

TRANSPORTATION DIVISION
ENGINEERING AND TRAFFIC SURVEY

Location: Alexandra Drive from Beatty Drive to a point 320 feet east of Frascati Drive

Subject: Speed Zone Survey

Date: October 4, 2016

REQUEST REFERENCE:

It is the intent of this study to conduct a speed zone survey along Alexandra Drive in the vicinity of Promontory Community Park to determine an appropriate and effective speed zone passing the park, per the El Dorado County Traffic Superintendent.

The section of roadway is limited to reviewing the speed of vehicles on Alexandra Drive (milepost 0.25 to milepost 0.73) and providing recommendations intended to improve safety along this portion of Alexandra Drive. Alexandra Drive runs in a North/South direction (circular) from Sophia Parkway MP 0.00 to Sophia Parkway MP 0.79.

GENERAL PHYSICAL CONDITIONS:

The study portion of Alexandra Drive exhibits the following characteristics.

<i>Functional Classification:</i>	<i>Minor Collector Road</i>
<i>Length:</i>	<i>From Sophia Parkway MP 0.00 to mile post MP 0.79</i>
<i>Limits:</i>	<i>Alexandra Drive MP 0.25 to MP 0.73</i>
<i>Alignment:</i>	<i>Curvilinear</i>
<i>Grade:</i>	<i>Rolling</i>
<i>Lanes:</i>	<i>2 lanes</i>
<i>Surface:</i>	<i>25 ft Asphalt surface</i>
<i>Striping:</i>	<i>Double Yellow Centerline with edge line and bike lane</i>
<i>Shoulders:</i>	<i>Sidewalk, curb and gutter on both sides of the street</i>
<i>Speed Limit:</i>	<i>None</i>

Alexandra Drive is intersected by two (2) County maintained roads within the study area: Sophia Parkway and Beatty Drive. Alexandra Drive is also intersected by three (3) private roads within the study area: Padova Way, Elmores Way and Frascati Drive.

RECORD DATA:

No portion of Alexandra Drive currently has a posted speed limit zone.

ACCIDENT HISTORY ON ALEXANDRA DRIVE (Mile Post 0.00 to 0.79)

A review of the accident history for Alexandra Drive revealed one (1) accident reported by the California Highway Patrol from January 1, 2013 and ending December 31, 2015.

The one (1) reported accident during the three (3) year period could be summarized as follows:

<i>Summary of accident data for Newtown Road between MP 0.00 and 0.79 from 1/1/13 to 12/31/15</i>	
<i>Accident Rate</i>	<i>0.89 Accidents per Million Vehicle Miles</i>
<i>Number of Reported Accidents</i>	<i>One (1)</i>
<i>Average Daily Traffic Volume</i>	<i>1,300 vehicles (estimated from peak hour counts)</i>
<i>Conclusions from CHP Reports</i>	<i>1 Broadside Accident resulting in no injuries and no fatalities</i>

The California Vehicle Code, Section 22358, allows local authorities to establish speed limits based on an “Engineering and Traffic Survey”. The Vehicle Code goes on, in Section 40801 to prohibit the use of “speed traps” for the purpose of speed enforcement and, in Section 40802, defines “speed trap”. Section 40802 also indicates that an “Engineering and Traffic Survey” is required where speed enforcement involves the use of radar and establishes the frequency with which surveys must be conducted for continued radar enforcement. In order to comply with the provisions of the Vehicle Code, and insure that radar enforced speed zones are based on recent data, County of El Dorado has established a practice of conducting engineering and traffic survey updates based on a cycle length of five (5) years or less.

In Section 627 the Vehicle Code provides a definition for “Engineering and Traffic Survey”, and states that an “Engineering and Traffic Survey” shall include:

1. Prevailing speeds as determined by traffic engineering measurements.
2. Accident records.
3. Highway, traffic, and roadside conditions not readily apparent to the driver.

In addition, the 2001 edition of the Vehicle Code added that residential density, pedestrian, and bicycle safety may be considered.

While the California Vehicle Code is silent regarding the relationship of the 85th percentile speed to the posted speed, the California Manual on Uniform Traffic Control Devices (CAMUTCD), Section 2B.13, "Speed Limit Sign", "Engineering and Traffic Survey", states in part:

"When a speed limit is to be posted, it shall be established at the nearest 5mph increment of the 85th percentile speed of free-flowing traffic, . . . [except] The posted speed may be reduced by 5 mph from the nearest 5 mph increment of the 85th percentile speed . . ."

Section 2B.13 further states in part:

"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:

An example of the application of this speed limit criterion is as follows:

- If the 85th percentile speed in a speed survey was 37 mph, then the speed limit would be posted at 35 mph or optionally reduced to 30 mph. However,
- If the 85th percentile speed in a speed survey was 38 mph, then the speed limit would be posted at 40 mph or optionally reduced to 35 mph.

For guidance, when considering an additional reduction in the speed limit, Section 2B.13 provides in part:

"Other factors that may be considered when establishing speed limits are the following:

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

The following caution is also provided:

"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.”

If there is no posted speed limit present on a road, the speed is controlled by Section 22350 “Basic Speed Law” of the California Vehicle Code, which 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.”

Section 22352(a)(2)(A), of the California Vehicle Code establishes a prima facie 25 mile per hour speed limit on any highway within a “Residence District”.

In defining a “Residence District”, Section 515 of the California Vehicle Code states:

“A “Residence District” is that portion of a highway and the property contiguous thereto, other than a business district, (a) upon one side of which 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, or (b) upon both sides of which 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. A residence district may be longer than one-quarter of a mile if the above ratio of separate dwelling houses or business structures to the length of the highway exists.”

In defining a “Business District”, Section 235 of the California Vehicle Code states:

“A “business district” is that portion of a highway and the property contiguous thereto (a) upon one side of which highway, for a distance of 600 feet, 50 percent or more of the contiguous property fronting thereon is occupied by buildings in use for business, or (b) upon both sides of which highway, collectively, for a distance of 300 feet, 50 percent or more of the contiguous property fronting thereon is so occupied. A business district may be longer than the distances specified in this section if the above ratio of buildings in use for business to the length of the highway exists.”

Providing for reduced speed limits adjacent to children’s playgrounds, Section 22357.1 of the *California Vehicle Code* states, in part:

“... a local authority may, by ordinance or resolution, set a prima facie speed limit of 25 miles per hour on any streets, other than a state highway, adjacent to any children’s playground in a public park but only during particular hours or days when children are expected to use the facilities. The 25 miles per hour speed limit shall be effective when signs giving notice of the speed limit are posted.”

It should be noted that the *California Vehicle Code* indicated that violations of *prima facie* speed limits may be cited under CVC Section 22350. Under CVC “List of Violations” it states: “22350 Unsafe speed for prevailing conditions (use for all *prima facie* limits).”

For the type and location of the various signs present along Newtown Road please see attached “SIGN INVENTORY PRINTOUT” sheets.

CONTACTS:

None

FIELD REVIEW AND OBSERVATION:

Alexandra Drive 0.00 to 0.79

One (1) radar speed survey was conducted by El Dorado County Department of Transportation on Alexandra Drive in July of 2016, (see attached sheets). The following table reflects the results of those surveys:

<i>2016 SITE LOCATION</i>	<i>SPEED LIMIT</i>	<i>85% SPEED</i>	<i>10 MPH PACE</i>	<i>% IN PACE SPEED</i>
<i>740' N/O Beatty Drive</i>		<i>44 mph</i>	<i>33- 42 mph</i>	<i>66.3 %</i>

Staff observed four (4) bicyclists and six (6) pedestrians utilizing Alexandra Drive during the field review that lasted approximately 2 hours.

Staff reviewed the site on a weekend and noticed multiple vehicles and pedestrians using the park facility.

FINDINGS AND CONCLUSIONS FOR ALEXANDRA DRIVE:

- The nominal width of the roadway is 25 feet.
- 85th percentile speeds of 44 miles per hour were recorded.
- The average daily traffic volume is 1,300 vehicles per day.
- Roadway is curvilinear with rolling grade changes.
- There are three (3) intersecting county roads and four (4) intersecting private encroachments.
- There was one (1) accident reported on Alexandra Drive for the three (3) year period from January 1, 2013, through December 31, 2015 with an accident rate of 0.89 Accidents per Million Vehicle Miles.
- Four (4) bicyclists and six (6) pedestrians were observed on the roadway during the site

speed survey.

- An adjoining regional park with children's playground equipment.
- Parks and playgrounds are pedestrian, child and vehicle generators during on and off peak traffic hours. This also includes weekend sport and public events.

85TH Percentile Speeds

Section 2B.13 of the *California Manual on Uniform Traffic Control Devices* (CAMUTCD) provides criteria for establishing speed limits. The CAMUTCD provides that: "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."

In accordance with those provisions, a radar enforced speed limit of 45 miles per hour is indicated and may be established on Alexandra Drive.

The CAMUTCD also provides that the speed limit may be reduced by an additional five (5) miles per hour if the Engineering and Traffic Survey documents in writing, the conditions and justification for the lower speed limit and it is approved by a registered Civil or Traffic Engineer.

The existing 85th percentile speeds recorded in the 2016 study was 44 miles per hour, which would justify a speed zone of 45 miles per hour based on the nearest five (5) miles per hour increment. Establishing a 45 mile per hour speed limit adjacent to a park and playground where children and other pedestrians may be expected, and in light of the occasional high volume of traffic that may be generated by park activities, may not be prudent.

Establishing a 25 mile per hour "Playground" speed limit based on CVC Section 22357.1 would better meet the safety concerns of the community. The "Playground" speed zone signing consists of SW49 (CA), "PLAYGROUND" sign, above an R2-1 (25), 25 mile per hour speed limit sign, and an S4-2 "WHEN CHILDREN ARE PRESENT" installed below. Establishing a "Playground" speed limit will enable the California Highway Patrol to provide enforcement under CVC Section 22350 thereby encouraging better compliance with the posted speed limit.

DISCUSSION:

Based on the data presented above and the requirements of the *California Vehicle Code*, establishing an enforceable 25 mile per hour "Playground" speed limit on Alexandra Drive along the frontage of Promontory Community Park is the best option for reducing the speed of vehicles and improving safety.

RECOMMENDATION:

Based on the findings of this investigation, it is recommended that:

1. The Traffic Advisory Committee approves establishing a 25 mile per hour “Playground” speed limit on Alexandra Drive adjacent to Promontory Community Park.
2. Following approval by the Traffic Advisory Committee, the following resolution be prepared and referred to the Board of Supervisors with a recommendation for adoption:

BE IT RESOLVED that Resolution No. 247-81, which establishes speed restrictions pursuant to Section 10.08.020 of the El Dorado County Ordinance Code, is amended as follows:

ADD:

“(**) Alexandra Drive (No. 2766) twenty-five (25) miles per hour Playground Speed Limit adjacent to Promontory Community Park beginning at a point 100 feet east of Frascati Drive and continuing to a point 100 feet north of Beatty Drive.”

3. Subsequent to and predicated on adoption of above resolution by the Board of Supervisors, County staff be directed to:
 - a. Install “Playground” speed limit signs consisting of an SW49 (CA), ”PLAYGROUND” sign, above an R2-1 (25), 25 mile per hour speed limit sign, with an S4-2 “WHEN CHILDREN ARE PRESENT” sign installed below,
 - b. Request that the California Highway Patrol provide enforcement of the 25 mile per hour speed limit under CVC Section 22350.

Prepared by:



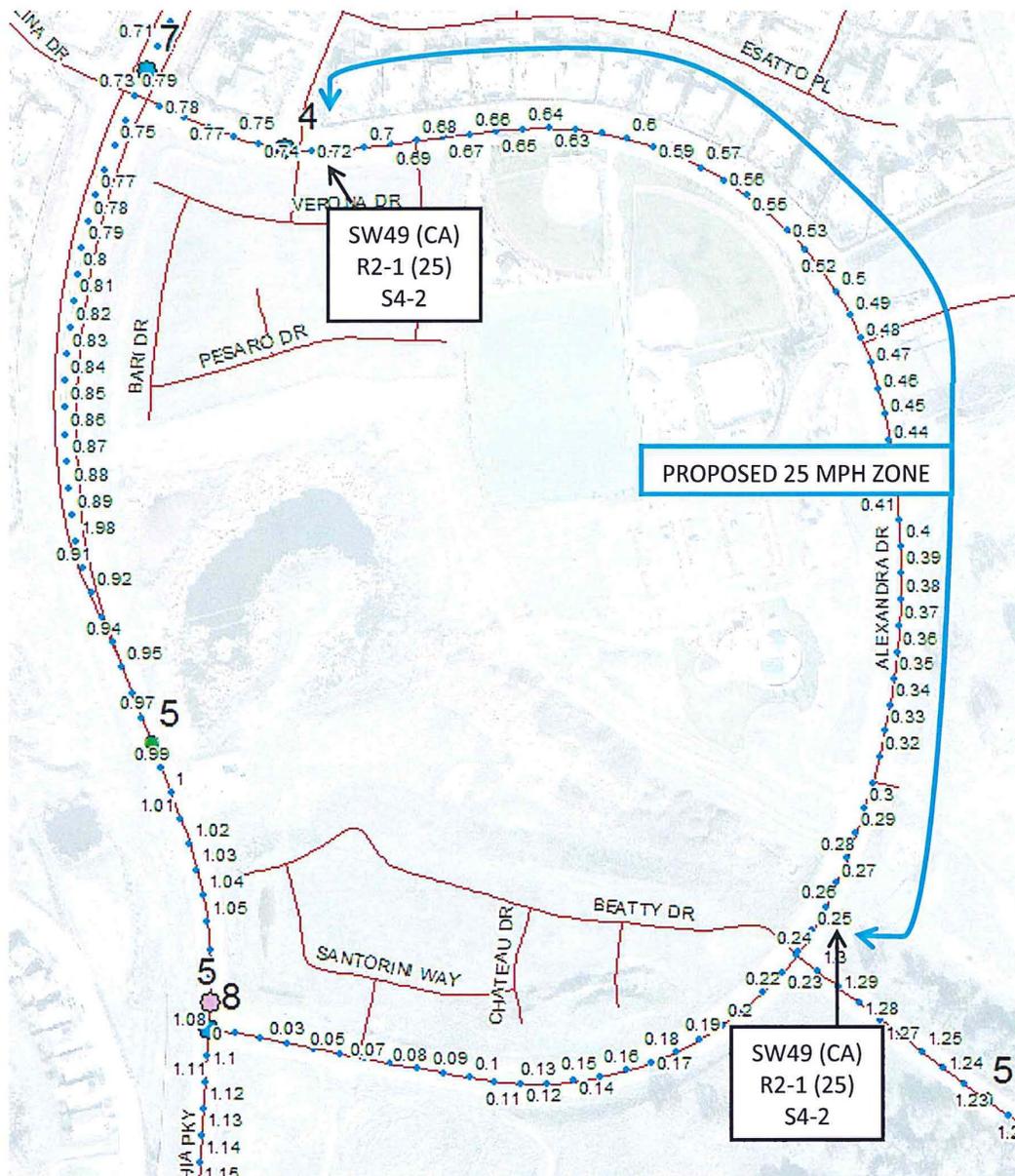
Jim Hunnicutt
Senior Engineering Technician

APPROVED BY: Darryl L. Brown on 10/7/16
Darryl L. Brown, P.E.
Traffic Superintendent
Date

APPROVED BY: Bard R. Lower on 10/10/16
Bard R. Lower, Director
Transportation Division
Community Development Agency
Date

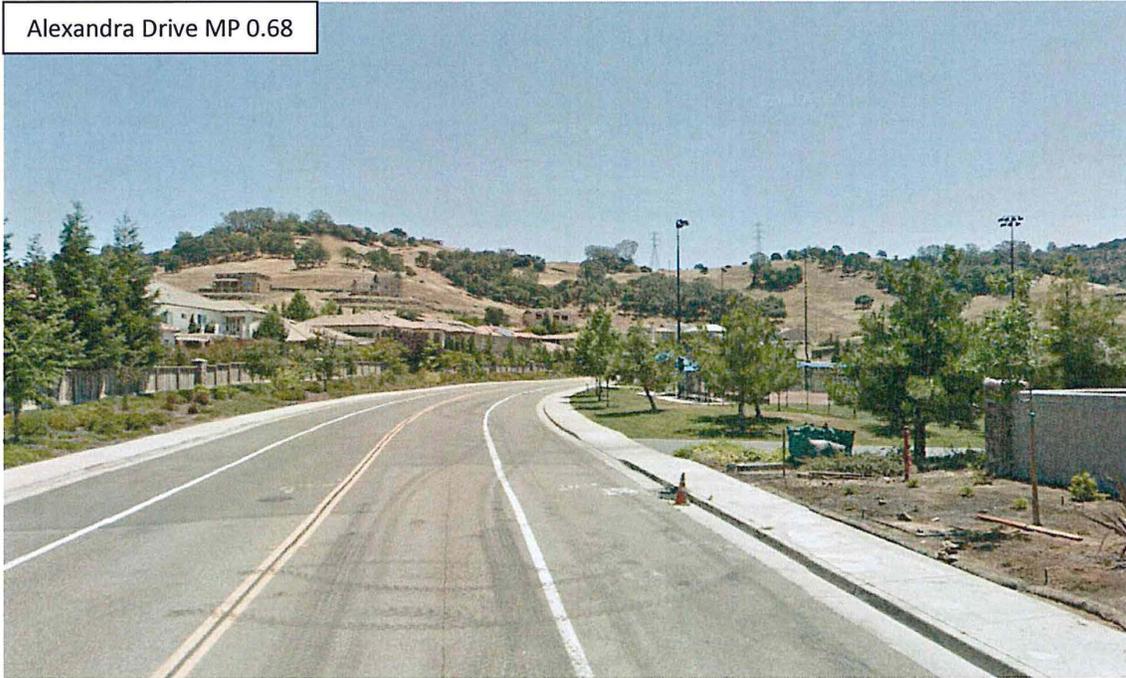
- Attachments:
- Vicinity Map (1 page)
 - Vicinity Photos (3 pages)
 - Sign Inventory (1 page)
 - Accident Summary (2 pages)
 - Speed Survey (1 page)

VICINITY MAP ALEXANDRA DRIVE

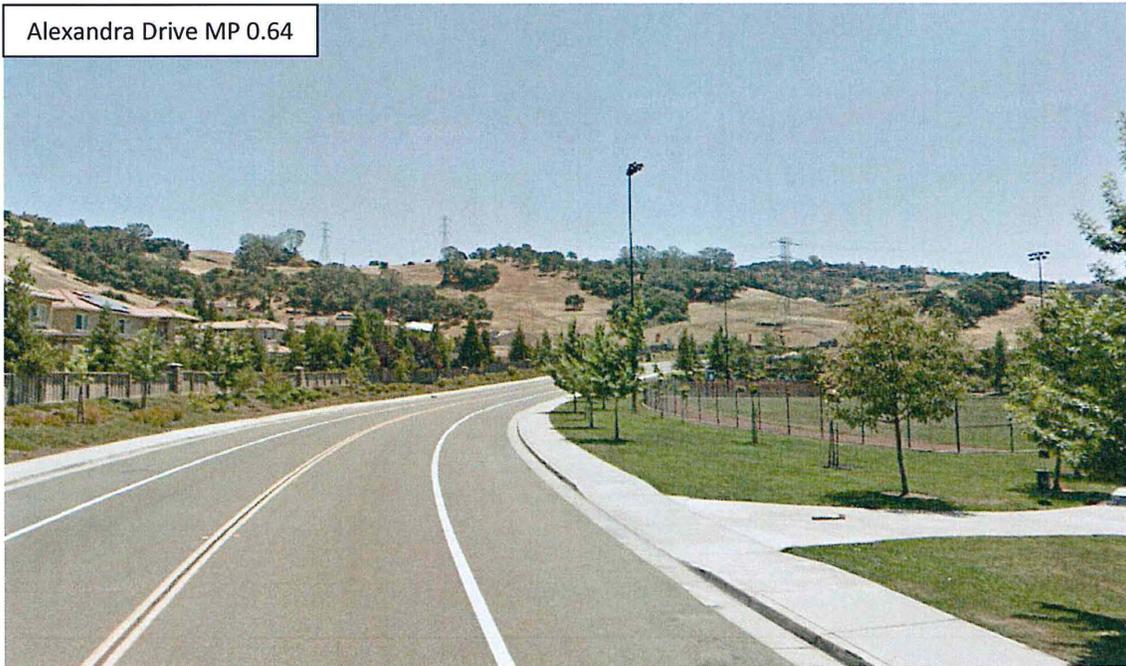


ALEXANDRA DRIVE - SOUTHBOUND
AT PROMONTORY COMMUNITY PARK

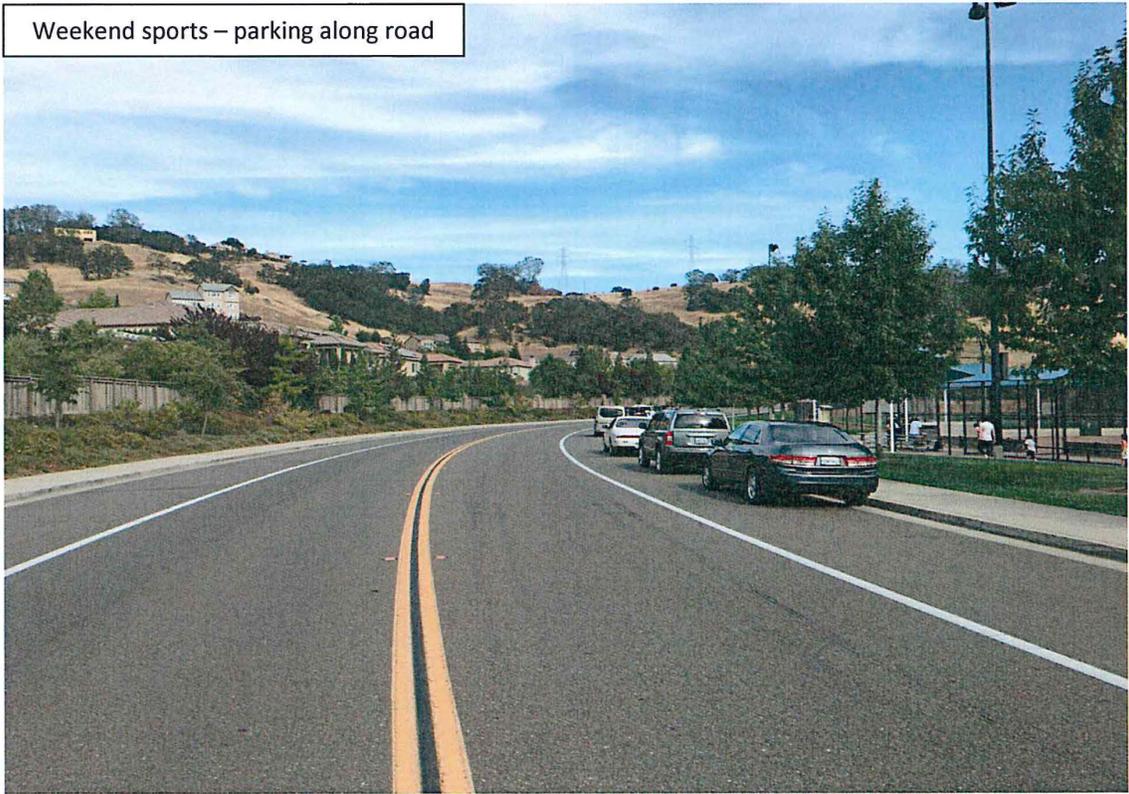
Alexandra Drive MP 0.68



Alexandra Drive MP 0.64







Sign Inventory for: **ALEXANDRA DR**

Road # **2766**

05-Jul-16

Beginning at Mile Post- 0.0

and Ending at Mile Post- .79

Old Sign Code	2010 CA Sign Code	Location	Dir	Cross Street	Mile Post	Side	Fac	Sheeting	Date
R1	R1-1	20 ft	E of	SOPHIA PW (S)	0.000	N	E	H	1/31/2006
R1-4	R1-4	20 ft	E of	SOPHIA PW (S)	0.000	N	E	H	1/31/2006
R81	R81 (CA)	25 ft	E of	SOPHIA PW (S)	0.000	S	W	R	1/27/2007
R81A	R81A (CA)	25 ft	E of	SOPHIA PW (S)	0.000	S	W	R	1/27/2007
R1-4	R1-4	25 ft	W of	SOPHIA PW (S)	0.000	N	E	H	1/25/2007
R81	R81 (CA)	50 ft	E of	SOPHIA PW (S)	0.010	N	E	R	1/27/2007
R81B	R81B (CA)	50 ft	E of	SOPHIA PW (S)	0.010	N	E	R	1/27/2007
R81B	R81B (CA)	211 ft	E of	SOPHIA PW (S)	0.040	N	E	R	1/27/2007
R81	R81 (CA)	320 ft	E of	SOPHIA PW (S)	0.060	S	W	R	1/27/2007
R81	R81 (CA)	50 ft	W of	BEATTY DR	0.230	N	E	R	1/27/2007
R81	R81 (CA)	1,690 ft	E of	SOPHIA PW (S)	0.320	S	W	R	1/27/2007
R81	R81 (CA)	50 ft	E of	ELMORES WY	0.470	S	W	R	1/27/2007
R81	R81 (CA)	50 ft	E of	SOPHIA PW (N)	0.790	S	W	R	1/27/2007
R81A	R81A (CA)	50 ft	E of	SOPHIA PW (N)	0.790	S	W	R	1/27/2007

**EL DORADO COUNTY
DEPARTMENT OF TRANSPORTATION
ACCIDENT SITE ANALYSIS SUMMARY FOR**

ALEXANDRA DR
Speed Zone Survey

Report Date: 9/2/2016

For the period beginning January 1, 2013 and ending December 31, 2015

	Beginning at Mile Post	0.00	and Ending at Mile Post	0.79	Roadway Section Length =	0.79	
2013	Number of Accidents:	1	Number of Injuries:	0	Number of Fatalities:	0	
Three Year Accident Total =		1	Three Year Injury Total =		0	Three Year Fatality Total =	0

Average Daily Traffic Volume: 1300

Accidents per Million Vehicle Miles is: 0.89

**EL DORADO COUNTY
DEPARTMENT OF TRANSPORTATION**

2013 C.H.P. ACCIDENT SUMMARY FOR ALEXANDRA DR FROM MP-0.00 TO MP-0.79

Report Date: 9/2/2016

The following accident data is based on the C.H.P. Accident Reports for the one year period from January 1, 2013, through December 31, 2013.

The following code numbers have been used to classify the various major types of accidents:

- | | | |
|------------------------------|-----------------------------------|---------------------|
| 1 = Headon | 2 = Sideswipe | 3 = Rearend |
| 4 = Broadside | 5 = Hit Object | 6 = Overturned |
| 7 = Pedestrian Involved | 8 = Bicycle Involved | 9 = Animal Involved |
| 10 = Parked Vehicle Involved | 11 = Snow Removal Equip. Involved | 12 = Other |
| 13 = Motorcycle Involved | 14 = School Bus Involved | |

Street	Mile Post	Dist.	Dir.	Cross Street	# Veh	Injury	Fatal	Time	Cond.	Imp.	Code
ALEXANDRA DR	0.73	0	AT	of FRASCATI DR	2	0	0	DAY	DRY	IMP?	4

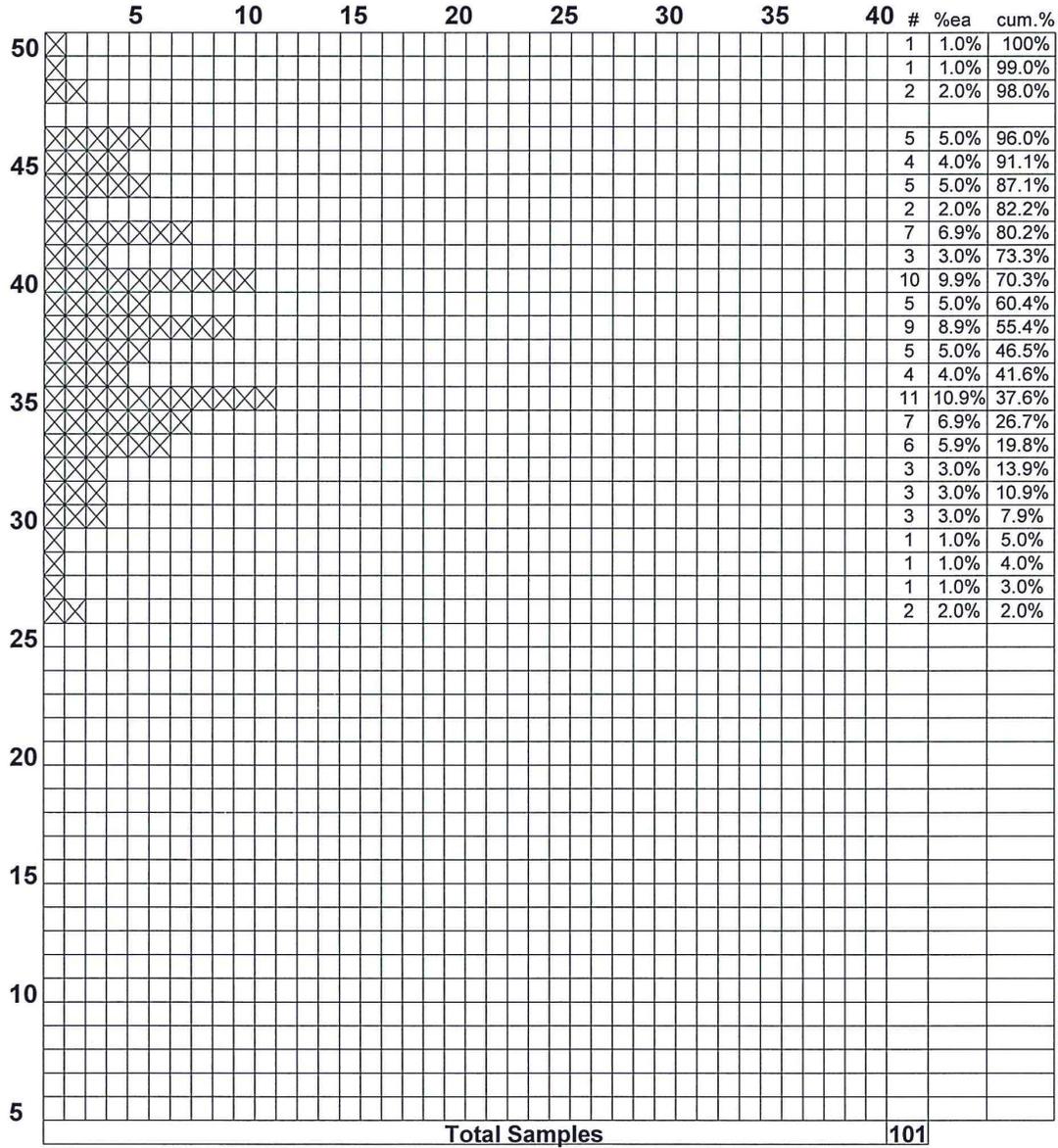
Total Number of Accidents: 1
 Total Number of Injuries: 0
 Total Number of Fatalities: 0

**County of El Dorado
Transportation Division**

Street Name: ALEXANDRA DR
Limits: SOPHIA PKWY to BEATTY DR

Radar Survey Sheet

X=North/South



85th Percentile Speed: <u>44</u>	Date of Survey: <u>7/6/2016</u>	Start Time: <u>9:15</u>
50th Percentile Speed: <u>38</u>	Weather: <u>Clear</u>	End Time: <u>11:20</u>
15th Percentile Speed: <u>33</u>	Road Condition: <u>Good</u>	Posted Speed:
10 MPH Pace: <u>33- 42</u>	Street Class.:	
Number in Pace: <u>67</u>	Observer: <u>J. HUNNICUTT</u>	
Percent in Pace: <u>66.3%</u>	Conditions not Apparent:	