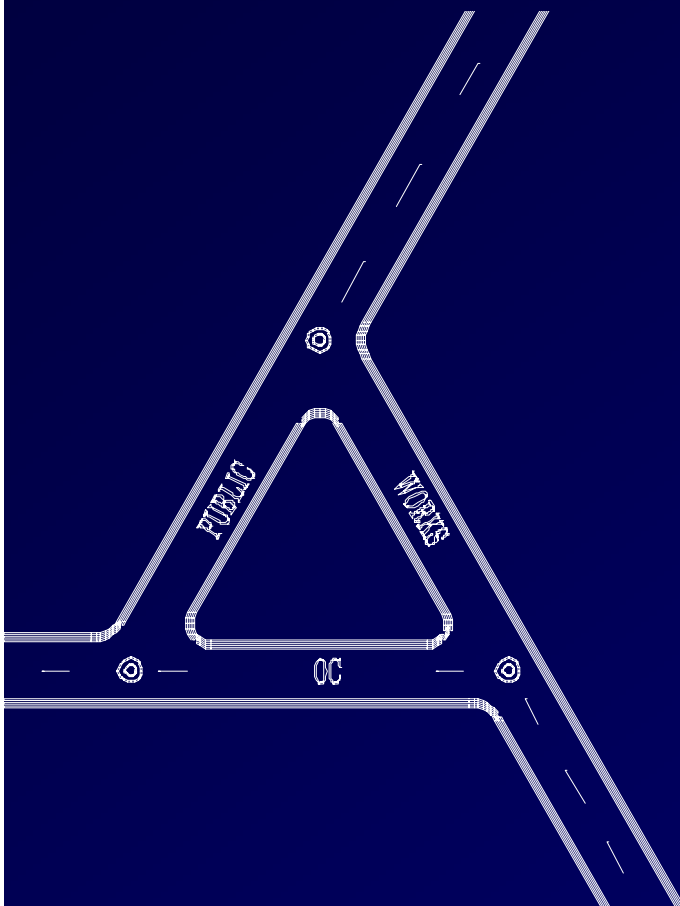




# Orange County Traffic Committee

**Item A**

**August 20, 2009**



# Request

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- Examine the current operational performance of Live Oak Canyon Road and Trabuco Canyon Road.

# Contents of Presentation

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- Introduction
- Existing Conditions
- Traffic Data
- Analysis
- Recommendations

# Introduction

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- The County has conducted a Traffic Study of Live Oak Canyon Road and Trabuco Canyon Road.
- To assist in this effort, the County has hired W.G. Zimmerman Engineering, Inc. to collect data and prepare the Traffic Study.
- The purpose of this traffic study is to examine the current operational performance of this roadway and to identify potential improvements to increase the road's overall performance to serve the public needs.

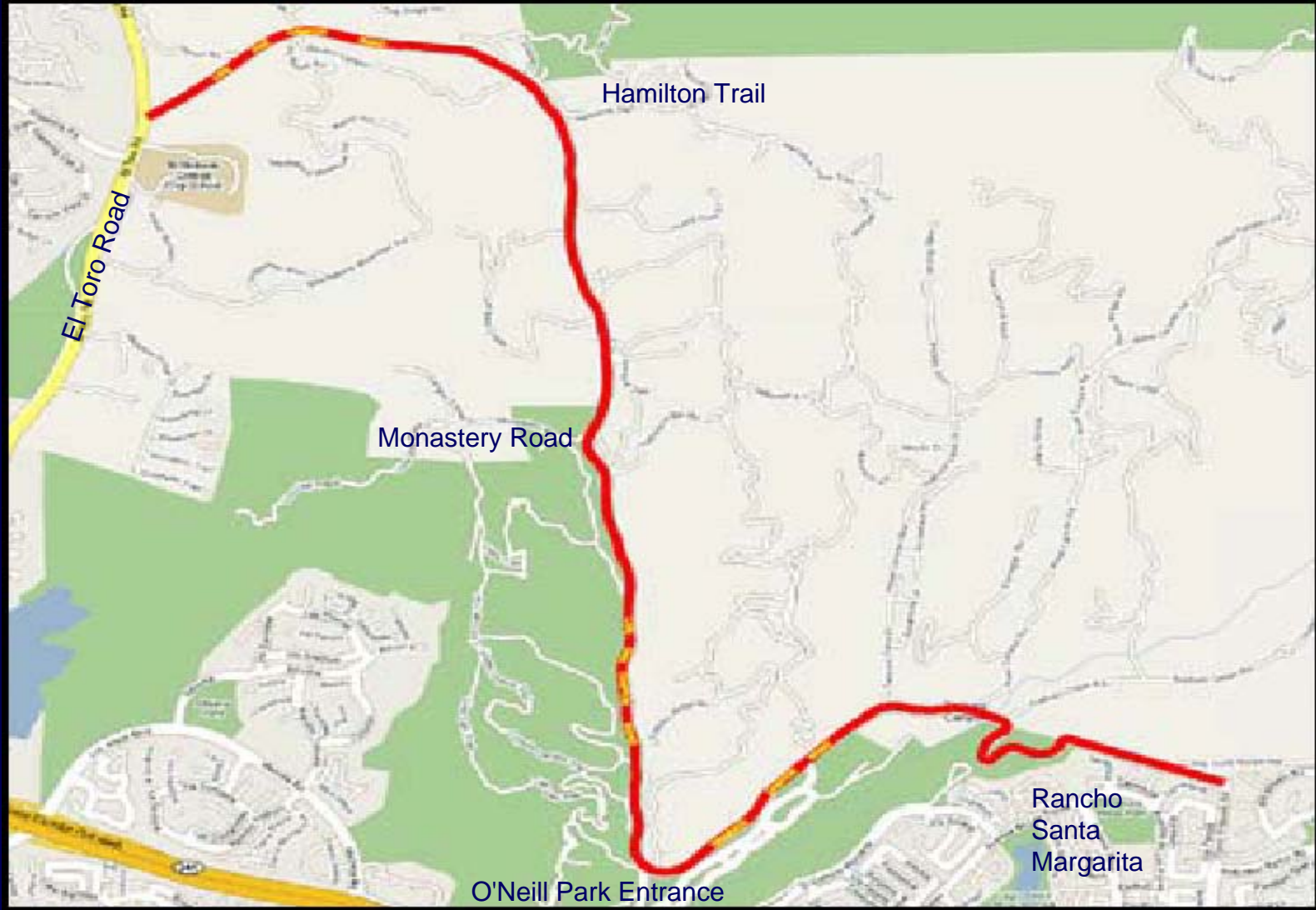
# Introduction

- Conducted field reviews and collected data: accident records, traffic volume counts, speed surveys, etc.
- Information gathered has been analyzed to identify any issues and provide recommendations for mitigation and improvement measures.
- As part of data collection, project (scoping/informational) meetings were held on May 4<sup>th</sup> and June 3<sup>rd</sup> to obtain input from the meeting attendees.

# Introduction

- The June 3<sup>rd</sup> public meeting had approximately 120 residents in attendance who provided many comments and suggestions to take into consideration for the traffic study.
- During the public meeting, CHP and OC Sheriff Dept. provided the public with information on enforcement and education programs.

# Location Map



- Limits: Santiago Cyn Rd/El Toro Rd to RSM City Limits

# Existing Conditions

- Designated as Scenic Highway Viewscape Corridor.
- Preservation of the area's rural character and future development are set by guidelines of the Foothill/Trabuco Specific Plan.
- Roadway is rural, two-lane, narrow curvilinear collector road with variable width shoulders.
- Portions of the road are lined with Oak trees with overhanging tree canopies, concrete barriers, guardrails, power poles, various traffic signs, and embankments.
- Posted speed limit is 35 mph, except for 25 mph at school when children are present.

# Existing Conditions

- Intersection safety lighting at specific locations.
- Travel way width varies from 20 to 24 feet.
- Dipped concrete road crossing at Trabuco Creek.
- Double yellow centerline with raised pavement markers, white edgeline striping, pavement edge delineators at specific locations.
- Stop sign on Live Oak Cyn Rd at El Toro Rd, and stop sign controlled cross streets.

# Traffic Data (Volume)

- 2009 Average Daily Traffic (ADT) was approximately 3,000 vehicles per day.
- The ADT has remained approximately the same level for the past 10 years.

# Traffic Data (Speed)

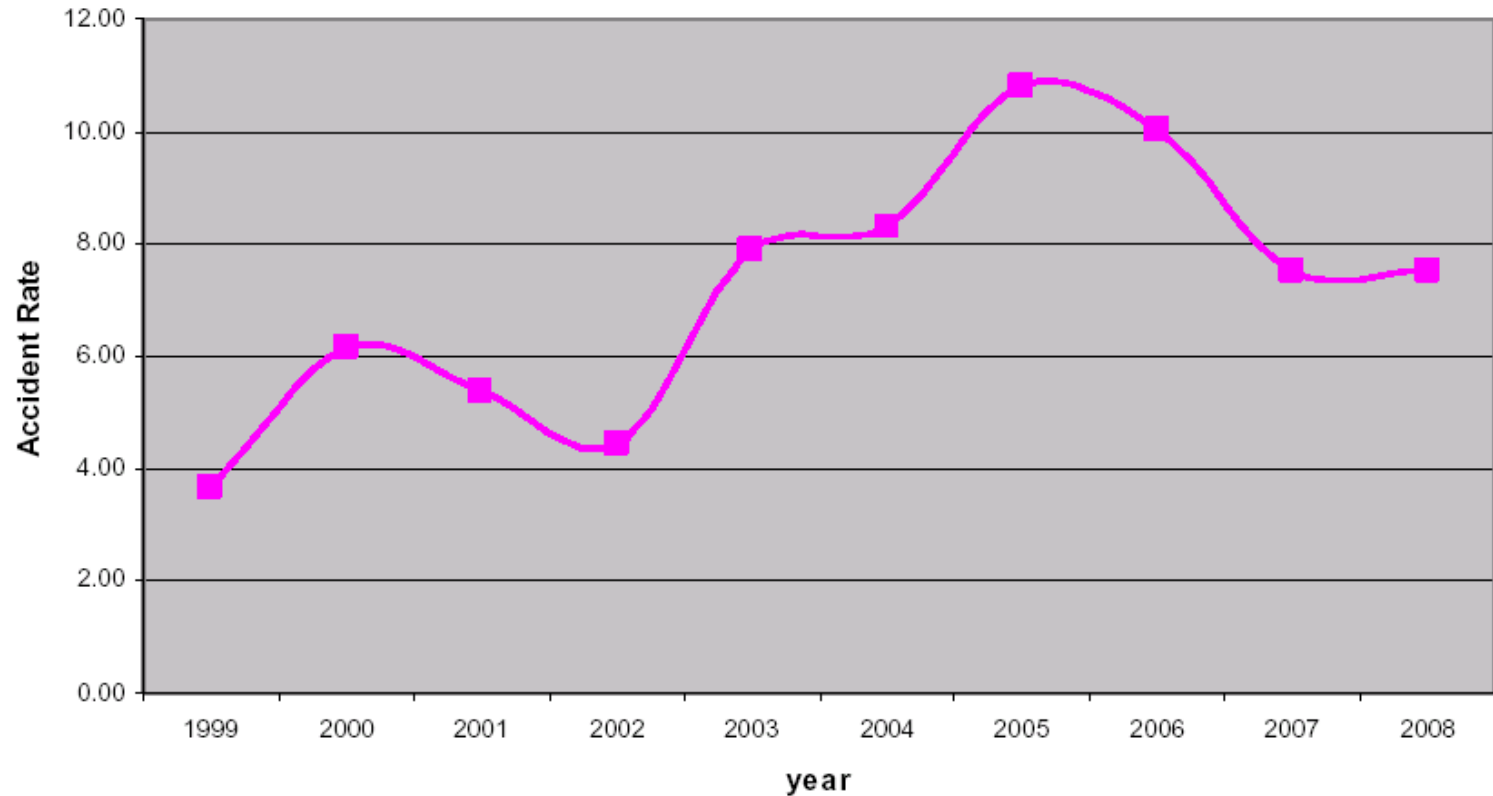
Peak Period	Section	From	To	15 <sup>th</sup> Percentile		50 <sup>th</sup> Percentile		85 <sup>th</sup> Percentile		10 MPH Pace Speed	
				NB	SB	NB	SB	NB	SB	NB	SB
AM	Live Oak Canyon	El Toro Rd	Ranch Rd	38	35	44	43	<b>48</b>	<b>50</b>	39-48	38-47
PM	Live Oak Canyon	El Toro Rd	Ranch Rd	36	32	41	40	<b>48</b>	<b>46</b>	36-45	36-45
AM	Live Oak Canyon	Ranch Rd	Lambrose Canyon	38	36	44	39	<b>50</b>	<b>44</b>	38-47	36-45
PM	Live Oak Canyon	Ranch Rd	Lambrose Canyon	37	36	41	40	<b>48</b>	<b>44</b>	36-45	36-45
AM	Trabuco Canyon	Trabuco Oaks	Rose Canyon	24	31	29	38	<b>33</b>	<b>45</b>	25-34	34-43
PM	Trabuco Canyon	Trabuco Oaks	Rose Canyon	24	31	29	38	<b>32</b>	<b>46</b>	25-34	35-44

# Traffic Data (Accidents)

## 10 Year Summary

	Accidents (1/1/99 Thru 12/31/08)			
	PDO	Injury	Fatal	Total
Total	148	214	10	372
Percentage	40%	58%	3%	100%
Avg Accidents (per yr)	15	21	1	37

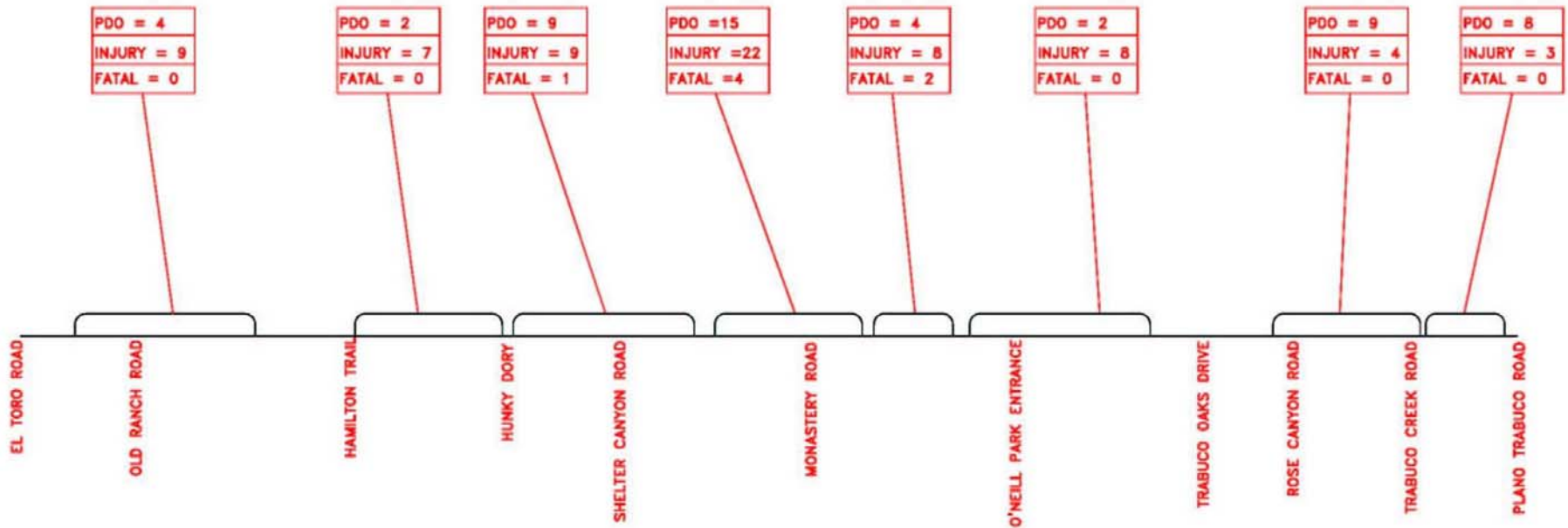
# Accident Rate Trend



# Three Year Accident Summary

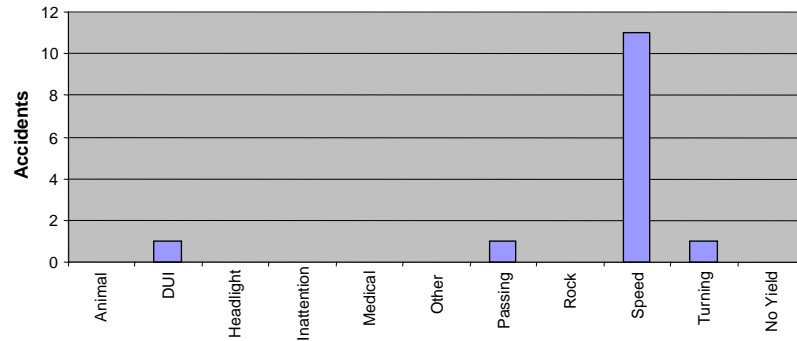
Segment	Road	From	To	Length (Miles)	Accidents (1/1/06 Thru 4/17/09)				Accident Rate (mvm)
					PDO	Injury	Fatal	Total	
1	Live Oak Canyon	El Toro Road	Hamilton Trail	1.13	4	10	0	14	4.30
2	Live Oak Canyon	Hamilton Trail	Trabuco Canyon	2.13	33	50	7	90	13.34
3	Trabuco Canyon	Live Oak Canyon	Plano Trabuco	1.77	23	15	0	38	5.57
Total				5.03	60	75	7	142	(Expected Accident Rate = 1.65)
Percent					42%	53%	5%	100%	

# Accident Locations

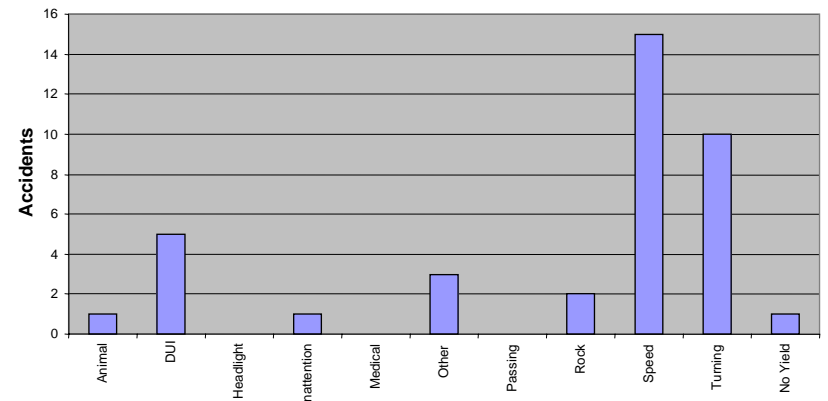


# Accident Cause

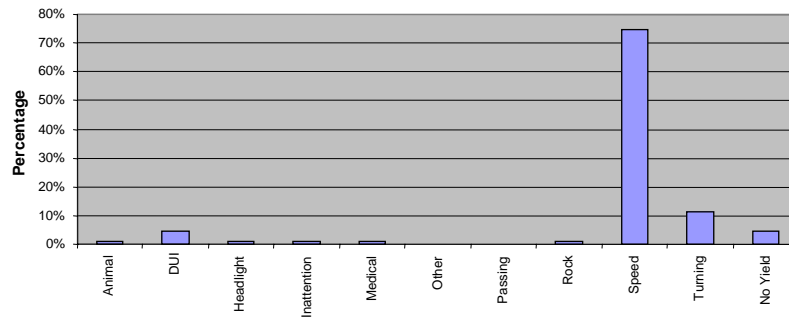
(Segment 1- Live Oak Canyon Road from El Toro Rd to Hamilton Trail)



(Segment 3- Trabuco Canyon Rd from O'Neill Park to Plano Trabuco Rd)

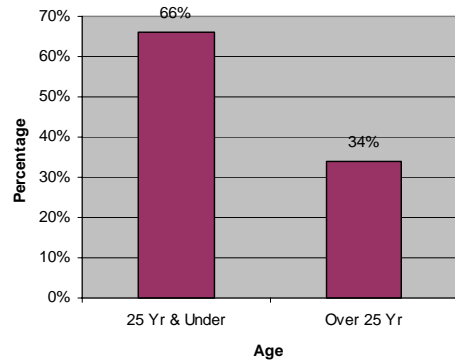


(Segment 2- Live Oak Canyon Rd from Hamilton Trail to O'Neill Park)

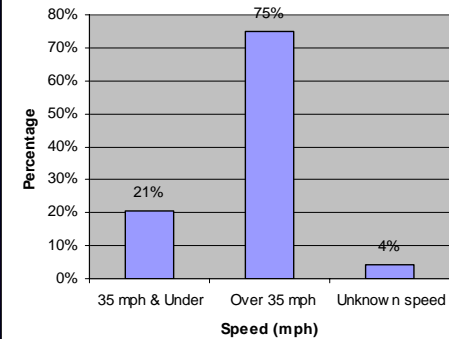


# Accident Statistics

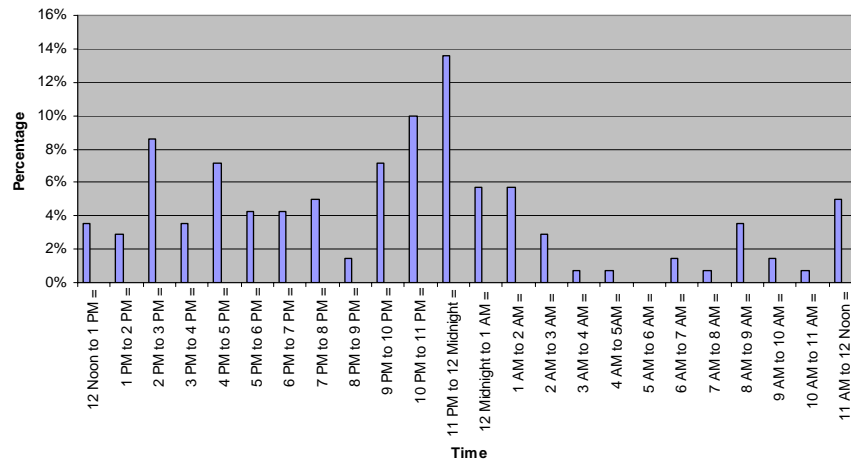
**Total Accidents by Age**



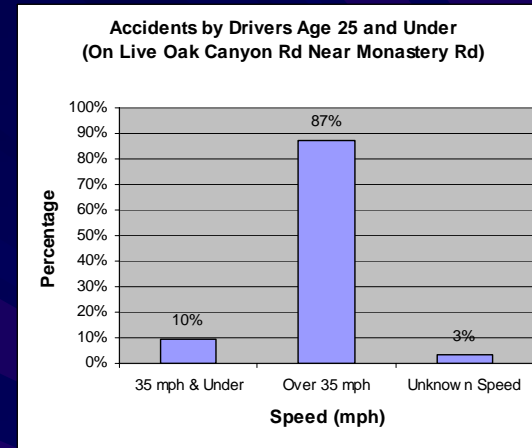
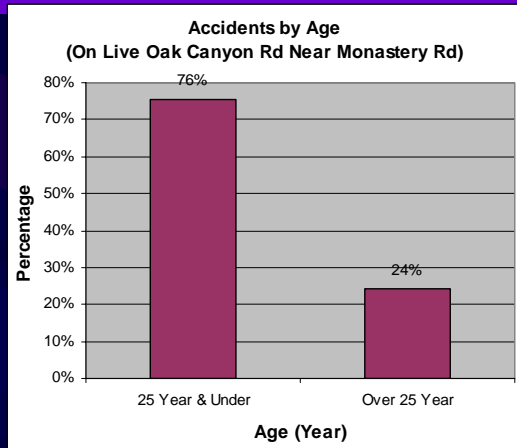
**Accidents by Drivers Age 25 and Under**



**Accidents by Time of Day**



# Accident Concentration



- 90 accidents in three years between Hamilton Trail and O'Neill Park Entrance.
- 83% of accidents southbound.
- Accident concentration at curve near Monastery Rd.
- The primary cause of these accidents was vehicle speeds higher than 50 mph.

# Monastery Curve

- 4 of 7 Fatal accidents near Monastery Road



# Accident Summary

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- 142 accidents were reported over a three year period
- The accident rates for all segments was higher than the state expected rates.
- Approximately 65% of accidents involved driving at speeds higher than the posted speed limit.
- Drivers under 25 accounted for 66% of the accidents.
- 75% of the accidents caused by young drivers involved speeds greater than the posted speed limit.
- A majority of the accidents occurred in the southbound direction.
- DUI's accounted for approximately 16% of the accidents.
- The largest concentration of accidents was near Monastery Road.

# Analysis

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- It was found that more than 75% of drivers who were involved in accidents were driving at speeds higher than the posted speed limit.
- 34 of the 90 accidents in Segment 2 (38%) were related to speeds more than 10 mph over the posted speed limit.
- Most of these accidents were caused by young drivers and occurred during night hours, particularly between 9:00 pm and 2:00 am. The majority of these accidents may be caused by drivers either intentionally speeding or racing.
- Speeding is the main issue; the road can be driven safely at the posted speed limit.
- Accidents are caused by drivers exceeding the posted speed limit, as well as driving at speeds unsafe for conditions, and thus operating in an unsafe manner.
- Increasing enforcement along Live Oak Canyon Road would be the most effective way to reduce vehicle speeds, particularly during night time traffic when accidents are mostly caused by speed and racing.

# Analysis

- Additional emphasis should be placed on driver education.
- Schools should be encouraged and supported by the community to include driving safety classes to help educate younger drivers on safely operating a vehicle.
- Tree removals and major geometric improvements would most likely be environmentally infeasible and not in accordance with the Foothill/Trabuco Specific plan and the guidelines imposed to maintain the road's Scenic Highway status.
- Operation of the roadway may be further enhanced for those few drivers unfamiliar with the roadway who are traveling slightly over the posted speed limit with the installation of additional and/or larger warning signs.

# Recommendation

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- The recommendations were evaluated based on performance, compatibility, cost, field experience, aesthetics, and maintaining the rural and scenic context of the Trabuco Canyon community.
- The recommended enhancements address reducing speeds, reducing accidents and reducing accident severity.
- Recommendations concentrate on implementable and cost effective improvements.

# Recommendation

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- Provide an animal warning sign (W11-3) for drivers entering the canyon from El Toro Road/Santiago Canyon Road.
- Install metal beam guardrail preceding the tree and utility pole at southbound Monastery curve.
- Install a curve warning with speed advisory sign in advance of the southbound curve at O'Neill Park Entrance.
- Install a curve warning with speed advisory sign within the City in advance of the northbound right angle curve on Trabuco Canyon Road and trim the overhanging tree branches at the existing curve warning sign.
- Install additional chevron signs at the first northbound right angle turn near the Rancho Santa Margarita City limits.
- Install chevron signs along the outside of the northbound hairpin curve south of Trabuco creek, just northerly of the Rancho Santa Margarita City limits.
- Install northbound supplemental sign indicating "Next 4 Miles" below the existing winding road sign near O'Neill Park.
- Provide additional signage (SW4-1 CA) for the steep northbound downhill grade north of Hamilton Trail to provide additional notice of conditions to drivers unfamiliar with the roadway.
- Install standard paddle markers along the outside of the smaller radius northbound curve north of Hamilton Trail.