

³² *The factors justifying a reduction below the 85th percentile speed for the posted speed limit are the same factors mentioned above. Whenever such factors are considered to establish the speed limit, they should be documented on the speed zone survey or the accompanying engineering report.*

³³ *The establishment of a speed limit of more than 5 mph below the 85th percentile speed should be done with great care as studies have shown that establishing a speed limit at less than the 85th percentile generally results in an increase in collision rates; in addition, this may make violators of a disproportionate number of the reasonable majority of drivers.*

Support:

³⁴ Generally, the most decisive evidence of conditions not readily apparent to the driver surfaces in collision histories.

³⁵ Speed limits are established at or near the 85th percentile speed, which is defined as that speed at or below which 85th percent of the traffic is moving. The 85th percentile speed is often referred to as the critical speed. Pace speed is defined as the 10 mph increment of speed containing the largest number of vehicles (See Figure 2B-102(CA)). The lower limit of the pace is plotted on the Speed Zone Survey Sheets as an aid in determining the proper zone limits. Speed limits higher than the 85th percentile are not generally considered reasonable and prudent. Speed limits below the 85th percentile do not ordinarily facilitate the orderly movement of traffic and require constant enforcement to maintain compliance. Speed limits established on the basis of the 85th percentile conform to the consensus of those who drive highways as to what speed is reasonable and prudent, and are not dependent on the judgment of one or a few individuals.

³⁶ The majority of drivers comply with the basic speed law. Speed limits set at or near the 85th percentile speed provide law enforcement officers with a limit to cite drivers who will not conform to what the majority considers reasonable and prudent. Further studies show that establishing a speed limit at less than the 85th percentile (Critical Speed) generally results in an increase in collision rates.

Option:

³⁷ When roadside development results in traffic conflicts and unusual conditions which are not readily apparent to drivers, as indicated in collision records, speed limits somewhat below the 85th percentile may be justified.

Concurrence and support of enforcement officials are necessary for the successful operation of a restricted speed zone.

Guidance:

³⁸ *Speed zones of less than 0.5 miles and short transition zones should be avoided.*

Signs

Standard:

³⁹ **The Speed Limit (R2-1) sign shall be used to give notice of a prima facie or maximum speed limit except as provided under Prima Facie Speed Limits in CVC 22352.**

⁴⁰ **When used, the TRUCKS, 3 AXLES OR MORE 55 MAXIMUM (R6-3(CA)) sign shall be installed approximately 750 feet following each R2-1 sign.**

⁴¹ **The ALL VEHICLES WHEN TOWING 55 MAXIMUM (R6-4(CA)) sign shall be installed approximately 750 feet following the R6-3(CA) sign.**

Guidance:

⁴² *The R6-3(CA) and R6-4(CA) signs should be placed on highway segments where speeds in excess of 55 mph are permitted.*

Option:

⁴³ The existing AUTOS WITH TRAILERS, TRUCKS 55 MAXIMUM (R6-1(CA)) sign may remain in place until it is knocked down, damaged, stolen, vandalized, or otherwise reaches the end of its useful life.

⁴⁴ The local California Highway Patrol office may be consulted to identify highway segments where enforcement is an issue. On these segments early replacement of existing R6-1(CA) signs may be necessary.

Support:

⁴⁵ Refer to CVC Section 22406 for types of vehicles subject to the 55 mph maximum speed limit.

Option:

⁴⁶ The Speed Zone Ahead (R2-4(CA)) sign (see Figure 2B-3(CA)) may be used to inform the motorist of a reduced speed zone.

Standard:

⁴⁷ **The R2-4(CA) sign shall always be followed by a Speed Limit (R2-1) sign installed at the beginning of the zone where the reduced speed limit applies.**

⁴⁸ **The End Speed Limit (R3(CA)) sign shall only be used to mark the end of a speed zone.**

⁴⁹ **The R3(CA) sign shall not be used at a transition into a change in speed limits within a reduced zone.**

Option:

⁵⁰ The R3(CA) sign (see Figure 2B-3(CA)) may be used with the TRUCK (M4-4) plaque to mark the end of truck speed zones on descending grades.

Standard:

⁵¹ **Speed limit signs shall be placed at the beginning of all restricted speed zones.**

Option:

⁵² Where speed zones are longer than 1 mile, intermediate signs may be placed at approximate 1 mile intervals. For three or more lanes in each direction, dual installation may be used.

Standard:

⁵³ **The Speed Limit (R2-1) and End Speed Limit (R3(CA)) signs, as appropriate shall be placed at the end of all restricted speed zones.**

⁵⁴ **Freeways with 65 mph and those segments where a speed limit of 70 mph has been approved by Caltrans, with approval by the California Highway Patrol, shall be posted as follows:**

- **At the segment entrance, R2-1 signs shall be installed right of traffic off of the right shoulder.**

- **R2-1 signs shall also be installed off of the right shoulder only, throughout the segment, at a maximum of 25 mile intervals.**

Option:

- The 25 mile interval may be modified to include locations following entrance ramps.

Standard:

- **The R6-3(CA) sign (see Figure 2B-3(CA)) shall be installed approximately 750 feet following each R2-1 sign, both at the beginning and throughout each 60, 65 or 70 mph segment.**
- **The R6-4(CA) sign (see Figure 2B-3(CA)) shall be installed approximately 750 feet following each R6-3(CA) sign.**

Option:

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

Standard:

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

⁵⁵ **Freeway segments where a 55 mph speed limit has been approved by Caltrans, with the approval of the California Highway Patrol, shall be posted as follows:**

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

Guidance:

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

⁵⁶ *Conventional highways with 55 mph speed limits should be posted as follows:*

Standard:

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

Guidance:

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

Conventional highways with 65 mph speed limits should be posted as follows:

- *The beginning of the segment should be posted with an R2-1 sign installed on the right shoulder.*
- *Subsequent signs should then be posted at 5 to 10 mile intervals and after locations where significant volumes of traffic enter the segment.*
- *At the end of the segment, an R2-1 sign with the appropriate number for the next speed limit should be posted on the right shoulder.*

Option:

⁵⁷ *Pavement markings with appropriate numerals (see Section 3B.21) may be used to supplement speed limit signs.*

Standard:

⁵⁸ **The R2-1 and R6-3(CA) and R6-4(CA) signs giving maximum statewide speed limits for various types of vehicles shall be installed on all State highways near the points of entrance into California.**

Guidance:

⁵⁹ *The R2-1 and R6-3(CA) and R6-4(CA) signs should be placed in a location to be most effectively viewed by the approaching motorists.*

Standard:

⁶⁰ **Speed Limit (R2-1) signs shall be installed throughout segments of freeway with posted speed limits of 65 mph or 70 mph at a maximum of 25 mile intervals.**

Option:

⁶¹ *The 25 mile interval may be modified to include locations following entrance ramps.*

Standard:

⁶² **Speed Limit (R2-1) signs shall be installed throughout segments of conventional highways with a posted speed limit of 65 mph at 5 mile to 10 mile intervals.**

⁶³ **Speed Limit (R2-1) signs shall be installed throughout segments of freeway with a posted speed limit of 55 mph at approximately 3 mile intervals with no more than 3 interchanges between signs.**

⁶⁴ **Speed Limit (R2-1) signs shall be installed throughout segments of conventional highways with a posted speed limit of 55 mph at 5 mile to 10 mile intervals.**

Speed Enforced Signs

Option:

⁶⁵ *The SPEED ENFORCED BY RADAR (R48(CA)) sign (see Figure 2B-3(CA)) may be used where the California Highway Patrol has received authority to use radar and requests such signs.*

Guidance:

⁶⁶ *One sign should be used in each direction at the beginning of the segment of roadway, and at intervening major route intersections, where radar enforcement is in effect.*

Support:

⁶⁷ *The R48(CA) sign is a stand-alone sign intended to alert motorists that speed is enforced by radar on a particular segment of roadway.*

Option:

⁶⁸ *The RADAR ENFORCED (R48-1(CA)) sign (see Figure 2B-3(CA)) may be used in combination with the Speed Limit (R2-1) sign on any roadway where law enforcement has the authority to use radar.*

Guidance:

⁶⁹ *When used, the R48-1(CA) sign should be placed below the R2-1 sign, at the beginning of the segment of roadway and at intervening major intersections, where radar enforcement is in effect.*

Option:

⁷⁰ *The SPEED ENFORCED BY AIRCRAFT (R48-2(CA)) sign (see Figure 2B-3(CA)) may be placed, when requested by the California Highway Patrol, on sections of highway regularly patrolled by aircraft.*

Standard:

⁷¹ **The R48-2(CA) sign shall be used for both directions of travel.**

Guidance:

⁷² *The R48-2(CA) sign should be placed at the beginning of the section and spaced at 25 mile intervals. See Figure 3B-105(CA).*

Vehicle Speed Feedback Signs

Option:

⁷³ A Vehicle Speed Feedback sign that displays to approaching drivers the speed at which they are traveling may be installed in conjunction with a Speed Limit (R2-1) sign.

Standard:

⁷⁴ **If a Vehicle Speed Feedback sign displaying approach speeds is installed, the legend shall be YOUR SPEED XX. The numerals displaying the speed shall be white, yellow, yellow-green or amber color on black background. When activated, lights shall be steady-burn conforming to the provisions of CVC Sections 21466 and 21466.5. Vehicle Speed Feedback signs shall not alternatively be operated as variable speed limit signs.**

Guidance:

⁷⁵ *To the degree practical, numerals for displaying approach speeds should be similar font and size as numerals on the corresponding Speed Limit (R2-1) sign.*

Option:

⁷⁶ When used, the Vehicle Speed Feedback sign may be mounted on either a separate support or on the same support as the Speed Limit (R2-1) sign.

⁷⁷ In lieu of lights, legend may be retroreflective film for flip-disk systems.

⁷⁸ The legend YOUR SPEED may be white on black plaque located above the changeable speed display.

Support:

⁷⁹ Driver comprehension may improve when the Vehicle Speed Feedback Sign is mounted on the same support below the Speed Limit (R2-1) sign.

⁸⁰ Vehicle Speed Feedback Signs are appropriate for use with advisory speed signs and with temporary signs in temporary traffic control zones.

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

Support:

⁸¹ The basic speed law states “No person shall drive a vehicle upon a highway at a speed greater than is reasonable or prudent having due regard for weather, visibility, the traffic on, and the surface and width of, the highway, and in no event at a speed which endangers the safety of persons or property.”

Standard:

⁸² **Prima facie speed limits are specific limits and shall apply unless changed based upon an engineering and traffic survey (E&TS) and signs are posted that display the new speed limit.**

Option:

⁸³ Prima facie speed limits may be preempted by the basic speed law, when roadway, traffic or weather conditions warrant a lower speed.

Use of Metric System Designations – See CVC 21351.3

Option:

⁸⁴ Dual units for speed limits on signs may be placed on local streets and roads in both Metric and English units.

Guidance:

⁸⁵ *If used, dual unit speed limits should be rounded to the nearest 10 km/h for Metric and 5 mph for English units for posting on signs on local streets and roads.*

Support:

⁸⁶ Refer to AASHTO’s Traffic Engineering Metric Conversion Factors. See Section 1A.11 for information regarding this publication.

Standard:

⁸⁷ **Metric speed limits shall not be placed on State highways. For use in this California MUTCD, 70 mph shall be shown as a metric equivalent of 110 km/h, neither of which shall be used on any local street or road.**

Legal Authority for Establishing Speed Limits

Support:

⁸⁸ Delegation of legal authority to set speed limits on State highways is given to Caltrans District Directors. The District Director of each transportation district is authorized to issue orders regulating the speed of traffic, up to 65 mph on State highways. The Director of Caltrans retains the authority to approve variable, minimum, and maximum speeds up to 70 mph on State freeways.

Standard:

⁸⁹ **The speed limits shown in Table 2B-101(CA) shall apply, unless changed upon the basis of an engineering and traffic survey (E&TS).**

Option:

⁹⁰ The speed limits shown in Table 2B-102(CA) may apply, unless changed upon E&TS.

Variable Speed Limits on Freeways - See CVC 22355

Option:

⁹¹ The following speed limits may apply:

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

Minimum Speed Limits on State Highways - See CVC 22400

Option:

⁹² The following speed limits may apply:

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

Speed Traps

Support:

⁹³ Refer to CVC 40802 for Speed Traps.

Standard:

⁹⁴ **A speed trap shall not apply to a local street, road, ~~or~~ school zone, senior zone, or business activity district.**

Support:

Senior zone is an area approaching or passing a senior center building or other facility primarily used by senior citizens, or the grounds thereof that is contiguous to a highway and on which is posted a standard “SENIOR” warning sign, pursuant to Section 22352.

Business activity district is a section of highway described in CVC Section 22358.9(b) in which a standard 25 mph or 20 mph speed limit sign has been posted pursuant to CVC Section 22358.9(a)(1).

Standard:

⁹⁵ A section of highway shall be defined as a speed trap if the prima facie speed limit is not justified by an engineering and traffic survey (E&TS) within five years, and the enforcement of the speed limit involves the use of radar or any other electronic device that measures the speed of moving objects.

⁹⁶ This time provision shall be extended to seven years when using radar and all of the following criteria are met:

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

⁹⁷ This time provision shall be extended to seven years when using laser or other electronic device (other than radar) and all of the following criteria are met:

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

Option:

⁹⁸ This time provision for an E&TS may be extended to ~~ten~~ 14 years when all of the above conditions are met and no significant changes in roadway or traffic conditions have occurred, including changes in adjoining property or land use, roadway width, or traffic volume as determined by a registered engineer.

Standard:

The option to extend E&TS to 14 years shall not be used on a local street, road, school zone, senior zone or business activity district.

Truck Speed Zone on Descending Grades

Guidance:

⁹⁹ Highway descending grades, if used for posting TRUCK Speed Limit signs (R2-1 and M4-4) for trucks travelling downhill, should have recorded incident history of runaway commercial vehicles. Descending grades shorter than 1 mile should be avoided for posting signs because deceleration of vehicles due to braking action can generally provide sufficient control on descending grades of less than 1 mile.

Support:

¹⁰⁰ To establish a downhill truck speed limit, a physical profile showing length and gradient and a downhill speed profile for three or more axle commercial vehicles with a gross rating of 10,000 lbs. or more will be provided.

Standard:

¹⁰¹ **Speed profiles for truck speed limits shall be prepared on the same form as other speed surveys. An analysis of collisions involving trucks shall be prepared.**

Guidance:

¹⁰² *Posted speeds should be on the low side of the scale, generally within the pace of loaded commercial vehicles.*

Standard:

¹⁰³ **If warranted, the Caltrans District Director shall issue a standard speed zone order.**

Support:

¹⁰⁴ Posting of the regulation will be by placement of a standard 36 x 45 inch Speed Limit (R2-1) sign with a TRUCK (M4-4) plate above.

Standard:

¹⁰⁵ **A standard End Speed Limit (R3(CA)) sign with TRUCK (M4-4) plate shall be posted at the end of the truck zone when appropriate.**

Speed Zones in Temporary Traffic Control Areas

Support:

¹⁰⁶ For signing and establishing speed zones in temporary traffic control areas, refer to Section 6C.01 in Part 6.

Speed Zones and Traffic Signals

Standard:

¹⁰⁷ **An agency changing the speed limits within its jurisdiction shall report the speed limit change to the agency operating and maintaining traffic signals within the speed zone no later than 30 days before changing the posted speed limit.**

Support:

¹⁰⁸ Changing the signal timing and adjusting the advance detector loops based on the revised speed limits can enhance the operations of the traffic signal.



ATTACHMENT B



**California Traffic Control Devices Committee
Agenda Item Report**



Attachment B – Proposed Revisions to CA MUTCD Table 2B-101(CA).

Proposal:

Note:

Black text is unedited National MUTCD text adopted for use in current CA MUTCD.

~~Black strikethrough text~~ is National MUTCD text that is not applicable in California as shown in current CA MUTCD.

Blue text is California text additions adopted for use in current CA MUTCD.

~~Red strikethrough text~~ is text that is proposed to be deleted from the current CA MUTCD by this proposal.

Red text is text that is proposed to be included in the current CA MUTCD by this proposal.

Modify Table 2B-101(CA) as shown:

Table 2B-101(CA) Standard Application of Speed Limits per California Vehicle Code (Sheet 1 of 2)

Speed	Determined by	Roadway Facility	CVC Section
15 mph	State or local authority	<ul style="list-style-type: none"> ▪ Railroad grade crossing with obstructed view ▪ Uncontrolled highway intersection with obstructed view ▪ An alley 	22352.a.1
15 & 20 mph	State or local authority	<p>Where the prima facie speed of 25 mph is more than is reasonable or safe</p> <ul style="list-style-type: none"> ▪ Narrow street not exceeding 25 feet other than a State Highway in a business or residential area or in a public park ▪ Road near a school or senior center facility 	22358.3 & 22358.4
25 mph	State or local authority	<ul style="list-style-type: none"> ▪ Any highway other than a State highway in any business or residential district ▪ A street contiguous to senior citizen facility other than a State highway ▪ Adjacent to a children’s playground in a public park, but only during particular hours or days when children are expected to use facilities 	22352.a.2 & 22357.1



ATTACHMENT C



California Traffic Control Devices Committee Agenda Item Report



Attachment C – Proposed Revisions to CA MUTCD Table 2B-102(CA).

Proposal:

Note:

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Red text is text that is proposed to be included in the current CA MUTCD by this proposal.

Modify Table 2B-102(CA) as shown:

Table 2B-102(CA) Optional Application of Speed Limits per California Vehicle Code (Sheet 2 of 2)

Speed	Determined by	Roadway facility	CVC Section
25 to 60 mph 15 to 60 mph	Caltrans	State highway, based on an E&TS where the limit of 65 mph is more than is reasonable or safe	22354
25 to 60 mph 15 to 60 mph	Local city council or county board of supervisors for Caltrans	State highway, local entities may conduct a public hearing on proposed increases or decreases and the State Department of Transportation shall take into consideration the results of the public hearing	22354.5
25 to 65 mph 15 to 60 mph	Local authority	Any street other than a State highway, by ordinance, may post a prima facie speed limit based on an E&TS where a speed > 25 mph would facilitate the orderly movement of vehicular traffic and would be reasonable and safe > or = 15 mph	22357
20 to 50 mph for Trucks	State or local authority	Highways under their respective jurisdiction where 55 mph is more than is reasonable or safe for vehicles mentioned in CVC 22406 (Trucks and other large vehicles)	22407
Maximum Speed 55 mph	State or local authority	<ul style="list-style-type: none"> • Two-lane, undivided highway • Any highway if driving any of the following vehicles: <ol style="list-style-type: none"> a. Motortruck or truck tractor with > 3 axles b. Passenger vehicle or bus towing any other vehicle c. School bus transporting any school pupil d. A farm labor vehicle when transporting passengers e. A vehicle transporting explosives f. A trailer bus 	22349.b & .c and 22406
Maximum Speed Limit of 65 mph	State or local authority	Any highway, posted at 65 mph based upon an E&TS, for vehicles not subject to CVC 22406	22349(a) & 22349
Maximum Freeway Speed Limit 70 mph	Caltrans	Freeways, after consultation with the California Highway Patrol, based upon an E&TS, or upon the basis of appropriate designs standards and projected traffic volumes in the case of newly constructed freeway segments, for vehicles not subject to CVC 22406	22356