

# FINAL REPORT

## 2016 Engineering & Traffic Survey

June 22, 2016



Prepared for:



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## ENGINEERING & TRAFFIC SURVEYS – AN INTRODUCTION & METHODOLOGY

### Prima Facie Speed Limit

The State of California Vehicle Code (CVC) contains laws applicable to speed limits and their enforcement within the State of California. The CVC defines the prima facie speed limits for residence<sup>1</sup> and business<sup>2</sup> district streets to be 25 mph (CVC §22352). Most other roads have a prima facie speed limit of 65 mph with the caveat that a maximum prima facie speed limit of 55 mph is established for two-lane undivided highways (CVC §22349). These prima facie speed limits can be overridden, and a revised prima facie speed limit may, by ordinance or resolution, be declared by a local agency and posted at a higher or lower speed limit when justified by an Engineering & Traffic Survey (CVC §22357, CVC §22358, CVC §22358.3, CVC §22358.4, CVC §22360).

The CVC (§22357 and §22358) further defines the rationale in declaring speed limits other than the statutory prima facie speed limits. When an Engineering & Traffic Survey is conducted, a local agency may determine either: 1) “that a speed greater than 25 mph would facilitate the orderly movement of vehicular traffic and would be reasonable and safe ... ;” or 2) “that the limit of 65 miles per hour is more than is reasonable or safe ... .” When this occurs, the CVC (§22357 and §22358) allows a local agency, by ordinance, to determine and declare a prima facie speed limit of 25, 30, 35, 40, 45, 50, 55, 60, or 65 mph, “whichever is found most appropriate to facilitate the orderly movement of traffic and is reasonable and safe.” The CVC (§22358.3) also allows a local agency, by ordinance or resolution on the basis of an Engineering & Traffic Survey, to determine and declare a prima facie speed limit of 20 or 15 mph in business or residence districts on roadways not exceeding 25 feet in width.

### Engineering & Traffic Survey

The requirements for an Engineering & Traffic Survey are defined in CVC §627. Three elements are required for consideration in an Engineering & Traffic Survey: 1) prevailing speeds as determined by traffic engineering measurements; 2) accident records; and 3) highway, traffic, and roadside conditions not readily apparent to the driver. When local authorities conduct an Engineering & Traffic Survey, residential density and pedestrian and bicycle safety may also be considered. The methods used in conducting an Engineering & Traffic Survey must be consistent with the methods determined by the State Department of Transportation (Caltrans), which are

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<sup>1</sup> CVC §515 – A “residence district” is defined when within ¼ mile there are 13 or more separate dwellings or business structures upon one side of a highway or 16 or more separate dwellings or business structures upon both sides of a highway. A residence district may be longer than ¼ mile if the above ratio of separate dwelling houses or business structures to the length of the highway exists. CVC §240 provides the following limitations: 1) the entrance of any building included must face the highway, and the front of the building must be within 75 feet of the roadway; 2) all churches, apartments, hotels, multiple dwelling units, clubs, and public buildings other than schools, shall be deemed business structures; 3) buildings considered must have rights of access to the highway.

<sup>2</sup> CVC §235 – A “business district” is defined when 50% or more of a highway is fronted by buildings in use for business within 600 feet on one side of a highway, or 300 feet on both sides of a highway. See Footnote 1 for limitations provided by CVC §240.

contained in the California Manual on Uniform Traffic Control Devices (CA MUTCD), Section 2B.13. The following methods are set forth in this section of the CA MUTCD:

- When a speed limit is to be posted, it shall be established at the nearest 5 mph increment of the 85<sup>th</sup> percentile speed of free-flowing traffic, except as described in the two options below:
  1. The 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 Sections 627 and 22358.5.
  2. 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.
- If the speed limit to be posted has had the 5 mph reduction applied, then the Engineering & Traffic Survey must be approved by a registered Civil or Traffic Engineer, and it shall document, in writing, the conditions and justification for the lower speed limit. The reasons for the lower speed limit shall be in compliance with CVC §627 and §22358.5, meaning that the justification must be based primarily on conditions that are not readily apparent to the driver in addition to residential density and pedestrian and bicyclist safety.
- Other factors that may be considered in the Engineering & Traffic Survey include:
  1. Road characteristics, shoulder condition, grade, alignment, and sight distance
  2. The pace
  3. Roadside development and environment
  4. Parking practices and pedestrian activity; and
  5. Reported crash experience for at least a 12-month period.
- 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.
- The establishment of a speed limit of more than 5 mph below the 85<sup>th</sup> speed should be done with great care.
- Generally, the most decisive evidence of conditions not readily apparent to the driver surfaces in collision histories.
- When roadside development results in conflicts and unusual conditions which are not readily apparent to drivers, as indicted in collision records, speed limits somewhat below the 85<sup>th</sup> percentile may be justified. Concurrence and support of enforcement officials are necessary for the successful operation of a restricted speed zone.

This 2016 *Engineering & Traffic Survey* conducted by Traffic Works for the City of Shasta Lake, as documented in this report fully complies with the methodology contained in Section 2B.13 of the

CA MUTCD as required by CVC §627. As such, this document allows the City of Shasta Lake to modify or install speed limit signage, and have these speed limits enforced by law enforcement. Specifically, the following methodology and parameters were used:

1. During the months of January and February 2016 radar speed surveys were conducted at each study location listed in Table 1 and shown in Figure 1. All data collection and procedures were overseen by a licensed Traffic Engineer registered in the State of California. Speed measurements were obtained using a new Phantom Radar gun calibrated for each use using the supplied tuning fork. Each data collection survey was taken while in an inconspicuously parked vehicle. Care was taken to only survey cars that were traveling in free flow conditions during non-peak hour time periods. Only lead vehicles in a group of cars were measured, or those traveling alone. We measured both directions of travel in collecting the speed data, and summarized a composite of data collected in both directions of travel.
2. Ideally the speed of 100 vehicles was recorded at each study location; however, at some study locations, it was not possible to record the speed of 100 vehicles due to low traffic volume. At such locations, as many vehicle speeds as could be collected in a two-hour period were recorded.
3. Each radar sample was recorded in the field and later transferred to computer software for analysis. Based on this data, we determined the following regarding prevailing vehicle speeds at each study location.
  - a. **The 85<sup>th</sup> Percentile Speed (Critical Speed).** This is the speed at or below which 85 percent of the observed vehicles were traveling.
  - b. **The Average Speed.** This is the mean speed of the sample, or the total of all the vehicle speeds divided by the number of vehicles in the sample.
  - c. **The 10 mph Pace Speed.** This is the 10 mile per hour range that contains the greatest number of observed vehicle speeds. Also provided is the percentage of vehicles traveling at or below the lower limit of the pace, the percentage of vehicles traveling within the pace, and the percentage of vehicles traveling above the upper limit of the pace. The number of vehicles within the pace is an indication of the uniformity of vehicular speeds for vehicles traveling on the given roadway.
4. Traffic Works staff visited each study location, and highway, traffic, and roadside conditions that are not readily apparent to the driver were identified and recorded.
5. Accident records were obtained from the *Statewide Integrated Traffic Records System* (SWITRS). The data was reviewed for collisions within the City of Shasta Lake to identify accidents that occurred on each study location.
6. Additional data collected for each study location included:
  - a. Existing posted speed limit, if any
  - b. Weather condition

- c. Time and date
- d. HD photo in both directions of roadway surveyed (includes GPS data)
- e. Number of travel lanes
- f. Direction of travel for surveyed vehicles
- g. Classified as a local roadway on the *California Road System Maps* that are approved by the Federal Highway Administration and maintained by the Department of Transportation ([http://www.dot.ca.gov/hq/tsip/hseb/crs\\_maps/](http://www.dot.ca.gov/hq/tsip/hseb/crs_maps/)). The City of Shasta Lake is found on Maps 5D21, 5D22, 5D31, and 5D32.
- h. Type of area: Residence or Business District.

### **Speed Traps**

The preparation and periodic update of Engineering & Traffic Surveys are needed to set and enforce prima facie speed limits that are legally enforceable with electronic enforcement tools such as radar. When justified by an Engineering & Traffic Survey, a local agency may, by ordinance or resolution, declare and enforce the prima facie speed limit. However, there are limitations to such enforcement.

CVC §40801 prohibits the use of a “speed trap” in the enforcement of speed limits. CVC §40802 defines “speed trap” as the enforcement, through the use of any electronic device such as radar, of any prima facie speed limit that is not justified by an Engineering & Traffic Survey prepared within five years prior to the speed violation. Two extensions to the five year period are permitted by CVC §40802: 1) to seven years when the citing officer has completed applicable training courses and the electronic device meets operational standards and has been calibrated within three years prior; and 2) to ten years when the above conditions are satisfied 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.

According to CVC §40802, the requirement for an Engineering & Traffic Survey within the five, seven, or ten-year time period does not apply to school zones or roads that are functionally classified as a local roadway on the California Road System Maps that are approved by the Federal Highway Administration and maintained by the Department of Transportation ([http://www.dot.ca.gov/hq/tsip/hseb/crs\\_maps/](http://www.dot.ca.gov/hq/tsip/hseb/crs_maps/)). As such, there is no requirement to periodically update the Engineering & Traffic Survey for local roadways to enable the continued use of radar or other electronic means of enforcement. Further, no Engineering & Traffic Survey is required for school zones or local roadways within a residence or business district that have a statutory prima facie speed limit of 25 mph; the 25 mph speed limit on such roads may be posted and enforced through the use of radar or other electronic means without the preparation of an Engineering & Traffic Survey.

## ENGINEERING & TRAFFIC SURVEY LOCATIONS

Fifty-two (52) locations were selected by the City of Shasta Lake for inclusion in this Engineering & Traffic Survey. Each study location was evaluated using the methodology and parameters described above, and a speed limit was recommend based on the results of the evaluation. The 52 locations are listed in Table 1 and illustrated in Figure 1.

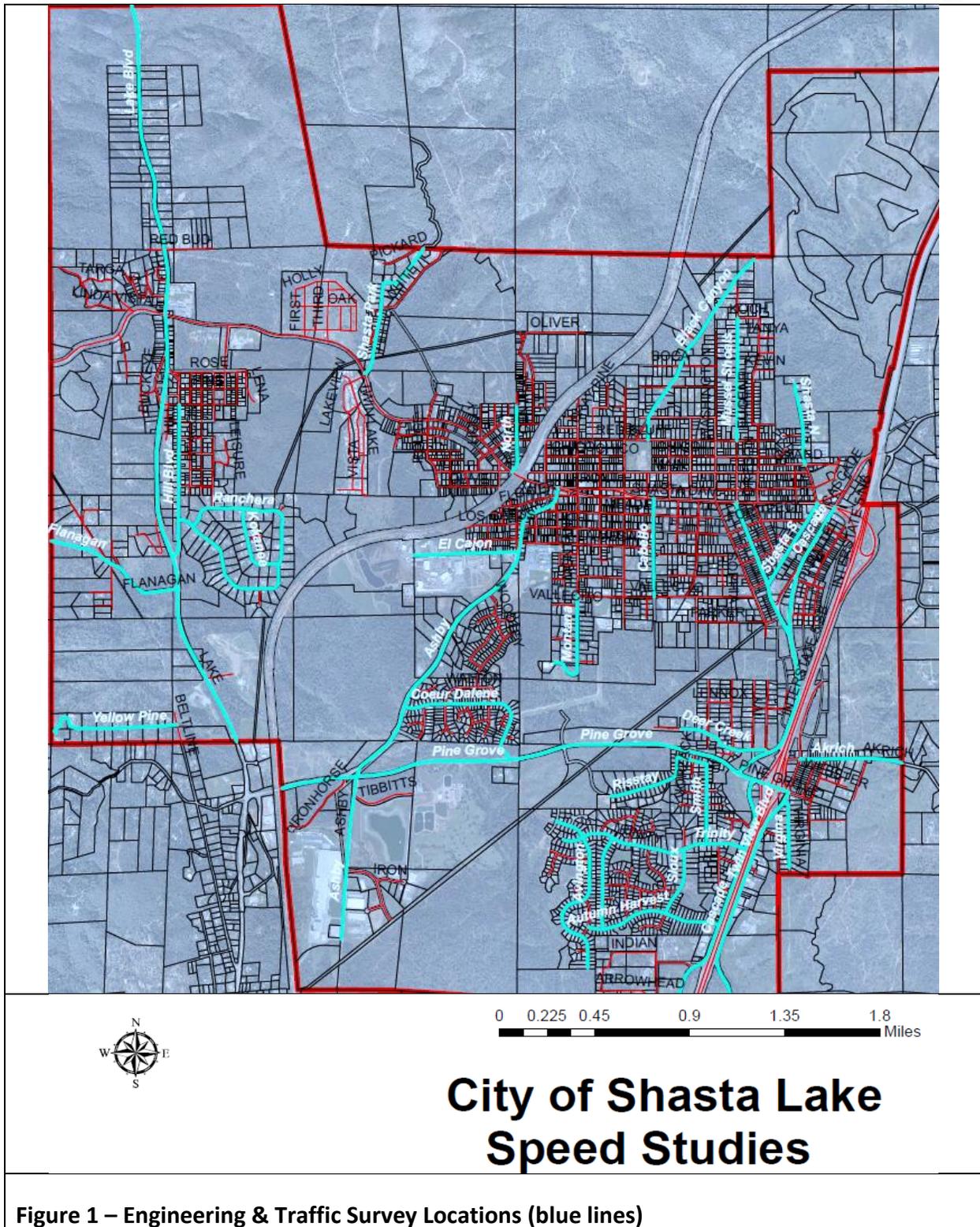
**Table 1 – Engineering & Traffic Survey Locations**

NO.	SURVEY STREET	SEGMENT START	SEGMENT END	LENGTH
1	Akrich Street	Virginia Avenue	100' w/o Akrich Park Ave	1300
2	Akrich Street	100' w/o Akrich Park	Redding City limit	900
3	Ashby Road	South End	Pine Grove Avenue	3500
4	Ashby Road	Pine Grove Avenue	Arlene Court	2350
5	Ashby Road	Arlene Court	Woodley Avenue	2600
6	Ashby Road	Woodley Avenue	El Cajon Avenue	1200
7	Ashby Road	El Cajon Avenue	Shasta Dam Boulevard	1800
8	Autumn Harvest Drive	Stafford Drive	Sioux Drive	1750
9	Autumn Harvest Drive	Sioux Drive	Cascade Boulevard	1160
10	Avington Way	South End	Stafford Drive North	2035
11	Avington Way	Stafford Drive North	Chaucer Way	2100
12	Black Canyon Road	Pensacola Street	Walker Lane	1970
13	Cabello	Vallecito Street	Shasta Dam Boulevard	2132
14	Cascade Boulevard	the South City Limit	Pine Grove Avenue	3000
15	Cascade Boulevard	Pine Grove Avenue	Grand Coulee Boulevard	3400
16	Cascade Boulevard	Grand Coulee Boulevard	Shasta Dam Boulevard	3000
17	Coeur D Alene Avenue	Ashby Road	Pine Grove Avenue	3520
18	Deer Creek	West End	Ivy Avenue	1960
19	El Cajon	West End	Ashby Road	2207
20	Flanagan Road	West City Limits	North Beltline Road	1196
21	Flanagan Road	North Beltline Road	Lake Boulevard	1900
22	Grand Coulee Blvd	Cascade Boulevard	Shasta Street	1175
23	Grand Coulee Blvd	Shasta Street	Shasta Dam Boulevard	1826
24	Hill Boulevard	Lake Boulevard	Spruce Avenue	1520
25	Hill Boulevard	Spruce Avenue	Toyon Avenue	1800
26	Kokanee	Ranchera Road	Ranchera Road	1749
27	Lake Boulevard	the South City Limit	Hill Street	2100

**TABLE 1, CONTINUED...**

<b>NO.</b>	<b>SURVEY STREET</b>	<b>SEGMENT START</b>	<b>SEGMENT END</b>	<b>LENGTH</b>
28	Lake Boulevard	Hill Street	Toyon Avenue	3100
29	Lake Boulevard	Toyon Avenue	Shasta Dam Boulevard	1175
30	Lake Boulevard	Shasta Dam Boulevard	the North City Limit	5280
31	Montana Avenue	Vallecito Street	Allred Street	1653
32	Mussel Shoals	Red Bluff Street	Koch Street	2643
33	North Boulevard	Shasta Dam Boulevard	Pensacola Street	1441
34	Pine Grove Avenue	the West City Limit	Ashby Road	1700
35	Pine Grove Avenue	Ashby Road	Coeur D'Alene Avenue	3300
36	Pine Grove Avenue	Coeur D'Alene Avenue	Smith Avenue	3300
37	Pine Grove Avenue	Smith Road	Twin View Boulevard	1350
38	Ranchera	Hill Boulevard	Moccasin Lane	2500
39	Risstay Way	West End	Smith Avenue	2195
40	Shasta North	Grand Avenue	North End	1767
41	Shasta Park	Shasta Dam Boulevard	White Way	1500
42	Shasta Park	White Way	Pickard Street	1762
43	Shasta South	Grand Coulee Boulevard	Shasta Dam Boulevard	2074
44	Sioux Drive	Autumn Harvest Drive	Trinity Street	1484
45	Smith Avenue	Trinity Street	Risstay Way	1997
46	Trinity Street	West End	Buckingham Drive	1500
47	Trinity Street	Buckingham Drive	Smith Avenue	1700
48	Trinity Street	Smith Avenue	Cascade Boulevard	888
49	Twin View Boulevard	the South City Limit	Poppy Lane	2000
50	Twin View Boulevard	Poppy Lane	Shasta Dam Boulevard	1020
51	Virginia Avenue	South End	Twin View Boulevard	1462
52	Wadsworth Drive	Autumn Harvest Drive	Trinity Street	2021

Source: City of Shasta Lake and Traffic Works LLC



## LIST OF LOCAL ROADWAYS

The study locations listed in Table 2 are classified as local roadways on the California Road System Maps. As such, the City of Shasta Lake may use this Engineering & Traffic Survey at these locations beyond the typical five, seven, or ten-year period without update at these locations. Further, several of these study locations satisfy the criteria as a residence or business district, which would allow the City to post and enforce a prima facie speed limit of 25 mph without an Engineering & Traffic Survey; however, the City has chosen to include these roadways at their discretion.

**Table 2 – Study Locations that are Local Roadways**

NO.	SURVEY STREET	SEGMENT START	SEGMENT END	BUS OR RES
1	Akrich Street	Virginia Avenue	100' w/o Akrich Park Ave	RES
2	Akrich Street	100' w/o Akrich Park	Redding City limit	-
8	Autumn Harvest Drive	Stafford Drive	Sioux Drive	RES
9	Autumn Harvest Drive	Sioux Drive	Cascade Boulevard	RES
10	Avington Way	South End	Stafford Drive North	RES
11	Avington Way	Stafford Drive North	Chaucer Way	RES
12	Black Canyon Road	Pensacola Street	Walker Lane	-
13	Cabello	Vallecito Street	Shasta Dam Boulevard	RES
17	Coeur D Alene Avenue	Ashby Road	Pine Grove Avenue	RES
18	Deer Creek	West End	Ivy Avenue	-
19	El Cajon	West End	Ashby Road	RES
20	Flanagan Road	West City Limits	North Beltline Road	-
21	Flanagan Road	North Beltline Road	Lake Boulevard	-
24	Hill Boulevard	Lake Boulevard	Spruce Avenue	-
25	Hill Boulevard	Spruce Avenue	Toyon Avenue	RES
26	Kokanee	Ranchera Road	Ranchera Road	-
31	Montana Avenue	Vallecito Street	Allred Street	RES
33	North Boulevard	Shasta Dam Blvd.	Pensacola Street	RES
38	Ranchera	Hill Boulevard	Moccasin Lane	RES
39	Risstay Way	West End	Smith Avenue	RES (Future)
40	Shasta North	Grand Avenue	North End	RES
41	Shasta Park	Shasta Dam Blvd.	White Way	RES
42	Shasta Park	White Way	Pickard Street	RES
43	Shasta South	Grand Coulee Blvd.	Shasta Dam Boulevard	RES
44	Sioux Drive	Autumn Harvest Dr.	Trinity Street	RES

TABLE 2, CONTINUED...

NO.	SURVEY STREET	SEGMENT START	SEGMENT END	BUS OR RES
45	Smith Avenue	Trinity Street	Risstay Way	RES
46	Trinity Street	West End	Buckingham Drive	RES
47	Trinity Street	Buckingham Drive	Smith Avenue	RES
48	Trinity Street	Smith Avenue	Cascade Boulevard	-
51	Virginia Avenue	South End	Twin View Boulevard	RES
52	Wadsworth Drive	Autumn Harvest Dr.	Trinity Street	RES

Source: Traffic Works LLC

## ENGINEERING & TRAFFIC SURVEY SUMMARY SHEETS & RECOMMENDATIONS

The following pages contain a Summary Sheet for each study location that documents the Engineering & Traffic Survey results and recommendations. The summary sheets satisfy the requirements of CVC §627 that the Engineering & Traffic Survey include prevailing speeds, accidents records, and highway/traffic/roadway conditions not readily apparent to the driver.

**Summary Sheets.** The results of the Engineering & Traffic Survey for each location is summarized in one sheet containing Date, Weather, Time, Existing Posted Speed Limit, Roadway Direction, Number of Lanes, Determination of Residence or Business District, and Identification Local Road Classification. In addition, each sheet contains HD photographs for each direction of the road segment, a chart of radar speed samples plotted for each direction of travel, and a statistical calculation of 85<sup>th</sup> percentile speed, average speed, and 10 MPH pace speed range. Further, a description of conditions not readily apparent and collision history is provided. Lastly, a recommendation is provided for the posted speed limit along with a discussion of deciding factors and considerations in determining the recommended speed limit.

**Recommendations.** Table 3 summarizes the speed limit recommendations for each of the 52 locations included in this Engineering & Traffic Survey. It is recommended that the City of Shasta Lake adopt the recommended speed limits shown in Table 3 by ordinance or resolution as required in the CVC. In addition, the City should post all speed limit signs according to the standards and guidelines found in the CA MUTCD. It important to note that according to the sections of the California Vehicle Code referenced in this report, that any speed zone ordinance adopted by Shasta Lake will only become effective after “appropriate signs giving notice therefore are erected upon the street.”

Once signs are installed, the City staff should verify that the installations are appropriate, and have general acceptance by the motoring public. This is especially true for new speed zone installations, and where a revised speed limit was recommended. These locations would have a colored background cell in Table 3.

**Table 3 - Recommended Speed Limits**

STUDY SEGMENT and LENGTH	POSTED	AVERAGE	CRITICAL	PACE SPEED			RECOMMENDED
	SPEED	SPEED	SPEED				SPEED MPH
#1 -- Akrich Street from Virginia Avenue to 100' w/o Akrich Park Ave. Length=1300 ft.	Not Posted	31	36	27	to	36	25
#2 -- Akrich Street from 100' w/o Akrich Park to Redding City limit. Length=900 ft.	35 mph	34	38	30	to	39	35
#3 -- Ashby Road from South End to Pine Grove Avenue. Length=3500 ft.	Not Posted	40	46	37	to	46	45
#4 -- Ashby Road from Pine Grove Avenue to Arlene Court. Length=2350 ft.	50 mph	47	52	42	to	51	50
#5 -- Ashby Road from Arlene Court to Woodley Avenue. Length=2600 ft.	45 mph	42	46	37	to	46	45
#6 -- Ashby Road from Woodley Avenue to El Cajon Avenue. Length=1200 ft.	35 mph	37	42	32	to	41	40
#7 -- Ashby Road from El Cajon Avenue to Shasta Dam Boulevard. Length=1800 ft.	25 mph	29	33	25	to	34	25
#8 -- Autumn Harvest Drive from Stafford Drive to Sioux Drive. Length=1750 ft.	Not Posted	28	31	22	to	31	25
#9 -- Autumn Harvest Drive from Sioux Drive to Cascade Boulevard. Length=1160 ft.	25 mph	30	34	24	to	33	25
#10 -- Avington Way from South End to Stafford Drive North. Length=2035 ft.	Not Posted	19	23	14	to	23	25
#11 -- Avington Way from Stafford Drive North to Chaucer Way. Length=2100 ft.	Not Posted	22	28	17	to	26	25
#12 -- Black Canyon Road from Pensacola Street to Walker Lane. Length=1970 ft.	Not Posted	23	29	22	to	31	25
#13 -- Cabello from Vallecito Street to Shasta Dam Boulevard. Length=2132 ft.	Not Posted	28	33	23	to	32	25
#14 -- Cascade Boulevard from the South City Limit to Pine Grove Avenue. Length=3000 ft.	40 mph	37	43	35	to	44	40
#15 -- Cascade Boulevard from Pine Grove Avenue to Grand Coulee Boulevard. Length=3400 ft.	40 mph	41	45	35	to	44	40
#16 -- Cascade Boulevard from Grand Coulee Boulevard to Shasta Dam Boulevard. Length=3000 ft.	40 mph	35	40	29	to	38	40
#17 -- Coeur D Alene Avenue from Ashby Road to Pine Grove Avenue . Length=3520 ft.	25 mph	30	33	24	to	33	25
#18 -- Deer Creek from West End to Ivy Avenue . Length=1960 ft.	Not Posted	20	24	16	to	25	25
#19 -- El Cajon from West End to Ashby Road . Length=2207 ft.	25 mph	28	31	23	to	32	25
#20 -- Flanagan Road from West City Limits to North Beltline Road. Length=1196 ft.	Not Posted	28	33	24	to	33	30
#21 -- Flanagan Road from North Beltline Road to Lake Boulevard. Length=1900 ft.	25 mph	31	36	27	to	36	35
#22 -- Grand Coulee Blvd from Cascade Boulevard to Shasta Street. Length=1175 ft.	40 mph	35	40	30	to	39	40
#23 -- Grand Coulee Blvd from Shasta Street to Shasta Dam Boulevard. Length=1826 ft.	40 mph	34	40	29	to	38	35
#24 -- Hill Boulevard from Lake Boulevard to Spruce Avenue. Length=1520 ft.	25 mph	34	39	30	to	39	35
#25 -- Hill Boulevard from Spruce Avenue to Toyon Avenue. Length=1800 ft.	25 mph	33	39	27	to	36	35

**LEGEND:** add new increase decrease no change

Continued, next page...

Table 3, Continued - Recommended Speed Limits

STUDY SEGMENT and LENGTH	POSTED	AVERAGE	CRITICAL	PACE SPEED			RECOMMENDED
	SPEED	SPEED	SPEED				SPEED MPH
#26 -- Kokanee from Ranchera Road to Ranchera Road. Length=1749 ft.	Not Posted	22	25	16	to	25	25
#27 -- Lake Boulevard from the South City Limit to Hill Street. Length=2100 ft.	50 mph	51	58	46	to	55	50
#28 -- Lake Boulevard from Hill Street to Toyon Avenue. Length=3100 ft.	50 mph	48	54	42	to	51	50
#29 -- Lake Boulevard from Toyon Avenue to Shasta Dam Boulevard. Length=1175 ft.	40 mph	44	51	39	to	48	50
#30 -- Lake Boulevard from Shasta Dam Boulevard to the North City Limit. Length=5280 ft.	25 mph	36	40	31	to	40	40
#31 -- Montana Avenue from Vallecito Street to Allred Street. Length=1653 ft.	Not Posted	24	28	18	to	27	25
#32 -- Mussel Shoals from Red Bluff Street to Koch Street. Length=2643 ft.	Not Posted	28	34	23	to	32	25
#33 -- North Boulevard from Shasta Dam Boulevard to Pensacola Street. Length=1441 ft.	Not Posted	24	28	20	to	29	25
#34 -- Pine Grove Avenue from the West City Limit to Ashby Road. Length=1700 ft.	50 mph	46	51	42	to	51	50
#35 -- Pine Grove Avenue from Ashby Road to Couer D'Alene Avenue. Length=3300 ft.	50 mph	52	56	46	to	55	50
#36 -- Pine Grove Avenue from Couer D'Alene Avenue to Smith Avenue. Length=3300 ft.	50 mph	49	53	44	to	53	50
#37 -- Pine Grove Avenue from Smith Road to Cascade Blvd. Length=1350 ft.	40 mph	43	50	37	to	46	45
#38 -- Ranchera from Hill Boulevard to Moccasin Lane. Length=2500 ft.	25 mph	22	27	18	to	27	25
#39 -- Risstay Way from West End to Smith Avenue. Length=2195 ft.	Not Posted	21	N/A	N/A	to	N/A	25
#40 -- Shasta Way North from Grand Avenue to North End. Length=1767 ft.	25 mph	23	28	19	to	28	25
#41 -- Shasta Park from Shasta Dam Boulevard to White Way. Length=1500 ft.	25 mph	19	23	14	to	23	25
#42 -- Shasta Park from White Way to Pickard Street. Length=1762 ft.	Not Posted	20	26	17	to	26	25
#43 -- Shasta Street South from Grand Coulee Boulevard to Shasta Dam Boulevard. Length=2074 ft.	30 mph	29	36	28	to	37	25
#44 -- Sioux Drive from Autumn Harvest Drive to Trinity Street. Length=1484 ft.	Not Posted	25	30	21	to	30	25
#45 -- Smith Avenue from Trinity Street to Risstay Way. Length=1997 ft.	Not Posted	25	29	19	to	28	25
#46 -- Trinity Street from West End to Buckingham Drive. Length=1500 ft.	Not Posted	29	33	24	to	33	25
#47 -- Trinity Street from Buckingham Drive to Smith Avenue. Length=1700 ft.	25 mph	25	29	21	to	30	25
#48 -- Trinity Street from Smith Avenue to Cascade Boulevard. Length=888 ft.	25 mph	28	33	24	to	33	30
#49 -- Twin View Boulevard from the South City Limit to Poppy Lane. Length=2000 ft.	35/40 mph	41	46	37	to	46	45
#50 -- Twin View Boulevard from Poppy Lane to Pine Grove Ave. Length=1020 ft.	35 mph	37	43	34	to	43	40
#51 -- Virginia Avenue from South End to Twin View Boulevard. Length=1462 ft.	Not Posted	23	28	16	to	25	25
#52 -- Wadsworth Drive from Autumn Harvest Drive to Trinity Street. Length=2021 ft.	Not Posted	24	28	20	to	29	25

<b>LEGEND:</b>	add new	increase	decrease	no change
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**LOCATION: #1 -- Akrich Street from Virginia Avenue to 100' w/o Akrich Park Ave. Length=1300 ft.**

**DATE:** February 4, 2016

**WEATHER:** Sunny

**BEGIN TIME:** 10:00 AM

**END TIME:** 12:00 PM

**EXISTING POSTED SPEED LIMIT:** Not Posted

**BUS OR RES DISTRICT?** RES

**DIRECTION:** EAST and WEST

**# LANES:** 2

**LOCAL ROAD?** Yes

**OBSERVER:** Jose Montenegro



**SUMMARY OF RESULTS**

**Recommended: 25 mph**

**85th Percentile:** 36

**Avg. Speed:** 31

**10 MPH PACE SPEED CALC**

**Pace (mph):** 27 to 36

**% IN Pace:** 69%

**% BELOW Pace:** 18%

**% ABOVE Pace:** 13%

Speed

MPH	EAST DIRECTION									
50	0									
49	0									
48	0									
47	0									
46	1									
45	0									
44	0									
43	1									
42	1									
41	1									
40	1									
39	0									
38	1									
37	1									
36	3									
35	1									
34	2									
33	3									
32	4									
31	3									
30	2									
29	6									
28	2									
27	0									
26	1									
25	1									
24	2									
23	1									
22	0									
21	1									
20	0									
19	0									
18	0									
17	1									
16	0									

MPH	WEST DIRECTION									
50	0									
49	0									
48	0									
47	0									
46	0									
45	0									
44	0									
43	0									
42	0									
41	0									
40	1									
39	3									
38	0									
37	0									
36	0									
35	4									
34	0									
33	4									
32	2									
31	3									
30	7									
29	4									
28	5									
27	4									
26	0									
25	1									
24	2									
23	1									
22	1									
21	0									
20	2									
19	0									
18	1									
17	0									
16	0									

Frequency		Cumulative	
Total	%	Total	%
0	0%	85	100%
0	0%	85	100%
0	0%	85	100%
0	0%	85	100%
0	0%	85	100%
1	1%	85	100%
0	0%	84	99%
0	0%	84	99%
1	1%	84	99%
1	1%	83	98%
1	1%	82	96%
2	2%	81	95%
3	4%	79	93%
1	1%	76	89%
1	1%	75	88%
3	4%	74	87%
5	6%	71	84%
2	2%	66	78%
7	8%	64	75%
6	7%	57	67%
6	7%	51	60%
9	11%	45	53%
10	12%	36	42%
7	8%	26	31%
4	5%	19	22%
1	1%	15	18%
2	2%	14	16%
4	5%	12	14%
2	2%	8	9%
1	1%	6	7%
1	1%	5	6%
2	2%	4	5%
0	0%	2	2%
1	1%	2	2%
1	1%	1	1%
0	0%	1	0%

40

45

85

100%

85

100%

**Conditions Not Readily Apparent:** Residential driveways that are partially obscured by vegetation or other obstructions. In addition, a daycare center is located within this segment, which generates pedestrian activity including young children in the area.

**Collision History:** None

**Comments:** This roadway is within a residence district (CVC §515). Further, this roadway is functionally classified as a local roadway on the California Road System Map. As such, the City may choose to post this roadway with a 25 mph prima facie speed limit, which would be enforceable through the use of radar or other electronic means (CVC §40802).

















**LOCATION: #10 -- Avington Way from South End to Stafford Drive North. Length=2035 ft.**

DATE: February 3, 2016    WEATHER: Cloudy    BEGIN TIME: 7:45 AM    END TIME: 9:45 AM  
 EXISTING POSTED SPEED LIMIT: Not Posted    BUS OR RES DISTRICT? RES  
 DIRECTION: NORTH and SOUTH    # LANES: 2    LOCAL ROAD? Yes    OBSERVER: Jose Montenegro



**SUMMARY OF RESULTS**

**Recommended: 25 mph**

85th Percentile: 23

Avg. Speed: 19

**10 MPH PACE SPEED CALC**

Pace (mph): 14 to 23

% IN Pace: 90%

% BELOW Pace: 0%

% ABOVE Pace: 10%

Speed

MPH	NORTH DIRECTION										SOUTH DIRECTION										Frequency		Cumulative	
	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%								
45	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%				
44	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%				
43	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%				
42	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%				
41	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%				
40	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%				
39	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%				
38	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%				
37	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%				
36	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%				
35	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%				
34	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%				
33	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%				
32	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%				
31	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%				
30	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%				
29	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%				
28	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%				
27	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%				
26	1	3%	1	3%	0	0%	0	0%	0	0%	0	0%	1	3%	1	3%	30	100%	30	100%				
25	0	0%	1	3%	0	0%	0	0%	0	0%	0	0%	1	3%	1	3%	30	100%	29	97%				
24	1	3%	0	0%	0	0%	0	0%	0	0%	0	0%	1	3%	1	3%	28	93%	28	90%				
23	3	13%	0	0%	0	0%	0	0%	0	0%	0	0%	4	13%	4	13%	27	90%	27	87%				
22	0	0%	1	3%	0	0%	0	0%	0	0%	0	0%	1	3%	1	3%	23	77%	23	73%				
21	2	10%	0	0%	0	0%	0	0%	0	0%	0	0%	3	10%	3	10%	22	73%	22	70%				
20	0	0%	1	3%	0	0%	0	0%	0	0%	0	0%	1	3%	1	3%	19	63%	19	60%				
19	0	0%	3	10%	0	0%	0	0%	0	0%	0	0%	3	10%	3	10%	18	60%	18	57%				
18	1	3%	0	0%	0	0%	0	0%	0	0%	0	0%	2	7%	2	7%	15	50%	15	47%				
17	4	17%	0	0%	0	0%	0	0%	0	0%	0	0%	5	17%	5	17%	13	43%	13	40%				
16	1	3%	0	0%	0	0%	0	0%	0	0%	0	0%	1	3%	1	3%	8	27%	8	26%				
15	0	0%	2	7%	0	0%	0	0%	0	0%	0	0%	2	7%	2	7%	7	23%	7	23%				
14	1	3%	4	17%	0	0%	0	0%	0	0%	0	0%	5	17%	5	17%	5	17%	5	17%				
13	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%				
12	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%				
11	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%				
	<b>14</b>	<b>100%</b>	<b>16</b>	<b>100%</b>	<b>30</b>	<b>100%</b>	<b>30</b>	<b>100%</b>	<b>30</b>	<b>100%</b>	<b>30</b>	<b>100%</b>	<b>30</b>	<b>100%</b>	<b>30</b>	<b>100%</b>	<b>30</b>	<b>100%</b>	<b>30</b>	<b>100%</b>				

**Conditions Not Readily Apparent:** None  
**Collision History:** None  
**Comments:** The recommended speed limit is set at nearest 5 mph increment of the 85th percentile speed in compliance with CVC §627, CVC §22358.5, and CA MUTCD Section 2B.13. Further, this roadway is within a residence district (CVC §515). In addition, this roadway is functionally classified as a local roadway on the California Road System Map. As such, the City may choose to post this roadway with a 25 mph prima facie speed limit, which would be enforceable through the use of radar or other electronic means (CVC §40802).

























**LOCATION: #23 -- Grand Coulee Blvd from Shasta Street to Shasta Dam Boulevard. Length=1826 ft.**

DATE: February 3, 2016 WEATHER: Cloudy BEGIN TIME: 2:47 PM END TIME: 4:35 PM  
 EXISTING POSTED SPEED LIMIT: 40 mph BUS OR RES DISTRICT? RES  
 DIRECTION: NORTH and SOUTH # LANES: 2 LOCAL ROAD? No OBSERVER: Jose Montenegro



**SUMMARY OF RESULTS**

**Recommended: 35 mph**

85th Percentile: 40

Avg. Speed: 34

**10 MPH PACE SPEED CALC**

Pace (mph): 29 to 38

% IN Pace: 63%

% BELOW Pace: 14%

% ABOVE Pace: 23%

Speed

MPH	NORTH DIRECTION									
55	0									
54	0									
53	0									
52	0									
51	0									
50	0									
49	0									
48	1									
47	0									
46	0									
45	0									
44	1									
43	0									
42	1									
41	0									
40	1									
39	1									
38	4									
37	3									
36	4									
35	2									
34	2									
33	3									
32	3									
31	3									
30	6									
29	6									
28	1									
27	3									
26	0									
25	0									
24	3									
23	1									
22	0									
21	1									

MPH	SOUTH DIRECTION									
55	0									
54	0									
53	0									
52	0									
51	0									
50	0									
49	0									
48	0									
47	1									
46	0									
45	3									
44	1									
43	1									
42	3									
41	0									
40	3									
39	6									
38	1									
37	3									
36	3									
35	7									
34	3									
33	1									
32	3									
31	3									
30	2									
29	2									
28	0									
27	2									
26	1									
25	1									
24	0									
23	1									
22	0									
21	0									

Frequency		Cumulative	
Total	%	Total	%
0	0%	101	100%
0	0%	101	100%
0	0%	101	100%
0	0%	101	100%
0	0%	101	100%
0	0%	101	100%
0	0%	101	100%
0	0%	101	100%
0	0%	101	100%
1	1%	101	100%
1	1%	100	99%
0	0%	99	98%
3	3%	99	98%
2	2%	96	95%
1	1%	94	93%
4	4%	93	92%
0	0%	89	88%
4	4%	89	88%
7	7%	85	84%
5	5%	78	77%
6	6%	73	72%
7	7%	67	66%
9	9%	60	59%
5	5%	51	50%
4	4%	46	46%
6	6%	42	42%
6	6%	36	36%
8	8%	30	30%
8	8%	22	22%
1	1%	14	14%
5	5%	13	13%
1	1%	8	8%
1	1%	7	7%
3	3%	6	6%
2	2%	3	3%
0	0%	1	1%
1	1%	1	1%

50 51 101 100% 101 100%

**Conditions Not Readily Apparent:** Pedestrians walking on roadway due to narrow/no shoulders. Bicyclists using roadway, which is posted as a bike route. Hidden driveways.

**Collision History:** None

**Comments:** This roadway is within a residence district (CVC §515). In addition, pedestrians and bicyclists are regularly on the roadway. The recommended speed limit is set 5 mph below the nearest 5 mph increment of the 85th percentile speed due to conditions not readily apparent in compliance with CVC §627, CVC §22358.5, and CA MUTCD Section 2B.13.

































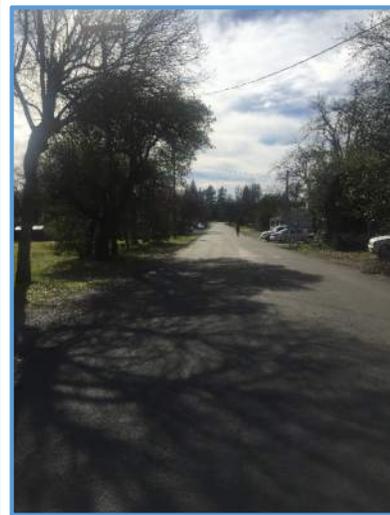
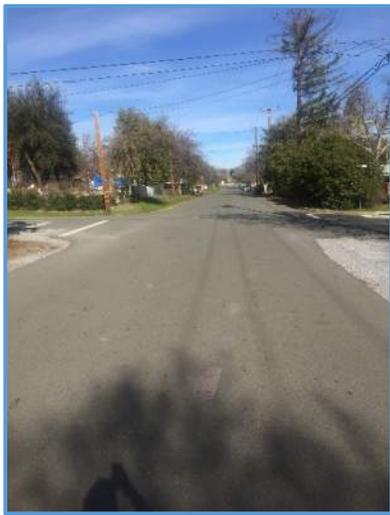






**LOCATION: #43 -- Shasta Street South from Grand Coulee Boulevard to Shasta Dam Boulevard. Length=2074 f**

DATE: February 6, 2016 WEATHER: Sunny BEGIN TIME: 1:05 PM END TIME: 1:55 PM  
 EXISTING POSTED SPEED LIMIT: 30 mph BUS OR RES DISTRICT? RES  
 DIRECTION: NORTH and SOUTH # LANES: 2 LOCAL ROAD? Yes OBSERVER: Jose Montenegro



**SUMMARY OF RESULTS**

**Recommended: 25 mph**

85th Percentile: 36

Avg. Speed: 29

**10 MPH PACE SPEED CALC**

Pace (mph): 28 to 37

% IN Pace: 49%

% BELOW Pace: 39%

% ABOVE Pace: 12%

Speed

MPH	NORTH DIRECTION									
45	0									
44	0									
43	0									
42	0									
41	0									
40	0									
39	1									
38	1									
37	1									
36	2									
35	2									
34	2									
33	2									
32	2									
31	1									
30	2									
29	5									
28	1									
27	0									
26	1									
25	0									
24	0									
23	2									
22	0									
21	1									
20	0									
19	0									
18	0									
17	1									
16	0									
15	0									
14	0									
13	0									
12	0									
11	0									

MPH	SOUTH DIRECTION									
45	0									
44	0									
43	1									
42	0									
41	0									
40	2									
39	0									
38	1									
37	0									
36	0									
35	0									
34	2									
33	0									
32	2									
31	2									
30	0									
29	0									
28	1									
27	0									
26	1									
25	2									
24	1									
23	0									
22	3									
21	3									
20	1									
19	1									
18	0									
17	1									
16	1									
15	1									
14	0									
13	0									
12	0									
11	0									

Frequency		Cumulative	
Total	%	Total	%
0	0%	51	100%
0	0%	51	100%
1	2%	51	100%
0	0%	50	98%
0	0%	50	98%
2	4%	50	98%
1	2%	48	94%
2	4%	47	92%
1	2%	45	88%
2	4%	44	86%
2	4%	42	82%
2	4%	40	78%
2	4%	38	75%
4	8%	36	71%
3	6%	32	63%
2	4%	29	57%
5	10%	27	53%
2	4%	22	43%
0	0%	20	39%
2	4%	20	39%
2	4%	18	35%
1	2%	16	31%
2	4%	15	29%
3	6%	13	25%
4	8%	10	20%
1	2%	6	12%
1	2%	5	10%
0	0%	4	8%
2	4%	4	8%
1	2%	2	4%
1	2%	1	2%
0	0%	0	0%
0	0%	0	0%
0	0%	0	0%
0	0%	0	0%

27 24 51 100% 51 100%

**Conditions Not Readily Apparent:** None

**Collision History:** None

**Comments:** This roadway is within a residence district (CVC §515). Further, this roadway is functionally classified as a local roadway on the California Road System Map. As such, the City may choose to post this roadway with a 25 mph prima facie speed limit, which would be enforceable through the use of radar or other electronic means (CVC §40802).

















