



CITY OF LAGUNA HILLS TRAFFIC COMMISSION

REGULAR MEETING AGENDA Wednesday, November 15, 2017 – 7:00 PM

Mark Jones - Chair

**Larry Woodruff - Vice Chair
Greg Staar - Commissioner**

**Len Herman - Commissioner
David Wheeler - Commissioner**

Location: City Council Chamber, 24035 El Toro Road, Laguna Hills, CA 92653

Any person wishing to address the Traffic Commission on any matter, whether or not it appears on this Agenda, is asked to complete a "Request to Speak" form available on the table at the back of the Chamber. The completed form is to be submitted to the Recording Secretary prior to an individual being heard by the Traffic Commission. Completion of the form is voluntary. All persons may attend the meeting regardless of whether this form is completed.

Members of the public wishing to address the Traffic Commission can do so during the Public Comments portion of the Agenda with a time limitation of three minutes per person, an overall time limit of ten minutes for any one subject, and a total time limit of thirty minutes for Public Comments. If you are commenting on an Agenda item, your comments will be heard at the time that item is scheduled on the Agenda. If you are addressing the Commission on an item not listed on the Agenda, the Traffic Commission is prohibited by law from discussing or taking any action on that item.

CALL TO ORDER

Resolution No. 96-04-09-1 established rules of decorum for public meetings held by the City of Laguna Hills. Resolution No. 96-04-09-1 is available on the table at the back of the City Council Chamber.

PLEDGE OF ALLEGIANCE

ROLL CALL OF COMMISSION MEMBERS

1. PUBLIC COMMENTS

This is the time to address the Traffic Commission on any matter not listed on this Agenda that is within the subject matter jurisdiction of the Traffic Commission. Public Comments are limited to three minutes per person, an overall time limit of ten minutes for any one subject, and a total time limit of thirty minutes.

2. MINUTES**2.1 Minutes**

Recommendation: That the Traffic Commission Approve the Minutes of September 20, 2017.

3. PRESENTATIONS**4. ADMINISTRATIVE REPORTS****4.1 Review of Raised Pavement Markers on Paseo De Valencia at Cabot Road**

Recommendation: That the Traffic Commission Receive and File the Report.

4.2 Review of Traffic Speed Conditions and Radar Trailer Effectiveness on Mustang Drive at Appaloosa Place

Recommendation: That the Traffic Commission Receive and File the Report and Recommend Continued Speed Enforcement on Mustang Drive, as Resources Permit.

4.3 Review of Speed Survey Procedures

Recommendation: That the Traffic Commission Receive and File the Report.

5. INFORMATIONAL ITEMS**5.1 Sheriff's Department Verbal Report****5.2 Radar Speed Trailer**

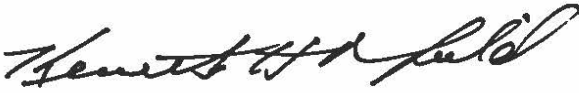
Recommendation: That the Traffic Commission Receive and File the Report.

6. COMMISSIONER COMMENTS**7. ADJOURNMENT**

The next Regular Meeting of the Traffic Commission will be January 17, 2018, at 7:00 PM in the City Council Chamber, located at 24035 El Toro Road, Laguna Hills California.

CERTIFICATION

I, KENNETH H. ROSENFELD, Director of Public Services/City Engineer of the City of Laguna Hills, do hereby certify that a copy of the foregoing Agenda was posted at Laguna Hills City Hall, Laguna Hills Community Center, and the Courtyard at La Paz Center by November 10, 2017 at 5:00 pm.



Director of Public Services/City Engineer

November 10, 2017

Date

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, you should contact the office of the City Engineer at (714) 707-2650. Notification 48 hours prior to the meeting will enable the City to make reasonable arrangements to assure access.

Materials related to an item on this Agenda submitted to the Commission after distribution of the Agenda packet are available for public inspection in the Public Services Department at 24035 El Toro Road, Laguna Hills, California, during normal business hours.



City of Laguna Hills

Traffic Commission

Staff Report

DATE: November 15, 2017
TO: Traffic Commissioners
FROM: Kenneth H. Rosenfield P.E.
Director of Public Services/City Engineer
ISSUE: Minutes

RECOMMENDATION: That the Traffic Commission Approve the Minutes of September 20, 2017.

ATTACHMENTS:

- Minutes

**CITY OF LAGUNA HILLS
TRAFFIC COMMISSION MEETING
REGULAR MEETING MINUTES
SEPTEMBER 20, 2017**

CALL TO ORDER

The Regular Meeting of the Traffic Commission of the City of Laguna Hills, California, was called to order by Chair Jones at 7:00 PM in the Laguna Hills City Council Chamber, 24035 El Toro Road, Laguna Hills, California.

PLEDGE OF ALLEGIANCE

The Pledge of Allegiance was led by Chair Jones.

ROLL CALL OF COMMISSION MEMBERS

Present: Chair Mark Jones, Commissioner Len Herman and Commissioner David Wheeler.

Absent: Vice Chair Larry Woodruff and Commissioner Greg Staar.

1. PUBLIC COMMENTS

There were no Public Comments.

2. MINUTES

THE TRAFFIC COMMISSION APPROVED THE MINUTES OF THE JULY 19, 2017, REGULAR MEETING, BY M/CHAIR JONES, S/COMMISSIONER HERMAN.

APPROVED BY A VOTE OF 3-0, (VICE CHAIR WOODRUFF AND COMMISSIONER STAAR ABSENT).

3. PRESENTATIONS

3.1 UPDATE OF THE ALICIA PARKWAY REGIONAL TRAFFIC SIGNAL SYNCHRONIZATION PROJECT (RTSSP)

Mr. Chalap Sadam, P.E., Albert Grover & Associates, Project Manager for the Alicia Parkway Regional Traffic Signal Synchronization Project (RTSSP), gave the Traffic Commission an update on the Alicia Parkway RTSSP. Mr. Sadam indicated signal equipment and timing modifications were completed on August 21, 2017, for Alicia Parkway at Hon Avenue and Alicia Parkway at Community Center Drive. Mr. Sadam indicated traffic and pedestrian movements at these locations have been monitored since the modifications were completed and all

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operations were functioning as intended. The implementation phase for the overall Alicia Parkway Regional Traffic Signal Synchronization Project is estimated to be completed in the Spring of 2018, and Albert Grover & Associates will continue to monitor and fine tune the timing for a period of two years after implementation is completed.

4. ADMINISTRATIVE REPORTS

4.1 REVIEW OF TRAFFIC SPEED CONDITIONS ON HIDDEN TRAIL ROAD AT PINESTRAP CIRCLE

Associate Civil Engineer Amber Shah, indicated Staff was contacted by a resident regarding concerns of vehicular speeding on Hidden Trail Road near Pinestrap Circle. In accordance with the Residential Streets Management Policy, Staff initiated a review of the speeds on Hidden Trail Road.

The speed surveys, performed by Hartzog and Crabill, Inc. determined the 85th percentile speeds on Hidden Trail Road as 33.4 mph and 30.9 mph, north and south of Pinestrap Circle, respectively. While the regulatory speed limit on a residential street is 25 mph, Staff's experience has found the typical prevailing speed range on residential streets in the City as being between 32 and 34 mph, without adverse traffic collision history. Staff recommended additional enforcement activity including a radar trailer to increase driver education and awareness.

Sergeant Matthew Prince, Orange County Sheriff's Department, indicated over the last 30 days, the Deputies had written 63 stop sign violations, as part of an additional traffic enforcement effort.

Chris Wulf, resident of 27695 Hidden Trail Road, spoke in favor of speed controls, including a control to prevent using Hidden Trail Road as a cut through for traffic.

Joe Anaya, resident of 27692 Hidden Trail Road, spoke in favor of speed controls, including a control to prevent using Hidden Trail Road as a cut through for traffic and his concern regarding backing out of his driveway.

**THE TRAFFIC COMMISSION RECEIVED AND FILED THIS REPORT AND DIRECTED STAFF TO PERFORM ADDITIONAL RESEARCH ON THIS ITEM, BY M/CHAIR JONES, S/COMMISSIONER HERMAN.
APPROVED BY A VOTE OF 3-0, (VICE CHAIR WOODRUFF AND COMMISSIONER STAAR ABSENT).**

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**4.2 REVIEW OF TRAFFIC SPEED CONDITIONS ON NELLIE GAIL ROAD
BETWEEN GLEN CANYON DRIVE AND CABOT ROAD**

Associate Civil Engineer Amber Shah, indicated Staff was contacted by a concerned resident regarding speeding on Nellie Gail Road approaching Cabot Road. In accordance with the Residential Streets Management Policy, Staff initiated a review of the travel speeds and traffic collision history on Nellie Gail Road between Glen Canyon Road and Cabot Road.

The results of the speed survey, performed by Hartzog and Crabill, Inc., concluded the 85th percentile speeds on Nellie Gail Road as 31.1 mph and 28.1 mph, west of and east of Desert Trail, respectively. Although the posted speed limit is 25 mph, Staff experience has found the typical prevailing speed range on residential streets in the City as being between 32 and 34 mph, without adverse traffic collision history. The 85th percentile speeds determined in this speed survey are below typical speeds. Accordingly, Police enforcement of driver behavior is the best and appropriate remedy for this location and issue of concern. While the prevailing speed is unremarkable, Ms. Shah indicated Staff will work with the Sheriff's Department on enforcement activity in this area and post the radar trailer in this area to increase driver education as to the appropriate speed on Nellie Gail Road.

**THE TRAFFIC COMMISSION RECEIVED AND FILED THIS REPORT, BY
M/COMMISSIONER WHEELER, S/COMMISSIONER HERMAN.
APPROVED BY A VOTE OF 3-0, (VICE CHAIR WOODRUFF AND
COMMISSIONER STAAR ABSENT).**

**4.3 REVIEW OF TRAFFIC SPEED CONDITIONS ON RAPID FALLS ROAD
BETWEEN LOST TRAIL DRIVE AND CABOT ROAD**

Associate Civil Engineer Amber Shah, indicated Staff was contacted by a concerned resident regarding speeding on Rapid Falls Road approaching Cabot Road. In accordance with the Residential Streets Management Policy, Staff initiated a review of the travel speeds and traffic collision history on Rapid Falls Road between Lost Trail Drive and Cabot Road.

The results of the speed survey, performed by Hartzog and Crabill, Inc., concluded the 85th percentile speeds on Rapid Falls Road as 34.8 mph and 31.3 mph, west of and east of Sundowner Drive, respectively. Although the posted speed limit is 25 mph, Staff experience has found the typical prevailing speed range on residential streets in the City as being between 32 and 34 mph, without adverse traffic collision history. The 85th percentile speeds determined in this

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speed survey are relatively consistent with our experience although the 85th percentile speed west of Sundowner Drive was slightly exceeding this range. Accordingly, Police enforcement of driver behavior is the best and appropriate remedy for this location and issue of concern. Ms. Shah indicated Staff will work with the Sheriff's Department on enforcement activity in this area and post the radar trailer in this area to increase driver education as to the appropriate speed on Rapid Falls Road.

**THE TRAFFIC COMMISSION RECEIVED AND FILED THIS REPORT, BY M/COMMISSIONER HERMAN, S/COMMISSIONER WHEELER.
APPROVED BY A VOTE OF 3-0, (VICE CHAIR WOODRUFF AND COMMISSIONER STAAR ABSENT).**

4.4 2017 TRAFFIC FLOW MAP

Associate Civil Engineer Amber Shah, indicated the City performs traffic volume counts every two years in order to measure traffic flow and patterns throughout the City. The City's Traffic Engineering Consultants, Hartzog and Crabill, Inc., recently completed a 2017 Traffic Flow Map along with an Average Daily Traffic (ADT) count for the arterials and collector streets in the City.

**THE TRAFFIC COMMISSION RECEIVED AND FILED THIS REPORT, BY M/CHAIR JONES, S/COMMISSIONER HERMAN.
APPROVED BY A VOTE OF 3-0, (VICE CHAIR WOODRUFF AND COMMISSIONER STAAR ABSENT).**

4.5 DYNAMIC SPEED FEEDBACK SIGNS

In accordance with the request of the Traffic Commission, Staff performed a literature review on the effectiveness of dynamic speed feedback signs (DSFS). DSFS are traffic control devices programmed to provide drivers with feedback about their speed in relationship to the posted speed limit. We refer to our DSFS as a "Radar Speed Trailer." Ms. Shah indicated although the results of the studies are mixed, Staff considers the DSFS to be an educational device and a tool utilized in addressing resident concerns of vehicle speeds.

**THE TRAFFIC COMMISSION RECEIVED AND FILED THIS REPORT, BY M/COMMISSIONER WHEELER, S/COMMISSIONER HERMAN.
APPROVED BY A VOTE OF 3-0, (VICE CHAIR WOODRUFF AND COMMISSIONER STAAR ABSENT).**

**CITY OF LAGUNA HILLS
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4.6 CITYWIDE STREET MAINTENANCE PROJECT

Associate Civil Engineer Amber Shah, indicated the City implements a Capital Improvement Project (CIP) to perform maintenance on a portion of the City's street system on a biennial basis. A currently planned project, known as CIP No. 101-J, will perform pavement maintenance, including either a slurry seal or asphalt concrete overlay, on selected streets in accordance with the City's Pavement Management Plan for the preservation of this asset. CIP No. 101-J was approved as part of the Fiscal Year 2017/2018 Capital Improvement Budget. It is anticipated construction work will begin in late October 2017, for a period of three months.

THE TRAFFIC COMMISSION RECEIVED AND FILED THIS REPORT, BY M/COMMISSIONER WHEELER, S/COMMISSIONER HERMAN. APPROVED BY A VOTE OF 3-0, (VICE CHAIR WOODRUFF AND COMMISSIONER STAAR ABSENT).

5. INFORMATIONAL ITEMS

5.1 SHERIFF'S DEPARTMENT VERBAL REPORT

Sergeant Prince explained the Superior Court utilizes the 85th percentile speed as indicated on the validated traffic and engineering survey, to establish a reasonable speed. Although the posted speed limit may be 25 mph, if the 85th percentile is higher than the speed limit citation, the citation and any associated fine or penalty is often dismissed.

5.2 RADAR SPEED TRAILER

Staff submitted the schedule for the radar trailer.

6. COMMISSIONER COMMENTS

Commissioner Herman commented the Sheriff's Deputies he met when he went on a ride along were exceptionally polite when interacting with the public, and Commissioner Herman was very impressed with the Deputies demeanor and training.

Commissioner Wheeler commented the Traffic Commissioner's Workshop at Cal Poly Pomona was a great learning experience.

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7. ADJOURNMENT

There being no further business before the Traffic Commission at this session,
Chair Jones declared the meeting adjourned at 8:21 p.m.

Prepared By:

Amber Shah, P.E.
Associate Civil Engineer

Approved By:

Chair Mark Jones

Attachment: Minutes (1415 : Minutes)



City of Laguna Hills

Traffic Commission

Staff Report

DATE: November 15, 2017
TO: Traffic Commissioners
FROM: Kenneth H. Rosenfield P.E.
Director of Public Services/City Engineer
ISSUE: Review of Raised Pavement Markers on Paseo De Valencia at Cabot Road

RECOMMENDATION: That the Traffic Commission Receive and File the Report.

SUMMARY:

Staff was requested to review the field conditions of the right turn pocket merge lane from easterly bound Paseo de Valencia to southerly bound Cabot Road. A review of three years of traffic collision history did not identify any physical conditions of the roadway as contributing factors to traffic collisions. A field review of the location found all traffic controls to be appropriately placed. No action is recommended.

BACKGROUND:

In accordance with the inquiry from Commissioner Wheeler, Staff performed a traffic accident analysis and field review of the subject location to ascertain if any physical conditions of the roadway might be contributing factors to traffic collision history. Specifically, Commissioner Wheeler asked if the raised pavement markers (rpms), Type A white ceramic markers, used as rumble strips in the right turn pocket merge lane from easterly bound Paseo de Valencia to southerly bound Cabot Road could be contributing to traffic collision history. The rpms for this location have been in place for more than 17 years without any known public complaints and were recently reinstalled as a part of the pavement rehabilitation work performed in this area this past spring. The combination of rumble strips, pavement markings and signage alert motorists to the

Review of Raised Pavement Markers on Paseo De Valencia at Cabot Road

November 15, 2017

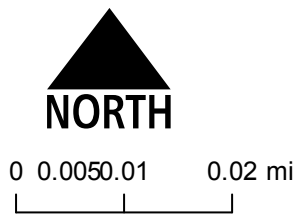
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impending right turn lane, the curve and speed limit to allow safe passage and merging from Paseo de Valencia to Cabot Road as shown in the attached site photos.

A three-year traffic collision history review, attached, revealed four traffic collisions in the general vicinity of Paseo de Valencia at Cabot Road (including both on Cabot Road and on Paseo de Valencia). This traffic collision history is a low number for a signalized intersection. The one traffic collision associated to Paseo de Valencia was located 193 feet west of Cabot Road where a vehicle struck a fixed object. Two of the remaining three traffic collisions were on Cabot Road at the intersection with Paseo de Valencia (the third collision was distant from this location) and included a rear end collision and a hit fixed object collision. None of the traffic collisions identify the roadway conditions as a primary collision factor. The traffic collision history does not suggest any roadway conditions are contributing to the traffic collision history.

ATTACHMENTS:

- Vicinity Map
- Site Photos
- SWITRS Traffic Collision History Report



VICINITY MAP - PASEO DE VALENCIA & CABOT ROAD







**CITY OF LAGUNA HILLS
SWITRS COLLISION DATABASE 2013-2016
PASEO DE VALENCIA AT CABOT ROAD**

CASE ID	COLL. DATE	COLL. TIME	PRIMARY ROAD	SECONDARY ROAD	DIST.	DIR.	WEATHER	COLL. SEVERITY	NUMBER KILLED	NUMBER INJURED	PRIM. COLL. FACT.	PCF VIOL CAT.	PCF VIOL.	TYPE OF COLL.	MOTOR VEHICLE INVOLVE WITH
5997385	20130215	950	CABOT RD	PASEO DE VALENCIA	444	N	A	4	0	1	A	21	22106	G	B
6620318	20140726	930	PASEO DE VALENCIA	CABOT RD	193	W	A	4	0	1	A	8	22107	E	I
6903129	20150404	1830	CABOT RD	PASEO DE VALENCIA	0		A	0	0	0	A	2	22400	C	C
7146148	20151207	318	CABOT RD	PASEO DE VALENCIA	21	N	A	4	0	1	A	3	22350	E	I

NOTES:

Weather 1	Collision Severity	Primary Collision Factor
A - Clear	1 - Fatal	A - (Vehicle) Code Violation
B - Cloudy	2 - Injury (Severe)	B - Other Improper Driving
C - Raining	3 - Injury (Other Visible)	C - Other Than Driver
D - Snowing	4 - Injury (Complaint of Pain)	D - Unknown
E - Fog	0 - PDO (Property Damage Only)	E - Fell Asleep
F - Other		- - Not Stated
G - Wind		
- - Not Stated		

Motor Vehicle Involved With:

A - Non-Collision
 B - Pedestrian
 C - Other Motor Vehicle
 D - Motor Vehicle on Other Roadway
 E - Parked Motor Vehicle
 F - Train
 G - Bicycle
 H - Animal
 I - Fixed Object
 J - Other Object
 - - Not Stated

Hit and Run

F - Felony
 M - Misdemeanor
 N - Not Hit & Run

Type of Collision

A - Head-On
 B - Sideswipe
 C - Rear-End
 D - Broadside
 E - Hit Object
 F - Overturned
 G - Vehicle/Pedestrian
 H - Other
 - - Not Stated

Road Surface

A - Dry
 B - Wet
 C - Snowy or Icy
 D - Slippery
 - - Not Stated



City of Laguna Hills

Traffic Commission

Staff Report

DATE: November 15, 2017

TO: Traffic Commissioners

FROM: Julie Comella
Administrative Assistant

ISSUE: Review of Traffic Speed Conditions and Radar Trailer Effectiveness on Mustang Drive at Appaloosa Place

RECOMMENDATION: That the Traffic Commission Receive and File the Report and Recommend Continued Speed Enforcement on Mustang Drive, as Resources Permit.

SUMMARY:

Based upon a request by the Traffic Commission to review the effectiveness of the City's speed radar trailer, Staff pulled trailer data and compared it to spot radar speed surveys on Mustang Drive, a street under current Traffic Commission review. Following a spot radar speed survey and staff report presented at the July 19, 2017, Commission meeting regarding concerns of speeding on Mustang Drive near Appaloosa Place, Staff posted the speed radar trailer on Mustang Drive once each in the months of August, September and October 2017. Staff initiated a second spot radar speed survey of the travel speeds on Mustang Drive following the last posting of the speed radar trailer to determine any changes between the two spot radar speed surveys. Although the 85th percentile speed and 10 mph pace slightly increased between the two spot radar speed surveys, the percentage of vehicles exceeding the 10 mph pace decreased from 19.8% in the June 2017 spot radar speed survey to 10.3% in the morning and 9.2% in the afternoon during the October 2017 spot radar speed survey. The decrease in the percentage of drivers exceeding the upper limit of the 10 mph pace between the two speed surveys may (or may not) be attributable to the use of the speed radar trailer which increases driver awareness and education as to the appropriate speed, in this case, on Mustang Drive. The 85th percentile speeds on Mustang Drive suggest that speed enforcement should continue.

Review of Traffic Speed Conditions and Radar Trailer Effectiveness on Mustang Dr. at Appaloosa Place
November 15, 2017
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BACKGROUND:

Staff was previously contacted by a resident regarding concerns of speeding on Mustang Drive at Appaloosa Place. Based upon the resident's concern and in accordance with the Residential Streets Management Policy, Staff initiated a review of the travel speeds on Mustang Drive on either side of Appaloosa Place and presented the findings at the July 19, 2017, Traffic Commission meeting. Staff recommended increased speed enforcement and posting the speed radar trailer in this area to increase driver education as to the appropriate speed on Mustang Drive. The July 19, 2017, staff report is attached for reference.

As a follow-up to the July 2017 staff report and in accordance with a request from the Traffic Commission to investigate the effectiveness of the speed radar trailer, Staff utilized Mustang Drive as a "test bed" to explore this issue. Staff posted the speed radar trailer on Mustang Drive once each in the months of August, September and October 2017 followed by a second spot radar speed survey. The results of the speed radar trailer data collection are as follows:

Date	Time of Day	Location	85 th Percentile	10 mph Pace	% Exceeding 34 mph
8/8/17	6:45 – 16:15	West of Appaloosa	33 mph	24 to 33 mph	7.7%
9/7/17	6:45 – 15:00	East of Appaloosa	32 mph	22 to 31 mph	7.8%
10/24/17	6:45 – 15:00	West of Appaloosa	33 mph	24 to 33 mph	7.7%

The second speed survey performed by Hartzog & Crabill, Inc., in October 2017, attached, determined the 85th percentile speed on Mustang Drive west of Appaloosa Place as 34.5 mph during the morning period and 33.9 mph during the afternoon period, which is consistent with the first speed survey's 85th percentile speed of 34.2 mph. While the regulatory speed limit on a residential street is 25 mph, Staff experience has found the typical prevailing speed range on residential streets in the City as being between 32 and 34 mph, without adverse traffic collision history. The 85th percentile speeds determined in this speed survey are consistent with our experience. The spot

Review of Traffic Speed Conditions and Radar Trailer Effectiveness on Mustang Dr. at Appaloosa Place
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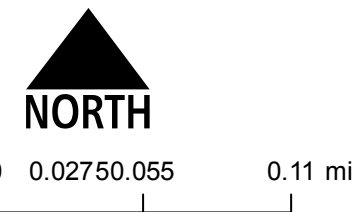
radar speed survey data also determined the percentage of vehicles exceeding the upper limit of the 10 mph pace, which was 19.8% in the first survey in June 2017 and 10.3% in the morning and 9.2% in the afternoon in the second survey in October 2017. It is an expectation that approximately 15% of the motorist will be above the 10-mph pace.

Based upon the data collected by the speed radar trailer, both the 85th percentile speeds and 10 mph pace on Mustang Drive are consistent with the data collected in both spot radar speed surveys performed by Hartzog & Crabill, Inc. However, the decrease in the percentage of drivers exceeding the upper limit of the 10 mph pace between the two spot radar speed surveys, with the intervening placement of the speed radar trailer, suggests a benefit ensued in raising driver awareness and education as to the appropriate speed on Mustang Drive. Staff considers the speed radar trailer to be an educational device and one tool in addressing resident concerns of vehicle speeds.

The second spot radar speed survey documents the 85th percentile speed on Mustang Drive remains at the upper limit of expectation for a residential street and continued speed enforcement on this street is recommended, as resources permit.

ATTACHMENTS:

- Vicinity Map
- Radar Trailer Data
- Hartzog and Crabill, Inc. November 8, 2017 Letter of Opinion
- July 19 2017 Traffic Commission Agenda Item 4.2



The seal of the City of Laguna Hills, California, is a circular emblem. It features a central illustration of a cowboy on a horse, riding across a field towards a large, bright sun. A bird is shown in flight above the sun. The background consists of rolling hills. The words "CITY OF LAGUNA HILLS" are inscribed in a circular border around the top, and the year "1991" is at the bottom. The seal is surrounded by a decorative rope-like border.

SMART SURVEY INFO

<MUSTANG 24981>

<DRY>

POSTED SPEED LIMIT: <25>

SURVEY STARTED: <2017/08/08 06:49>

FILENAME: 17080806 MUSTANG 24981.DAT

MIN SPEED ALLOWED <20> MAX SPEED ALLOWED <100>

TOTAL VEHICLES = 480

MINIMUM SPEED = 20

MAXIMUM SPEED = 41

AVERAGE SPEED = 28.08

50th PERCENTILE = 28

85th PERCENTILE = 33

TEN MILE PACE = 24 to 33

END OF REPORT

SMART SURVEY SUMMARY

<MUSTANG 24981>

<DRY>

POSTED SPEED LIMIT: <25>

SURVEY STARTED: <2017/08/08 06:49>

FILENAME: 17080806 MUSTANG 24981.DAT

MIN SPEED ALLOWED <20> MAX SPEED ALLOWED <100>

TIME	06:45	07:00	07:15	07:30	07:45	08:00	08:15	08:30	08:45	09:00	09:15	09:30	09:45	10:00	10:15	10:30	10:45	11:00
VEH.	4	10	11	7	14	11	10	18	19	15	10	7	15	9	5	9	15	9
AVG.	24.5	26.8	27.2	28.6	27.6	28.3	28.2	26.4	27.6	26.8	27.9	27.6	28.6	27.3	29.4	26.9	28.4	28.4

TIME	11:15	11:30	11:45	12:00	12:15	12:30	12:45	13:00	13:15	13:30	13:45	14:00	14:15	14:30	14:45	15:00	15:15	15:30
VEH.	12	16	19	12	15	11	11	11	12	20	13	18	11	9	18	13	15	11
AVG.	27.3	28.0	27.9	30.5	28.3	30.3	27.4	27.4	28.3	30.3	30.0	27.2	29.0	29.9	27.8	27.2	27.7	28.9

TIME	15:45	16:00	16:15
VEH.	8	10	17
AVG.	27.9	29.7	27.1

TOTAL VEHICLES = 480

MINIMUM SPEED = 20

MAXIMUM SPEED = 41

AVERAGE SPEED = 28.08

50th PERCENTILE = 28

85th PERCENTILE = 33

TEN MILE PACE = 24 to 33

END OF REPORT

SMART SURVEY DETAILS

Page 1 of 1

<MUSTANG 24981>

<DRY>

POSTED SPEED LIMIT: <25>

SURVEY STARTED: <2017/08/08 06:49>

FILENAME: 17080806 MUSTANG 24981.DAT

MIN SPEED ALLOWED <20> MAX SPEED ALLOWED <100>

	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
06:45	1	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	1	1	1	1	1	0	0	0	0	0	2	1	1	0	0	1	0	0	0	0	0	0
07:15	0	0	0	0	2	1	2	1	2	0	2	1	0	0	0	0	0	0	0	0	0	0
07:30	0	0	0	1	1	0	1	0	1	0	0	1	0	1	0	1	0	0	0	0	0	0
07:45	1	1	0	0	2	1	1	1	2	0	1	1	0	2	0	0	1	0	0	0	0	0
08:00	0	0	1	1	0	1	0	3	0	1	1	0	1	0	1	1	0	0	0	0	0	0
08:15	0	0	1	0	0	0	2	3	0	0	0	2	1	1	0	0	0	0	0	0	0	0
08:30	1	2	1	3	2	1	0	1	0	1	1	2	0	1	1	1	0	0	0	0	0	0
08:45	1	1	1	2	1	0	1	3	3	1	0	0	1	0	3	0	0	0	1	0	0	0
09:00	1	1	0	1	2	1	1	1	2	0	2	2	0	0	1	0	0	0	0	0	0	0
09:15	0	1	0	1	0	0	2	1	2	0	0	0	1	1	0	1	0	0	0	0	0	0
09:30	0	0	1	1	0	1	0	2	0	0	0	1	0	0	0	0	0	0	1	0	0	0
09:45	0	0	1	0	2	1	1	0	3	1	2	1	0	1	0	1	1	0	0	0	0	0
10:00	1	0	0	0	1	1	0	2	2	0	0	0	1	0	0	1	0	0	0	0	0	0
10:15	0	0	0	0	0	1	0	2	0	0	1	0	0	0	0	0	0	0	1	0	0	0
10:30	1	1	0	0	1	1	0	0	1	0	2	0	2	0	0	0	0	0	0	0	0	0
10:45	2	2	0	0	0	0	2	1	0	0	1	1	1	2	2	0	0	0	1	0	0	0
11:00	0	1	0	1	0	0	1	0	1	1	1	1	1	0	0	0	1	0	0	0	0	0
11:15	0	0	3	1	1	0	1	1	2	0	0	0	0	0	2	0	0	1	0	0	0	0
11:30	1	0	0	0	0	2	2	2	1	2	3	1	1	1	0	0	0	0	0	0	0	0
11:45	0	0	0	2	0	3	0	4	5	1	0	1	1	0	1	1	0	0	0	0	0	0
12:00	0	0	0	0	1	1	1	0	2	0	1	1	0	2	1	0	0	2	0	0	0	0
12:15	0	0	1	1	1	1	1	2	1	3	0	1	1	0	0	1	0	0	1	0	0	0
12:30	0	1	1	0	0	0	0	0	2	0	1	1	1	1	0	2	0	0	1	0	0	0
12:45	0	0	1	0	3	0	3	0	1	0	0	0	1	1	0	0	1	0	0	0	0	0
13:00	1	1	1	0	1	0	1	0	1	0	0	2	1	2	0	0	0	0	0	0	0	0
13:15	0	0	1	1	2	0	0	2	0	0	2	1	1	1	0	0	1	0	0	0	0	0
13:30	0	0	0	0	2	1	2	0	2	3	0	2	1	2	2	0	2	0	1	0	0	0
13:45	0	0	1	0	1	1	0	1	0	2	1	2	2	0	0	0	0	0	1	0	1	0
14:00	1	1	0	2	1	2	2	1	2	0	1	0	2	3	0	0	0	0	0	0	0	0
14:15	1	1	0	0	0	0	1	0	2	0	0	2	1	2	0	0	1	0	0	0	0	0
14:30	0	0	0	1	0	0	1	1	1	0	0	2	1	1	0	0	0	0	1	0	0	0
14:45	1	2	0	0	1	1	1	1	1	4	1	2	1	1	0	1	0	0	0	0	0	0
15:00	1	0	0	1	2	1	0	1	1	2	1	2	1	0	0	0	0	0	0	0	0	0
15:15	0	2	0	0	3	0	2	1	0	2	1	0	2	0	1	0	0	1	0	0	0	0
15:30	0	0	0	0	1	1	1	1	3	1	0	0	0	1	1	0	1	0	0	0	0	0
15:45	0	1	0	0	1	1	0	0	1	1	0	2	0	0	1	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	1	1	2	1	4	0	0	0	0	0	0	0	0	1	0	0
16:15	3	1	0	1	1	0	1	1	3	1	2	0	1	0	1	0	0	0	0	0	0	1

VEH.	19	21	16	22	38	25	36	41	53	28	34	36	29	27	18	12	9	4	9	1	1	1
%ILE	3	8	11	16	24	29	36	45	56	62	69	76	82	88	92	94	96	97	99	99	99	100

Attachment: Radar Trailer Data (1419 : Review of Traffic Speed Conditions and Radar Trailer Effectiveness on Mustang Dr. at Appaloosa Place)

SMART SURVEY INFO

<MUSTANG ACROSS FROM 25242>

<DRY>

POSTED SPEED LIMIT: <25>

SURVEY STARTED: <2017/09/07 06:56>

FILENAME: 17090706 MUSTANG ACROSS
FROM 25242.DAT

MIN SPEED ALLOWED <20> MAX SPEED ALLOWED <100>

TOTAL VEHICLES = 361

MINIMUM SPEED = 20

MAXIMUM SPEED = 40

AVERAGE SPEED = 27.41

50th PERCENTILE = 27

85th PERCENTILE = 32

TEN MILE PACE = 22 to 31

END OF REPORT

SMART SURVEY SUMMARY

<MUSTANG ACROSS FROM 25242>

<DRY>

POSTED SPEED LIMIT: <25>

SURVEY STARTED: <2017/09/07 06:56>

FILENAME: 17090706 MUSTANG ACROSS FROM
25242.DAT

MIN SPEED ALLOWED <20> MAX SPEED ALLOWED <100>

TIME	06:45	07:00	07:15	07:30	07:45	08:00	08:15	08:30	08:45	09:00	09:15	09:30	09:45	10:00	10:15	10:30	10:45	11:00
VEH.	2	14	6	19	12	17	12	13	12	9	7	10	8	7	12	10	16	19
AVG.	22.5	24.9	28.7	26.7	29.3	27.9	29.1	26.5	26.4	31.6	26.9	30.5	26.6	25.7	26.1	27.1	26.6	26.6

TIME	11:15	11:30	11:45	12:00	12:15	12:30	12:45	13:00	13:15	13:30	13:45	14:00	14:15	14:30	14:45	15:00
VEH.	7	10	11	12	5	11	3	11	7	11	12	13	9	17	17	0
AVG.	26.7	27.4	27.8	26.5	26.4	28.0	28.3	24.1	30.3	27.9	28.9	28.2	28.3	27.8	27.3	0.0

TOTAL VEHICLES = 361

MINIMUM SPEED = 20

MAXIMUM SPEED = 40

AVERAGE SPEED = 27.41

50th PERCENTILE = 27

85th PERCENTILE = 32

TEN MILE PACE = 22 to 31

END OF REPORT

SMART SURVEY DETAILS

Page 1 of 1

<MUSTANG ACROSS FROM 25242>

<DRY>

POSTED SPEED LIMIT: <25>

SURVEY STARTED: <2017/09/07 06:56>

FILENAME: 17090706 MUSTANG ACROSS FROM

MIN SPEED ALLOWED <20> MAX SPEED ALLOWED <100>

	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
06:45	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	1	2	2	1	3	1	0	0	1	1	1	0	0	0	0	0	1	0	0	0	0
07:15	0	0	0	0	0	0	0	2	1	1	1	1	0	0	0	0	0	0	0	0	0
07:30	1	1	4	0	0	2	3	2	0	0	2	0	1	1	0	1	1	0	0	0	0
07:45	0	1	0	0	0	0	2	2	0	0	2	2	0	1	0	2	0	0	0	0	0
08:00	2	0	1	0	1	1	2	1	1	1	2	1	2	0	0	1	0	1	0	0	0
08:15	1	0	1	0	0	1	1	1	1	0	2	2	0	0	0	0	0	0	0	1	1
08:30	0	0	2	1	1	1	2	2	0	0	2	2	0	0	0	0	0	0	0	0	0
08:45	0	1	1	1	1	2	0	1	0	2	2	0	1	0	0	0	0	0	0	0	0
09:00	0	0	0	0	0	0	0	0	1	2	2	0	0	1	1	1	1	0	0	0	0
09:15	0	1	0	1	0	1	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0
09:30	0	0	1	0	0	1	0	1	1	0	1	1	1	0	0	0	2	0	1	0	0
09:45	0	0	0	2	0	2	0	1	1	1	0	0	0	1	0	0	0	0	0	0	0
10:00	1	0	1	0	0	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0
10:15	1	1	2	0	0	3	0	0	0	2	1	0	1	1	0	0	0	0	0	0	0
10:30	1	1	1	0	0	1	0	1	1	0	0	2	1	0	1	0	0	0	0	0	0
10:45	1	1	1	2	0	1	3	0	0	2	2	2	0	0	1	0	0	0	0	0	0
11:00	1	2	0	2	3	2	1	0	0	3	0	2	1	1	0	0	1	0	0	0	0
11:15	1	0	0	2	0	0	1	0	0	0	1	1	0	0	1	0	0	0	0	0	0
11:30	1	2	1	0	1	0	0	0	1	0	0	0	0	1	1	1	1	0	0	0	0
11:45	0	0	0	0	3	2	1	0	0	0	2	0	1	2	0	0	0	0	0	0	0
12:00	0	1	1	0	0	0	4	2	1	1	2	0	0	0	0	0	0	0	0	0	0
12:15	0	1	0	0	0	0	2	1	0	0	0	0	1	0	0	0	0	0	0	0	0
12:30	1	0	0	0	1	0	0	3	1	2	0	1	1	0	1	0	0	0	0	0	0
12:45	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0
13:00	0	2	3	2	1	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
13:15	0	0	1	0	0	0	0	0	1	1	0	1	0	2	0	0	1	0	0	0	0
13:30	1	1	0	0	0	0	3	1	0	2	0	1	1	0	0	0	0	0	0	0	1
13:45	0	2	0	0	0	0	0	3	0	2	2	1	0	0	0	0	0	1	1	0	0
14:00	2	0	0	0	1	1	1	0	2	0	1	0	2	1	1	1	0	0	0	0	0
14:15	1	0	0	1	0	0	1	1	0	0	1	2	1	0	0	1	0	0	0	0	0
14:30	1	0	1	0	2	2	1	2	0	3	1	1	0	1	0	1	1	0	0	0	0
14:45	1	3	1	0	1	0	1	1	3	1	2	0	0	0	1	0	1	0	0	1	0
VEH.	21	23	25	15	19	27	30	28	18	30	36	24	16	13	8	10	10	2	2	2	2
%ILE	5	12	19	23	28	36	44	52	57	65	75	81	86	90	92	95	97	98	98	99	100

SMART SURVEY INFO

<MUSTANG W-O APPALOOSA>

<GOOD>

POSTED SPEED LIMIT: <25>

SURVEY STARTED: <2017/10/24 06:56>

FILENAME: 17102406 MUSTANG W-O
APPALOOSA.DAT

MIN SPEED ALLOWED <20> MAX SPEED ALLOWED <100>

TOTAL VEHICLES = 375

MINIMUM SPEED = 20

MAXIMUM SPEED = 48

AVERAGE SPEED = 28.29

50th PERCENTILE = 28

85th PERCENTILE = 33

TEN MILE PACE = 24 to 33

END OF REPORT

SMART SURVEY SUMMARY

<MUSTANG W-O APPALOOSA>

<GOOD>

POSTED SPEED LIMIT: <25>

SURVEY STARTED: <2017/10/24 06:56>

FILENAME: 17102406 MUSTANG W-O
APPALOOSA.DAT

MIN SPEED ALLOWED <20> MAX SPEED ALLOWED <100>

TIME	06:45	07:00	07:15	07:30	07:45	08:00	08:15	08:30	08:45	09:00	09:15	09:30	09:45	10:00	10:15	10:30	10:45	11:00
VEH.	7	2	8	15	12	22	15	10	10	7	9	12	16	6	13	16	8	11
AVG.	25.7	29.0	28.3	26.1	28.4	28.0	28.1	27.4	24.6	27.3	27.7	27.5	26.6	28.2	28.8	25.4	28.8	30.0

TIME	11:15	11:30	11:45	12:00	12:15	12:30	12:45	13:00	13:15	13:30	13:45	14:00	14:15	14:30	14:45	15:00
VEH.	8	12	11	11	10	11	3	14	7	11	12	11	10	22	19	4
AVG.	29.1	30.1	27.6	28.4	29.6	29.1	25.3	27.4	30.6	28.8	31.4	29.0	30.0	29.5	29.0	33.8

TOTAL VEHICLES = 375

MINIMUM SPEED = 20

MAXIMUM SPEED = 48

AVERAGE SPEED = 28.29

50th PERCENTILE = 28

85th PERCENTILE = 33

TEN MILE PACE = 24 to 33

END OF REPORT

SMART SURVEY DETAILS

Page 1 of 2

<MUSTANG W-O APPALOOSA>

<GOOD>

POSTED SPEED LIMIT: <25>

SURVEY STARTED: <2017/10/24 06:56>

FILENAME: 17102406 MUSTANG W-O

MIN SPEED ALLOWED <20> MAX SPEED ALLOWED <100>

	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
06:45	1	0	0	0	1	1	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	1	2	0	1	0	0	2	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0
07:30	0	0	1	3	1	2	2	3	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	1	3	0	1	2	1	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0
08:00	0	1	2	3	2	0	1	0	0	3	2	2	2	1	2	1	0	0	0	0	0	0	0	0	0
08:15	0	1	0	2	1	1	1	1	0	2	1	2	1	1	0	0	0	0	1	0	0	0	0	0	0
08:30	0	0	1	0	1	1	2	2	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0
08:45	1	2	0	0	2	2	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00	1	0	1	0	0	0	0	1	0	1	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0
09:15	0	0	2	0	0	0	0	1	2	2	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
09:30	1	1	1	0	2	0	0	0	1	0	1	2	1	1	1	0	0	0	0	0	0	0	0	0	0
09:45	0	2	0	2	0	1	1	4	2	1	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0
10:00	1	0	0	0	0	0	0	1	1	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0
10:15	1	1	0	0	0	1	0	1	3	1	1	0	1	1	0	1	0	0	0	1	0	0	0	0	0
10:30	3	0	1	1	1	1	1	2	4	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	1	1	0	0	0	1	0	1	0	2	0	1	1	0	0	0	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0	2	2	2	0	1	1	3	0	0	0	0	0	0	0	0	0	0	0
11:15	0	1	0	0	1	1	0	0	0	1	0	1	0	1	1	0	1	0	0	0	0	0	0	0	0
11:30	1	1	0	0	0	0	0	1	2	1	0	0	0	1	2	1	2	0	0	0	0	0	0	0	0
11:45	1	1	1	1	0	0	0	1	2	1	0	0	0	2	0	0	0	0	0	0	1	0	0	0	0
12:00	0	0	0	0	0	1	3	2	1	1	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0
12:15	1	0	1	0	0	0	1	1	0	1	0	2	0	0	0	0	1	2	0	0	0	0	0	0	0
12:30	0	1	0	0	1	0	1	1	1	0	2	0	1	1	1	1	0	0	0	0	0	0	0	0	0
12:45	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00	0	1	1	0	2	3	0	0	2	1	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0
13:15	0	0	0	0	0	1	0	0	1	1	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0
13:30	1	0	1	0	0	0	0	2	1	0	1	2	0	2	0	1	0	0	0	0	0	0	0	0	0
13:45	0	0	0	1	1	0	0	0	0	1	1	1	3	0	2	0	0	1	0	1	0	0	0	0	0
14:00	0	0	0	1	0	0	1	1	2	1	1	1	2	1	0	0	0	0	0	0	0	0	0	0	0
14:15	0	0	0	0	1	0	1	0	1	1	0	5	0	0	0	0	0	0	1	0	0	0	0	0	0
14:30	2	1	0	3	0	0	0	0	1	2	2	2	2	2	1	1	1	1	1	0	0	0	0	0	0
14:45	1	0	1	1	0	2	2	2	1	1	1	2	1	2	0	1	0	0	0	0	0	0	0	0	0
15:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	1	0	0	0	0	0	0	0	0	0
VEH.	16	14	15	20	21	22	19	33	37	32	21	32	22	25	17	10	6	5	3	2	1	1	0	0	0
%ILE	4	8	12	17	22	28	33	42	52	61	66	75	81	87	92	94	96	97	98	99	99	99	99	99	99

Attachment: Radar Trailer Data (1419 : Review of Traffic Speed Conditions and Radar Trailer Effectiveness on Mustang Dr. at Appaloosa Place)

SMART SURVEY DETAILS

Page 2 of 2

<MUSTANG W-O APPALOOSA>

<GOOD>

POSTED SPEED LIMIT: <25>

SURVEY STARTED: <2017/10/24 06:56>

FILENAME: 17102406 MUSTANG W-O

MIN SPEED ALLOWED <20> MAX SPEED ALLOWED <100>

	45	46	47	48
06:45	0	0	0	0
07:00	0	0	0	0
07:15	0	0	0	0
07:30	0	0	0	0
07:45	0	0	0	0
08:00	0	0	0	0
08:15	0	0	0	0
08:30	0	0	0	0
08:45	0	0	0	0
09:00	0	0	0	0
09:15	0	0	0	0
09:30	0	0	0	0
09:45	0	0	0	0
10:00	0	0	0	0
10:15	0	0	0	0
10:30	0	0	0	0
10:45	0	0	0	0
11:00	0	0	0	0
11:15	0	0	0	0
11:30	0	0	0	0
11:45	0	0	0	0
12:00	0	0	0	0
12:15	0	0	0	0
12:30	0	0	0	0
12:45	0	0	0	0
13:00	0	0	0	0
13:15	0	0	0	0
13:30	0	0	0	0
13:45	0	0	0	0
14:00	0	0	0	0
14:15	0	0	0	0
14:30	0	0	0	0
14:45	0	0	0	1
15:00	0	0	0	0
VEH.	0	0	0	1
%ILE	99	99	99	100

Attachment: Radar Trailer Data (1419 : Review of Traffic Speed Conditions and Radar Trailer Effectiveness on Mustang Dr. at Appaloosa Place)



Trammell Hartzog, President
Gerald J. Stock, P.E., T.E.,
Executive Vice President

17852 E. 17th Street
Suite 101
Tustin, CA 92780

Phone: (714) 731-9455
FAX: (714) 731-9498

www.hartzog-crabill.com

November 8, 2017

Mr. Ken Rosenfield, P.E.
Director of Public Services/City Engineer
City of Laguna Hills
24035 El Toro Road
Laguna Hills, California 92653

**Subject: Letter of Opinion – Speeding Concerns on Mustang Drive
West of Appaloosa Place**

Dear Mr. Rosenfield:

Pursuant to your request, Hartzog & Crabill, Inc. (HCI) has prepared this letter of opinion accompanied by specific recommendations as a follow-up to our July 2017 letter regarding resident concerns of vehicular speeding on Mustang Drive at/near Appaloosa Place.

Background

Mustang Drive is a local street with a *prima facie* speed limit of 25 mph. There is one 25 mph speed limit sign posted facing eastbound traffic on Mustang Road near the intersection with Buckskin Drive, along with one '25' pavement marking. This segment of Mustang Drive has areas of limited sight distance as a result of the curvilinear character of the roadway. Adjacent land uses are residential with a high density of fronting driveways. Sidewalks are provided along the north side of the street.

Radar Speed Surveys

To determine travel speeds on Mustang Drive, specifically on the west-side of Appaloosa Place as requested by the City, a certified radar technician using a calibrated radar gun conducted two radar speed surveys – morning and afternoon.

Both surveys were performed on Wednesday, October 25, 2017, between 9:30am - 11:00am and 1:00pm - 2:30pm. It is important to note, the spot speed radar surveys were collected at the same location during the different days and time periods.

Tables 1 and 2 on the next page summarize the results of the spot speed surveys gathered back in June in comparison to the October survey results:

Mr. Ken Rosenfield, P.E.
November 8, 2017
Page 2

Radar Speed Surveys (continued)

TABLE 1

Radar Speed Survey Summary	Mustang Drive (W/o Appaloosa Pl) June 14, 2017 AM	Mustang Drive (W/o Appaloosa Pl) October 25, 2017 AM	Difference
85th Percentile Speed	34.2 mph	34.5 mph	0.3 mph higher
Median Speed	28.1 mph	29.5 mph	1.4 mph higher
15th Percentile Speed	24.7 mph	25.2 mph	0.5 mph higher
10 MPH Pace	24 to 33 mph	26 to 35 mph	2 mph higher
Percent in 10 MPH Pace	76.9%	76.1%	negligible

Source: Hartzog & Crabill, Inc., 2017.

TABLE 2

Radar Speed Survey Summary	Mustang Drive (W/o Appaloosa Pl) June 14, 2017 PM	Mustang Drive (W/o Appaloosa Pl) October 25, 2017 PM	Difference
85th Percentile Speed	31.2 mph	33.9 mph	2.7 mph higher
Median Speed	27.4 mph	29.5 mph	2.1 mph higher
15th Percentile Speed	24.4 mph	25.7 mph	1.3 mph higher
10 MPH Pace	23 to 32 mph	26 to 35 mph	3 mph higher
Percent in 10 MPH Pace	86.0%	79.8%	6.2% less in pace

Source: Hartzog & Crabill, Inc., 2017.

As shown above, the latest 85th percentile speeds (critical speeds) on Mustang Drive are 34.5 mph during the morning period and 33.9 mph during the afternoon period. The above data shows the difference in travel speeds that have increased between the two recent surveys conducted in June and October 2017. The data does confirm that vehicular speeding is occurring above the *prima facie* 25 mph residential street speed limit along this segment of Mustang Drive.

Recommendations

As previously recommended, an incremental approach should be taken to slow travel speeds along this segment of Mustang Road. Initial steps include increased law enforcement, use of a portable radar speed feedback trailer, and posting of additional 25 mph speed limit signs and pavement markings. Should these initial recommendations be implemented, a follow-up survey should be conducted to quantify the benefits of these speed reduction measures.

Mr. Ken Rosenfield, P.E.
November 8, 2017
Page 3

It has been our pleasure to prepare this letter of opinion for your review. If you have any questions or need additional information, please call us at (714) 731-9455.

Very Truly Yours,
HARTZOG & CRABILL, INC.



Gerald Stock, P.E.
Executive Vice President
City & Traffic Engineering Services

Attach: (2) Speed Survey Field Sheets

RADAR SPEED DISTRIBUTION SHEET

HCI

CITY OF LAGUNA HILLS

MUSTANG DRIVE
DATE: 10/25/2017
TIME: 9:30 AM - 11:00 AM
WEST OF APPALOOSA
SURVEY BY: C. BUENDIA
CHECKED BY: JERRY STOCK

SPEED	CUMMULATIVE PERCENT					
	20	40	60	80	100	
60					X	100.0%
59					X	100.0%
58					X	100.0%
57					X	100.0%
56					X	100.0%
55					X	100.0%
54					X	100.0%
53					X	100.0%
52					X	100.0%
51					X	100.0%
50					X	100.0%
49					X	100.0%
48					X	100.0%
47					X	100.0%
46					X	100.0%
45					X	100.0%
44					X	100.0%
43					X	99.1%
42					X	99.1%
41					X	99.1%
40					X	98.3%
39					X	96.6%
38					X	94.9%
37					X	94.0%
36					X	93.2%
35					X	89.7%
34					X	79.5%
33					X	75.2%
32					X	69.2%
31					X	63.2%
30					X	57.3%
29					X	43.6%
28					X	36.8%
27					X	24.8%
26					X	21.4%
25					X	13.7%
24					X	6.0%
23					X	2.6%
22					X	0.9%
21					X	0.9%
20					X	0.9%
19					X	0.0%
18					X	0.0%
17					X	0.0%
16					X	0.0%
15					X	0.0%

UPPER LIMIT 10 MPH PACE: 35 MPH
 LOWER LIMIT 10 MPH PACE: 26 MPH
 PERCENT OVER PACE: 10.3 %
 PERCENT IN PACE: 76.1 %
 PERCENT UNDER PACE: 13.7 %

85th PERCENTILE SPEED: 34.5 MPH
 MEDIAN SPEED: 29.5 MPH
 15th PERCENTILE SPEED: 25.2 MPH

Mustang Oct 2017-am

HARTZOG AND CRABILL, INC.
Consulting Traffic Engineers
 17522 Irvine Blvd., Suite 100, Irvine, CA 92610
 (714) 731-1450

Radar Speed Survey Field Sheet

AGENCY: CITY OF LAGUNA HILLS
 STREET: MUSTANG DRIVE
 LOCATION: WEST OF Appaloosa

WEATHER: SUNNY DATE: 10/25/17
 ROAD CONDITION: DRY START TIME: 9:30 AM
 OBSERVER: CATHY BUENDIA END TIME: 11:00 AM

DIRECTION: <u>WESTBOUND</u>							
MPH	NUMBER OF VEHICLES						TOTAL
	5	10	15	20	25	30	
60							
59							
58							
57							
56							
55							
54							
53							
52							
51							
50							
49							
48							
47							
46							
45							
44							
43							
42							
41							
40	/	/					2
39	/	/					0
38	/	/					
37	/	/					
36	/	/					
35	/	/	/				6
34	/	/	/				2
33	/	/	/				3
32	/	/	/				6
31	/	/	/				2
30	/	/	/				9
29	/	/	/				5
28	/	/	/				8
27	/	/	/				7
26	/	/	/				7
25	/	/	/				6
24							
23							
22							
21							
20							
19							
18							
17							
16							
15							

AVERAGE SPEED: _____ CRITICAL SPEED: _____ PACE SPEED: _____

CUMULATIVE (BOTH DIRECTIONS) _____

DIRECTION: <u>EASTBOUND</u>							
MPH	NUMBER OF VEHICLES						TOTAL
	5	10	15	20	25	30	
60							
59							
58							
57							
56							
55							
54							
53							
52							
51							
50							
49							
48							
47							
46							
45							
44	/						1
43	/						0
42	/						0
41	/						1
40	/						0
39	/						2
38	/						1
37	/						0
36	/	/					3
35	/	/	/				6
34	/	/	/				3
33	/	/	/				4
32	/	/	/				1
31	/	/	/				5
30	/	/	/				8
29	/	/	/				3
28	/	/	/				6
27	/	/	/				2
26	/	/	/				3
25	/	/	/				6
24	/	/	/				4
23	/	/	/				2
22							0
21							0
20	/						1
19							
18							
17							
16							
15							

AVERAGE SPEED: _____ CRITICAL SPEED: _____ PACE SPEED: _____

CUMULATIVE TOTAL	MPH
	60
	59
	58
	57
	56
	55
	54
	53
	52
	51
	50
	49
	48
	47
	46
	45
1	44
0	43
0	42
1	41
2	40
2	39
1	38
	37
4	36
12	35
5	34
7	33
7	32
7	31
16	30
8	29
14	28
4	27
9	26
9	25
4	24
2	23
0	22
0	21
1	20
	19
	18
	17
	16
	15

RADAR SPEED DISTRIBUTION SHEET

HCI

CITY OF LAGUNA HILLS

MUSTANG DRIVE
DATE: 10/25/2017
TIME: 1:00 PM - 2:30 PM
WEST OF APPALOOSA
SURVEY BY: C. BUENDIA
CHECKED BY: JERRY STOCK

SPEED	CUMMULATIVE PERCENT					
	20	40	60	80	100	
60					X	100.0%
59					X	100.0%
58					X	100.0%
57					X	100.0%
56					X	100.0%
55					X	100.0%
54					X	100.0%
53					X	100.0%
52					X	100.0%
51					X	100.0%
50					X	100.0%
49					X	100.0%
48					X	100.0%
47					X	100.0%
46					X	100.0%
45					X	100.0%
44					X	100.0%
43					X	99.2%
42					X	99.2%
41					X	99.2%
40					X	98.3%
39					X	96.6%
38					X	96.6%
37					X	94.1%
36					X	93.3%
35					X	90.8%
34					X	85.7%
33					X	73.9%
32					X	68.1%
31					X	60.5%
30					X	55.5%
29					X	43.7%
28					X	32.8%
27					X	28.6%
26					X	16.8%
25					X	10.9%
24					X	6.7%
23					X	5.9%
22					X	5.0%
21					X	4.2%
20					X	1.7%
19					X	0.0%
18					X	0.0%
17					X	0.0%
16					X	0.0%
15					X	0.0%

UPPER LIMIT 10 MPH PACE: 35 MPH

LOWER LIMIT 10 MPH PACE: 26 MPH

PERCENT OVER PACE: 9.2 %

PERCENT IN PACE: 79.8 %

PERCENT UNDER PACE: 10.9 %

85th PERCENTILE SPEED: 33.9 MPH

MEDIAN SPEED: 29.5 MPH

15th PERCENTILE SPEED: 25.7 MPH

Mustang Oct 2017-pm

Radar Speed Survey Field Sheet

HARTZOG AND CRABILL
Consulting Traffic Engineers
17547 W. 84th, Suite 122, Overland Park, KS 66212
(913) 231-1400

AGENCY: CITY OF LAGUNA HILLS
STREET: MUSTANG DRIVE
LOCATION: WEST OF APPALOOSA

WEATHER: SUNNY DATE: 10/25/17
ROAD CONDITION: DRY START TIME: 1:00 PM
OBSERVER: CATHY BUENDIA END TIME: 2:30 PM

DIRECTION: <u>WESTBOUND</u>										
MPH	5	10	15	20	25	30	TOTAL			
60										
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51										
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AVERAGE SPEED: _____ CRITICAL SPEED: _____ PACE SPEED: _____
CUMULATIVE (BOTH DIRECTIONS) _____

DIRECTION: <u>EASTBOUND</u>										
MPH	5	10	15	20	25	30	TOTAL			
60										
59										
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51										
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AVERAGE SPEED: _____ CRITICAL SPEED: _____ PACE SPEED: _____



City of Laguna Hills

Traffic Commission

Staff Report

DATE: July 19, 2017

TO: Traffic Commissioners

FROM: Kenneth H. Rosenfield P.E.
Director of Public Services/City Engineer

ISSUE: Review of Traffic Speed Conditions on Mustang Drive at Appaloosa Place

RECOMMENDATION: That the Traffic Commission Receive and File this Report.

SUMMARY:

Staff was recently contacted by a resident regarding concerns of speeding on Mustang Drive at Appaloosa Place. Based upon the resident's concern and in accordance with the Residential Streets Management Policy, staff initiated a review of the travel speeds on Mustang Drive on either side of Appaloosa Place.

The speed survey, performed by Hartzog & Crabill, Inc., attached, determined the 85th percentile speeds on Mustang Drive as 34.2 mph and 31.2 mph, west of and east of Appaloosa Place, respectively. While the regulatory speed limit on a residential streets is 25 mph, Staff experience has found the typical prevailing speed range on residential streets in the City as being between 32 and 34 mph, without adverse traffic collision history. The 85th percentile speeds determined in this speed survey are consistent with our experience. However, the study also determined 19.8% of the vehicles on Mustang Drive west of Appaloosa Place were exceeding the upper limit of the 10 mph pace of 33 mph, which is a slightly higher percentage than expected (15%). Accordingly, Police enforcement of driver behavior is the best and appropriate remedy for this location and issue of concern. Staff will work with the Sheriff's Department on enforcement activity in this area and Staff will post the radar trailer in this area to increase driver education as to the appropriate speed on Mustang Drive.

Review of Traffic Speed Conditions on Mustang Drive at Appaloosa Place
July 19, 2017
Page 2

ATTACHMENTS:

- Vicinity Map
- Speed Survey Report





Trammell Hartzog, President
 Jerry Crabill, P.E. (Retired)
 Gerald J. Stock, P.E., T.E.,
 Executive Vice President

17852 E. 17th Street
 Suite 101
 Tustin, CA 92780

Phone: (714) 731-9455
 FAX: (714) 731-9498

www.hartzog-crabill.com

July 7, 2017

Mr. Ken Rosenfield, P.E.
 Director of Public Services/City Engineer
City of Laguna Hills
 24035 El Toro Road
 Laguna Hills, California 92653

**Subject: Letter of Opinion – Speeding Concerns – Mustang Drive
 On Both Sides of Appaloosa Place**

Dear Mr. Rosenfield:

Pursuant to your request, Hartzog & Crabill, Inc. (HCI) has prepared this letter of opinion accompanied by specific recommendations regarding resident concerns of vehicular speeding on Mustang Drive at/near Appaloosa Place.

Background

Mustang Drive is a local street with a prima facie speed limit of 25 mph. This segment of Mustang Drive has areas of limited sight distance as a result of the curvilinear character of the roadway. Adjacent land uses are residential with a high density of fronting driveways. Sidewalks are provided along the north side of the street.

Radar Speed Surveys

To determine travel speeds on Mustang Drive, on both sides of Appaloosa Place, a certified radar technician using a calibrated radar gun conducted two radar speed surveys – one on each side of Appaloosa Place.

Both surveys were performed on Wednesday, June 14, 2017. The segment west of Appaloosa Place was performed between 9:15am - 11:00am, and the segment east of Appaloosa Place (east of Red Corral Road) was performed between 3:00pm - 4:30pm.

Table 1 below on the next page summarizes the results of the speed surveys:

Mr. Ken Rosenfield, P.E.
 July 7, 2017
 Page 2

TABLE 1

Radar Speed Survey Summary	Mustang Drive (W/o Appaloosa Pl)	Mustang Drive (E/o Appaloosa Pl)
85th Percentile Speed	34.2 mph	31.2 mph
Median Speed	28.1 mph	27.4 mph
15th Percentile Speed	24.7 mph	24.4 mph
10 MPH Pace	24 to 33 mph	23 to 32 mph
Percent in 10 MPH Pace	76.9%	86.0%

Source: Hartzog & Crabill, Inc., 2017.

As shown above, the 85th percentile speeds on Mustang Drive are 34.2 mph and 31.2 mph, west of and east of Appaloosa Place, respectively. The data shows that travel speeds do not differ significantly between the two surveys. However, the data does suggest that vehicular speeding is occurring above the prima facie 25 mph residential street speed limit along this segment of Mustang Drive.

Recommendations

Therefore, it is recommended that an incremental approach be taken to slow travel speeds. Initial steps include increased law enforcement, use of a portable radar speed feedback trailer, and posting of 25 mph speed limit signs. Should these initial recommendations be implemented, a follow-up survey should be conducted to quantify the benefits of these speed reduction measures.

It has been our pleasure to prepare this letter of opinion for your review. If you have any questions or need additional information, please call us at (714) 731-9455.

Very Truly Yours,
HARTZOG & CRABILL, INC.


 Gerald Stock, P.E.
 Executive Vice President
 City & Traffic Engineering Services

Attach: (2) Speed Survey Field Sheets

RADAR SPEED DISTRIBUTION SHEET

HCI

CITY OF LAGUNA HILLS

MUSTANG DRIVE

DATE: 6/14/2017

TIME: 9:15 AM - 11:00 AM

WEST OF APPALOOSA

SURVEY BY: C. BUENDIA

CHECKED BY: JERRY STOCK

[illegible]

	TOTAL VEHICLES	
UPPER LIMIT 10 MPH PACE:	33	MPH
LOWER LIMIT 10 MPH PACE:	24	MPH
PERCENT OVER PACE:	19.8	%
PERCENT IN PACE:	76.9	%
PERCENT UNDER PACE:	3.3	%

85th PERCENTILE SPEED:	34.2	MPH
MEDIAN SPEED:	28.1	MPH
15th PERCENTILE SPEED:	24.7	MPH

Radar Speed Survey Field Sheet

HARTZOG AND CRABILL
 Consulting Traffic Engineers
 19521 Kew Blvd., Suite 102, Kew, NE 68305
 (402) 731-3452

Attachment: Speed Survey Report (1346 : Review of Traffic Speed Conditions on Mustang Drive at

AGENCY: CITY OF LAKUNA HILLS DATE: 06/14/17
 STREET: MUSTANG DRIVE ROAD CONDITION: DRY START TIME: 9:15 AM
 LOCATION: WEST OF APPALOOSA OBSERVER: CATHY BUENDIA END TIME: 10:45 AM VAL

DIRECTION: WESTBOUND					TOTAL				
MPH	5	10	15	20	25	30			
60									
59									
58									
57									
56									
55									
54									
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50									
49									
48									
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16									
15									

AVERAGE SPEED: _____ CRITICAL SPEED: _____ PACE SPEED: _____
 CUMULATIVE (BOTH DIRECTIONS) _____

DIRECTION: EASTBOUND					TOTAL				
MPH	5	10	15	20	25	30			
60									
59									
58									
57									
56									
55									
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50									
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15									

AVERAGE SPEED: _____ CRITICAL SPEED: _____ PACE SPEED: _____

RADAR SPEED DISTRIBUTION SHEET

HCI
CITY OF LAGUNA HILLS
MUSTANG DRIVE
DATE: 6/14/2017
TIME: 3:00 PM - 4:30 PM
EAST OF RED CORAL RD
SURVEY BY: C. BUENDIA
CHECKED BY: JERRY STOCK

SPEED	NUMBER OF VEHICLES										VEH.	PCT.	CUM. PCT.
	5	10	15	20	25	30	35	40	45	50			
60													100.0%
													100.0%
													100.0%
													100.0%
													100.0%
55													100.0%
													100.0%
													100.0%
													100.0%
													100.0%
50													100.0%
													100.0%
													100.0%
													100.0%
													100.0%
45													100.0%
													100.0%
													100.0%
													100.0%
													100.0%
40	X										1	1.0%	100.0%
	X										1	1.0%	99.0%
											0	0.0%	98.0%
	X	X									2	2.0%	98.0%
											0	0.0%	96.0%
											0	0.0%	96.0%
35	X	X									2	2.0%	96.0%
	X	X	X								3	3.0%	94.0%
	X	X									2	2.0%	91.0%
	X	X	X	X	X						5	5.0%	89.0%
	X	X	X	X	X	X					6	6.0%	84.0%
30	X	X	X	X	X	X	X	X	X		10	10.0%	78.0%
	X	X	X	X	X	X	X	X	X	X	10	10.0%	68.0%
	X	X	X	X	X	X	X	X	X	X	14	14.0%	58.0%
	X	X	X	X	X	X	X	X	X	X	16	16.0%	44.0%
	X	X	X	X	X	X	X				8	8.0%	28.0%
25	X	X	X	X	X	X	X	X			9	9.0%	20.0%
	X	X	X								3	3.0%	11.0%
	X	X	X	X	X						5	5.0%	8.0%
	X	X	X								3	3.0%	3.0%
													0.0%
20													0.0%
													0.0%
													0.0%
													0.0%
													0.0%
15													0.0%
TOTAL VEHICLES											100		

UPPER LIMIT 10 MPH PACE: 32 MPH

LOWER LIMIT 10 MPH PACE: 23 MPH

PERCENT OVER PACE: 11.0 %

PERCENT IN PACE: 86.0 %

PERCENT UNDER PACE: 3.0 %

85th PERCENTILE SPEED: 31.2 MPH

MEDIAN SPEED: 27.4 MPH

15th PERCENTILE SPEED: 24.4 MPH

Attachment: July 19 2017 Traffic Commission Agenda Item 4.2 (1419 : Review of Traffic Speed Conditions and Radar Trailer Effectiveness on Mustang Drive at Appaloosa Place)

Radar Speed Survey Field Sheet

HARTZOG AND CRABILL
Consulting Traffic Engineers
1931 New Blvd, Suite 102, Irvine, CA 92614
(949) 251-4400

AGENCY: CITY OF LAGUNA HILLS
STREET: MUSTANG DRIVE
LOCATION: EAST OF RED OAK RD

WEATHER: SUNNY
ROAD CONDITION: DRY
OBSERVER: CATHY BUENDIA
DATE: 6/14/17
START TIME: 3:00 PM
END TIME: 4:30 PM V&A

DIRECTION: WESTBOUND		NUMBER OF VEHICLES				TOTAL	
MPH	5	10	15	20	25	30	
60							
59							
58							
57							
56							
55							
54							
53							
52							
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18							
17							
16							
15							

AVERAGE SPEED: _____ PACE SPEED: _____
CRITICAL SPEED: _____
CUMULATIVE (BOTH DIRECTIONS) _____

DIRECTION: EASTBOUND		NUMBER OF VEHICLES				TOTAL	
MPH	5	10	15	20	25	30	
60							
59							
58							
57							
56							
55							
54							
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16							
15							

AVERAGE SPEED: _____ PACE SPEED: _____
CRITICAL SPEED: _____

CUMULATIVE TOTAL	MPH
	60
	59
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Attachment: Speed Survey Report (1346 : Review of Traffic Speed Conditions on Mustang Drive at



City of Laguna Hills

Traffic Commission

Staff Report

DATE: November 15, 2017
TO: Traffic Commissioners
FROM: Kenneth H. Rosenfield P.E.
Director of Public Services/City Engineer
ISSUE: Review of Speed Survey Procedures

RECOMMENDATION: That the Traffic Commission Receive and File the Report.

SUMMARY:

Based upon a request by the Traffic Commission, Staff performed a review of speed survey practices and procedures currently used in the evaluation of traffic speed conditions. The City's evaluation and data collection efforts were found to be in accordance with the guidelines established in the California Department of Transportation (Caltrans) *2014 California Manual for Setting Speed Limits*. As the guidelines and traffic engineering best practices reveal, the use of radar to measure traffic speeds is to be done during off-peak hours for validity of the data collection to measure speeds of the "reasonable driver" for the road conditions encountered not influenced by traffic conditions or other known factors. However, Staff did collect a 24-hour speed profile of Hidden Trail Road for all time of the day data collection and use for targeted enforcement times. The speed profile also reveals that although the public's perception that high traffic volumes or vehicle speeding time is at a specific time of day, it is not necessarily accurate for a given street or time.

BACKGROUND:

In accordance with the inquiry from the Traffic Commission, Staff performed a review of speed survey practices and procedures currently used in the evaluation of traffic speed conditions. The City's Residential Streets Management Policy pertaining to the evaluation process and data collection effort of a traffic safety issue adheres to

Review of Speed Survey Procedures

November 15, 2017

Page 2

established traffic engineering guidelines in the *2014 California Manual for Setting Speed Limits* for data collection and analysis. Speed surveys are performed in the mid-morning and mid-afternoon hours when vehicles are expected to be under “free flow conditions” consistent with Section 3.2.3 of the *2014 California Manual for Setting Speed Limits* for selecting vehicles under free flow conditions. Section 3.2.3 states, “The intent of the speed measurements is to determine the actual speed of unimpeded traffic. Free flow is a condition of traffic where a vehicle’s speed is not influenced by anything other than the roadway geometry.” Staff will have complete copies of the *2014 California Manual for Setting Speed Limits* at the Commission meeting should there be an interest in any further review of this publication.

Vehicle speeds are not measured by radar during peak periods as they could be invalid and not representative of how unimpeded drivers use the roadway. The recommended procedures are important for the establishment of speed limits to meet the requirements of the California Vehicle Code, the Caltrans adopted Manual of Uniform Traffic Control Devices and court case precedence. In order to maintain the integrity of the establishment of speed limits, radar speed survey data collection for general information is to be avoided.

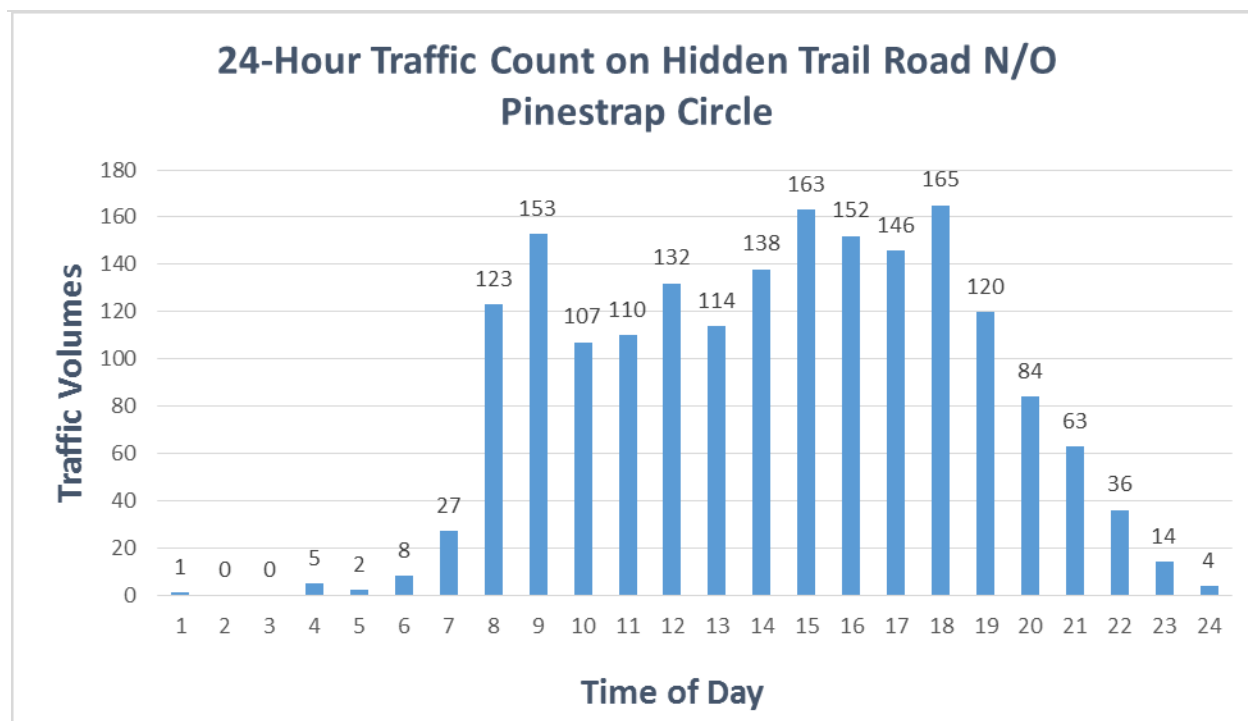
In response to the Traffic Commission’s inquiry about speed of traffic data versus time of day, in lieu of a spot radar speed study, staff initiated a 24-hour Speed Profile of Hidden Trail Road north of Pinestrap Circle. A Speed Profile is useful in identifying both speed and volume trends and comparison to other data, such as the attached September 20, 2017, Traffic Commission report for Hidden Trail Road. Speed Profiles cannot be utilized for an evaluation of speed limits but can be used for engineering evaluations and for the deployment of enforcement resources. A Speed Profile is collected by the placement of two parallel pneumatic tubes set a specified distance apart and connected to a sensor. The time interval between activation of the two tubes is recorded and converted into five mile per hour speed increments. Attached is the data collection of the Speed Profile. Below, Staff has prepared two informational graphs of the data.

The first graph below provides a 24-hour Traffic Count to relay the hourly traffic volumes over time. As can be seen in this chart, the peak hour traffic volumes on this local street do not necessarily match the expectation of the highest traffic volume hours. For instance, the volume of traffic during the 3:00 pm hour is virtually the same volume as during the 6:00 pm hour, and both of these are much higher than the 8:00 am hour (a commonly described peak hour).

Review of Speed Survey Procedures

November 15, 2017

Page 3

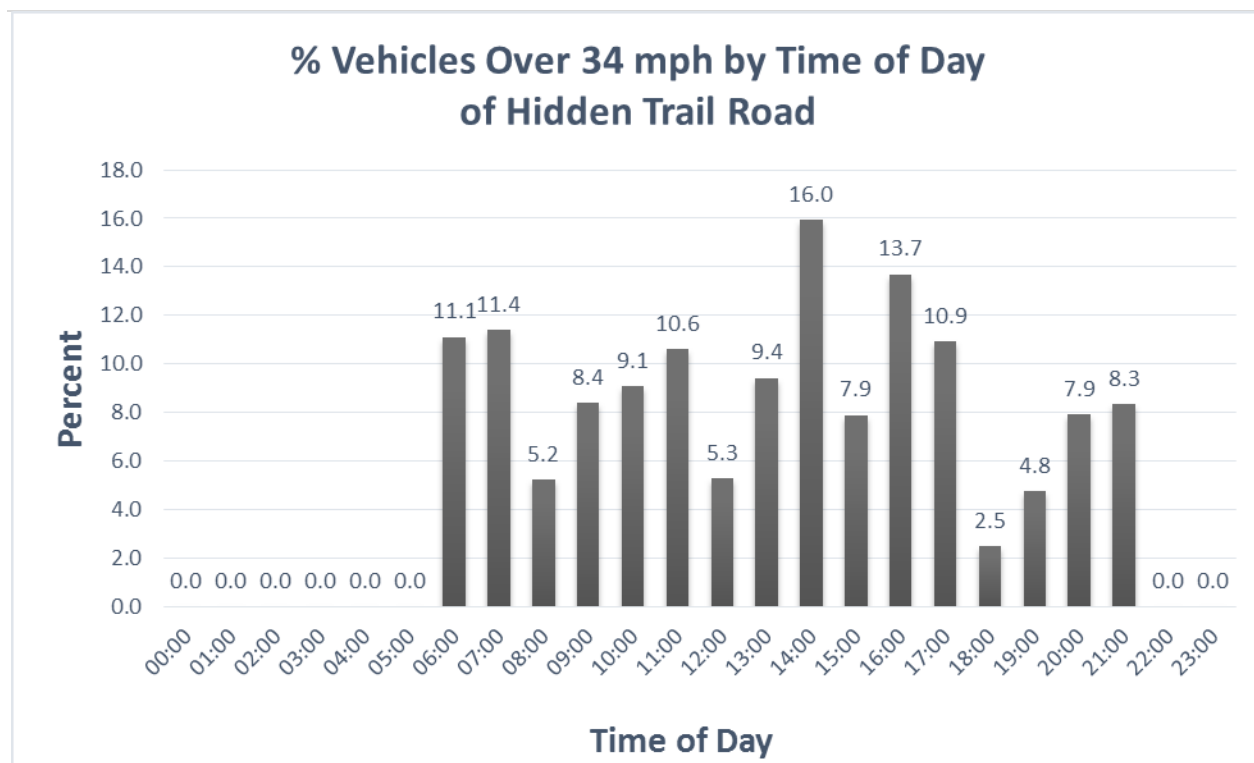


The second graph below represents an excerpt of the speed data. For comparison purposes, the number of vehicles each hour which exceed 34 mph, the vehicles of interest for enforcement, in comparison to the total vehicles measured in that hour, is shown as a percentage. In this case, the peak percentage occurred in the 2:00 pm hour.

Review of Speed Survey Procedures

November 15, 2017

Page 4



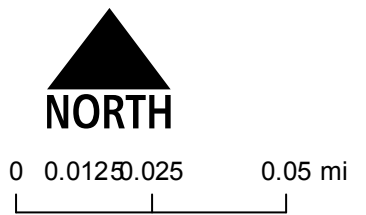
The public's perception that higher traffic volumes or the most common time for vehicle speeding is at a specific time of day is not necessarily accurate for a given street or time. However, public reports of speeding conditions is helpful in identifying the need to evaluate traffic conditions at a particular location.

ATTACHMENTS:

- Vicinity Map
- Speed Profile Data
- Traffic Commission Agenda Item 4.1 September 20 2017



Attachment: Vicinity Map (1416 : Review of Speed Survey Procedures)



VICINITY MAP - HIDDEN TRAIL ROAD AT PINE STRAP CIRCLE



SPEED

Hidden Trail Rd N/O Pinestrap Cir

4.3.b

Day: Thursday
Date: 10/5/2017

City: Laguna Hills
Project #: CA17_1202_001

Summary

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
00:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	1
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	1	1	1	1	1	0	0	0	0	0	0	0	0	5
04:00	0	1	0	0	1	0	0	0	0	0	0	0	0	2
05:00	0	0	2	3	3	0	0	0	0	0	0	0	0	8
06:00	0	2	3	7	12	2	1	0	0	0	0	0	0	27
07:00	0	4	17	50	38	12	2	0	0	0	0	0	0	123
08:00	4	13	29	55	44	5	3	0	0	0	0	0	0	153
09:00	1	3	7	45	42	9	0	0	0	0	0	0	0	107
10:00	2	3	11	40	44	9	1	0	0	0	0	0	0	110
11:00	0	9	16	41	52	12	2	0	0	0	0	0	0	132
12:00 PM	2	11	20	40	35	5	1	0	0	0	0	0	0	114
13:00	1	7	18	50	49	13	0	0	0	0	0	0	0	138
14:00	0	9	26	54	48	24	2	0	0	0	0	0	0	163
15:00	3	8	16	54	59	9	3	0	0	0	0	0	0	152
16:00	1	6	19	54	46	17	3	0	0	0	0	0	0	146
17:00	1	5	30	78	33	18	0	0	0	0	0	0	0	165
18:00	2	2	23	55	35	2	1	0	0	0	0	0	0	120
19:00	0	4	16	39	21	3	1	0	0	0	0	0	0	84
20:00	1	5	9	29	14	4	1	0	0	0	0	0	0	63
21:00	1	2	8	14	8	2	0	1	0	0	0	0	0	36
22:00	0	1	1	6	6	0	0	0	0	0	0	0	0	14
23:00	0	1	1	1	1	0	0	0	0	0	0	0	0	4
Totals	20	97	273	717	592	146	21	1						1867
% of Totals	1%	5%	15%	38%	32%	8%	1%	0%						100%

AM Volumes	8	36	86	243	237	49	9	0	0	0	0	0	0	668
% AM	0%	2%	5%	13%	13%	3%	0%							36%
AM Peak Hour	08:00	08:00	08:00	08:00	11:00	07:00	08:00							08:00
Volume	4	13	29	55	52	12	3							153
PM Volumes	12	61	187	474	355	97	12	1	0	0	0	0	0	1199
% PM	1%	3%	10%	25%	19%	5%	1%	0%						64%
PM Peak Hour	15:00	12:00	17:00	17:00	15:00	14:00	15:00	21:00						17:00
Volume	3	11	30	78	59	24	3	1						165
Directional Peak Periods		AM 7-9				NOON 12-2				PM 4-6				Off Peak Volumes
All Speeds		Volume 276 ↔ % 15%				Volume 252 ↔ % 13%				Volume 311 ↔ % 17%				Volume 1028 ↔ % 55%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
Hidden Trail Rd	Summary	23	29	29	34	38	18



City of Laguna Hills

Traffic Commission

Staff Report

DATE: September 20, 2017

TO: Traffic Commissioners

FROM: Kenneth H. Rosenfield P.E.
Director of Public Services/City Engineer

ISSUE: Review of Traffic Speed Conditions on Hidden Trail Road at Pine Strap Circle

RECOMMENDATION: That the Traffic Commission Receive and File the Report.

SUMMARY:

Staff was recently contacted by a resident regarding concerns of vehicular speeding on Hidden Trail Road near Pine Strap Circle. Please see attached Vicinity Map. Based upon the resident's concern and in accordance with the Residential Streets Management Policy, staff initiated a review of the travel speeds on Hidden Trail Road on either side of Pine Strap Circle.

The speed surveys, performed by Hartzog & Crabill, Inc., attached, determined the 85th percentile speeds on Hidden Trail Road as 33.4 mph and 30.9 mph, north of and south of Pine Strap Circle, respectively. While the regulatory speed limit on a residential street is 25 mph, Staff's experience has found the typical prevailing speed range on residential streets in the City as being between 32 and 34 mph, without adverse traffic collision history. The 85th percentile speeds determined in this speed survey are consistent with our experience. No change to traffic controls is proposed. However, as available, police enforcement of driver behavior is the best and appropriate remedy for this location and issue of concern. Staff will work with the Sheriff's Department on enforcement activity in this area and we will also post the radar trailer in this area to increase driver education as to the appropriate speed on Hidden Trail Road.

ATTACHMENTS:

Review of Traffic Speed Conditions on Hidden Trail Road at Pine Strap Circle
September 20, 2017
Page 2

- Vicinity Map
- Speed Survey Report on Hidden Trail Road





Trammell Hartzog, President
Gerald J. Stock, P.E., T.E.,
Executive Vice President

17852 E. 17th Street
Suite 101
Tustin, CA 92780

Phone: (714) 731-9455
FAX: (714) 731-9498

www.hartzog-crabill.com

August 7, 2017

Mr. Ken Rosenfield, P.E.
Director of Public Services/City Engineer
City of Laguna Hills
24035 El Toro Road
Laguna Hills, California 92653

**Subject: Letter of Opinion – Speeding Concerns – Hidden Trail Road
On Both Sides of Pine Strap Circle**

Dear Mr. Rosenfield:

Pursuant to your request, Hartzog & Crabill, Inc. (HCI) has prepared this letter of opinion accompanied by specific recommendations regarding resident concerns of vehicular speeding on Hidden Trail Road at/near Pine Strap Circle.

Background

Hidden Trail Road is a local street with a prima facie speed limit of 25 mph (un-posted). The segment of Hidden Trails Road at/near Pine Strap Circle runs both northerly/southerly (north-side) and easterly/westerly (south-side), and has areas of limited sight distance as a result of the curvilinear character of the roadway. Adjacent land uses are residential with a high density of fronting driveways. Sidewalks are provided along the west-side of the street. At its intersection with Pine Strap Circle, Hidden Trail Road is Stop-controlled on both approaches.

Pine Strap Circle is also an east-west local street with a prima facie speed limit of 25 mph (un-posted). Pine Strap Circle intersects Hidden Trail Road as the westerly leg (T-intersection), and is Stop-controlled.

Radar Speed Surveys

To determine travel speeds on Hidden Trail Road, a certified radar technician using a calibrated radar gun conducted two radar speed surveys near Pine Strap Circle – one north of Pine Strap Circle and one south of Pine Strap Circle. Both radar locations were outside of the influence of the stop signs.

Both surveys were performed on Wednesday, July 26, 2017. The segment North of Pine Strap was performed between 9:00am - 11:00am, and the segment South of Pine Strap was performed between 3:00pm - 4:15pm.

Mr. Ken Rosenfield, P.E.
 August 7, 2017
 Page 2

Table 1 below summarizes the results of the speed survey data:

TABLE 1

Radar Speed Survey Summary	Hidden Trail Road (N/o Pine Strap)	Hidden Trail Road (S/o Pine Strap)
85th Percentile Speed	33.4 mph	30.9 mph
Median Speed	29.0 mph	27.3 mph
15th Percentile Speed	24.5 mph	24.5 mph
10 MPH Pace	25 to 34 mph	24 to 33 mph
Percent in 10 MPH Pace	77.3%	89.1%

Source: Hartzog & Crabill, Inc., 2017.

As shown above, the 85th percentile speeds on Hidden Trail Road are 33.4 mph and 30.9 mph, North of and South of Pine Strap Circle, respectively. This data shows that higher travel speeds are occurring north side of Pine Strap Circle when compared with the south-side data.

Recommendations

Therefore, it is recommended that an incremental approach be taken to address travel speeds. Initial steps include increased law enforcement, use of a portable radar speed feedback trailer, and posting of 25 mph speed limit signs along Hidden Trail Road.

It has been our pleasure to prepare this letter of opinion for your review. If you may have any questions or need additional information, please feel free to call us at (714) 731-9455.

Sincerely,

HARTZOG & CRABILL, INC.


 Gerald Stock, P.E.
 Executive Vice President
 City & Traffic Engineering Services

Attach: (2) Speed Survey Field Sheets

RADAR SPEED DISTRIBUTION SHEET

HCI

CITY OF LAGUNA HILLS

HIDDEN TRAIL ROAD

NORTH OF PINE STRAP

DATE: 7/26/2017

SURVEY BY: C. BUENDIA

TIME: 9:00 AM - 11:00 AM

CHECKED BY: JERRY STOCK

[illegible]

UPPER LIMIT 10 MPH PACE:	34	MPH
LOWER LIMIT 10 MPH PACE:	25	MPH
PERCENT OVER PACE:	11.0	%
PERCENT IN PACE:	77.3	%
PERCENT UNDER PACE:	11.7	%

85th PERCENTILE SPEED:	33.4	MPH
MEDIAN SPEED:	29.0	MPH
15th PERCENTILE SPEED:	24.5	MPH

Attachment: Traffic Commission Agenda Item 4.1 September 20 2017 (1416 : Review of Speed Survey Procedures)

Radar Speed Survey Field Sheet

HARTZOG AND CRABILL INC.
Consulting Traffic Engineers
11552 River Blvd., Suite 122, Tustin, CA 92680
(714) 731-1452

AGENCY: CITY OF LAGUNA NIGUEL

STREET: HIDDEN TRAIL ROAD

LOCATION: N/O PINE STRAP

WEATHER: SUNNY

ROAD CONDITION: DRY

OBSERVER: CATHY BUENDIA

DATE: 07/26/17

START TIME: 9:00 AM

END TIME: 11:00 AM

DIRECTION: SOUTHBOUND		NUMBER OF VEHICLES				TOTAL
MPH	5	10	15	20	25	30
60						
59						
58						
57						
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DIRECTION: NORTHBOUND		NUMBER OF VEHICLES				TOTAL
MPH	5	10	15	20	25	30
60						
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53						
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48						
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19						
18						
17						
16						
15						

CUMULATIVE TOTAL	MPH
1	60
2	59
3	58
0	57
2	56
10	55
10	54
9	53
14	52
19	51
17	50
16	49
8	48
11	47
3	46
2	45
1	44
1	43
1	42
1	41
1	40
1	39
1	38
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1	25
1	24
1	23
1	22
1	21
1	20
1	19
1	18
1	17
1	16
1	15

AVERAGE SPEED: 29.5

CRITICAL SPEED: 34.1

PACE SPEED: 26-35

77.8

AVERAGE SPEED: 27.9

CRITICAL SPEED: 31.8

PACE SPEED: 24-33

(855)

CUMULATIVE (BOTH DIRECTIONS) Cum = 33.4, 28.0, 25-34.1, 77.3



RADAR SPEED DISTRIBUTION SHEET

CITY OF LAGUNA HILLS

HIDDEN TRAIL ROAD

DATE: 7/26/2017

TIME: 3:00 PM - 4:15 PM

SOUTH OF PINE STRAP

SURVEY BY: C. BUENDIA

CHECKED BY: JERRY STOCK

[illegible]

UPPER LIMIT 10 MPH PACE: 33 MPH

LOWER LIMIT 10 MPH PACE: 24 MPH

PERCENT OVER PACE:	4.0	%
--------------------	-----	---

PERCENT IN PACE: 89.1 %

PERCENT UNDER PACE: 6.9 %

85th PERCENTILE SPEED: 30.9 MPH

MEDIAN SPEED:	27.3	MPH
---------------	------	-----

15th PERCENTILE SPEED: 24.5 MPH

Radar Speed Survey Field Sheet

HARTZOG AND CRABILL INC.
 Consulting Traffic Engineers
 17521 Pine Ridge Road, Suite 200
 San Diego, CA 92128
 (619) 731-5452

AGENCY: CITY OF LAGUNA NIGUEL

STREET: HIDDEN TRAIL

LOCATION: SOUTH OF PINE STRAP

WEATHER: SUNNY

DATE: 07/26/17

ROAD CONDITION: DRY

START TIME: 3:00 PM

OBSERVER: CATHY BUENDIA

END TIME: 4:15 PM

1/41

DIRECTION: SOUTHBOUND		NUMBER OF VEHICLES				TOTAL
MPH	5	10	15	20	25	30
60						
59						
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AVERAGE SPEED: 26.8

CRITICAL SPEED: 30.6

PACE: 25-34 (90.8)

CUMULATIVE (BOTH DIRECTIONS)

27.3

27.3 24-33, 29.1

43.57

97.16

97.16

100.00

100.00

DIRECTION: NORTHBOUND		NUMBER OF VEHICLES					TOTAL
MPH	5	10	15	20	25	30	
60							
59							
58							
57							
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							27
							18
							20
							4
							5
							3
							2



City of Laguna Hills

Traffic Commission

Staff Report

DATE: November 15, 2017
TO: Traffic Commissioners
FROM: Kenneth H. Rosenfield P.E.
Director of Public Services/City Engineer
ISSUE: Radar Speed Trailer

RECOMMENDATION: That the Traffic Commission Receive and File the Report.

ATTACHMENTS:

- Radar Speed Trailer

CITY OF LAGUNA HILLS

NOVEMBER 2017

RADAR TRAILER SCHEDULE (RAINY DAYS EXCLUDED)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
5	6	7 Bridlewood S/O Laurel Crest 25 MPH	8 Woodbluff S/O Middleridge 25 MPH	9 Nellie Gail E/O Empty Saddle 25 MPH	10 HOLIDAY	11
12	13	14	15	16	17	18
19	20	21 Glen Canyon W/O Nellie Gail 25 MPH	22 Lost Colt E/O Beargrass 25 MPH	23 THANKSGIVING	24 HOLIDAY	25
26	27	28	29	30		

Attachment: Radar Speed Trailer (1418 : Radar Speed Trailer)

CITY OF LAGUNA HILLS

DECEMBER 2017

RADAR TRAILER SCHEDULE (RAINY DAYS EXCLUDED)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
10	11	12 Glen Canyon W/O Nellie Gail 25 MPH	13 Nellie Gail E/O Empty Saddle 25 MPH	14 San Remo Mid-Block 30 MPH	15	16
17	18	19	20	21	22	23
24	25 HOLIDAY	26	27	28	29	30
31						

Attachment: Radar Speed Trailer (1418 : Radar Speed Trailer)