

ADMINISTRATIVE REPORT

Date: July 9, 2013

Agenda Item No.: 5

Council Action Date: July 15, 2013

To: Honorable Mayor and City Council

**From: Mark D. Watkins, City Manager
Rick Raives, Public Works Director
Ken Corney, Police Chief**

Subject: Grand Jury Response – Victoria Avenue Corridor

RECOMMENDATION

It is recommended that Council approve and authorize the City Manager to respond to the Grand Jury report titled Victoria Avenue Corridor Through the City of Ventura.

DISCUSSION

On behalf of the Council and the City Manager the Public Works Department and Police Department have reviewed the Grand Jury report and attached responses for signature by the City Manager. This response is coordinated through the City Manager's office. The City's letter of response, which includes the Grand Jury Report, is included as Attachment A.

The City received the Grand Jury report on May 9, 2013. The report includes a series of findings and recommendations regarding concerns about traffic flow, traffic signal timing and red light enforcement along Victoria Avenue in the City of Ventura. Penal Code sections 933.05 (a) and (b) requires that the City Council respond within 90 days to the findings and recommendations of the Grand Jury pertaining to city government under Council authority. The recommended response is attached.

FISCAL IMPACTS

There are no fiscal impacts related to the Grand Jury findings and recommendations.

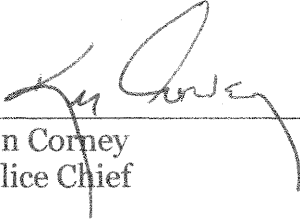
ALTERNATIVES

Council may elect to amend the responses. If so, the City Manager will make such changes prior to submitting the responses to the Presiding Judge.

Prepared by Thomas Mericle, City Transportation Manager for:



 Rick Raives
Public Works Director




Ken Corney
Police Chief

Reviewed as to fiscal impacts



Jay Panzica
Chief Financial Officer

FORWARDED TO THE CITY COUNCIL



Marko Webb
City Manager's Office

ATTACHMENT

A Grand Jury Report City Response Letter

July 16, 2013

Honorable Brian J. Back, Presiding Judge
Ventura County Superior Court
800 South Victoria Avenue
Ventura, CA 93009

Subject: Grand Jury Report – Victoria Avenue corridor through the City of Ventura

Dear Judge Back:

The following is the City of San Buenaventura's response to the Ventura County Grand Jury's report entitled "Victoria Avenue Through the City of Ventura." A copy of the Grand Jury Report is attached for your reference (Attachment 1).

Facts

The City agrees with the following "facts" presented in the report: FA-01 and FA-02.

The City disagrees with the following facts presented in the Grand Jury report:

- FA-03.** The City Traffic count data collected by the City indicates that there has actually been a decrease in traffic volumes along the Victoria Avenue corridor. See Attachment 2. Caltrans published data shows a reduction of highway traffic between 2008 and 20011 (*2011 Traffic Volumes on the State Highway System*, Caltrans).
- FA-04.** "Very Heavy" in reference to traffic flow is a subjective description and not a quantitative factual statement. Victoria Avenue is classified as a principal arterial roadway and, as an eight lane facility, is designed to carry higher traffic volumes. The City Council has adopted a peak hour level of service threshold of "D" for intersections in the City. The level of service at all of the intersections along the Victoria Avenue Corridor are better than this threshold standard (2009 VCTC Congestion Management Program).

- FA-05.** There is no supporting evidence in the report, nor has the City received complaints from the public to substantiate the statement that “there is confusion among drivers along the corridor...”
- FA-06.** There is no supporting factual evidence in the report to substantiate untrained “observation” that traffic on streets paralleling Victoria Avenue is speeding. Victoria Avenue does not have a parallel, non-arterial, street network that is a viable option for most drivers of the corridor, nor has the City received any complaints from those adjacent neighborhoods about the proliferation of speeding traffic on streets parallel to Victoria Avenue.
- FA-07.** “Heavy” in reference to traffic flow is a subjective description and not a quantitative factual statement. Kimball Road and Johnson Drive are classified as principal arterial roadways and are designed to carry higher traffic volumes. The City Council has adopted a peak hour level of service threshold of “D” for intersections in the City. The level of service for all of the intersections along the two corridors are better than this threshold standard (2009 VCTC Congestion Management Program).
- FA-08.** “Very Heavy” in reference to traffic flow is a subjective description and not a quantitative factual statement. Wells Road south of State Highway 126 within the City is classified as a principal arterial roadway and, as a six lane facility, is designed to carry higher traffic volumes. The City Council has adopted a peak hour level of service threshold of “D” for intersections in the City. The level of service for all of the intersections along the Wells Road Corridor within the City are better than this threshold standard (2009 VCTC Congestion Management Program).
- FA-09.** The reference document is not related to the “issues” raised in the preceding statements regarding traffic speed, traffic volumes, and traffic flow. The reference document is a policy related to yellow and all-red traffic signal change intervals.
- FA-10.** There is no supporting evidence in the report, nor has the City received complaints from the public to substantiate the statement that there are “...confusing left turn arrows...” at any of the traffic signals along the Victoria Avenue corridor.
- FA-11.** There is no supporting evidence in the report, nor has the City received complaints from the public to substantiate the statement that “drivers have complained that quick breaking may result in a rear-end collision...”.
- FA-12.** The report is correct that other jurisdictions have increased their traffic signal yellow clearance interval times. However, City staff review of the Grand Jury reference documents and discussions with staff at one of those agencies indicate that they were done only to come into compliance with State law and traffic engineering professional recommended practices. The City of Ventura’s

traffic signal yellow clearance interval times are already in compliance with State law and traffic engineering professional recommended practices.

Findings

The City has the following responses to the Grand Jury findings:

- FI-1.** Disagree: Speed limits are set according to State law and cannot arbitrarily be set at “a constant speed” along Victoria Avenue. The nature and character of Victoria Avenue changes along the corridor. As required, each of these differing character segments must be considered separately for the purpose of setting speed limits. See additional detail in attachments 4 and 5,
- FI-2.** Agreed: There is a need to provide for a westbound Highway 126 to southbound US 101 connection.
- FI-3.** Disagree: This finding is based on unsubstantiated opinions and not factual evidence.
- FI-4.** Agreed: Red light camera tickets are legal.

Recommendations

R-01: Speed limits in the City are set according to the California Vehicle Code (CVC) and California Manual on Uniform Traffic Control Devices (CMUTCD) as follows:

- CVC Section 627
- CVC Section 22358
- CVC Section 22358.5
- CVC Section 40802 & 40803
- MUTCD Section 2B.13

Setting speed limits arbitrarily so that they are “constant” and “unchanging” along the entire corridor is not in conformance with State law. See Attachments 4 and 5 for details.

Traffic signal synchronization is a traffic engineering term used for isolated corridors and not complicated a grid system of roadways such as are in the City of Ventura. All traffic signals in the City are timed using a system called traffic signal coordination. Coordination timing is set to minimize traffic delays across an entire traffic roadway network rather than managing corridors separately. Traffic signal coordination timing in the City is currently managed through a traffic signal system that controls all 136 traffic signals. The coordination timing is set so as to not be in violation of CVC Section 22401. The City has on its work plan for the 2013-2014 work plan a project to

re-evaluate the traffic signal coordination timing along several primary arterial corridors in the City, including Victoria Avenue. Setting Victoria Avenue as a primary synchronized arterial will have negative impacts to public travel along Telegraph Road, Telephone Road and other local roadways. For this reason, the City sets its traffic signal timing as a coordinated system rather than an isolated corridor.

R-02: Initiation of the westbound State Route 126 to southbound US 101 direct freeway connection has been initiated. The City has worked with the Ventura County Transportation Commission (VCTC) to identify the project. The project is listed in the VCTC's adopted highway improvement priority list. A copy of the Ventura County Transportation Commission response is attached for your reference (Attachment 7).

City staff is working with Caltrans, VCTC, the County of Ventura, and the City of Oxnard to seek alternative routing of the westbound State Route 126 to southbound US 101 by use of State Highway 118 and State Highway 232 instead of Victoria Avenue rather than building a costly direct highway to highway connection structure.

R-03: Yellow light timing intervals for all traffic signals in the City are set according to the attached City operating policy. The policy is established in conformance with the California Vehicle Code and the California Manual on Uniform Traffic Control Devices (See Attachments 5 and 6). The method of traffic signal timing used by the City is in conformance with all State laws, standard practice and how they are set by other agencies in the region. To set traffic signal timing independently of these methods would violate driver expectations, engineering standard practices, and lead to an increase in collisions.

R-04: Comment noted.

Thank you for your attention to the above response. If you have any questions, please do not hesitate to contact me.

Sincerely,

Mark D. Watkins
City Manager

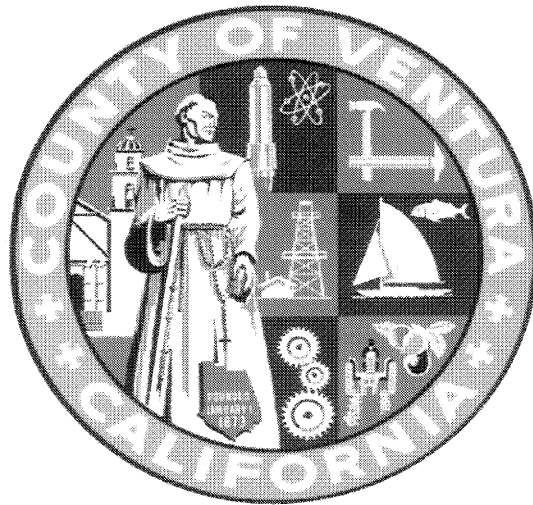
Attachments

ATTACHMENT 1

Grand Jury Report

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Ventura County Grand Jury 2012 - 2013



Final Report

Victoria Avenue Corridor Through the City of Ventura

May 9, 2013

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Victoria Avenue Corridor through the City of Ventura

Summary

The 2012-2013 Ventura County Grand Jury (Grand Jury) received numerous complaints about traffic problems on and around Victoria Avenue (Victoria) in the City of Ventura (Ventura). The Grand Jury chose to investigate the challenges and possible solutions to the ongoing traffic problems.

The Ventura County (County) freeway system was designed and constructed approximately fifty years ago. The planners did not provide a transition from the westbound Highway (Hwy) 126 freeway to the southbound Hwy 101 freeway. As the population grew so did the number of vehicles, thereby, making this oversight more significant. The three mile length of Victoria in Ventura is one of the most heavily traveled streets in the city. At peak travel periods, the problems appear to be congestion and chaos, especially during rush hours.

The Grand Jury recommends a constant, unchanging speed limit in conjunction with synchronized traffic signals along the entire four lane section of the Corridor. Also, increased time for the yellow turn arrows and delayed green lights would help the confusion at the Corridor traffic signals. Further the Grand Jury recommends that traffic planners initiate the process to complete the connection from westbound Hwy 126 to the southbound Hwy 101. If these recommendations are not implemented, red light cameras along the Corridor should be removed.

Background

The Victoria Avenue Corridor (Corridor) through Ventura has a wealth of traffic issues that pose a problem to current traffic planners and users. Congestion, accidents, near-accidents, traffic citations and misuse of side streets adjacent to Victoria can be directly linked to the state planners' errors of the 1950's and 1960's.

When the freeway system was in the planning stage, state planners, for unknown reasons, failed to provide a connector from the westbound Hwy 126 to the southbound Hwy 101. This may have been an economic move to save the cost of a connector or a political decision to encourage business for the fledgling shops and businesses along Victoria, but most likely it was caused by the early plan that the entire Oxnard Plain would be crisscrossed with freeways. Those interconnections were never completed.

Victoria is the main traffic corridor from Oxnard beaches to the Ventura hills. Victoria connects Channel Islands Harbor, Oxnard Airport and Port Hueneme to the commercial corridor in Ventura. The Government Center at Victoria and Telephone Road, Ventura College and residential areas are also along this route. In addition, Victoria is the main connector of Hwy 101 and Hwy 126.

As traffic increased, due to the increase in population and the explosion in the use of privately owned vehicles, so did traffic congestion and traffic problems. These include:

- extremely heavy traffic along Victoria during critical travel periods
- varying speed limits along Victoria
- use of red light cameras at critical and confusing intersections
- heavy and speeding traffic on the side streets adjacent to Victoria
- heavy traffic on the Kimball Ave/Johnson Drive corridor
- heavy traffic on the Wells Road/Los Angeles Avenue/Hwy 118 corridor during rush hours

The Grand Jury found that drivers are often confused by the varying speed limits, traffic changing lanes and unusual traffic light timing. Also confusing are the left turn yellow lights along the approximately three mile stretch of Victoria between the south city limits and Foothill Road. The left turn yellow lights at major intersections are approximately one to two seconds less than the straight-ahead yellow lights. Also, from south to north, speed limits change from 55 MPH to 50 MPH to 35 MPH to 40 MPH to 45 MPH to 40 MPH.

The Grand Jury found that red light camera tickets issued along the Corridor may be questioned as to their validity due to driver confusion. While the red light camera tickets appear to be legal, they may not be ethically or morally justified.

The intersection at Victoria and Telephone Road appears to be the major intersection on this route that highlights the traffic flow problems along the Corridor. The Grand Jury found that the left turn lanes at this intersection have created many red light camera tickets. Interviewed drivers stated that quick braking could result in a rear-end collision. The Grand Jury found that other jurisdictions have alleviated this problem by implementing longer yellow lights and delayed green lights. However, California state law limits yellow light duration due to a formula for the actual speeds of the vehicles. Despite the best efforts of Ventura traffic officials, this may be unchangeable. As commerce and traffic increases along this route, traffic problems will continue.

Methodology

The Grand Jury interviewed members of the Ventura Police Department, Ventura Traffic Department, Ventura County Transportation Commission (VCTC) and members of the public. The Grand Jury timed traffic lights and left turn arrows, drove the Corridor at various times of the day and in different traffic conditions. Other routes were also driven. The Grand Jury reviewed applicable state and local

laws. Also reviewed were other pertinent reports, newspaper articles, and available online sources.

Facts

- FA-01.** The lack of a connector from the westbound Hwy 126 to the southbound Hwy 101 causes traffic problems along the Corridor. [Ref-11, 12]
- FA-02.** The Corridor is a major traffic artery through Ventura. [Ref-11, 12]
- FA-03.** Vehicle use in the County has increased significantly in recent years.
- FA-04.** There is very heavy traffic along the Corridor during peak travel periods.
- FA-05.** There is confusion among drivers along the Corridor because of varying speed limits, timing of traffic signals, and frequent lane changing.
- FA-06.** The Grand Jury was told and observed that there is dense traffic, as well as, apparently speeding traffic along side streets paralleling Victoria.
- FA-07.** There is heavy traffic at rush hours on the Kimball Road/Johnson Drive corridor.
- FA-08.** There is very heavy traffic at rush hours along the Wells Road/Los Angeles Avenue/Hwy 118 corridor.
- FA-09.** The traffic engineers are aware of these issues and are attempting remediation. [Ref-08]
- FA-10.** The red light monitored intersections have confusing left turn arrows with different timing than through traffic.
- FA-11.** Drivers have complained that quick braking may result in a rear-end collision when the yellow arrow appears. [Ref-13, 14]
- FA-12.** Other jurisdictions have alleviated this problem by adjusting to longer left turn yellow arrows, longer yellow lights and delayed green lights. [Ref-02, 03, 15]
- FA-13.** The Grand Jury defined, for the purposes of this report, the Corridor as being the approximate three-mile portion of Victoria Avenue from the southern city limits of Ventura to Foothill Road.

Findings

- FI-01.** A constant speed limit along the four lane section of Victoria may decrease driver confusion and increase safety. (FA-05, 09) [Ref-15]
- FI-02.** There is a need now and a growing need in the future for a westbound Hwy 126 to southbound Hwy 101 connector. (FA-01-04, 07-09)
- FI-03.** The left turn yellow lights, having a shorter time than the through-traffic yellow lights, have created confusion among drivers. There is decreased safety due to the increased risk of rear-end collisions at the major intersections along Victoria. (FA-05-06, 09-12)

FI-04. Red light camera tickets appear to be legal, however, they may not be ethically or morally justified. (FA-05-06, 09-12)

Recommendations

- R-01.** The Grand Jury recommends that Ventura traffic engineers should consider a constant, unchanging speed limit, in conjunction with synchronized signals, along the entire four lane section of the Corridor through Ventura. (FI-01) [Ref-15]
- R-02.** The Grand Jury recommends that traffic planners initiate the process to complete the connection from the westbound Hwy 126 to the southbound Hwy 101. (FI-02)
- R-03.** The Grand Jury recommends that yellow left turn arrows be increased in time and that delayed green lights be adjusted at Corridor traffic signals. (FI-03)
- R-04.** If recommendations 01, 02, 03 are not implemented, the Grand Jury recommends the removal of the red light cameras along the Corridor. (FI-04)

Responses

Responses Required From:

City Council, City of Ventura (FI-01, FI-02, FI-03, FI-04) (R-01, R-02, R-03, R-04)

Chief of Police, City of Ventura
(FI-01, FI-02, FI-03, FI-04) (R-01, R-02, R-03, R-04)

City Transportation Manager, City of Ventura
(FI-01, FI-02, FI-03, FI-04) (R-01, R-02, R-03, R-04)

Responses Requested From:

Executive Director, Ventura County Transportation Commission
(FI-01, FI-02, FI-03, FI-04) (R-01, R-02, R-03, R-04)

Commendations

The Ventura County Grand Jury would like to thank and commend the Ventura Police Department, the City of Ventura Traffic Department and the Ventura County Transportation Commission for their cooperation, information and insight into this issue. They were helpful in assisting the Grand Jury to understand the problems and the challenges of these traffic issues.

References

Ref-01. The Court of Appeal of the State of California, Second Appellate District, Division Seven: The People v. Annette Borzakian, B229748,

(Los Angeles County Superior Court No. BR048012).
Filed December 09, 2009.

- Ref-02.** Fire Redflex, The Dark Side of Photo Enforcement; "Cameras Coming Down", FireRedflex.com, <http://fireredflex.com/cameras.html> (accessed August 05, 2012).
- Ref-03.** Fire Redflex, The Dark Side of Photo Enforcement; "Ethics and Fraud". Fire Redflex.com, <http://fireredflex.com/cameras.html> (accessed August 02, 2012).
- Ref-04.** theNewspaper.com; "California: Class Action Lawsuit Hits Federal Court", October 25, 2010, <http://thenewspaper.com/news/26/2655.asp> (accessed August 2, 2012).
- Ref-05.** theNewspaper.com; "California City Owes Red Light Camera Company \$1.7 Million" "Questionable contract arrangement allows Ventura, California to escape \$1.7 million payment to red light camera company", January 13, 2009, <http://thenewspaper.com/news/26/2655> (accessed August 2, 2012).
- Ref-06.** Biasotti, Tony. "Red-light cameras taken seriously in Ventura County". Ventura County Star, July 28, 2011.
- Ref-07.** City of Oxnard, California/Oxnard Police Department: "Ask the Chief", Featured Topic: "Red Light Cameras", Copyright 2003-2012. Oxnard Police Department.
- Ref-08.** City of San Buenaventura, Department of Public Works, Transportation Division; Operating Policies: "Traffic Signal Clearance Intervals". Effective 06-08-12.
- Ref-09.** Gibbs, Douglas V. "California's War Over Red-Light Cameras", Canada Free Press. July 23, 2012.
<http://www.canadafreepress.com/index.php/article/48252>.
(accessed February 2, 2013).
- Ref-10.** Perry, Tony. "San Diego mayor ends use of red-light cameras at intersections". Los Angeles Times: February 1, 2013.
Fulton, Bill, former Mayor of Ventura, "The Victoria Corridor", January 30, 2007. Bill Fulton,
<http://www.fulton4ventura.blogspot.com/2007/01/Victoria-corridor.html>
(accessed January 14, 2013).
- Ref-11.** Freedman, Tung & Bottomley (FTB), "Victoria Avenue Corridor Plan" 2005.
- Ref-12.** City of Ventura, Community Development: "Victoria Avenue Corridor Plan & Development Code", April 20, 2009.
- Ref-13.** Von Quednow, Cindy. "To cities, camera rules are fine" Ventura County Star. January 22, 2013.

- Ref-14.** California Legislative Information "SB-29 Vehicles: automated traffic enforcement systems. (2011-2012)", December 06, 2010.
- Ref-15.** Subbaraman, Nidhi. "Los Angeles syncs all traffic lights to speed up commute", Future Tech. NBC News.com, April 2, 2013.

ATTACHMENT 2

Historical Daily Traffic Volumes Along Victoria Avenue

	2002	2004	2005	2007	2013
North of Ventura Blvd	43,710	45,677	49,743	45,390	44,585
North of Ralston St	43,209	46,675	49,983	46,292	43,813
North of Telephone Rd	43,781	46,548	49,311	41,978	41,113

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ATTACHMENT 3

Caltrans 2011 Traffic Volumes

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**2011 TRAFFIC VOLUMES
ON THE CALIFORNIA STATE HIGHWAY SYSTEM**

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

DIVISION OF TRAFFIC OPERATIONS

Sacramento, CA 95814

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PREFACE

Traffic Trend

A comparison of the 2011 over 2010 annual traffic volume data shows that state highway travel decreased in 2011. This year's decrease in vehicle miles of travel on California highways compares with prior years as follows:

*2011 over 2010.....	- 1.1%
2010 over 2009.....	- 0.2%
2009 over 2008.....	- 0.6%
2008 over 2007.....	+3.5%
2007 over 2006.....	+1.0%

Traffic Profile

This booklet lists 2011 traffic volumes for all count locations on the California state highway system. Peak hours, peak month ADTs and annual ADTs are shown at each count location. Significant volume changes (breakpoints) in the traffic profile along each route are counted and identified by name and milepost value. In addition to the profile breakpoints, the booklet lists county lines and landmarks to aid in orientation.

The numbers shown in this booklet apply to the highway immediately back and ahead of the locations. Therefore, between any two successive breakpoints along the route it may be assumed that traffic volumes will vary from one breakpoint to the next at a reasonably uniform rate of increase or decrease. Where only a single set of figures appears between two breakpoints, a constant volume of traffic may be assumed for the intervening section of highway.

All traffic volume figures listed in this booklet include traffic in both directions unless otherwise indicated.

Route Number

All California state highways are listed in this booklet in order of Legislative Route number.

Milepost

Each profile breakpoint is identified by the milepost value corresponding to that point on the highway. The milepost values increase from the beginning of a route within a county to the next county line. The milepost values start over again at each county line. Milepost values usually increase from South to North or West to East depending upon the general direction the route follows within the state.

The milepost at a given location will remain the same year after year. When a section of road is relocated, new mileposts (usually noted by an alphabetical prefix such as "R" or "M") are established for it.

* Based on the Traffic Data Branch's Estimated Monthly Vehicle Miles of Travel Report.

2011 Traffic Volumes Book

Dist	Rout e	CO	Postmil e	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
7	101	LA	37.536	WESTLAKE VILLAGE, LINDERO CANYON	13100	175000	163000	11700	186000	168000
7	101	LA	38.19	LOS ANGELES/VENTURA CO LINE	11700	186000	168000			
7	101	VEN	0	LOS ANGELES/VENTURA CO LINE				11700	186000	168000
7	101	VEN	0.701	THOUSAND OAKS, JCT. RTE. 23 S	11700	186000	168000	12600	176000	172000
7	101	VEN	1.622	THOUSAND OAKS, HAMPSHIRE RD	12600	176000	172000	13800	189000	185000
7	101	VEN	3.107	THOUSAND OAKS, JCT. RTE. 23 N	13800	189000	185000	13200	179000	175000
7	101	VEN	4.06	THOUSAND OAKS, MOORPARK	13200	179000	175000	13200	176000	172000
7	101	VEN	5.046	THOUSAND OAKS, LYNN RD	13200	176000	172000	12600	173000	169000
7	101	VEN	6.186	THOUSAND OAKS, VENTU PARK	12600	173000	169000	11600	157000	154000
7	101	VEN	7.017	THOUSAND OAKS, BORCHARD	11600	157000	154000	10600	142000	139000
7	101	VEN	7.885	THOUSAND OAKS, WENDY DRIVE	10600	142000	139000	9700	131000	124000
7	101	VEN	10.738	CAMARILLO, CAMARILLO SPRINGS	9700	131000	124000	9600	130000	125000
7	101	VEN	12.298	CAMARILLO, PLEASANT VALLEY	9600	130000	125000	9700	132000	127000
7	101	VEN	13.848	CAMARILLO, JCT. RTE. 34	9700	132000	127000	10200	139000	135000
7	101	VEN	14.801	CAMARILLO, CARMEN DRIVE	10200	139000	135000	10000	136000	132000
7	101	VEN	15.888	CAMARILLO, LAS POSAS RD	10000	136000	132000	10400	142000	137000
7	101	VEN	17.747	CAMARILLO, CENTRAL AVE	10400	142000	137000	10000	136000	132000
7	101	VEN	19.172	OXNARD, ALMOND DRIVE	10000	136000	132000	9700	131000	127000
7	101	VEN	20.077	OXNARD, SANTA CLARA/RICE	9700	131000	127000	9200	124000	120000
7	101	VEN	21.01	OXNARD, ROSE AVE	9200	124000	120000	10000	134000	130000
7	101	VEN	22.006	OXNARD, JCT. RTE. 232	10000	134000	130000	9700	126000	120000
7	101	VEN	22.729	OXNARD, JCT. RTE. 1 S	9700	126000	120000	11500	148000	141000
7	101	VEN	R 23.45	VENTURA, JOHNSON DRIVE	11500	148000	141000	10000	130000	124000
7	101	VEN	R 24.645	VENTURA, VICTORIA AVE	10000	130000	124000	9500	124000	116000
7	101	VEN	25.966	VENTURA, TELEPHONE RD	9500	124000	116000	7100	92000	86000
7	101	VEN	26.39	VENTURA, JCT. RTE. 126	7100	92000	86000	9900	126000	116000
7	101	VEN	28.452	VENTURA, SEAWARD AVE	9900	126000	116000	10000	124000	114000
7	101	VEN	29.45	VENTURA, VISTA DEL MAR	10000	124000	114000	10000	120000	111000
7	101	VEN	30.147	VENTURA, CALIFORNIA ST	10000	120000	111000	8500	100000	92000
7	101	VEN	30.906	VENTURA, JCT. RTE. 33	8500	100000	92000	5800	76000	68000

2011 Traffic Volumes Book

Dist	Rout e	CO	Postmil e	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
11	125	SD	9.898	JAMACHA/PARADISE VALLEY	7300	98000	96000	6800	91000	90000
11	125	SD	10.622	JAMACHA RD UC	6800	91000	90000	8300	111000	109000
11	125	SD	12.967	EAST JCT. RTE. 94	8300	111000	109000	13100	161000	159000
11	125	SD	14.738	LEMON AVE	13100	161000	159000	12800	157000	155000
11	125	SD	R 15.094	LA MESA, GROSSMONT	12800	157000	155000	11900	148000	146000
11	125	SD	R 15.409	JCT. RTE. 8	11900	148000	146000	7500	92000	92000
11	125	SD	18.663	LA MESA, AMAYA DRIVE	7500	92000	92000	8600	89000	87000
11	125	SD	19.53	NAVAJO RD	8600	89000	87000	6900	78000	75000
11	125	SD	20.393	GROSSMONT COLLEGE DRIVE	6900	78000	75000	6600	71000	69000
11	125	SD	22.172	JCT. RTE. 52, SANTEE	6600	71000	69000	2250	27500	26500
11	125	SD	22.301	MISSION GORGE RD	2250	27500	26500			
7	126	VEN	0	VENTURA, JCT. RTE. 101				4500	52000	46500
7	126	VEN	1.448	VENTURA, VICTORIA AVE	4500	52000	46500	4200	48500	44000
7	126	VEN	2.799	VENTURA, KIMBALL RD	4200	48500	44000	3300	39000	35000
7	126	VEN	R 5.031	VENTURA, JCT. RTE. 118	3300	39000	35000	4650	54000	49000
7	126	VEN	R 8.912	BRIGGS RD	4650	54000	49000	4400	52000	47000
7	126	VEN	R 10.38	SANTA PAULA, PECK RD	4400	52000	47000	3650	43500	39500
7	126	VEN	R 11.365	SANTA PAULA, PALM AVE	3650	43500	39500	3400	40000	36000
7	126	VEN	R 12.042	SANTA PAULA, JCT. RTE. 150	3400	40000	36000	2800	32500	29000
7	126	VEN	R 13.248	HALLOCK DRIVE	2800	32500	29000	2900	34000	30000
7	126	VEN	T 16.73	SESPE RANCH UC	2900	34000	30000	2800	32000	28500
7	126	VEN	20.331	FILLMORE, WEST CITY	2800	32000	28500	3000	33500	29500
7	126	VEN	21.137	FILLMORE, JCT. RTE. 23, A ST	3300	36500	31500	3100	34500	30000
7	126	VEN	22.48	FILLMORE, EAST CITY	2750	29500	25500	2750	29500	25500
7	126	VEN	R 29.296	CENTER ST	2200	26500	23000			
7	126	LA	R 0	VENTURA/LOS ANGELES CO LINE				2100	25500	21700
7	126	LA	R 3.564	WOLCOTT WAY	2100	25500	21700	2100	25500	21900
7	126	LA	R 5.46	THE OLD ROAD	3700	44500	38500	3750	45000	39000
7	126	LA	R 5.801	SANTA CLARITA	3750	45000	39000	2250	26500	24700
7	126	LA	6.036	SANTA CLARITA, TOURNEY	2250	26500	24700			

ATTACHMENT 4

Relevant Sections of the California Vehicle Code

627. (a) "Engineering and traffic survey," as used in this code, means a survey of highway and traffic conditions in accordance with methods determined by the Department of Transportation for use by state and local authorities.

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

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

(2) Accident records.

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

(c) When conducting an engineering and traffic survey, local authorities, in addition to the factors set forth in paragraphs (1) to (3), inclusive, of subdivision (b) may consider all of the following:

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

(A) Upon one side of the highway, within a distance of a quarter of a mile, the contiguous property fronting thereon is occupied by 13 or more separate dwelling houses or business structures.

(B) Upon both sides of the highway, collectively, within a distance of a quarter of a mile, the contiguous property fronting thereon is occupied by 16 or more separate dwelling houses or business structures.

(C) The portion of highway is longer than one-quarter of a mile but has the ratio of separate dwelling houses or business structures to the length of the highway described in either subparagraph (A) or (B).

(2) Pedestrian and bicyclist safety.

22358. (a) Whenever a local authority determines upon the basis of an engineering and traffic survey that the limit of 65 miles per hour is more than is reasonable or safe upon any portion of any street other than a state highway where the limit of 65 miles per hour is applicable, the local authority may by ordinance determine and declare a prima facie speed limit of 60, 55, 50, 45, 40, 35, 30, or 25 miles per hour, whichever is found most appropriate to facilitate the orderly movement of traffic and is reasonable and safe, which declared prima facie limit shall be effective when appropriate signs giving notice thereof are erected upon the street.

(b) This section shall become operative on the date specified in subdivision (c) of Section 22366.

22358.5. It is the intent of the Legislature that physical

conditions such as width, curvature, grade and surface conditions, or any other condition readily apparent to a driver, in the absence of other factors, would not require special downward speed zoning, as the basic rule of section 22350 is sufficient regulation as to such conditions.

22401. Local authorities in timing traffic signals may so regulate the timing thereof as to permit the movement of traffic in an orderly and safe manner at speeds slightly at variance from the speed otherwise applicable under this code.

40802. (a) A "speed trap" is either of the following:

(1) A particular section of a highway measured as to distance and with boundaries marked, designated, or otherwise determined in order that the speed of a vehicle may be calculated by securing the time it takes the vehicle to travel the known distance.

(2) A particular section of a highway with a prima facie speed limit that is provided by this code or by local ordinance under subparagraph (A) of paragraph (2) of subdivision (a) of Section 22352, or established under Section 22354, 22357, 22358, or 22358.3, if that prima facie speed limit is not justified by an engineering and traffic survey conducted within five years prior to the date of the alleged violation, and enforcement of the speed limit involves the use of radar or any other electronic device that measures the speed of moving objects. This paragraph does not apply to a local street, road, or school zone.

(b) (1) For purposes of this section, a local street or road is one that is functionally classified as "local" on the "California Road System Maps," that are approved by the Federal Highway Administration and maintained by the Department of Transportation. When a street or road does not appear on the "California Road System Maps," it may be defined as a "local street or road" if it primarily provides access to abutting residential property and meets the following three conditions:

(A) Roadway width of not more than 40 feet.

(B) Not more than one-half of a mile of uninterrupted length.

Interruptions shall include official traffic control signals as defined in Section 445.

(C) Not more than one traffic lane in each direction.

(2) For purposes of this section, "school zone" means that area approaching or passing a school building or the grounds thereof that is contiguous to a highway and on which is posted a standard "SCHOOL" warning sign, while children are going to or leaving the school either during school hours or during the noon recess period. "School zone" also includes the area approaching or passing any school grounds that are not separated from the highway by a fence, gate, or other physical barrier while the grounds are in use by children if that highway is posted with a standard "SCHOOL" warning sign.

(c) (1) When all of the following criteria are met, paragraph (2) of this subdivision shall be applicable and subdivision (a) shall not be applicable:

(A) When radar is used, the arresting officer has successfully completed a radar operator course of not less than 24 hours on the use of police traffic radar, and the course was approved and certified by the Commission on Peace Officer Standards and Training.

(B) When laser or any other electronic device is used to measure the speed of moving objects, the arresting officer has successfully

completed the training required in subparagraph (A) and an additional training course of not less than two hours approved and certified by the Commission on Peace Officer Standards and Training.

(C) (i) The prosecution proved that the arresting officer complied with subparagraphs (A) and (B) and that an engineering and traffic survey has been conducted in accordance with subparagraph (B) of paragraph (2). The prosecution proved that, prior to the officer issuing the notice to appear, the arresting officer established that the radar, laser, or other electronic device conformed to the requirements of subparagraph (D).

(ii) The prosecution proved the speed of the accused was unsafe for the conditions present at the time of alleged violation unless the citation was for a violation of Section 22349, 22356, or 22406.

(D) The radar, laser, or other electronic device used to measure the speed of the accused meets or exceeds the minimal operational standards of the National Traffic Highway Safety Administration, and has been calibrated within the three years prior to the date of the alleged violation by an independent certified laser or radar repair and testing or calibration facility.

(2) A "speed trap" is either of the following:

(A) A particular section of a highway measured as to distance and with boundaries marked, designated, or otherwise determined in order that the speed of a vehicle may be calculated by securing the time it takes the vehicle to travel the known distance.

(B) (i) A particular section of a highway or state highway with a prima facie speed limit that is provided by this code or by local ordinance under subparagraph (A) of paragraph (2) of subdivision (a) of Section 22352, or established under Section 22354, 22357, 22358, or 22358.3, if that prima facie speed limit is not justified by an engineering and traffic survey conducted within one of the following time periods, prior to the date of the alleged violation, and enforcement of the speed limit involves the use of radar or any other electronic device that measures the speed of moving objects:

(I) Except as specified in subclause (II), seven years.

(II) If an engineering and traffic survey was conducted more than seven years prior to the date of the alleged violation, and a registered engineer evaluates the section of the highway and determines that no significant changes in roadway or traffic conditions have occurred, including, but not limited to, changes in adjoining property or land use, roadway width, or traffic volume, 10 years.

(ii) This subparagraph does not apply to a local street, road, or school zone.

40803. (a) No evidence as to the speed of a vehicle upon a highway shall be admitted in any court upon the trial of any person in any prosecution under this code upon a charge involving the speed of a vehicle when the evidence is based upon or obtained from or by the maintenance or use of a speedtrap.

(b) In any prosecution under this code of a charge involving the speed of a vehicle, where enforcement involves the use of radar or other electronic devices which measure the speed of moving objects, the prosecution shall establish, as part of its prima facie case, that the evidence or testimony presented is not based upon a speedtrap as defined in paragraph (2) of subdivision (a) of Section 40802.

(c) When a traffic and engineering survey is required pursuant to paragraph (2) of subdivision (a) of Section 40802, evidence that a traffic and engineering survey has been conducted within five years of the date of the alleged violation or evidence that the offense was committed on a local street or road as defined in paragraph (2) of subdivision (a) of Section 40802 shall constitute a prima facie case that the evidence or testimony is not based upon a speedtrap as defined in paragraph (2) of subdivision (a) of Section 40802.

ATTACHMENT 5

Relevant Sections of the California Manual on Uniform Traffic Control Devices

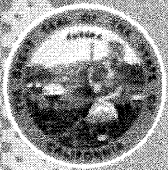
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California Manual on Uniform Traffic Control Devices

FHWA's MUTCD 2009 Edition as amended for use in California

2012 Edition

State of California
Business, Transportation and Housing Agency
Department of Transportation



DEPARTMENT OF TRANSPORTATION**OFFICE OF TRAFFIC OPERATIONS**

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*Flex your power!
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January 13, 2012

Mr. John E. Fisher
Chairman
California Traffic Control Devices Committee
P.O. Box 942874, MS-36
Sacramento, CA 94274-0001

Dear Mr. Fisher:

The California Department of Transportation (Department) has adopted the California Manual on Uniform Traffic Control Devices (CA MUTCD) 2012 edition to provide for uniform standards and specifications for all official traffic control devices in California. This action was taken pursuant to the provisions of California Vehicle Code Section 21400 and the recommendation of the California Traffic Control Devices Committee (CTCDC). The Department requested and has received a letter to confirm substantial conformance from the Federal Highway Administration (FHWA) for CA MUTCD 2012 edition. The revised document is available on the Internet at:

www.dot.ca.gov/camutcd

The revised CA MUTCD includes FHWA's 2009 MUTCD. The revision also includes all policies on traffic control devices issued by the Department since January 21, 2010, and other corrections and format changes that were necessary to update the previous documents. A draft version of the revised CA MUTCD was made available to the Department's district staff, local agencies and the general public for review and comment during the open public comment period, which began on August 9, 2010 and closed on October 10, 2011. The Department held five workshops with staff representing local agencies from April 14, 2010 to July 22, 2011 to discuss the revision and changes being incorporated. The CTCDC also reviewed the revised CA MUTCD at their October 20, 2011 meeting in Rancho Cordova and made a recommendation to the Department to adopt the new manual.

The Division of Traffic Operations is grateful to the CTCDC members and acknowledges their staff for providing invaluable time, support, guidance and direction in the development of this document.

Mr. John Fisher
January 13, 2012
Page 2

If you have any questions, please contact Johnny Bhullar at (916) 654-7312 or by email at Johnny.bhullar@dot.ca.gov.

Sincerely,

A handwritten signature in black ink, appearing to read 'R. Copp', with a long horizontal line extending to the right.

ROBERT COPP
Chief
Division of Traffic Operations

c:
Devinder Singh, Executive Secretary, CTCDC



U.S. Department
of Transportation
**Federal Highway
Administration**

**Federal Highway Administration
California Division**

650 Capitol Mall, Suite 4-100
Sacramento CA 95814

January 12, 2012

IN REPLY REFER TO
HDA-CA

Mr. Malcolm Dougherty
California Department of Transportation
1120 N Street
Sacramento, CA 95814

Dear Mr. Dougherty:

I am writing in response to the December 27, 2011, letter from Robert Copp requesting a determination that the California Manual on Uniform Traffic Control Devices for Streets and Highways (CA MUTCD) be found to be in substantial conformance with the national Manual on Uniform Traffic Control Devices for Streets and Highways, 2009 Edition (2009 MUTCD).

In December 2009, The Federal Highway Administration published the 2009 MUTCD, which became effective on January 15, 2010. As required by 23 CFR 655.603, the State of California must revise the CA MUTCD to be in substantial conformance with the 2009 MUTCD. Our office has reviewed the proposed revisions to the CA MUTCD, to be published on January 13, 2012, and we find it to be in substantial conformance with the 2009 MUTCD.

We commend the effort of Caltrans to address a number of issues that have lead to this determination of substantial conformance. We look forward to continuing to work with Caltrans, local agencies, and the California Traffic Control Devices Committee in the future to continuously improve the quality of the CA MUTCD and implement traffic control devices that will enhance the safety of the state's roadways.

Should you have questions, please do not hesitate to contact Steve Pyburn, Senior Transportation Engineer, at (916) 498-5057 or steve.pyburn@dot.gov.

Sincerely,

For
Vincent P. Mammano
Division Administrator

04 If used, the Overhead Pedestrian Crossing sign shall be placed over the roadway at the crosswalk location.

05 An In-Street or Overhead Pedestrian Crossing sign shall not be placed in advance of the crosswalk to educate road users about the State law prior to reaching the crosswalk, nor shall it be installed as an educational display that is not near any crosswalk.

Guidance:

06 If an island (see Chapter 3I) is available, the In-Street Pedestrian Crossing sign, if used, should be placed on the island.

Option:

07 If a Pedestrian Crossing (W11-2) warning sign is used in combination with an In-Street or an Overhead Pedestrian Crossing sign, the W11-2 sign with a diagonal downward pointing arrow (W16-7P) plaque may be post-mounted on the right-hand side of the roadway at the crosswalk location.

Standard:

08 The In-Street Pedestrian Crossing sign and the Overhead Pedestrian Crossing sign shall not be used at signalized locations.

09 The STOP FOR legend shall only be used in States where the State law specifically requires that a driver must stop for a pedestrian in a crosswalk.

10 The In-Street Pedestrian Crossing sign shall have a black legend (except for the red-STOP or YIELD sign symbols) and border on a white background, surrounded by an outer yellow or fluorescent yellow-green background area (see Figure 2B-2). The Overhead Pedestrian Crossing sign shall have a black legend and border on a yellow or fluorescent yellow-green background at the top of the sign and a black legend and border on a white background at the bottom of the sign (see Figure 2B-2).

11 Unless the In-Street Pedestrian Crossing sign is placed on a physical island, the sign support shall be designed to bend over and then bounce back to its normal vertical position when struck by a vehicle.

Support:

12 The Provisions of Section 2A.18 concerning mounting height are not applicable for the In-Street Pedestrian Crossing sign.

Standard:

13 The top of an In-Street Pedestrian Crossing sign shall be a maximum of 4 feet above the pavement surface. The top of an In-Street Pedestrian Crossing sign placed in an island shall be a maximum of 4 feet above the island surface.

Option:

14 The In-Street Pedestrian Crossing sign may be used seasonably seasonally to prevent damage in winter because of plowing operations, and may be removed at night if the pedestrian activity at night is minimal.

15 In-Street Pedestrian Crossing signs, Overhead Pedestrian Crossing signs, and Yield Here To (Stop Here For) Pedestrians signs may be used together at the same crosswalk.

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 10 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(f).**

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:

- A. 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.

- B. 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.
- C. 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 the Department's 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(f).

Support:

^{12f} Any existing E&TS that was performed before July 1, 2009 in accordance with previous traffic control device standards is not required to comply with the new criteria until it is due for reevaluation per the 5, 7 or 10 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 the department, 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 mile 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 mile, 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 mile 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 mile but has the ratio of separate dwelling houses or business structures to the length of the highway described in either subparagraph a or b.

B. Pedestrian and bicyclist safety.

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 Department of Transportation's 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 surface 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 mile 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 the Department of Transportation, with approval by the California Highway Patrol, shall be posted as follows:

- At the segment entrance, R2-1 signs shall be installed right of traffic off of the right shoulder.
- R2-1 signs shall also be installed off of the right shoulder only, throughout the segment, at a maximum of 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 the Department of Transportation, with the approval of the California Highway Patrol, shall be posted as follows:

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

Guidance:

- Subsequent signs should then be posted on the right shoulder, on approximate 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 Department of Transportation's District Directors. The District Director of each transportation district is authorized to issue orders regulating the speed of traffic, up to 65 mph on State highways. The Director of the Department of Transportation 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 the Department of Transportation 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.
- The Department may erect, regulate, and control signs upon the state highway which is a freeway, or any portion thereof, which, if used, signs shall be designed to permit display of different speeds at various times of the day or night.
- Such signs need not conform to the standards & specifications per CVC 21400, but if used, shall be of sufficient size and clarity to give adequate notice of the applicable speed limit.

Minimum Speed Limits on State Highways - See CVC 22400

Option:

⁹² The following speed limits may apply:

- Whenever the Department of Transportation 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, the Department may determine and declare a minimum speed limit. Appropriate signs giving notice shall then be installed on that segment.
- A motorist can be cited for stopping or impeding the normal and reasonable movement of traffic unless the stop is necessary for safe operation and in compliance with the law.

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.

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 years when all of the above conditions are met and no significant changes in roadway or traffic conditions have occurred, including changes in adjoining property or land use, roadway width, or traffic volume as determined by a registered engineer.

Truck Speed Zone on Descending Grades

Guidance:

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 Department of Transportation's 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.

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

Standard:

01 **Where a special speed limit applies to trucks or other vehicles, the legend TRUCKS XX or such similar legend shall be displayed below the legend Speed Limit XX on the same sign or on a separate R2-2P plaque (see Figure 2B-3) below the standard legend.**

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

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

Support:

04 Refer to Section 2B.13 for more details.

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

Standard:

01 **Where different speed limits are prescribed for day and night, both limits shall be posted.**

Guidance:

02 *A Night Speed Limit (R2-3P) plaque (see Figure 2B-3) should be reversed using a white retroreflectorized legend and border on a black background.*

Option:

03 **A Night Speed Limit plaque may be combined with or installed below the standard Speed Limit (R2-1) sign.**

Support:

04 Refer to CVC 22355.

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

Standard:

01 **A Minimum Speed Limit (R2-4P) plaque (see Figure 2B-3) shall be displayed only in combination with a Speed Limit sign.**

Option:

02 **Where engineering judgment determines that slow speeds on a highway might impede the normal and reasonable movement of traffic, the Minimum Speed Limit plaque may be installed below a Speed Limit (R2-1)**

C. If the approach has one or more exclusive turn lanes in addition to the shared left-turn/right-turn lane and there is a conflict with a signalized vehicular or pedestrian movement, and flashing YELLOW ARROW signal indications are used in place of CIRCULAR GREEN signal indications on the approach, the signal faces for the approach shall be as described in Items B.1 and B.2, except that flashing YELLOW ARROW signal indications shall be used in place of the GREEN ARROW signal indications for the turning movement(s) that conflicts with the signalized vehicular or pedestrian movement.

Support:

05 Figure 4D-20 illustrates application of these Standards on approaches that have only a shared left-turn/right-turn lane, and on approaches that have one or more exclusive turn lanes in addition to the shared left-turn/right-turn lane.

Option:

06 If the lane-use regulations on an approach are variable such that at certain times all of the lanes on the approach are designated as exclusive turn lanes and no lane is designated as a shared left-turn/right-turn lane:

- A. During the times that no lane is designated as a shared left-turn/right-turn lane, the left-turn and right-turn movements may start and terminate independently, and the left-turn and right-turn movements may be operated in one or more of the modes of operation as described in Sections 4D.17 through 4D.24; and
- B. If a protected-permissive mode is used, the shared left-turn/right-turn signal face provided in Paragraph 4 may be modified to include a dual-arrow signal section capable of displaying both a GREEN ARROW signal indication and a flashing YELLOW ARROW signal indication for a turn movement(s) in order to not exceed the maximum of five sections per signal face provided in Section 4D.08.

Section 4D.26 Yellow Change and Red Clearance Intervals

Standard:

01 **A steady yellow signal indication shall be displayed following every CIRCULAR GREEN or GREEN ARROW signal indication and following every flashing YELLOW ARROW or flashing RED ARROW signal indication displayed as a part of a steady mode operation. This requirement shall not apply when a CIRCULAR GREEN, a flashing YELLOW ARROW, or a flashing RED ARROW signal indication is followed immediately by a GREEN ARROW signal indication.**

02 **The exclusive function of the yellow change interval shall be to warn traffic of an impending change in the right-of-way assignment.**

03 **The duration of the yellow change interval shall be determined using engineering practices.**

Support:

04 Section 4D.05 contains provisions regarding the display of steady CIRCULAR YELLOW signal indications to approaches from which drivers are allowed to make permissive left turns.

Guidance:

05 *When indicated by the application of engineering practices, the yellow change interval should be followed by a red clearance interval to provide additional time before conflicting traffic movements, including pedestrians, are released.*

Standard:

06 **When used, the duration of the red clearance interval shall be determined using engineering practices.**

Support:

07 Engineering practices for determining the duration of yellow change and red clearance intervals can be found in ITE's "Traffic Control Devices Handbook" and in ITE's "Manual of Traffic Signal Design" (see Section 1A.11).

Standard:

08 **The durations of yellow change intervals and red clearance intervals shall be consistent with the determined values within the technical capabilities of the controller unit.**

09 **The duration of a yellow change interval shall not vary on a cycle-by-cycle basis within the same signal timing plan.**

10 **Except as provided in Paragraph 12, the duration of a red clearance interval shall not be decreased or omitted on a cycle-by-cycle basis within the same signal timing plan.**

Option:

11 The duration of a red clearance interval may be extended from its predetermined value for a given cycle based upon the detection of a vehicle that is predicted to violate the red signal indication.

12 When an actuated signal sequence includes a signal phase for permissive/protected (lagging) left-turn movements in both directions, the red clearance interval may be shown during those cycles when the lagging left-turn signal phase is skipped and may be omitted during those cycles when the lagging left-turn signal phase is shown.

13 The duration of a yellow change interval or a red clearance interval may be different in different signal timing plans for the same controller unit.

Guidance:

14 *A yellow change interval should have a minimum duration of 3 seconds and a maximum duration of 6 seconds. The longer intervals should be reserved for use on approaches with higher speeds. Refer to Table 4D-102(CA).*

Support:

14a The purpose of the yellow signal indication is to warn traffic approaching a traffic signal that the related green movement is ending or that a steady red indication will be exhibited immediately thereafter and traffic will be required to stop when the red signal is exhibited.

Standard:

14b **The minimum yellow change interval shall be in accordance with Table 4D-102(CA). The posted speed limit, or the prima facie speed limit established by the California Vehicle Code (CVC) shall be used for determination of the minimum yellow change interval for the through traffic movement.**

14c **The minimum yellow change interval for a protected left-turn or protected right-turn phase shall be 3.0 seconds.**

Option:

14d The minimum yellow change interval for the through movement and the protected left-turn or protected right-turn may be increased based on a field review or by using appropriate judgment. That judgment may be based on numerous factors, including, but not limited to, 85th percentile speed, intersection geometry and field observation of traffic behavior.

15 *Except when clearing a one-lane, two-way facility (see Section 4H.02) or when clearing an exceptionally wide intersection, a red clearance interval should have a duration not exceeding 6 seconds.*

Support:

15a When used, red clearance intervals normally range from 0.1 to 2.0 seconds.

Standard:

16 **Except for warning beacons mounted on advance warning signs on the approach to a signalized location (see Section 2C.36), signal displays that are intended to provide a "pre-yellow warning" interval, such as flashing green signal indications, vehicular countdown displays, or other similar displays, shall not be used at a signalized location.**

Support:

17 The use of signal displays (other than warning beacons mounted on advance warning signs) that convey a "pre-yellow warning" have been found by research to increase the frequency of crashes.

Section 4D.27 Preemption and Priority Control of Traffic Control Signals

Option:

01 Traffic control signals may be designed and operated to respond to certain classes of approaching vehicles by altering the normal signal timing and phasing plan(s) during the approach and passage of those vehicles. The alternative plan(s) may be as simple as extending a currently displayed green interval or as complex as replacing the entire set of signal phases and timing.

Support:

02 Preemption control (see definition in Section 1A.13) is typically given to trains, boats, emergency vehicles, and light rail transit-vehicles.

03 Examples of preemption control include the following:

A. The prompt displaying of green signal indications at signalized locations ahead of fire vehicles, law enforcement vehicles, ambulances, and other official emergency vehicles;

Table 4D-102 (CA). Minimum Yellow Change Interval Timing

$$\text{Yellow Time} = \frac{\text{Detector Setback Distance}}{\text{Speed}}$$

$$T = \frac{D}{V} = \text{The minimum yellow change interval (sec)}$$

V = Posted speed or prima facie Speed (ft/sec)

d = Deceleration Rate (10 ft/sec²)

t_R = Reaction Time (1 sec)

Reaction Distance = Vt_R

Deceleration Distance = $\frac{1}{2}dt^2$ or $\frac{1}{2}Vt$ or $\frac{V^2}{2d}$

D = Detector Setback = Deceleration Distance + Reaction Distance = $\frac{V^2}{2d} + Vt_R$

$$T = \frac{\frac{V^2}{2d} + Vt_R}{V}$$

$$T = \frac{V}{2d} + t_R$$

POSTED SPEED or PRIMA FACIE SPEED	MINIMUM YELLOW INTERVAL
mph	Seconds
25 or less	3.0
30	3.2
35	3.6
40	3.9
45	4.3
50	4.7
55	5.0
60	5.4
65	5.8

ATTACHMENT 6

City of Ventura's Policy on Traffic Signal Clearance Intervals

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Department of Public Works
Engineering Division

OPERATING POLICIES

EFFECTIVE 2-2-09
DATE:
APPROVED *[Signature]*
BY:
SECTION: TRAFFIC
PAGE 1 OF 4

TRAFFIC SIGNAL CLEARANCE INTERVALS

OBJECTIVE

Procedure for determining length of clearance intervals at signalized intersections.

SUMMARY

A. GENERAL

With the passage of AB 1022 the California Vehicle Code (CVC) was amended to include Section 21455.7 (a). This new section required agencies employing automated enforcement programs to establish minimum yellow light change intervals in accordance with the Traffic Manual of the Department of Transportation. California's Department of Transportation (Caltrans) adopted traffic manual is the California Manual of Uniform Traffic Control Devices (CAMUTCD).

This policy documents the City's methodologies in determining the length of the yellow light change interval in compliance with State law. Since the City has established the use of the all-red change interval, this policy also documents the methodology in determining the length of the all-red time.

As documented in the CAMUTCD, "the purpose of the yellow signal indication is to warn traffic approaching a traffic signal that the related green movement is ending or that a steady red indication will be exhibited immediately thereafter and traffic will be required to stop when the red signal is exhibited.

The function of the all-red clearance interval during the operation of a traffic signal is to partially or fully clear the intersection of vehicles that have entered during the yellow interval.

It should be noted that signal timing at signalized intersections jointly maintained by the City and the State is determined by Caltrans. This includes the clearance intervals.



OPERATING POLICIES

B. GUIDELINES FOR DETERMINING YELLOW CHANGE INTERVALS

As indicated in Section 4D.10 of the CAMUTCD, "the minimum yellow light change interval shall be in accordance with Table 4D-102 (see below) of the CAMUTCD. The posted speed limit, or the prima facie speed limit established by the CVC shall be used for determination of the minimum yellow light change interval for the through traffic movement". CAMUTCD Section 4D.10 goes on to say, "the minimum yellow light change interval for the through movement may be increased based on a field review or by using appropriate judgment. That judgment may be based on numerous factors, including, but not limited to, 85th percentile speed, intersection geometry and field observation of traffic behavior".

TABLE 4D-102

Posted Speed or Prima Facie – mph (km/h)	Yellow Interval (seconds)
25 (40) or less	3.0
30 (48)	3.2
35 (56)	3.6
40 (64)	3.9
45 (72)	4.3
50 (80)	4.7
55 (89)	5.0
60 (97)	5.4
65 (105)	5.8

In order to be consistent with previous practice in setting yellow change intervals and in hopes of obtaining good compliance from motorists, the City will utilize the 85th percentile speed of the street segment for determining yellow light change intervals for traffic signal phases associated with through movements. The City of Ventura's current Engineering and Traffic Survey (E & T Survey) shall be used to determine the 85th percentile speed. For example, if the current E & T Survey for a street segment indicates a 85th percentile speed of 40 mph, the yellow light change interval time for the through signal phase shall be 3.9 seconds. Where the 85th percentile speed is between two of the noted speed parameters, the yellow change interval shall be interpolated.

Regarding protected left and right turns, the CAMUTCD gives minimal guidance on setting the yellow time change interval, "the minimum yellow light change interval for a protected left-turn or protected right-turn phase shall be 3.0 seconds". As with



OPERATING POLICIES

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SECTION: TRAFFIC
PAGE 4 OF 4

85 th Percentile speed, (mph)	Red Clearance Interval, (seconds), for Width of Intersection, (feet)									
	40	60	80	100	120	140	160	180	200	
15	2.5	3.4	4.3	5.2	6.1	7.0	8.0	8.9	9.8	
20	1.9	2.6	3.2	3.9	4.6	5.3	6.0	6.7	7.3	
25	1.5	2.0	2.6	3.1	3.7	4.2	4.8	5.3	5.9	
30	1.3	1.7	2.2	2.6	3.1	3.5	4.0	4.4	4.9	
35	1.1	1.5	1.8	2.2	2.6	3.0	3.4	3.8	4.2	
40	0.9	1.3	1.6	2.0	2.3	2.6	3.0	3.3	3.7	
45	0.8	1.1	1.4	1.7	2.0	2.3	2.7	3.0	3.3	
50	0.8	0.9	1.3	1.6	1.8	2.1	2.4	2.7	2.9	
55	0.7	0.9	1.2	1.4	1.7	1.9	2.2	2.4	2.7	
60	0.6	0.8	1.1	1.3	1.5	1.8	2.0	2.2	2.4	

Note: Shaded intervals are > 2.0 seconds and shall not be used.

All-red clearance intervals will not be set any higher than 2.0 seconds. Long all-red clearance intervals have a significant impact on the operation of traffic signals, may result in increased red light running and are not consistent with motorists expectations of the operation of a traffic signal.

For signal phases associated with left turns, the all-red change interval will initially be set at 1.0 second. However, adjustments can be made to correspond with conditions at specific locations. Adjustments to change intervals may be made based on the geometry of an intersection, field observations, 85th percentile speed within the intersection or other factor(s) that could contribute to the variation in the all-red change interval.

In the past city-wide all-red times were generally set at 2.0 seconds for through movements. Based on the all-red change interval table above, the calculated all-red times may need to be shorter than the timing intervals set prior to adoption of this policy. Since motorists have been conditioned to expect a certain amount of all-red time, any changes that will be made will be done at 0.2 second intervals over an extended period of time until the calculated change interval is attained.

References:

- (1) Institute of transportation Engineers, *Traffic Control Devices Handbook*, 2001.

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ATTACHMENT 7

Ventura County Transportation Commission's Grand Jury Response

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Item #9G

July 12, 2013

MEMO TO: VENTURA COUNTY TRANSPORTATION COMMISSION
FROM: PETER DE HAAN, PROGRAMMING DIRECTOR
SUBJECT: RESPONSE TO 2012-2013 GRAND JURY REPORT "VICTORIA AVENUE CORRIDOR THROUGH THE CITY OF VENTURA"

RECOMMENDATION:

- Authorize the Executive Director to submit response, contained in Attachment B, to the Grand Jury report.

BACKGROUND:

Attachment A provides a report of the Grand Jury regarding the Victoria Avenue Corridor in Ventura. The primary emphasis of the report is the operation of the traffic signals and the red light cameras, but the report also discusses the proposed freeway-to-freeway connector from the westbound Route 126 to southbound Route 101, which if built could reduce southbound traffic on Victoria. Both the City of Ventura and VCTC are directed to respond, but VCTC's jurisdiction over the issues is limited to the planning of the freeway-to-freeway connector.

DISCUSSION:

Attachment B provides the Commission's proposed response to the Grand Jury. The Commission maintains a prioritized listing of state highway improvements, and has for many years included this project on its list, although at a lower priority. Unfortunately, given the amount of funding in the State Highway Transportation Improvement Program, and the other higher priority projects such as the Route 118 and 101 freeway widenings, this project will be many years away, at best.

July 12, 2013

The Honorable Brian J. Back
Presiding Judge of the Superior Court
800 S. Victoria Avenue
Ventura, CA 93009

**RE: VENTURA COUNTY TRANSPORTATION COMMISSION RESPONSE TO GRAND JURY
REPORT REGARDING VICTORIA AVENUE THROUGH THE CITY OF VENTURA**

Dear Judge Back:

At today's meeting the Ventura County Transportation Commission (VCTC) directed me to provide this response to the report of the Ventura County Grand Jury entitled Victoria Avenue Corridor Through the City of Ventura.

The VCTC was established in 1989 by SB 1880 (Davis), and as amended in 2004 by SB 2784 (Pavley), consists of the members of the County Board of Supervisors, a mayor or council member from each of the incorporated cities, one citizen member appointed by the Board of Supervisors, and one citizen member appointed by the City Selection Committee. Its responsibilities as provided under state law include setting priorities for Ventura County's share of funds in the State Transportation Improvement Program (STIP), the primary source of state funds for highway improvements. As part of this function VCTC maintains a prioritized list of future state highway improvements. This list was last updated as part of the 2009 Ventura County Congestion Management Plan, which was adopted by the Commission July 10, 2009. The Commission updates the list in consultation with its Transportation Technical Advisory Committee, consisting of local jurisdiction public works staff.

The adopted highway priority list includes the Route 126 to Route 101 southbound connector recommended in the Grand Jury Report, but due to the many other urgent needs throughout the county this project is a very low priority relatively speaking. Higher priority-projects on the list include the widening of the Route 118 Freeway between Tapo Canyon Road in Simi Valley and Los Angeles Avenue in Moorpark and the widening of the Route 101 Freeway from the Los Angeles County Line to Route 33 in Ventura. Given the need for these other costly projects of regional benefit, and the reduced amount of funds currently included in Ventura County's STIP share (now approximately \$10 million annually), it is likely to be many decades before the Route 126 to Route 101 southbound connector can be funded. Nevertheless, VCTC recognizes the need for this project, along with the many other needed highway improvements throughout the County.

As required by the Grand Jury, the attachment provides specific responses to each of the Findings and Recommendations contained in the report. With the exception of matters relating to the connector project, the Commission does not have jurisdiction over the subjects addressed in the report. It is expected that the City will address those matters in its response.

Sincerely,

Darren M. Kettle
Executive Director