

# Final Report

## 2021 CITYWIDE ENGINEERING AND TRAFFIC SURVEY



December 2021



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## CERTIFICATION

I, Ruben Perales, do hereby certify that this Engineering and Traffic Survey for the City of Garden Grove was performed under my supervision and is accurate and complete. I certify that I am both experienced in performing surveys of this type and duly registered in the State of California as a professional Traffic Engineer.



Ruben Perales  
RTE #2838



Traffic No. 2838

## SECTION 1.0

### Introduction

The purpose of this report is to document the results of an Engineering and Traffic Survey (E&TS) conducted to update the speed limits on the City of Garden Grove street network on City-selected arterial, collector, and local roadways. The overall study was conducted to comply with existing State regulations concerning the increasing or decreasing of speed limits within City boundaries. Roadways within business and residential districts have an established speed limit of 25 miles per hour while alleys and blind intersections are 15 miles per hour, both limits are designated by California law. As such they are not typically included in the E&TS. Intermediate speed limits between 25 and 65 miles per hour may be established by local authorities based on the E&TS.

It is a common belief that posting of speed limit traffic signs will influence drivers to drive at that speed. However, the facts indicate otherwise. Driver behavioral research conducted in many parts of this country over a span of several decades shows that the average driver is influenced by the appearance of the highway itself and the prevailing traffic conditions in choosing the speed at which a person drives. Recognizing this, the California Vehicle Code (CVC) requires that speed limits be established in accordance with appropriate engineering practice and methods. Excerpts from the CVC regarding regulations governing speed limits and definition of terms used in speed zone surveys are detailed in **Appendix A**.

This report contains sufficient information to document that the conditions of the latest edition of the California Vehicle Code Section 627 have been satisfied and that other conditions not readily apparent to motorists are properly identified. To legally use radar for speed enforcement, Section 40802 of the CVC requires that speed limits be established per Sections 22357 and 22358 of the CVC, the limits must be justified by an E&TS conducted within five years prior to the date of the alleged violation. However, a change in State law allows cities to extend the survey period up to seven or ten years depending on specific criteria<sup>1</sup>.

The latest edition of the CVC has highlighted bicycle and pedestrian safety as part of the engineering and traffic survey, and this aspect was considered as a part of this report.

The current study will verify, increase, or decrease existing speed limits within the City based on the data and results of this survey. The Citywide surveys were conducted over a span of two months, August and September 2021.

Spot speed surveys were taken at 143 locations on the City's network in conformance with the State law for conducting engineering and traffic surveys for the purpose of establishing prima facie speed limits. The data was collected per the California Manual of Uniform Traffic Control Devices (CA MUTCD), November 7, 2014 edition. Sections of the CA MUTCD detailing regulations for conducting the required "Engineering and Traffic Survey" are presented in **Appendix B**.

The actual speed zone surveys were conducted by AGA Engineers, Inc. (AGA). A California registered traffic engineer from AGA reviewed the streets, the survey data, and the crash statistics to arrive at the recommended speed limits for each segment.

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<sup>1</sup> Refer to Appendix A for specific survey criteria.

## SECTION 2.0

### Study Methodology

The study involved three major categories of data collection and analysis: (1) geometric and characteristic street surveillance; (2) spot speed survey; and (3) accident rate analysis.

The streets were surveyed by field observation to determine the existing roadway characteristics, condition and placement of signs and markings, adjacent land uses, pedestrian and bicycle activity, and to identify roadway characteristics that are not readily apparent to vehicle drivers.

The spot speed surveys, utilizing a calibrated radar gun, were conducted at 143 locations to determine existing vehicular travel speeds. A minimum of 100 observations (50 for each direction of travel) were recorded when possible. This data was used to calculate statistical information such as the 85th percentile speed, 10 mile per hour pace speed<sup>2</sup>, percent of vehicles within the 10 mile per hour pace, median speed and other pertinent data for analysis.

Certification of the radar technician and the radar gun used for the speed surveys is found in **Appendix C**. The radar technician successfully completed a course on the operation of the radar devices per Section 40802 of the CVC.

Accident data was provided by the City for a two-year period from January 1, 2019 through December 31, 2020 for all roadway segments. The accident rate was calculated and considered in recommending the speed limit.

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<sup>2</sup> Refer to Appendix A for definition of terms.

## SECTION 3.0

### Survey Results

#### 3.1 Street Surveillance

Section 2B.13 “Speed Limit Signs” of the CA MUTCD (see Appendix B), states that the speed limit should be established at the nearest five mile per hour increment rounded per standard mathematical practice, to the 85th percentile speed recorded during the spot speed survey. However, in matching existing conditions with the traffic safety needs of the community, engineering judgment may indicate the need for a further change in speed. Whenever such factors are considered to establish the speed limit, they should be documented on the speed survey or in the accompanying engineering report.

The survey streets were reviewed by Mr. Ruben Perales, P.E., T.E, and Senior Design Engineer at AGA Engineers, Inc., who is a registered Traffic Engineer in the State of California. The roadway characteristics, location of speed limit signs, conditions not readily apparent to the driver, type of area adjoining the street (commercial, residential, school zone, parks, etc.) and type of roadway (divided, undivided, number of lanes, etc.) were recorded as part of the study. The roadway characteristics were used to determine if any physical conditions warranted consideration of a five mile per hour reduction of the recommended speed in accordance with CVC Section 627. The speed survey segment roadway characteristics for each segment are indicated on the Engineering and Traffic Survey Summary sheets in **Appendix D**. The field survey data sheets are provided in **Appendix E**.

#### 3.2 Accident Rate Analysis

The accident rate for each speed survey segment was determined by using the most recent accident records as required by CVC Section 627. Based on a review of the State of California’s Statewide Integrated Traffic Records System (SWITRS) and City-provided Crossroads Collision Database reports from January 1, 2019 to December 31, 2020, mid-block accident rates were calculated for each street surveyed. The results of the accident rate calculations, including the Average Expected Accident Rates for each type of roadway facility, are shown in **Table 1** on the following page and in the Engineering and Speed Survey Summary sheets in Appendix D.

The Average Expected Accident Rates are based on the 2017 Collision Data on California State Highways<sup>3</sup> and are summarized below:

Roadway Type	Average Expected Accident Rate
Conventional 2 lanes or less (< 45 mph)	1.0
Conventional 2 lanes or less (≥ 45 mph)	1.6
Divided 4 lanes (< 45 mph)	0.9
Divided 4 lanes (≥ 45 mph)	1.0
Divided 5 lanes or more (< 45 mph)	1.0
Divided 5 lanes or more(≥ 45 mph)	0.8

<sup>3</sup> 2017 Collision Data on California State Highways, State of California Department of Transportation, Revised March 2020.



City of Garden Grove								
Table 1: 2021 Speed Zone Survey - Accident Survey Analysis								
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Street	No.	Location	Distance (mile)	Distance (feet)	2021 ADT	Accidents <sup>1</sup> (2 years)	Accident Rate	Expected <sup>2</sup> Accident Rate
Brookhurst Street	1	Hazard Avenue to Westminster Avenue	0.50	2,662	42,800	7	0.44	1.0
	2	Westminster Avenue to Trask Avenue	0.50	2,637	53,800	14	0.71	1.0
	3	Trask Avenue to Garden Grove Boulevard	0.50	2,641	46,900	6	0.35	1.0
	4	Garden Grove Boulevard to Lampson Avenue	0.56	2,933	36,500	7	0.47	1.0
	5	Lampson Avenue to Chapman Avenue	0.50	2,649	37,400	9	0.66	1.0
	6	Chapman Avenue to Orangewood Avenue	0.50	2,665	33,100	11	0.90	0.8
	7	Orangewood Avenue to Katella Avenue	0.50	2,640	30,500	5	0.45	0.8
Dale Street	8	Garden Grove Boulevard to Lampson Avenue	0.50	2,657	9,700	3	0.84	1.0
	9	Lampson Avenue to Chapman Avenue	0.41	2,149	10,700	2	0.63	1.0
	10	Chapman Avenue to Orangewood Avenue	0.50	2,645	8,700	1	0.31	1.0
	11	Orangewood Avenue to Katella Avenue	0.50	2,658	11,900	6	1.37	1.0
Euclid Street	12	Westminster Avenue to Trask Avenue	0.50	2,656	48,200	3	0.17	1.0
	13	Trask Avenue to Garden Grove Boulevard	0.50	2,656	37,500	8	0.58	1.0
	14	Garden Grove Boulevard to Lampson Avenue	0.56	2,944	30,400	1	0.08	1.0
	15	Lampson Avenue to Chapman Avenue	0.50	2,632	34,200	2	0.16	1.0
	16	Chapman Avenue to Orangewood Avenue	0.50	2,635	29,400	7	0.65	1.0
	17	Orangewood Avenue to Katella Street	0.50	2,640	31,900	12	1.03	1.0
Gilbert Street	18	Garden Grove Boulevard to Lampson Avenue	0.50	2,656	9,100	1	0.30	0.9
	19	Lampson Avenue to Chapman Avenue	0.50	2,648	9,500	0	0.00	0.9
	20	Chapman Avenue to Orangewood Avenue	0.48	2,555	14,200	3	0.60	0.9
	21	Orangewood Avenue to Katella Avenue	0.50	2,649	10,500	2	0.52	0.9
Harbor Boulevard	22	Westminster Avenue to Trask Avenue	0.50	2,653	48,700	14	0.78	1.0
	23	Trask Avenue to Garden Grove Boulevard	0.51	2,670	37,200	11	0.80	1.0
	24	Garden Grove Boulevard to Lampson Avenue	0.66	3,508	26,300	7	0.55	1.0
	25	Lampson Avenue to Chapman Avenue	0.49	2,613	25,200	4	0.44	1.0
	26	Chapman Avenue to Wilken Way (north city limits)	0.29	1,509	23,200	0	0.00	1.0
Haster Street	27	Garden Grove Boulevard to Lampson Avenue	0.50	2,656	18,900	6	0.86	0.9
	28	Lampson Avenue to Chapman Avenue	0.50	2,656	18,800	5	0.72	0.9
	29	Chapman Avenue to Simmons Avenue (north city limits)	0.50	2,656	17,500	2	0.31	0.9
Knott Street	30	Garden Grove Boulevard to Lampson Avenue	0.59	3,089	33,000	2	0.14	1.0
	31	Lampson Avenue to Chapman Avenue	0.50	2,648	29,900	1	0.09	1.0
Knott Avenue	32	Chapman Avenue to Orangewood Avenue	0.51	2,678	28,300	1	0.10	1.0
	33	Orangewood Avenue to Patterson Drive (north city limits)	0.19	987	28,900	1	0.25	1.0
Magnolia Street	34	Westminster Avenue to Trask Avenue	0.50	2,645	41,500	15	0.99	1.0
	35	Trask Avenue to Garden Grove Boulevard	0.58	3,058	32,600	4	0.29	0.9

<sup>1</sup> City of Garden Grove Crossroads Program Accident Data from 1/1/2019 to 12/31/2020

<sup>2</sup> Caltrans 2017 State Highway Collision Data

<sup>3</sup> ADT calculated from adjacent zone survey segments

**City of Garden Grove**  
**Table 1: 2021 Speed Zone Survey - Accident Survey Analysis**

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Street	No.	Location	Distance (mile)	Distance (feet)	2021 ADT	Accidents <sup>1</sup> (2 years)	Accident Rate	Expected <sup>2</sup> Accident Rate
Magnolia Street (Cont)	36	Garden Grove Boulevard to Lampson Avenue	0.50	2,651	29,200	5	0.47	0.9
	37	Lampson Avenue to Chapman Avenue	0.50	2,647	27,800	0	0.00	0.9
	38	Chapman Avenue to Orangewood Avenue	0.50	2,655	23,200	6	0.70	0.9
	39	Orangewood Avenue to Katella Avenue	0.50	2,656	26,000	6	0.63	0.9
Main Street	40	Garden Grove Boulevard to Acacia Parkway	0.50	2,656	3,900	0	0.00	1.0
	41	Acacia Parkway to Euclid Street	0.30	1,604	6,000	2	1.50	1.0
Nelson Street	42	Garden Grove Boulevard to Stanford Avenue	0.25	1,326	8,800	1	0.62	1.0
Newhope Street	43	Westminster Avenue to Trask Avenue	0.50	2,656	29,600	5	0.46	0.9
	44	Trask Avenue to Garden Grove Boulevard	0.50	2,656	22,500	1	0.12	0.9
Newland Street	45	Westminster Avenue to Trask Avenue	0.50	2,647	19,800	2	0.28	0.9
	46	Trask Avenue to Garden Grove Boulevard	0.50	2,642	20,300	8	1.08	1.0
Ninth Street	47	Garden Grove Boulevard to Lampson Avenue	0.50	2,656	10,400	4	1.05	1.0
	48	Lampson Avenue to Chapman Avenue	0.50	2,656	9,900	2	0.55	1.0
	49	Chapman Avenue to Orangewood Avenue	0.50	2,656	7,400	7	2.58	1.0
Nutwood Street	50	Garden Grove Boulevard to Lampson Avenue	0.50	2,655	5,700	3	1.43	1.0
	51	Lampson Avenue to Chapman Avenue	0.50	2,635	5,500	2	1.00	1.0
Springdale Street	52	Garden Grove Boulevard to Lampson Avenue	0.50	2,634	5,400	0	0.00	0.9
	53	Lampson Avenue to Chapman Avenue	0.51	2,686	7,100	0	0.00	0.9
	54	Chapman Avenue to Santa Catalina Avenue (north city limits)	0.23	1,200	5,900	0	0.00	0.9
Taft Street	55	Westminster Boulevard to Trask Avenue	0.50	2,646	9,900	2	0.55	1.0
	56	Trask Avenue to Century Boulevard	0.35	1,873	8,100	0	0.00	1.0
Ward Street	57	Hazard Avenue to Morningside Drive	0.28	1,502	7,500	1	0.64	1.0
West Street	58	Garden Grove Boulevard to Lampson Avenue	0.50	2,656	13,300	4	0.82	0.9
	59	Lampson Avenue to Chapman Avenue	0.50	2,656	12,200	5	1.12	0.9
	60	Chapman Avenue to Orangewood Avenue	0.50	2,656	14,400	1	0.19	0.9
	61	Orangewood Avenue to Ricky Avenue (north city limits)	0.50	2,656	12,600	0	0.00	0.9
Western Avenue	62	Garden Grove Boulevard to Lampson Avenue	0.50	2,661	17,100	4	0.64	1.0
	63	Lampson Avenue to Chapman Avenue	0.50	2,647	15,200	1	0.18	1.0
	64	Chapman Avenue to Orangewood Avenue	0.50	2,645	19,000	3	0.43	1.0
	65	Orangewood Avenue to Lincoln Way (north city limits)	0.19	993	20,400	0	0.00	0.9
Valley View Street	66	Garden Grove Boulevard to Lampson Avenue	0.76	3,992	46,500	6	0.23	0.8
	67	Lampson Avenue to Chapman Avenue	0.46	2,443	44,700	2	0.13	0.8
	68	Chapman Avenue to Santa Catalina Ave (north city limits)	0.23	1,189	41,300	2	0.29	0.8
Century Boulevard	69	Garden Grove Boulevard to Euclid Street	0.50	2,640	12,900	0	0.00	0.9

<sup>1</sup> City of Garden Grove Crossroads Program Accident Data from 1/1/2019 to 12/31/2020

<sup>2</sup> Caltrans 2017 State Highway Collision Data

<sup>3</sup> ADT calculated from adjacent zone survey segments



**City of Garden Grove**  
**Table 1: 2021 Speed Zone Survey - Accident Survey Analysis**

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Street	No.	Location	Distance (mile)	Distance (feet)	2021 ADT	Accidents <sup>1</sup> (2 years)	Accident Rate	Expected <sup>2</sup> Accident Rate
Chapman Avenue	70	Bailey Street to Valley View Street	0.22	1,154	6,800	2	1.84	0.9
	71	Valley View Street to Springdale Street	0.50	2,641	11,100	1	0.25	0.9
	72	Springdale Street to Knott Street	0.50	2,642	10,700	1	0.26	0.9
	73	Knott Street to Western Avenue	0.55	2,914	16,000 <sup>3</sup>	3	0.47	0.9
	74	Western Avenue to Santa Paula Street (mid-east city limits)	0.42	2,221	18,100	3	0.54	0.9
	75	Briarwood Street (mid-west city limits) to Magnolia Street	0.63	3,303	22,200	4	0.39	0.9
	76	Magnolia Street to Gilbert Street	0.46	2,434	20,600	6	0.87	0.9
	77	Gilbert Street to Brookhurst Street	0.50	2,644	23,200	10	1.18	1.0
	78	Brookhurst Street to Nutwood Street	0.50	2,656	25,500	4	0.43	0.9
	79	Nutwood Street to Euclid Street	0.50	2,656	25,800	5	0.53	0.9
	80	Euclid Street to Ninth Street	0.50	2,656	25,600	7	0.74	0.9
	81	Ninth Street to West Street	0.50	2,656	24,100	2	0.23	0.9
	82	West Street to Harbor Boulevard	0.50	2,656	27,400	4	0.40	0.9
	83	Harbor Boulevard to Haster Street	0.50	2,656	29,200	7	0.65	1.0
84	Haster Street to Lewis Street	0.50	2,656	27,600	7	0.69	1.0	
Garden Grove Boulevard	85	Knott Street to Western Avenue	0.35	1,829	20,900	0	0.00	1.0
	86	Western Avenue to Beach Boulevard	0.49	2,607	25,400 <sup>3</sup>	1	0.11	1.0
	87	Beach Boulevard to Dale Street	0.51	2,685	23,500	3	0.34	1.0
	88	Dale Street to Magnolia Street	0.50	2,652	26,900	5	0.51	1.0
	89	Magnolia Street to Gilbert Street	0.48	2,510	26,300	4	0.44	1.0
	90	Gilbert Street to Brookhurst Street	0.69	3,619	23,000	8	0.70	1.0
	91	Brookhurst Street to Nelson Street/Century Boulevard	0.50	2,656	28,000	4	0.39	1.0
	92	Nelson Street to Euclid Street	0.50	2,656	24,600	3	0.33	1.0
	93	Euclid Street to Newhope Street	0.50	2,656	28,800	3	0.28	1.0
	94	Newhope Street to Harbor Boulevard	0.50	2,656	29,300	6	0.56	1.0
95	Harbor Boulevard to Haster Street	0.50	2,656	26,700	10	1.02	1.0	
96	Haster Street to Lewis Street	0.50	2,656	22,500	2	0.24	1.0	
Hazard Avenue	97	Cork Street to Brookhurst Street	0.28	1,455	14,600	3	1.02	0.9
	98	Brookhurst Street to Ward Street	0.50	2,656	13,800	1	0.20	0.9
	99	Ward Street to Euclid Street	0.50	2,656	12,700	3	0.64	0.9
Lampson Avenue	100	Manley Street (west city limits) to Valley View Street	0.68	3,586	11,500 <sup>3</sup>	1	0.18	1.0
	101	Valley View Street to Springdale Street	0.57	3,000	10,100	1	0.24	1.0
	102	Springdale Street to Knott Street	0.50	2,641	10,200	2	0.54	0.9
	103	Knott Street to Western Avenue	0.56	2,951	12,100	2	0.41	0.9
	104	Western Avenue to Santa Rosalia Street (mid-east city limits)	0.19	992	11,500	1	0.63	0.9

<sup>1</sup> City of Garden Grove Crossroads Program Accident Data from 1/1/2019 to 12/31/2020

<sup>2</sup> Caltrans 2017 State Highway Collision Data

<sup>3</sup> ADT calculated from adjacent zone survey segments

**City of Garden Grove**  
**Table 1: 2021 Speed Zone Survey - Accident Survey Analysis**

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Street	No.	Location	Distance (mile)	Distance (feet)	2021 ADT	Accidents <sup>1</sup> (2 years)	Accident Rate	Expected <sup>2</sup> Accident Rate
Lampson Avenue cont.	105	San Marcos Drive (mid-west city limits) to Dale Street	0.36	1,927	12,000	2	0.63	1.0
	106	Dale Street to Magnolia Street	0.50	2,643	8,500	1	0.32	1.0
	107	Magnolia Street to Gilbert Street	0.46	2,447	7,800	1	0.38	1.0
	108	Gilbert Street to Brookhurst Street	0.50	2,655	7,400	0	0.00	1.0
	109	Brookhurst Street to Nutwood Street	0.50	2,656	8,200	4	1.33	1.0
	110	Nutwood Street to Euclid Street	0.50	2,656	7,100	3	1.15	1.0
	111	Euclid Street to Ninth Street	0.50	2,656	6,800	5	2.00	1.0
	112	Ninth Street to West Street	0.50	2,656	7,700	0	0.00	1.0
	113	West Street to Harbor Boulevard	0.50	2,656	6,800	1	0.40	1.0
	114	Harbor Boulevard to Haster Street	0.50	2,656	10,500	4	1.04	1.0
	115	Haster Street to Lewis Street	0.50	2,656	7,900	4	1.38	1.0
Orangewood Avenue	116	Knott Street to Western Avenue	0.54	2,877	5,500	1	0.46	1.0
	117	Jane Way (mid-west city limits) to Dale Street	0.32	1,687	7,700	0	0.00	1.0
	118	Dale Street to Magnolia Street	0.50	2,635	8,100	1	0.34	1.0
	119	Magnolia Street to Gilbert Street	0.46	2,445	7,000	1	0.42	1.0
	120	Gilbert Street to Brookhurst Street	0.51	2,667	5,700	1	0.48	1.0
	121	Brookhurst Street to Palmwood Drive	0.50	2,656	7,000	1	0.39	1.0
	122	Palmwood Drive to Euclid Street	0.50	2,656	7,500	1	0.36	1.0
	123	Ninth Street to West Street	0.50	2,656	8,600	1	0.32	1.0
124	West Street to Eugene Street (east city limits)	0.50	2,656	12,600	1	0.22	1.0	
Trask Avenue	125	Beach Boulevard to Newland Street	0.51	2,706	11,700	0	0.00	0.9
	126	Newland Street to Magnolia Street	0.50	2,641	12,700	3	0.65	0.9
	127	Magnolia Street to Galway Street	0.53	2,795	12,800	12	2.43	0.9
	128	Galway Street to Brookhurst Street	0.48	2,510	27,200	4	0.42	0.9
	129	Brookhurst Street to Benton Street	0.50	2,656	14,400	1	0.19	0.9
	130	Benton Street to Euclid Street	0.50	2,656	14,400	3	0.57	0.9
	131	Euclid Street to Newhope Street	0.50	2,656	17,300	3	0.47	0.9
	132	Newhope Street to Harbor Boulevard	0.50	2,656	11,800	4	0.92	0.9
	133	Harbor Boulevard to Clinton Street	0.50	2,656	9,400	4	1.16	0.9
	134	Clinton Street to Fairview Street	0.50	2,656	9,200	1	0.30	1.0
Westminster Avenue	135	Newland Street to Magnolia Street	0.34	1,820	28,500	0	0.00	0.9
	136	Magnolia Street to Bushard Street	0.50	2,662	30,000	2	0.18	1.0
	137	Bushard Street to Brookhurst Street	0.50	2,656	32,500	14	1.17	0.8
	138	Brookhurst Street to Bowen Street	0.43	2,251	25,600	5	0.63	0.8
	139	Bowen Street to Euclid Street	0.57	3,006	27,200	7	0.62	0.8
	140	Euclid Street to Newhope Street	0.50	2,642	22,800	1	0.12	0.8
	141	Newhope Street to Harbor Boulevard	0.50	2,642	24,300	1	0.11	0.8
	142	Harbor Boulevard to Clinton Street	0.50	2,642	25,300	2	0.22	0.8
	143	Clinton Street to Buena Street (east city limits)	0.22	1,155	23,100	1	0.27	0.8

<sup>1</sup> City of Garden Grove Crossroads Program Accident Data from 1/1/2019 to 12/31/2020

<sup>2</sup> Caltrans 2017 State Highway Collision Data

<sup>3</sup> ADT calculated from adjacent zone survey segments

The mid-block accident rate in terms of “accidents per 1,000,000 vehicle miles of travel” for each segment surveyed was calculated and is shown on the Engineering and Traffic Survey summary sheets. The following shows a sample calculation.

The rate was calculated using the following equation:

$$\text{Accident Rate} = \frac{\text{Number of Midblock accidents} \times 10^6}{24\text{-hour volume} \times 365 \times \text{segment length} \times \text{number of years}}$$

Where:

- Number of mid-block accidents based on two years (January 1, 2019 to December 31, 2020)
- 24-hour volume (both directions) in the survey segment
- Segment length in miles.

The 24-hour volume counts were conducted in October and November 2021. The ADT counts are summarized in **Figure 1** and provided in the **Appendix F**.

**Example:**

To calculate the accident rate on Brookhurst Street between Hazard Avenue and Westminster Avenue (segment # 1) where:

- 7 = Number of mid-block accidents
- 42,800 = 24-hour volume (both directions) in the survey segment
- 0.5 = Segment length in miles
- 2 = Number of analysis years

$$\begin{aligned} \text{Accident Rate} &= \frac{7 \times 10^6}{42,800 \times 365 \times 0.50 \times 2} \\ &= \mathbf{0.44 \text{ accidents per million vehicle miles (A/MVM)}} \end{aligned}$$

The Average Expected Accident Rate for the roadway segment type is 1.00. The calculated accident rate of 0.44 is below the expected rate for this segment.

One of the observed high accident rates in the City was noted at Trask Avenue between Magnolia Street and Galway Street (segment # 127). With an accident rate of 2.43, it is well above the Expected Accident Rate of 0.9 based on the statewide average accident rate. This observed accident rate is due to the following factors:

- Relatively low traffic volume - 12,800 vehicles,
- Relatively short segment - 0.53 miles, and
- Number of collisions - 12 collisions in the two year analysis period.



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**FIGURE 1**  
**2021 AVERAGE DAILY**  
**VOLUMES**

F:\Projects\Garden Grove\155-005\Traffic Volume Map.dwg 11/24/14

### 3.3 Spot Speed Survey

Spot speed surveys were conducted at each of the 143 street segments to establish a reasonable and effective speed limit based on the premise that the speed limit thus established conforms to the actual behavior of the majority of motorists. The speed limit should normally be established at the first five mile per hour increment nearest the 85th percentile speed recorded, mathematically rounded, for the surveyed segment. However, engineering judgment and other factors such as street surveillance (Section 3.1) and accident rates (Section 3.2) may indicate the need for further reduction in establishing reasonable and effective speed limits.

The California Manual on Uniform Traffic Control Devices identifies two options for a reduction of speed:

- Option 1 states that a “posted speed may be reduced by 5 mph from the nearest 5 mph increment of the 85<sup>th</sup> percentile speed, in compliance with CVC Section 627 and 22358.5.”
- Option 2 states that “for cases in which the nearest 5 mph increment of the 85<sup>th</sup> percentile speed would require a rounding up, then the speed limit may be rounded down to the nearest 5 mph increment below the 85<sup>th</sup> percentile speed if no further reduction is used.”

The criteria used in conducting the radar survey are listed in Appendix B.

The information collected and data calculated for the radar speed survey are as follows:

- |                                 |                                   |
|---------------------------------|-----------------------------------|
| • Posted speed limit            | • Number of vehicles observed     |
| • Direction of survey           | • Average speed                   |
| • Date and time of speed survey | • Accident History                |
| • 85th Percentile speed         | • Accident Rate                   |
| • 50th Percentile speed         | • Average Daily Traffic           |
| • 10 mph pace speed             | • Road Description                |
| • Percent over pace speed       | • Pedestrian and bicycle activity |
| • Range of speeds               |                                   |

The summary contains information about vehicular speed data observed, accident data, street classification, and any unusual conditions at the location.

## SECTION 4.0

### Survey Findings and Recommendations

In accordance with the State-imposed speed limit establishment regulation as defined by CVC Section 627, there are several factors that may be considered to justify setting the prima facie speed limits five miles per hour below the observed 85th percentile speed.

It should be noted that the regulations found in Appendix B also state that “the establishment of a speed limit of five mph below the 85<sup>th</sup> percentile speed should be done with great care.”

The factors to be considered are:

- Most recent accident record (mid-block)
- Roadway design speed
- Safe stopping sight distance
- Super-elevation
- Grades
- Shoulder condition
- Profile condition
- Intersection spacing offsets
- Commercial driveway characteristics (land use)
- Pedestrian traffic with and without sidewalks
- Pedestrian and Bicycle safety

The above factors for each roadway segment surveyed are listed in the Engineering and Traffic Survey Summary sheets in Appendix D. The 85th percentile speed and the above factors were considered in verifying existing speed limits and recommending speed limit changes (increase or decrease). The 2021 Speed Zone Survey – Accident Survey Analysis (Table 1) lists the total number of accidents, calculated accident rate, and the expected accident rate. **Table 2** shows the surveyed road segments with posted and recommended speed limits. California Vehicle Code sections are defined in Appendix A.

The recommended speed limits are shown in **Figure 2**.



Table 2: Segment Spot Speed Survey 2021

Street	No	Dir.	Date	10-Mile Pace (mph)	% in 10-Mile Pace	5th %ile (mph)	85th %ile (mph)	Posted Speed Limit (mph)	Recommended Speed Limit (mph)	Comments
Brookhurst Street	1	N/S	8/27/2021	34-43	74	37	43	40	40	No Change, 85th %
	2	N/S	8/27/2021	31-40	81	34	39	40*	40	No Change, 85th %
	3	N/S	8/27/2021	34-43	66	37	43	40	40	No Change, 85th %
	4	N/S	8/27/2021	35-44	64	38	44	40	40	No Change, 85th %
	5	N/S	8/27/2021	34-43	61	37	44	40	40	No Change, 85th %
	6	N/S	8/27/2021	39-48	69	42	48	45	45	No Change, 85th %
Dak Street	7	N/S	8/27/2021	40-49	63	43	50	45	45	No Change, On-Street Parking, Continuity of Speed, 40 mph in Anaheim
	8	N/S	9/1/2021	27-36	81	31	35	35	35	No Change, 85th %
	9	N/S	9/1/2021	31-40	75	35	40	35*	35	No Change, On-Street Parking, Continuity of Speed, Mid-Block Crosswalk, Multiple Driveways, Adjacent to School
	10	N/S	9/1/2021	30-39	71	34	39	35	35	No Change, 85th %
Euclid Street	11	N/S	9/1/2021	34-43	67	38	44	35*	40	Increase, 85th %
	12	N/S	9/2/2021	34-43	75	36	44	40	40	No Change, 85th %
	13	N/S	9/2/2021	33-42	65	38	44	40	40	No Change, 85th %
	14	N/S	9/2/2021	33-42	72	37	42	40	40	No Change, 85th %
	15	N/S	9/2/2021	38-47	64	41	46	40	40	No Change, Multiple Driveways, Continuity of Speed
	16	N/S	9/2/2021	37-46	70	40	45	40	40	No Change, Continuity of Speed, Lane Drop, On-Street Parking
	17	N/S	9/2/2021	35-44	70	40	45	40	40	No Change, High Accident Rate, Continuity of Speed, 40 mph in Anaheim
Gilbert Street	18	N/S	8/30/2021	29-38	87	33	37	30	30	No Change, Narrow Road, No Curb & Gutter, Multiple Driveways, No Sidewalks
	19	N/S	8/30/2021	29-38	79	33	37	30	30	No Change, Narrow Road, Multiple Driveways, No Sidewalks
	20	N/S	8/30/2021	35-44	80	38	42	35	35	No Change, Multiple Driveways, On-Street Parking, Dip in Roadway, No Left Turn Channelization
	21	N/S	8/30/2021	36-45	68	40	45	35*	40	Increase, 85th %, On-Street Parking, No Left Turn Channelization
	22	N/S	8/26/2021	34-43	68	37	44	40	40	No Change, 85th %
Harbor Boulevard	23	N/S	8/26/2021	32-41	70	35	41	40	40	No Change, 85th %
	24	N/S	8/26/2021	35-44	66	38	45	40	40	No Change, Multiple Driveways, Horizontal Curvature, Continuity of Speed
	25	N/S	8/26/2021	33-42	65	39	46	40	40	No Change, Continuity of Speed, HAWK pedestrian signal
	26	N/S	8/26/2021	35-44	74	38	44	35	40	Increase, 85th %, 40 mph in Anaheim
	27	N/S	9/13/2021	38-47	71	41	46	40	40	No Change, On-Street Parking, Adjacent to Park, High Pedestrian Activity
	28	N/S	9/13/2021	31-40	71	37	43	40	40	No Change, 85th %
Knot Street	29	N/S	9/13/2021	35-44	74	40	45	40	40	No Change, On-Street Parking, Continuity of Speed, 40 mph in Anaheim
	30	N/S	9/16/2021	37-46	67	41	46	40	40	No Change, Horizontal Curvature, Trap Lane SB approaching Garden Grove Blvd, Continuity of Speed, 40 mph in Cypress
	31	N/S	9/16/2021	38-47	73	42	46	40	40	No Change, Adjacent to High School, Industrial area with heavy truck traffic, Continuity of Speed
	32	N/S	9/16/2021	35-44	65	41	47	40	40	No Change, Adjacent to School, Continuity of Speed
	33	N/S	9/16/2021	37-46	73	40	45	40	40	No Change, Continuity of Speed, On-Street Parking, 40 mph in Anaheim
Magnolia Street	34	N/S	8/30/2021	34-43	70	37	43	40	40	No Change, 85th %
	35	N/S	8/30/2021	33-42	71	37	42	35	40	Increase, 85th %
	36	N/S	8/30/2021	34-43	78	37	43	40*	40	No Change, 85th %
	37	N/S	8/30/2021	34-43	74	39	44	40*	40	No Change, 85th %
Main Street	38	N/S	8/30/2021	33-42	70	38	44	40	40	No Change, 85th %
	39	N/S	8/30/2021	38-47	71	41	46	40*	40	No Change, On-Street Parking, Continuity of Speed, 40 mph in Anaheim
	40	N/S	9/20/2021	16-25	97	18	21	25	25	No Change, 85th %
	41	N/S	9/20/2021	23-32	90	26	30	25	25	No Change, Angled On-Street Parking, Adjacent to Park, Continuity of Speed, High Accident Rate

\* - 25 mph when children are present

Table 2: Segment Spot Speed Survey 2021

Street	No	Dir.	Date	10-Mile Pace (mph)	% in 10-Mile Pace	50th %ile (mph)	85th %ile (mph)	Posted Speed Limit (mph)	Recommended Speed Limit (mph)	Comments
Nelson Street	42	N/S	9/20/2021	29-38	77	33	38	35	35	No Change, 85th %
	43	N/S	9/20/2021	34-43	84	37	41	40 *	40	No Change, 85th %
Newhope Street	44	N/S	9/20/2021	33-42	82	37	41	35 *	35	No Change, Bike Lanes, Multiple Driveways, Adjacent to School
	45	N/S	9/20/2021	37-46	71	39	44	40 *	40	No Change, 85th %
Newland Street	46	N/S	9/20/2021	34-43	70	36	42	40 *	40	No Change, 85th %
	47	N/S	9/20/2021	29-38	86	31	36	35	35	No Change, 85th %
Ninth Street	48	N/S	9/10/2021	30-39	77	35	39	35	3.5	No Change, 85th %
	49	N/S	9/10/2021	33-42	71	38	44	35 *	40	Increase, 85th %, High Accident Rate
Netwood Street	50	N/S	9/13/2021	27-36	91	30	34	35	3.5	No Change, 85th %
	51	N/S	9/13/2021	28-37	75	30	36	35	3.5	No Change, 85th %
Springdale Street	52	N/S	9/20/2021	36-45	73	39	45	35 *	40	Increase, 85th %, Adjacent to Schools, Continuity of Speed
	53	N/S	9/20/2021	37-46	81	41	45	35 *	40	Increase, 85th %, No Left Turn Channelization, On-Street Parking, Continuity of Speed
Tall Street	54	N/S	9/16/2021	35-44	81	39	43	40	40	No Change, 85th %
	55	N/S	9/20/2021	29-38	76	34	39	35	35	No Change, 85th %
Ward Street	56	N/S	9/20/2021	26-35	77	30	34	35 *	35	No Change, 85th %
	57	N/S	9/20/2021	30-39	81	33	37	35 *	35	No Change, 85th %
West Street	58	N/S	9/10/2021	36-45	66	41	46	35	40	Increase, 85th %, On-Street Parking, No Left Turn Channelization, Multiple Driveways
	59	N/S	9/10/2021	34-43	70	39	45	35 *	40	Increase, 85th %, On-Street Parking, No Left Turn Channelization, Multiple Driveways, Uncontrolled Crosswalk
Western Avenue	60	N/S	9/10/2021	32-41	68	38	45	35	40	Increase, 85th %, On-Street Parking, Multiple Driveways, No Left Turn Channelization, Continuity of Speed
	61	N/S	9/10/2021	36-45	76	39	44	40	40	No Change, 85th %
Valley View Street	62	N/S	9/9/2021	38-47	68	40	46	45	45	No Change, 85th %
	63	N/S	9/9/2021	34-43	69	39	46	45	45	No Change, 85th %
Century Boulevard	64	N/S	9/9/2021	38-47	68	42	48	45	45	No Change, 85th %
	65	N/S	9/9/2021	38-47	68	42	47	40	40	No Change, Continuity of Speed, 40 mph in Anaheim
Chapman Avenue	66	N/S	9/16/2021	39-48	71	42	48	45	45	No Change, 85th %
	67	N/S	9/16/2021	37-46	70	41	47	45	45	No Change, 85th %
Chapman Avenue	68	N/S	9/16/2021	38-47	63	41	48	45	45	No Change, 85th %
	69	N/S	9/13/2021	32-41	74	36	42	40 *	40	No Change, 85th %
Chapman Avenue	70	E/W	9/7/2021	22-31	86	25	29	25	25	No Change, 85th %, High Accident Rate
	71	E/W	9/7/2021	41-50	74	44	49	45	45	No Change, 85th %
Chapman Avenue	72	E/W	9/7/2021	41-50	64	44	50	45	45	No Change, Bike Lanes, Continuity of Speed, Uncontrolled Crosswalk
	73	E/W	9/7/2021	39-48	65	43	47	40	40	No Change, 85th %
Chapman Avenue	74	E/W	9/7/2021	34-43	74	39	44	40 *	40	No Change, 85th %
	75	E/W	9/7/2021	34-43	71	39	45	40 *	40	No Change, Bike Lane, Continuity of Speed, Adjacent to School
Chapman Avenue	76	E/W	9/7/2021	35-44	71	38	44	40	40	No Change, 85th %
	77	E/W	9/7/2021	31-40	77	35	40	40	40	No Change, 85th %
Chapman Avenue	78	E/W	9/7/2021	35-44	80	39	44	40	40	No Change, 85th %
	79	E/W	9/7/2021	36-45	72	40	46	40	40	No Change, Bike Lane, Continuity of Speed
Chapman Avenue	80	E/W	9/7/2021	37-46	75	40	45	40	40	No Change, Bike Lane, On-Street Parking, Continuity of Speed
	81	E/W	9/7/2021	37-46	71	41	46	40	40	No Change, Continuity of Speed
Chapman Avenue	82	E/W	9/8/2021	35-44	71	39	44	40	40	No Change, 85th %
	83	E/W	9/8/2021	37-46	74	41	44	45	45	No Change, 85th %
Chapman Avenue	84	E/W	9/8/2021	35-44	70	40	45	45	45	No Change, 85th %

\* - 25 mph when children are present

Table 2: Segment Spot Speed Survey 2021

Street	No	Dir.	Date	10-Mile Post (mph)	% in 10-Mile Post	50th %ile (mph)	85th %ile (mph)	Posted Speed Limit (mph)	Recommended Speed Limit (mph)	Comments
Garden Grove Boulevard	85	E/W	9/14/2021	33-42	80	38	42	40	40	No Change, 85th %
	86	E/W	9/14/2021	35-44	76	39	44	40	40	No Change, 85th %
	87	E/W	9/14/2021	35-44	66	39	46	40	40	No Change, WB Lane Drop at Fern St, Continuity of Speed
	88	E/W	9/14/2021	33-42	75	38	42	40	40	No Change, 85th %
	89	E/W	9/14/2021	33-42	84	37	41	40	40	No Change, 85th %
	90	E/W	9/14/2021	33-42	69	37	43	40	40	No Change, 85th %
	91	E/W	9/15/2021	34-43	70	38	44	40	40	No Change, 85th %
	92	E/W	9/15/2021	34-43	74	37	42	40	40	No Change, 85th %
	93	E/W	9/15/2021	34-43	75	38	43	40	40	No Change, 85th %
	94	E/W	9/15/2021	34-43	72	39	44	40	40	No Change, 85th %
	95	E/W	9/15/2021	35-44	68	38	43	40	40	No Change, 85th %
	96	E/W	9/15/2021	37-46	73	40	45	40*	40	No Change, Heavy Traffic due to Freeway On/Off Ramps, Continuity of Speed
	97	E/W	9/13/2021	37-46	74	40	44	40	40	No Change, 85th %
	98	E/W	9/13/2021	36-45	72	41	47	40	40	No Change, On-Street Parking, No Left Turn Channelization, Continuity of Speed
Lampson Avenue	99	E/W	9/13/2021	36-45	69	38	44	40*	40	No Change, 85th %
	100	E/W	8/31/2021	38-47	65	43	49	45	45	No Change, 85th %
	101	E/W	8/31/2021	37-46	82	41	45	40*	40	No Change, Bkx Lanes, Horizontal Curvature
	102	E/W	8/31/2021	36-45	76	41	45	40*	40	No Change, Bkx Lanes, Adjacent to High School, Continuity of Speed
	103	E/W	8/31/2021	36-45	72	38	44	40	40	No Change, 85th %
	104	E/W	8/31/2021	33-42	73	36	41	40	40	No Change, 85th %
	105	E/W	9/1/2021	32-41	79	35	40	40*	40	No Change, 85th %
	106	E/W	9/20/2021	33-42	77	37	42	35*	35	No Change, Bkx Lanes, On-Street Parking, Road Narrows east of Dale St
	107	E/W	8/31/2021	28-37	72	33	38	35	35	No Change, 85th %
	108	E/W	8/31/2021	31-40	73	34	39	35*	35	No Change, 85th %
	109	E/W	8/31/2021	29-38	84	32	35	35	35	No Change, 85th %
	110	E/W	9/1/2021	30-39	79	33	37	35*	35	No Change, 85th %
	111	E/W	9/1/2021	25-34	83	29	33	35*	35	No Change, 85th %
	112	E/W	9/1/2021	33-42	74	35	40	35	35	No Change, Bkx Lanes, On-Street Parking, Continuity of Speed
Orangetown Avenue	113	E/W	9/1/2021	31-40	77	33	38	35*	35	No Change, 85th %
	114	E/W	9/1/2021	29-38	75	34	39	35	35	No Change, 85th %
	115	E/W	9/1/2021	33-42	82	37	41	35*	35	No Change, Bkx Lanes, On-Street Parking, Adjacent to Elementary School, Continuity of Speed
	116	E/W	9/9/2021	32-41	77	36	39	40	40	No Change, 85th %
	117	E/W	9/10/2021	33-42	81	36	40	40*	40	No Change, 85th %
	118	E/W	9/9/2021	31-40	74	35	41	40	40	No Change, 85th %
	119	N/S	9/9/2021	36-45	73	39	43	35	40	Increase, 85th %
	120	E/W	9/10/2021	27-36	82	31	35	35*	35	No Change, 85th %
	121	E/W	9/9/2021	30-39	82	35	39	35*	35	No Change, 85th %
	122	E/W	9/10/2021	34-43	76	37	42	35*	35	No Change, Bkx Lanes, On-Street Parking, Horizontal Curvature, Continuity of Speed
	123	E/W	9/10/2021	34-43	85	36	40	35	35	No Change, Bkx Lanes, On-Street Parking, Road Narrows east of Janette Ln, Continuity of Speed
	124	E/W	9/9/2021	32-41	71	36	41	35	35	No Change, On-Street Parking, Multiple Driveways, Continuity of Speed, High Accelerate Rate

\* - 25 mph when children are present

Page 4 of 4

**Table 2: Segment Spot Speed Survey 2021**

Street	No	Dir.	Date	10-Mile Pace (mph)	% in 10-Mile Pace	50th % Tile (mph)	85th % Tile (mph)	Posted Speed Limit (mph)	Recommended Speed Limit (mph)	Comments
Trask Avenue	125	E/W	9/3/2021	33-42	68	38	43	35 *	40	Increase, 85th %
	126	E/W	9/3/2021	32-41	67	36	42	40	40	No Change, 85th %
	127	E/W	9/3/2021	35-44	65	40	46	40 *	40	No Change, On-Street Parking, Multiple Driveways, Continuity of Speed, High Accident Rate
	128	E/W	9/3/2021	34-43	67	39	45	40	40	No Change, On-Street Parking, Multiple Driveways, Continuity of Speed
	129	E/W	9/3/2021	33-42	65	40	47	40	40	No Change, Bike Lanes, Multiple Driveways, Continuity of Speed
	130	E/W	9/3/2021	35-44	75	39	44	40 *	40	No Change, 85th %
	131	E/W	9/3/2021	36-45	75	40	44	40	40	No Change, 85th %
	132	E/W	9/3/2021	38-47	70	40	46	40 *	40	No Change, On-Street Parking, Multiple Driveways, No Left Turn Channelization, Continuity of Speed
	133	E/W	9/3/2021	32-41	71	37	42	35 *	35	No Change, Trap Lane onto Freeway east of Harbor, On-Street Parking, Bike Lanes, Adjacent to School
	134	E/W	9/3/2021	33-42	73	35	41	35 *	35	No Change, EB Lane Drop at Clinton St, On-Street Parking, Adjacent to School, Continuity of Speed
	135	E/W	9/9/2021	33-42	75	37	42	40	40	No Change, 85th %
	136	E/W	9/9/2021	34-43	75	37	43	40	40	No Change, 85th %
	137	E/W	9/8/2021	36-45	70	40	46	45	45	No Change, 85th %
	138	E/W	9/9/2021	33-42	72	39	45	45	45	No Change, 85th %
Westminister Avenue	139	E/W	9/8/2021	35-44	70	40	46	45	45	No Change, 85th %
	140	N/S	9/8/2021	37-46	72	40	45	45	45	No Change, 85th %
	141	N/S	9/8/2021	35-44	65	41	46	45	45	No Change, 85th %
	142	N/S	9/13/2021	34-46	61	42	49	45	45	No Change, 85th %
	143	N/S	9/13/2021	38-47	78	41	46	45	45	No Change, 85th %

\* - 25 mph when children are present



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**FIGURE 2**  
**2021 POSTED SPEED**  
**MAP**

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## 4.1 Speed Limit Signing – General

All California motorists are required to know the basic 15, 25, and 65 mph statutory or prima facie speed laws and are tested on the subject when applying for a driver's license. The maximum speed limit on most California highways is 65 mph. However, drivers are permitted to travel 70 mph where posted as such. Unless otherwise posted, the maximum speed limit in California is 55 mph on two-lane undivided highways and for vehicles towing trailers provided the street is not within a business or residential district. Consequently, speed limit signs covering these prima facie conditions need not be posted on City streets. Although not required by law, speed limit signs for these limits can be posted by a jurisdiction when an engineer determines doing so would enhance public awareness and compliance of the basic speed law.

Typically, such postings occur upon streets that have the following:

- significant daily vehicular traffic volumes,
- cut-through traffic problems,
- significant grades,
- continued violation of residential 25 mph speed zones, or
- other unusual environmental or traffic flow characteristics.

It is standard engineering practice to recommend the posting of speed limit signs only on streets that have specific speed limits enacted by City ordinance or determined to be justified by an engineer who has performed an Engineering and Traffic Survey (E&TS).

When an E&TS shows that the statutory or prima facie speed limits are not applicable for the existing conditions, the speed limits can be altered with the posting of a different speed limit, which must be determined according to the findings of the E&TS. CVC Section 22354 covers decreasing highway speeds from 65 mph, and CVC Section 22358 addresses decreasing local speed limits. The CVC does not address decreasing the speed limit below 55 mph on undivided highways; however, the CA MUTCD states that speed zones (other than statutory speed limits) shall only be established on the basis of an E&TS that has been performed in accordance with traffic engineering practices. Even though it is not codified in the CVC, Caltrans has established the practice of using an E&TS for any reduction below a statutory 55 mph speed limit. Law enforcement agencies and courts are accustomed to seeing surveys for these areas and it may be difficult to defend a speed violation citation without one.

Speed limit signs should be installed at approximately every one-half mile on streets which have been speed zoned. Signs are typically installed at the beginning of the speed zone on the departure side of a traffic signal controlled intersection. It is also advisable to install signs at key intersections where there is high side street vehicle entry. It is important that motorists be given adequate notice of the speed limit without over signing, since doing so increases maintenance costs and rarely results in increased compliance.

The CA MUTCD outlines speed limit sign size specifications based on the type of roadway facility. Sign sizes vary from a minimum of 24-inches by 30-inches on a single lane conventional roadway to 48-inches by 60-inches on a freeway. It is also important to post signs in a manner that they are clearly visible to approaching traffic from a distance. Care should be taken to maintain landscaping and other vegetation so it does not grow to block the motorist view of signs. In certain circumstances, when an engineer has determined that additional motorist awareness of the speed limit is needed, the speed limit can also be painted on the street immediately adjacent to a speed limit sign.



Enforcement problems can occur when, (a) the highway is posted with inappropriate speed limit signs, (b) the highway is improperly or inadequately posted; or, (c) the highway is not posted nor covered by ordinance and therefore falls under the basic speed law. In any of these events, the result is a debatable validity that may be questioned in court cases where citations are issued and contested.

## SECTION 5.0

### Summary and Conclusions

- The engineering and traffic surveys and the data collection were conducted per CVC Section 627.
- One hundred forty-three (143) roadway segments on the City's roadway network were surveyed.
- The Accident Survey Analysis (Table 1) for the majority of the street segments surveyed is within the average expected accident rate of various types of roadway facilities within the City area.
- Based on the engineering and traffic surveys, the majority of the existing speed limits on the City's arterial, collector, and local street network are reaffirmed and remain unchanged.
- Based on the engineering and traffic surveys, the posted speed limits on the following roadway segments listed below are recommended to be modified as follows:
  1. Segment # 11 Dale Street between Orangewood Avenue and Katella Avenue – increase from 35 mph to 40 mph based on the 85<sup>th</sup> percentile speed.
  2. Segment # 21 Gilbert Street between Orangewood Avenue and Katella Avenue – increase from 35 mph to 40 mph based on the 85<sup>th</sup> percentile speed.
  3. Segment # 26 Harbor Boulevard between Chapman Avenue and Wilken Way (north city limits) – increase from 35 mph to 40 mph based on the 85<sup>th</sup> percentile speed.
  4. Segment # 35 Magnolia Street between Trask Avenue and Garden Grove Boulevard - increase from 35 mph to 40 mph based on the 85<sup>th</sup> percentile speed.
  5. Segment # 49 Ninth Street between Chapman Avenue and Orangewood Avenue – increase from 35 mph to 40 mph based on the 85<sup>th</sup> percentile speed.
  6. Segment # 52 Springdale Street between Garden Grove Boulevard and Lampson Avenue – increase from 35 mph to 40 mph based on the 85<sup>th</sup> percentile speed.
  7. Segment # 53 Springdale Street between Lampson Avenue and Chapman Avenue – increase from 35 mph to 40 mph based on the 85<sup>th</sup> percentile speed.
  8. Segment # 58 West Street between Garden Grove Boulevard and Lampson Avenue – increase from 35 mph to 40 mph based on the 85<sup>th</sup> percentile speed.
  9. Segment # 59 West Street between Lampson Avenue and Chapman Avenue – increase from 35 mph to 40 mph based on the 85<sup>th</sup> percentile speed.
  10. Segment # 60 West Street between Chapman Avenue and Orangewood Avenue – increase from 35 mph to 40 mph based on the 85<sup>th</sup> percentile speed.

11. Segment # 119 Orangewood Avenue between Magnolia Street and Gilbert Street – increase from 35 mph to 40 mph based on the 85<sup>th</sup> percentile speed.
12. Segment # 125 Trask Avenue between Beach Boulevard and Newland Street - increase from 35 mph to 40 mph based on the 85<sup>th</sup> percentile speed.

The roadway segments with recommended posted speed limit increases are shown in **Figure 3**.



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**FIGURE 3**  
**2021 SPEED LIMIT**  
**CHANGES**

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