



CITY OF LAGUNA HILLS TRAFFIC COMMISSION

REGULAR MEETING AGENDA Wednesday, January 16, 2019 – 7:00 PM

Larry Woodruff - Chair

Greg Staar - Vice Chair

Mark Jones - 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 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 19, 2018.

3. PRESENTATIONS**4. ADMINISTRATIVE REPORTS****4.1 Review of Traffic Conditions on Wilkes Place and Grissom Road**

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

4.2 Repeat Speed Survey on Bridlewood Drive

Recommendation: That the Traffic Commission Request Staff Implement Additional Pavement Legends and Markings on Southbound Bridlewood Drive Between Vista Viejo Road and Laurel Crest Drive and Repeat the Speed Survey of Bridlewood Drive in Six Months' Time.

4.3 Repeat Speed Survey on Nellie Gail Road Between Oso Parkway and Hidden Trail Road

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 March 20, 2019, at 7:00 PM in the City Council Chamber, located at 24035 El Toro Road, Laguna Hills California.

CERTIFICATION

I, KENNETH H. ROSENFELD, Assistant City Manager/Director of Public Services 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 January 11, 2019, at 5:00 pm.



Assistant City Manager/Director of Public Services

January 11, 2019

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: January 16, 2019
TO: Traffic Commissioners
FROM: Amber Shah
Associate Engineer
ISSUE: Minutes

RECOMMENDATION: That the Traffic Commission Approve the Minutes of September 19, 2018.

ATTACHMENTS:

- Minutes 9-19-18

**CITY OF LAGUNA HILLS
TRAFFIC COMMISSION MEETING
REGULAR MEETING MINUTES
SEPTEMBER 19, 2018**

CALL TO ORDER

The Regular Meeting of the Traffic Commission of the City of Laguna Hills, California, was called to order by Chair Woodruff 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 Woodruff.

ROLL CALL OF COMMISSION MEMBERS

Present: Chair Larry Woodruff, Vice Chair Greg Staar, Commissioner Len Herman, Commissioner Mark Jones.

Absent: Commissioner David Wheeler.

1. PUBLIC COMMENTS

There were no Public Comments.

2. MINUTES

THE TRAFFIC COMMISSION APPROVED THE AMENDED MINUTES OF THE JULY 18, 2018, REGULAR MEETING, BY M/COMMISSIONER HERMAN, S/VICE CHAIR STAAR.

APPROVED BY A VOTE OF 4-0, COMMISSIONER WHEELER ABSENT.

3. PRESENTATIONS

There were no Presentations.

4. ADMINISTRATIVE REPORTS

4.1 REVIEW OF TRAFFIC SPEED CONDITIONS ON SANTA VITTORIA DRIVE BETWEEN RIDGE ROUTE DRIVE AND LAKE FOREST DRIVE

Associate Civil Engineer Amber Shah, indicated Staff was contacted by residents of the Laguna Village Community regarding speeding, collisions and oversized vehicle parking on Santa Vittoria Drive between Ridge Route Drive and Lake Forest Drive. Based upon the resident's concerns, Staff initiated a traffic engineering evaluation of Santa Vittoria Drive between Ridge Route Drive and Lake Forest Drive. The speed surveys determined the 85th percentile speeds on Santa Vittoria Drive as 40.6 mph near the northerly end towards Lake Forest Drive and 35.6 mph near the southerly end towards Ridge Route Drive. The 85th percentile speed measurement at the northerly end towards Lake Forest Drive is higher than expected.

Attachment: Minutes 9-19-18 (1769 : Minutes)

**CITY OF LAGUNA HILLS
TRAFFIC COMMISSION MEETING
REGULAR MEETING MINUTES
SEPTEMBER 19, 2018**

A five-year traffic collision history review indicated only one collision as “speed related.” Consequently, no change to traffic controls was recommended, and additional traffic enforcement by the Sheriff’s Department and driver education through the use of the radar speed trailer was recommended.

Ms. Shah also indicated that a site distance evaluation determined restricted parking would improve site distance for exiting vehicles at one driveway location. Staff recommended that a no parking regulation be established for 60 feet north of Caminito Costa. The no parking area would provide appropriate site distance for vehicles given the layout and design of Santa Vittoria.

Ms. Shah noted that a previous traffic evaluation was performed on Santa Vittoria Drive between Ridge Route Drive and Lake Forest Drive in December 2016. The traffic data at that time showed the prevailing traffic speeds to be consistent with the posted speed limit. Traffic volumes were also consistent with historic counts. Given the current speed survey results, Staff will return to this location in approximately six months’ time and perform follow up speed surveys.

THE TRAFFIC COMMISSION RECOMMENDED TO THE CITY COUNCIL A MODIFICATION OF THE PARKING ALLOWED ON THE EASTERLY SIDE OF SANTA VITTORIA DRIVE TO RESTRICT PARKING FOR 60 FEET NORTHERLY OF CAMINITO COSTA TO IMPROVE SIGHT DISTANCE AND TO INCREASE SPEED ENFORCEMENT AS RESOURCES PERMIT, BY M/COMMISSIONER HERMAN, S/VICE CHAIR STAAR.

APPROVED BY A VOTE OF 4-0, COMMISSIONER WHEELER ABSENT.

**4.2 REVIEW OF TRAFFIC SPEED CONDITIONS ON RAPID FALLS ROAD
BEWTWEEN HIDDEN TRAIL ROAD AND LOST TRAIL DRIVE**

Associate Civil Engineer Amber Shah, indicated Staff was contacted regarding concerns of vehicular speeding on Rapid Falls Road from Hidden Trail Road to Lost Trail Drive. Due to resident’s concerns, Staff initiated a review of the travel speeds and traffic collision history on Rapid Falls Road between Hidden Trail Road and Lost Trail Drive.

The Traffic Engineers of Hartzog and Crabill, Inc., (HCI) completed the traffic study. The speed survey determined the 85th percentile speeds on Rapid Falls Road as 32.4 mph near the west end towards Hidden Trail Road and 31.8 mph near the east end towards Lost Trail Drive. 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 32-34 mph, without adverse traffic collision history. A five-year traffic collision history report determined there were no traffic collisions reported along this segment during the time period. Consequently, no change to traffic controls was recommended.

**CITY OF LAGUNA HILLS
TRAFFIC COMMISSION MEETING
REGULAR MEETING MINUTES
SEPTEMBER 19, 2018**

Ms. Shah indicated police enforcement of driver behavior was the best and appropriate remedy, and staff would work with the Sheriff's Department on enforcement activity in this area and also 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 THE REPORT, BY M/VICE CHAIR STAAR, S/COMMISSIONER HERMAN.
APPROVED BY A VOTE OF 4-0, COMMISSIONER WHEELER ABSENT.**

5. INFORMATIONAL ITEMS

5.1 SHERIFF'S DEPARTMENT VERBAL REPORT

Sergeant McFatridge indicated he did not have anything to report.

5.2 RADAR SPEED TRAILER

Staff submitted the schedule for the radar trailer.

5.3 NOVEMBER TRAFFIC COMMISSION MEETING

The November Traffic Commission meeting will be held the prior to Thanksgiving, if necessary.

6. COMMISSIONER COMMENTS

There were no Commissioner Comments.

7. ADJOURNMENT

There being no further business before the Traffic Commission at this session, Chair Woodruff declared the meeting adjourned at 7:14 p.m.

Prepared By:

Amber Shah, P.E.
Associate Civil Engineer

Approved By:

Chair Larry Woodruff

Attachment: Minutes 9-19-18 (1769 : Minutes)



City of Laguna Hills

Traffic Commission

Staff Report

DATE: January 16, 2019
TO: Traffic Commissioners
FROM: Amber Shah
Associate Engineer
ISSUE: Review of Traffic Conditions on Wilkes Place and Grissom Road

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

SUMMARY:

Staff was recently contacted by a resident regarding concerns of vehicular speeding, cut-through traffic and traffic collisions on Wilkes Place south of Alicia Parkway and Grissom Road east of Wilkes Place. Please see the attached Vicinity Map. Based upon the resident's concern and in accordance with the Residential Streets Management Policy, staff initiated a review of the vehicular speeds, traffic collision history and an origin and destination study (cut-through traffic analysis) on Wilkes Place south of Alicia Parkway and Grissom Road east of Wilkes Place.

The Traffic Engineers of Hartzog & Crabill, Inc., (HCI) completed the attached January 9, 2019, study of the traffic attributes of Wilkes Place and Grissom Road. The speed survey counts, performed by HCI, as shown in the study, determined the 85th percentile speeds on Wilkes Place as 30 mph south of Alicia Parkway and on Grissom Road as 28.4 mph east of Wilkes Place, respectively. Staff's experience has found the typical prevailing speed range for such streets to be between 32 and 34 mph, without traffic safety concerns. The 85th percentile speeds were below this range therefore, no action is needed in response to this data.

The traffic count data revealed the 24-hr volumes to be low for a typical residential street that is a connecting, or through, street to other neighborhoods. The origin and destination study revealed the peak hourly percentages to be very low, in the 5-10%

Review of Traffic Conditions on Wilkes Place and Grissom Road

January 16, 2019

Page 2

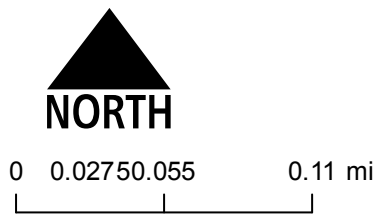
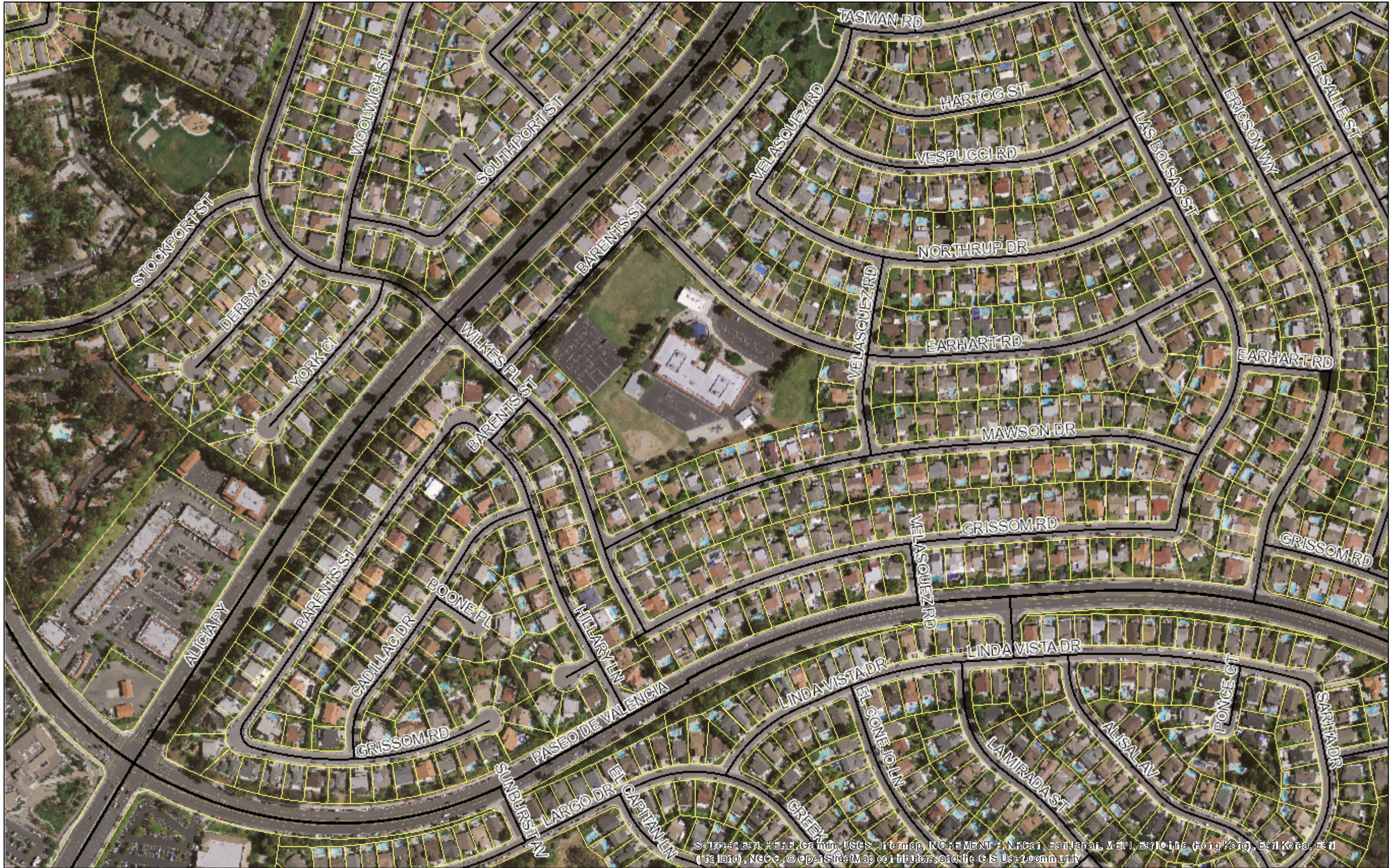
range, for what may be considered 'cut-through' traffic. The traffic volumes and cut-through traffic are not significant and no action is needed in response to this data.

A six-year traffic collision history review was also included in the study which determined four traffic collisions had been reported during this time. Three of the collisions occurred at the intersection of Wilkes Place and Alicia Parkway and were not identified as speed-related. One collision occurred on Grissom Road at the intersection of Las Bolsas Street and was also not identified as speed-related.

The resident also expressed concerns regarding the marking of crosswalks and the potential need for additional crossing guards for students walking to Lomarena Elementary School from Grissom Road. Based upon the resident's concern and the recommendation in the HCI report to update the school crossing signage on Wilkes Place, staff has initiated a field review of all (citywide) school zones and school crossing signage and markings to meet current standards at Lomarena Elementary School, San Joaquin Elementary School, Valencia Elementary School, Laguna Hills High School and New Vista School (private). This study will be presented to the Traffic Commission at a future meeting.

ATTACHMENTS:

- Vicinity Map - Wilkes Place and Grissom Road
- Traffic Study



VICINITY MAP - WILKES PLACE & GRISSOM ROAD





Trammell Hartzog, President
Gerald J. Stock, PE, TE,
Executive Vice President

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

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

www.hartzog-crabill.com

January 9, 2019

Mr. Kenneth H. Rosenfield, PE
Assistant City Manager/Public Services Director
City of Laguna Hills
24035 El Toro Road
Laguna Hills, CA 92653

Subject: Letter of Opinion – Speeding, Cut-through Traffic, and Collision Concerns along Wilkes Place and Grissom Road, and Speeding Along Bridlewood Drive and Nellie Gail Road

Dear Mr. Rosenfield,

Pursuant to your request, Hartzog & Crabill, Inc. (HCI) has prepared this traffic engineering evaluation regarding resident concerns of speeding and cut-through traffic, along with review of collisions, on the following two street segments:

- Wilkes Place, south of Alicia Parkway, and
- Grissom Road, east of Wilkes Place.

This evaluation also includes follow-up spot speed radar surveys along the two following two segments:

- Bridlewood Drive, between Vista Viejo Road and Laurel Crest Drive,
- Nellie Gail Road, between Oso Parkway and Hidden Trail Road.

BACKGROUND

Wilkes Place

Wilkes Place, between Alicia Parkway and Grissom Road, is a 36-foot to 40-foot wide, 2-lane, diagonal north-south residential collector roadway. At the project limits, there is a traffic signal at Alicia Parkway and a 90 degree bend at Grissom Road. There is double-yellow and single-yellow skip centerline striping along the entire segment. There is also an uncontrolled, marked yellow crosswalk across Wilkes Place at Barents Street, along with SCHOOL XING warning signs and advance SLOW SCHOOL XING pavement markings. There is a posted 25 MPH speed limit sign just south of Alicia Parkway. On-street parking is allowed along both sides of Wilkes Place.

Mr. Kenneth H. Rosenfield, PE
January 9, 2019
Page 2 of 8

BACKGROUND (continued)

Grissom Road

Grissom Road, between Wilkes Place and Las Bolsas Street, is a 36-foot wide, 2-lane, east-west residential collector roadway. At the project limits, there are 90-degree bends with double-yellow centerlines delineating the curves only. There is no centerline striping along the entire segment, and no posted speed limit signs. On-street parking is allowed along both sides of Grissom Road. An intersecting T-intersection with Velasquez Road connects to Paseo de Valencia.

Bridlewood Drive

Bridlewood Drive, between Vista Viejo Road and Laurel Crest Drive, is a 40-foot wide, 2-lane, north-south residential collector roadway. At the project limits, there is a 1-way stop at Vista Viejo Road and a 3-way stop at Laurel Crest Drive. There is no centerline striping along the entire segment, with exception of a short length of double-yellow centerline at the project limits. There are posted 25 MPH speed limit signs along Bridlewood Drive, between Vista Viejo Road and Laurel Crest Drive. There are also '25' pavement markings adjacent to the sign postings. On-street parking is allowed along both sides of Bridlewood Drive.

Nellie Gail Road

Nellie Gail Road, between Oso Parkway and Hidden Trail Road, is a 40-foot wide, curvy 2-lane, residential collector roadway. There is a traffic signal control at Oso Parkway and a one-way Stop control at Hidden Trail Road. There is a double-yellow centerline stripe along the entire segment, and a raised landscaped center median at Oso Parkway. There are Equestrian Xings with posted warning signs within this segment, along with other advance Side Street warning signs. There are posted 25 MPH speed limit signs along Nellie Gail Road between Oso Parkway and Hidden Trail Road. There is also a '25' pavement marking adjacent to the sign posting just south of Oso Parkway. On-street parking is allowed along both sides of Nellie Gail Road.

TRAVEL SPEED DATA

To determine travel speeds on the four (4) segments of:

- 1) Wilkes Place, between Alicia Parkway and Grissom Road;
- 2) Grissom Road, between Wilkes Place and Las Bolsas Street;
- 3) Bridlewood Drive, between Vista Viejo Road and Laurel Crest Drive;
- 4) Nellie Gail Road, between Oso Parkway and Hidden Trail Road;

a spot speed radar survey was conducted on each of the locations on Tuesday, December 11, and on Wednesday, December 12, 2018. Tables 1 and 2 (next page) summarize the spot speed radar survey data.

TRAVEL SPEED DATA (continued)

TABLE 1
SPEED SURVEY SUMMARY
WILKES PLACE, FROM ALICIA PARKWAY TO GRISSOM ROAD
GRISSOM ROAD, FROM WILKES PLACE TO LAS BOLSAS STREET

Speed Summary	Along Wilkes Place Segment	Along Grissom Road Segment
Posted Speed Limit	25 MPH	25 MPH
85 th Percentile Speed	30 MPH	28.4 MPH
Average Speed	25 MPH	25.2 MPH
10 MPH Pace Range	21 - 30 MPH	20 - 29 MPH
Percent of Vehicles in Pace	74.1%	87.3%

Source: Hartzog & Crabill, Inc., 2018.

TABLE 2
SPEED SURVEY SUMMARY
BRIDLEWOOD DRIVE, FROM VISTA VIEJO ROAD TO LAUREL CREST DRIVE
NELLIE GAIL ROAD, FROM OSO PARKWAY TO HIDDEN TRAIL ROAD

Speed Summary	Along Bridlewood Drive Segment	Along Nellie Gail Road Segment
Posted Speed Limit	25 MPH	25 MPH
85 th Percentile Speed	36.1 MPH	34.8 MPH
Average Speed	29.3 MPH	30.9 MPH
10 MPH Pace Range	25 - 34 MPH	26 - 35 MPH
Percent of Vehicles in Pace	70.7%	77.0%

Source: Hartzog & Crabill, Inc., 2018.

As shown above, the 85th percentile speeds on Wilkes Place and Grissom Road were recorded at 30 MPH and 28.4 MPH, respectively. This data shows that typical travel speeds are occurring for a posted 25 MPH speed limit street. The 85th percentile speeds on Bridlewood Drive and Nellie Gail Road were recorded at 36.1 MPH and 34.8 MPH, respectively. This data shows that higher travel speeds are occurring along Bridlewood Drive. It is noted, back in March 2018, the 85th percentile speed on Bridlewood Drive was recorded at 37.1 MPH. In May 2018, the 85th percentile speed on Nellie Gail Road was recorded at 39 MPH, which has reduced to a typical speed for this type of roadway.

The overall speed radar survey data is attached to this letter.

Mr. Kenneth H. Rosenfield, PE
January 9, 2019
Page 4 of 8

TRAVEL SPEED DATA (continued)

In an effort to lower overall speeds on Bridlewood Drive, the City may want to consider taking an incremental approach that may include the following:

- increased law enforcement
- frequent deployment of portable radar speed-feedback trailers
- neighborhood watch committee meeting to help make all residents aware of speeding

TRAFFIC VOLUME DATA

Average Daily Traffic (ADT) counts were collected for the two (2) segments of Wilkes Place and Grissom Road on Wednesday, December 12, 2018. The ADT, or 24-hour two-way traffic volume, along these segments resulted in 838 and 494 vehicles, respectively.

A two-lane collector street generally has a Level-of-Service (LOS) 'D' capacity of 11,300 vehicles per day. Consequently, the current traffic volumes are well under the roadway capacity, and there are no other recommendations regarding traffic volume data to provide at this time.

The ADT count data collected as part of this evaluation is attached to this letter.

COLLISION DATA

HCI obtained collision data for the past six (6) years, between January 1, 2013 – November 30, 2018, from the Statewide Integrated Traffic Records System website (*i-SWITRS*) database to determine the number of collisions occurring on the two (2) segments of Wilkes Place and Grissom Road.

Tables 3 and 4 (next page) presents the summary collision data.

COLLISION DATA (continued)

TABLE 3
TRAFFIC COLLISION DATA SUMMARY
WILKES PLACE, FROM ALICIA PARKWAY TO GRISSOM ROAD

YEAR	NUMBER OF COLLISIONS	FATAL	INJURY	PROPERTY DAMAGE ONLY
2013	0	0	0	0
2014	0	0	0	0
2015	0	0	0	0
2016	3	0	3	0
2017	0	0	0	0
2018 *	0	0	0	0

* Available SWITRS data up to November 2018 at the time of report preparation.

As shown above, there have been a total of three (3) collisions reported within the last six (6) years on Wilkes Place. It is noted, all three collisions occurred at the intersection of Wilkes Place and Alicia Parkway. There were no collisions determined as ‘speed-related’.

TABLE 4
TRAFFIC COLLISION DATA SUMMARY
GRISSOM ROAD, FROM WILKES PLACE TO LAS BOLSAS STREET

YEAR	NUMBER OF COLLISIONS	FATAL	INJURY	PROPERTY DAMAGE ONLY
2013	0	0	0	0
2014	0	0	0	0
2015	0	0	0	0
2016	0	0	0	0
2017	0	0	0	0
2018 *	1	0	0	1

* Available SWITRS data up November 2018 at the time of report preparation.

As shown above, there has been a total of one (1) collision reported within the last six (6) years on Grissom Road. This collision occurred at the intersection of Grissom Road and Las Bolsas Street, and was not determined as ‘speed-related’.

Consequently, there are no other recommendations regarding collision data on these two segments at this time.

The comprehensive 6-year segment collision history reports are attached to this letter.

CUT-THROUGH TRAFFIC

An Origin and Destination (O&D) study (i.e., license plate survey) was conducted on Wednesday, December 12, 2018 during the AM peak period (7 - 9am) to quantify the amount of traffic that are likely using Wilkes Place and Grissom Road as a short-cut.

The study collected license plate numbers in a 5-minute interval basis for all vehicles entering and exiting Wilkes Place at the project limit of Alicia Parkway, and also entering and exiting Velasquez Road at Paseo de Valencia (via Grissom Road).

Table 5 below shows a summary of the license plate matches recorded per each hour.

TABLE 5
ORIGIN-DESTINATION LICENSE PLATE MATCHES
USING WILKES PLACE AND GRISSOM ROAD

Path	7:00:00 AM	7:05:00 AM	7:45:00 AM	7:50:00 AM	8:05:00 AM	8:10:00 AM	8:15:00 AM	8:50:00 AM	8:55:00 AM	Total
2 to 1	1	1	1		3		1			7
1 to 2				2	1	2	1	1	1	8
Grand Total	1	1	1	2	4	2	2	1	1	15

The numbers (1 to 2 & 2 to 1) in Table 5 above refer to vehicles entering from and exiting to as follows:

Location 1 - Wilkes Place, just south of Alicia Parkway.

Location 2 - Velasquez Road, just north of Paseo de Valencia (short leg leading to Grissom Road).

The overall Origin-Destination Study spreadsheet is attached to this letter.

Per the ADT count data collected, the hourly traffic volumes for these same peak hours are compared as follows:

<u>Hour</u>	<u>ADT Traffic Volume</u>	<u>Cut-Thru</u>	<u>Cut-Thru/Volume</u>
7-8 AM	48	5	10%
8-9 AM	170	10	6%

As shown above, the actual hourly percentages are very low for what may be considered 'cut-through' traffic. Consequently, there are no recommendations regarding 'cut-through' traffic at this time.

Mr. Kenneth H. Rosenfield, PE
 January 9, 2019
 Page 7 of 8

SUMMARY

Wilkes Place and Grissom Road

In summary, the traffic data on Wilkes Place and Grissom Road resulted in the following:

- ✓ typical travel speeds are occurring for these 25 MPH speed limit streets;
- ✓ traffic volumes are well-below the traffic carrying capacity of the two roadways;
- ✓ there is no traffic collision history related to traffic speeds along these segments; and,
- ✓ 'cut-through' traffic is determined as very low.

Bridlewood Drive and Nellie Gail Road

In summary, the recent speed data on Bridlewood Drive and Nellie Gail Road resulted in the following:

- ✓ higher than typical travel speeds are occurring along Bridlewood Drive.
- ✓ the Nellie Gail Road speed results are typical and do not result in recommended actions.

RECOMMENDATIONS

Wilkes Place and Grissom Road

In review of the existing School Xing signage on Wilkes Place, it is recommended to update the signage to the newer standard signs with fluorescent yellow-green background.

Bridlewood Drive

In order to address the higher travel speeds along Bridlewood Drive, it is recommended that an incremental approach continue to be followed, which includes:

- increased law enforcement.
- frequent deployment of portable radar speed-feedback trailers.
- neighborhood watch committee meeting to help make all residents aware of speeding.

Mr. Kenneth H. Rosenfield, PE
January 9, 2019
Page 8 of 8

It has been our pleasure to prepare this letter of opinion regarding speeds, traffic volumes, collisions, and cut-through traffic on these project segments. If you have any questions or need additional information, please feel free to call us anytime at (714) 731-9455.

Sincerely,
HARTZOG & CRABILL, INC.



Gerald J. Stock, PE, TE
Executive Vice President

Attachments: Spot Speed Radar Data
 ADT Traffic Volume Data
 Collision History Data
 Origin-Destination Study

Spot Speed Radar Data

SUMMARY OF SPOT SPEED SURVEYS DECEMBER 2018

STREET LOCATION	EXISTING SPEED LIMIT	RECOMMENDED SPEED LIMIT	85 TH PERCENTILE SPEED	AVERAGE SPEED	10 MPH PACE RANGE	PERCENT OF VEHICLES IN PACE	DAY / DATE / TIME
<u>BRIDLEWOOD DRIVE</u>							
LAUREL CREST TO VISTA VIEJO	25	-	36.1	29.3	25-34	70.7	WED / 12-12-18 / MID-DAY (12:15 - 2:00)
<u>GRISSOM ROAD</u>							
WILKES PL TO LAS BOLSAS ST	25	-	28.4	25.2	20-29	87.3	TUES / 12-11-18 / MID-DAY (12:15 - 2:00)
<u>NELLIE GAIL ROAD</u>							
OSO PKWY TO HIDDEN TRAIL RD	25	-	34.8	30.9	26-35	77.0	WED / 12-12-18 / MID-DAY (11:00 - 12:00)
<u>WILKES PLACE</u>							
ALICIA PKWY TO GRISSOM RD	25	-	30.0	25.0	21-30	74.1	TUES / 12-11-18 / MID-DAY (10:45 - 12:15)

Radar Speed Survey Field Sheet

 AGENCY: CITY OF LAGUNA HILLS
 STREET: BRIDLEWOOD
 LOCATION: VISTA VIEJO RD TO LAUREL CREST DR

 WEATHER: SUNNY DATE: 12-12-18
 ROAD CONDITION: DRY START TIME: 12:15 PM
 OBSERVER: CATHY BUENDIA END TIME: 2:00 PM VUB

DIRECTION: <u>SOUTHBOUND</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						1
45						0
44	/					0
43	/					1
42						0
41						0
40	/					1
39	//					2
38						0
37						0
36						0
35	/					1
34	//					3
33	/					1
32	/					1
31	//					5
30	//					3
29	//					2
28	//					5
27	//					3
26	//					3
25	//					6
24	//					3
23	/					0
22						0
21						0
20	/					1
19						
18						
17						
16						
15						

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

DIRECTION: <u>NORTHBOUND</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	/					1
46						0
45	/					1
44						0
43						0
42						0
41	//					2
40						0
39	//					2
38						0
37	//					3
36						0
35	//					4
34	//					4
33	//					4
32	//					6
31	//					4
30	//					3
29	//					2
28	//					6
27	//					0
26	//					2
25	//					5
24	//					1
23	/					2
22	/					1
21						
20	/					
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
2	47
0	46
1	45
1	44
0	43
0	42
2	41
1	40
4	39
0	38
3	37
0	36
5	35
4	34
5	33
7	32
9	31
10	30
4	29
11	28
8	27
5	26
11	25
4	24
3	23
1	22
0	21
1	20
	19
	18
	17
	16
	15

RADAR SPEED DISTRIBUTION SHEET

HCI

CITY OF LAGUNA HILLS

BRIDLEWOOD DRIVE

DATE: 12/12/2018

TIME: 12:15 PM - 2:00 PM

LAUREL CREST DR TO VISTA VIEJO

SURVEY BY: C. BUENDIA

CHECKED BY: JERRY STOCK

		NUMBER OF VEHICLES																											
SPEED		5					10					15					20					25					VEH.	PCT.	CUM. PCT.
60																												100.0%	
																												100.0%	
																												100.0%	
																												100.0%	
55																												100.0%	
																												100.0%	
																												100.0%	
																												100.0%	
50																												100.0%	
																												100.0%	
																												100.0%	
																												100.0%	
45	X	X																								2	2.0%	100.0%	
																									0	0.0%	98.0%		
	X																								1	1.0%	98.0%		
	X																								1	1.0%	97.0%		
40	X																									1	1.0%	96.0%	
	X																								0	0.0%	94.9%		
	X	X																							2	2.0%	94.9%		
	X																								1	1.0%	92.9%		
35	X	X	X	X																						4	4.0%	91.9%	
	X	X	X	X																					0	0.0%	87.9%		
	X	X	X																						3	3.0%	87.9%		
	X	X	X	X	X																				0	0.0%	84.8%		
30	X	X	X	X	X																					5	5.1%	84.8%	
	X	X	X	X	X	X	X																		5	5.1%	75.8%		
	X	X	X	X	X	X	X	X																	7	7.1%	70.7%		
	X	X	X	X	X	X	X	X	X																9	9.1%	63.6%		
25	X	X	X	X	X	X																				6	6.1%	54.5%	
	X	X	X	X																					4	4.0%	48.5%		
	X	X	X	X	X	X	X	X	X	X	X														11	11.1%	44.4%		
	X	X	X	X	X	X	X	X																	8	8.1%	33.3%		
20	X	X	X	X	X																					5	5.1%	25.3%	
	X	X	X	X																									
	X	X	X																										
	X																												
15	X																												
TOTAL VEHICLES																										99		0.0%	

UPPER LIMIT 10 MPH PACE: 34 MPH

LOWER LIMIT 10 MPH PACE: 25 MPH

PERCENT OVER PACE: 24.2 %

PERCENT IN PACE: 70.7 %

PERCENT UNDER PACE: 9.1 %

85th PERCENTILE SPEED: 36.1 MPH

MEDIAN SPEED: 29.3 MPH

15th PERCENTILE SPEED: 24.5 MPH

Attachment: Traffic Study (1766 : Review of Traffic Conditions on Wilkes Place and Grissom Road)

Radar Speed Survey Field Sheet

HARTZOG AND CRABILL INC.
Consulting Traffic Engineers
11592 Irvine Blvd., Suite 122 Irvine CA 92618
(714) 731-9455

AGENCY: CITY OF LAGUNA HILLS
STREET: GRISSOM ROAD
LOCATION: WILKES PL TO LAS BOISAS ST.

WEATHER: SUNNY DATE: 12-11-18
ROAD CONDITION: DRY START TIME: 12:15 PM
OBSERVER: CATHY BUENDIA END TIME: 2:00 PM

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



RADAR SPEED DISTRIBUTION SHEET

CITY OF LAGUNA HILLS

GRISSOM ROAD

DATE: 12/11/2018

TIME: 12:15 PM - 2:00 PM

WILKES PLACE TO LAS BOLSAS ST

SURVEY BY: C. BUENDIA

CHECKED BY: JERRY STOCK

[illegible]

Attachment: Traffic Study (1766 : Review of Traffic Conditions on Wilkes Place and Grissom Road)

UPPER LIMIT 10 MPH PACE: 29 MPH

LOWER LIMIT 10 MPH PACE: 20 MPH

PERCENT OVER PACE: 12.7 %

PERCENT IN PACE: 87.3 %

PERCENT UNDER PACE:	0.0	%
---------------------	-----	---

85th PERCENTILE SPEED: 28.4 MPH

MEDIAN SPEED: 25.2 MPH

15th PERCENTILE SPEED: 22.6 MPH

Radar Speed Survey Field Sheet

 AGENCY: CITY OF LAGUNA HILLS

 STREET: NEELIE GAIL ROAD

 LOCATION: OSO PKWY TO HIDDEN TRAIL RD

 WEATHER: SUNNY DATE: 12-12-18

 ROAD CONDITION: DRY START TIME: 11:00 AM

 OBSERVER: CATHY BUENDIA END TIME: 12:00 PM ✓ OK

DIRECTION: <u>SOUTHBOUND</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	/									2
42	/									0
41	/									0
40										0
39										0
38	/									1
37	/	/	/	/						4
36	/	/	/	/						0
35	/	/	/	/	/					7
34	/	/	/	/	/					4
33	/	/	/	/	/					4
32	/	/	/	/	/					6
31	/	/	/	/	/					2
30	/	/	/	/	/					3
29	/	/	/	/	/					9
28	/	/	/	/	/					4
27	/	/	/	/	/					4
26	/	/	/	/	/					5
25	/	/	/	/	/					4
24	/	/	/	/	/					2
23	/	/	/	/	/					1
22	/	/	/	/	/					0
21	/	/	/	/	/					0
20	/	/	/	/	/					1
19										
18										
17										
16										
15										

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

CUMULATIVE (BOTH DIRECTIONS) _____

DIRECTION: <u>NORTHBOUND</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	/									1
39	/	/	/	/						2
38	/	/	/	/						0
37	/	/	/	/						4
36	/	/	/	/						2
35	/	/	/	/	/					10
34	/	/	/	/	/					7
33	/	/	/	/	/					5
32	/	/	/	/	/					8
31	/	/	/	/	/					9
30	/	/	/	/	/					4
29	/	/	/	/	/					4
28	/	/	/	/	/					7
27	/	/	/	/	/					0
26	/	/	/	/	/					5
25	/	/	/	/	/					3
24	/	/	/	/	/					0
23	/	/	/	/	/					0
22	/	/	/	/	/					1
21	/	/	/	/	/					1
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
	44
2	43
0	42
1	41
1	40
2	39
1	38
8	37
2	36
17	35
11	34
9	33
14	32
11	31
17	30
13	29
11	28
4	27
10	26
5	25
5	24
1	23
2	22
1	21
1	20
	19
	18
	17
	16
	15



RADAR SPEED DISTRIBUTION SHEET

CITY OF LAGUNA HILLS

NELLIE GAIL ROAD

DATE: 12/12/2018

TIME: 11:00 AM - 12:00 PM

OSO PKWY TO HIDDEN TRAIL RD

SURVEY BY: C. BUENDIA

CHECKED BY: JERRY STOCK

SPEED		NUMBER OF VEHICLES																									VEH.	PCT.	CUM. PCT.
		5	10	15	20	25																							
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%		
	X	X																							2	1.4%	100.0%		
																									0	0.0%	98.6%		
	X																								1	0.7%	98.6%		
40	X																										98.6%		
	X	X																							2	1.4%	97.1%		
	X																								1	0.7%	95.7%		
	X	X	X	X	X	X	X	X																	8	5.8%	95.0%		
	X	X																							2	1.4%	89.2%		
35	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X										17	12.2%	87.8%	
	X	X	X	X	X	X	X	X	X	X	X															11	7.9%	75.5%	
	X	X	X	X	X	X	X	X	X	X																9	6.5%	67.6%	
	X	X	X	X	X	X	X	X	X	X	X	X	X													14	10.1%	61.2%	
	X	X	X	X	X	X	X	X	X	X																11	7.9%	51.1%	
30	X	X	X	X	X	X	X																			7	5.0%	43.2%	
	X	X	X	X	X	X	X	X	X	X	X	X														13	9.4%	38.1%	
	X	X	X	X	X	X	X	X	X	X	X															11	7.9%	28.8%	
	X	X	X	X																						4	2.9%	20.9%	
	X	X	X	X	X	X	X	X	X																	10	7.2%	18.0%	
25	X	X	X	X	X																					5	3.6%	10.8%	
	X	X	X	X	X																					5	3.6%	7.2%	
	X																								1	0.7%	3.6%		
	X	X																							2	1.4%	2.9%		
	X																								1	0.7%	1.4%		
20	X																								1	0.7%	0.7%		
15																											0.0%		
																											0.0%		
																											0.0%		
																											0.0%		
																											0.0%		
		TOTAL VEHICLES																									139		

UPPER LIMIT 10 MPH PACE: 35 MPH

LOWER LIMIT 10 MPH PACE: 26 MPH

PERCENT OVER PACE: 12.2 %

PERCENT IN PACE: 77.0 %

PERCENT UNDER PACE: 10.8 %

85th PERCENTILE SPEED: 34.8 MPH

MEDIAN SPEED: 30.9 MPH

15th PERCENTILE SPEED: 25.6 MPH

Attachment: Traffic Study (1766 : Review of Traffic Conditions on Wilkes Place and Grissom Road)

Radar Speed Survey Field Sheet

HARTZOG AND CRABILL INC.
Consulting Traffic Engineers
17592 Irvine Blvd., Suite 122, Tustin, CA 92690
(714) 731-9455

AGENCY: CITY OF LAGUNA HILLS
STREET: WILKES PLACE
LOCATION: ALICIA PKWY TO GRISSOM RD

WEATHER: SUNNY DATE: 12-11-18
ROAD CONDITION: DRY START TIME: 10:45 AM
OBSERVER: CATHY BUENDIA END TIME: 12:15 PM VKL

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

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

DIRECTION:										
MPH	5	NUMBER OF VEHICLES				25	30	TOTAL		
	10	15	20							
60										
59										
58										
57										
56										
55										
54										
53										
52										
51										
50										
49										
48										
47										
46										
45										
44										
43										
42										
41										
40										
39										
38										
37										0
36										0
35										0
34										0
33										0
32										1
31										1
30										4
29										2
28										4
27										4
26										2
25										3
24										2
23										0
22										2
21										2
20										0
19										0
18										1
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
	44
	43
	42
	41
	40
	39
	38
1	37
0	36
0	35
0	34
0	33
2	32
3	31
1	30
6	29
3	28
4	27
4	26
2	25
3	24
6	23
2	22
3	21
7	20
4	19
0	18
2	17
	16
	15



RADAR SPEED DISTRIBUTION SHEET

CITY OF LAGUNA HILLS

WILKES PLACE

ALICIA PKWY TO GRISSOM ROAD

DATE: 12/11/2018

SURVEY BY: C. BUENDIA

TIME: 10:45 AM - 12:15 PM

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%
55													100.0%
													100.0%
													100.0%
													100.0%
50													100.0%
													100.0%
													100.0%
													100.0%
45													100.0%
													100.0%
													100.0%
													100.0%
40													100.0%
													100.0%
													100.0%
													100.0%
	X										1	1.9%	100.0%
											0	0.0%	98.1%
	X										1	1.9%	98.1%
35											0	0.0%	96.3%
											0	0.0%	96.3%
	X	X									2	3.7%	96.3%
	X	X	X								3	5.6%	92.6%
	X										1	1.9%	87.0%
30	X	X	X	X	X	X					6	11.1%	85.2%
	X	X	X								3	5.6%	74.1%
	X	X	X	X							4	7.4%	68.5%
	X	X	X	X							4	7.4%	61.1%
	X	X									2	3.7%	53.7%
25	X	X	X	X	X	X					6	11.1%	50.0%
	X	X	X								3	5.6%	38.9%
	X	X									2	3.7%	33.3%
	X	X	X								3	5.6%	29.6%
	X	X	X	X	X	X	X	X			7	13.0%	24.1%
20	X	X	X	X							4	7.4%	11.1%
											0	0.0%	3.7%
	X	X									2	3.7%	3.7%
													0.0%
													0.0%
15													0.0%
TOTAL VEHICLES											54		

UPPER LIMIT 10 MPH PACE: 30 MPH

LOWER LIMIT 10 MPH PACE: 21 MPH

PERCENT OVER PACE: 14.8 %

PERCENT IN PACE: 74.1 %

PERCENT UNDER PACE: 11.1 %

85th PERCENTILE SPEED: 30.0 MPH

MEDIAN SPEED: 25.0 MPH

15th PERCENTILE SPEED: 20.3 MPH

Attachment: Traffic Study (1766 : Review of Traffic Conditions on Wilkes Place and Grissom Road)

ADT Traffic Volume Data

Prepared by NDS/ATD

VOLUME

Wilkes Pl Bet. Alicia Pkwy & Grissom Rd

Day: Wednesday
Date: 12/12/2018City: Laguna Hills
Project #: CA18_1262_001

DAILY TOTALS					NB	SB	EB					WB	Total
					465	373						0	0
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL		
00:00	2	2			4	12:00	10	6			16		
00:15	1	1			2	12:15	6	3			9		
00:30	0	1			1	12:30	3	7			10		
00:45	0	3	0	4	0	12:45	3	22	9	25	12	47	
01:00	0	0			0	13:00	6	21			27		
01:15	0	1			1	13:15	55	12			67		
01:30	0	0			0	13:30	15	4			19		
01:45	0	0	1		0	13:45	3	79	6	43	9	122	
02:00	0	0			0	14:00	6	1			7		
02:15	0	0			0	14:15	3	0			3		
02:30	1	0			1	14:30	3	7			10		
02:45	0	1	0		0	14:45	5	17	3	11	8	28	
03:00	0	1			1	15:00	6	6			12		
03:15	0	0			0	15:15	1	6			7		
03:30	0	0			0	15:30	4	5			9		
03:45	0	0	1		0	15:45	5	16	1	18	6	34	
04:00	0	0			0	16:00	6	2			8		
04:15	1	1			2	16:15	5	8			13		
04:30	0	0			0	16:30	8	7			15		
04:45	1	2	1	2	2	16:45	5	24	7	24	12	48	
05:00	2	0			2	17:00	4	10			14		
05:15	2	1			3	17:15	7	11			18		
05:30	4	0			4	17:30	9	7			16		
05:45	3	11	0	1	3	17:45	6	26	2	30	8	56	
06:00	1	0			1	18:00	6	9			15		
06:15	2	1			3	18:15	2	5			7		
06:30	2	2			4	18:30	2	6			8		
06:45	7	12	2	5	9	18:45	5	15	8	28	13	43	
07:00	3	2			5	19:00	0	5			5		
07:15	6	3			9	19:15	1	2			3		
07:30	7	4			11	19:30	5	3			8		
07:45	12	28	11	20	23	19:45	3	9	10	20	13	29	
08:00	68	29			97	20:00	2	8			10		
08:15	34	3			37	20:15	2	3			5		
08:30	13	5			18	20:30	1	5			6		
08:45	11	126	7	44	18	20:45	3	8	6	22	9	30	
09:00	2	7			9	21:00	4	3			7		
09:15	4	5			9	21:15	0	5			5		
09:30	3	1			4	21:30	0	2			2		
09:45	5	14	4	17	9	21:45	2	6	1	11	3	17	
10:00	2	1			3	22:00	1	4			5		
10:15	6	6			12	22:15	1	3			4		
10:30	4	6			10	22:30	1	0			1		
10:45	4	16	4	17	8	22:45	1	4	0	7	1	11	
11:00	5	8			13	23:00	1	0			1		
11:15	8	3			11	23:15	0	2			2		
11:30	6	2			8	23:30	2	2			4		
11:45	4	23	3	16	7	23:45	0	3	2	6	2	9	
TOTALS	236	128			364	TOTALS	229	245			474		
SPLIT %	64.8%	35.2%			43.4%	SPLIT %	48.3%	51.7%			56.6		

DAILY TOTALS					NB	SB	EB	WB	Total
					465	373	0	0	838
AM Peak Hour	07:45	07:45		07:45	PM Peak Hour	12:45	12:30		12:4
AM Pk Volume	127	48		175	PM Pk Volume	79	49		125
Pk Hr Factor	0.467	0.414		0.451	Pk Hr Factor	0.359	0.583		0.46
7 - 9 Volume	154	64	0	0	4 - 6 Volume	50	54	0	0
7 - 9 Peak Hour	07:45	07:45		07:45	4 - 6 Peak Hour	17:00	16:30		16:4
7 - 9 Pk Volume	127	48	0	0	4 - 6 Pk Volume	26	35	0	0
Pk Hr Factor	0.467	0.414	0.000	0.000	Pk Hr Factor	0.722	0.795	0.000	0.000

Attachment: Traffic Study (1766 : Review of Traffic Conditions on Wilkes Place and Grissom Road)

Prepared by NDS/ATD

VOLUME

Grissom Rd Bet. Wilkes Pl & Las Bolsas

Day: Wednesday
Date: 12/12/2018City: Laguna Hills
Project #: CA18_1262_002

DAILY TOTALS					NB	SB	EB					WB	Total
					0	0						259	235
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL		
00:00			0	0	0	12:00			3	1	4		
00:15			0	0	0	12:15			2	2	4		
00:30			0	0	0	12:30			4	0	4		
00:45			0	0	0	12:45			1	10	11		
01:00			0	1	1	13:00			8	4	12		
01:15			0	0	0	13:15			4	16	20		
01:30			0	0	0	13:30			7	1	8		
01:45			0	0	0	13:45			4	23	27		
02:00			1	0	1	14:00			5	3	8		
02:15			0	0	0	14:15			8	4	12		
02:30			0	0	0	14:30			4	4	8		
02:45			0	1	1	14:45			3	20	23		
03:00			0	1	1	15:00			7	3	10		
03:15			0	0	0	15:15			2	2	4		
03:30			0	0	0	15:30			3	4	7		
03:45			0	0	0	15:45			6	18	24		
04:00			0	0	0	16:00			4	2	6		
04:15			1	0	1	16:15			6	3	9		
04:30			0	2	2	16:30			2	5	7		
04:45			1	2	3	16:45			9	21	30		
05:00			0	0	0	17:00			8	2	10		
05:15			0	1	1	17:15			13	4	17		
05:30			0	0	0	17:30			3	7	10		
05:45			0	1	1	17:45			11	35	46		
06:00			0	1	1	18:00			8	1	9		
06:15			3	3	6	18:15			6	2	8		
06:30			0	4	4	18:30			4	2	6		
06:45			3	6	9	18:45			1	19	20		
07:00			2	1	3	19:00			4	2	6		
07:15			2	5	7	19:15			1	3	4		
07:30			4	8	12	19:30			4	1	5		
07:45			10	18	28	19:45			4	13	17		
08:00			7	5	12	20:00			4	1	5		
08:15			4	11	15	20:15			1	1	2		
08:30			4	4	8	20:30			3	1	4		
08:45			2	17	19	20:45			0	8	8		
09:00			6	2	8	21:00			3	1	4		
09:15			3	5	8	21:15			0	0	0		
09:30			0	5	5	21:30			3	1	4		
09:45			2	11	13	21:45			2	8	10		
10:00			2	2	4	22:00			0	1	1		
10:15			4	3	7	22:15			1	1	2		
10:30			4	4	8	22:30			1	0	1		
10:45			2	12	14	22:45			0	2	2		
11:00			6	5	11	23:00			0	0	0		
11:15			2	4	6	23:15			0	0	0		
11:30			3	3	6	23:30			0	2	2		
11:45			3	14	17	23:45			1	1	2		
TOTALS	81				104	TOTALS	178				131	309	
SPLIT %	43.8%				56.2%	SPLIT %	57.6%				42.4%	62.6	

DAILY TOTALS			NB	SB	EB				WB		Total
			0	0							259
AM Peak Hour			07:30	07:30	07:30	PM Peak Hour			17:00	12:45	17:0
AM Pk Volume			25	30	55	PM Pk Volume			35	26	56
Pk Hr Factor			0.625	0.682	0.859	Pk Hr Factor			0.673	0.406	0.73
7 - 9 Volume	0	0	35	44	79	4 - 6 Volume	0	0	56	35	91
7 - 9 Peak Hour			07:30	07:30	07:30	4 - 6 Peak Hour			17:00	17:00	17:0
7 - 9 Pk Volume	0	0	25	30	55	4 - 6 Pk Volume	0	0	35	21	56
Pk Hr Factor	0.000	0.000	0.625	0.682	0.859	Pk Hr Factor	0.000	0.000	0.673	0.656	0.73

Attachment: Traffic Study (1766 : Review of Traffic Conditions on Wilkes Place and Grissom Road)

Collision History Data

CITY OF LAGUNA HILLS
5-YEAR SWITRS COLLISION DATABASE
WILKES PLACE, FROM ALICIA PARKWAY TO GRISSOM ROAD
JAN. 1, 2013 - NOV. 30, 2018

CASE ID	COLLISION DATE	COLL. TIME	PRIMARY ROAD	SECONDARY ROAD	DIST.	DIR.	INTERS.	WEATH. 1	COLL. SEVERITY	PRIM. COLL. FACT.	PCF VIOL. CAT.	PCF VIOL.	HIT AND RUN	TYPE OF COLL.	MOTOR VEHICLE INVOLVED WITH	ROW SL
8090227	20160704	2315	ALICIA PKWY	WILKES PL	0		Y	A	4	D	0		N	A	C	
8180551	20161113	2008	ALICIA PKWY	WILKES PL	0		Y	A	3	A	12	21453	N	D	C	
8197315	20161122	935	ALICIA PKWY	WILKES PL	0		Y	A	4	A	12	21453	N	D	C	

NOTES:**Weather 1**

A - Clear
 B - Cloudy
 C - Raining
 D - Snowing
 E - Fog
 F - Other
 G - Wind
 - - Not Stated

Collision Severity

1 - Fatal
 2 - Injury (Severe)
 3 - Injury (Other Visible)
 4 - Injury (Complaint of Pain)
 0 - PDO (Property Damage Only)

Primary Collision Factor

A - (Vehicle) Code Violation
 B - Other Improper Driving
 C - Other Than Driver
 D - Unknown
 E - Fell Asleep
 - - Not Stated

PCF Violation Category

01 - Driving or Bicycling Under Influence
 02 - Impeding Traffic
 03 - Unsafe Speed
 04 - Following Too Closely
 05 - Wrong Side of Road
 06 - Improper Passing
 07 - Unsafe Lane Change
 08 - Improper Turning
 09 - Automobile ROW
 10 - Pedestrian ROW
 11 - Pedestrian Violation
 12 - Traffic Signals and Signs
 13 - Hazardous Parking
 14 - Lights
 15 - Brakes
 16 - Other Equipment
 17 - Other Hazardous Violation
 18 - Other Than Driver (or Ped)
 19 -
 20 -
 21 - Unsafe Starting or Backing
 22 - Other Improper Driving
 23 - Pedestrian or "Other" Under the Influence
 24 - Fell Asleep
 00 - Unknown
 - - 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

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

Road Surface

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

CITY OF LAGUNA HILLS
5-YEAR SWITRS COLLISION DATABASE
GRISSOM ROAD, FROM WILKES PLACE TO LAS BOLSAS AVENUE
JAN. 1, 2013 - NOV. 30, 2018

CASE ID	COLLISION DATE	COLL. TIME	PRIMARY ROAD	SECONDARY ROAD	DIST.	DIR.	INTERS.	WEATH. 1	COLL. SEVERITY	PRIM. COLL. FACT.	PCF VIOL. CAT.	PCF VIOL.	HIT AND RUN	TYPE OF COLL.	MOTOR VEHICLE INVOLVED WITH	ROAD SURFACE
8636969	20180503	1229	GRISSOM RD	LAS BOLSAS AV	0		Y	A	0	A	8	22107	M	D	E	

NOTES:**Weather 1**

A - Clear
 B - Cloudy
 C - Raining
 D - Snowing
 E - Fog
 F - Other
 G - Wind
 - - Not Stated

Collision Severity

1 - Fatal
 2 - Injury (Severe)
 3 - Injury (Other Visible)
 4 - Injury (Complaint of Pain)
 0 - PDO (Property Damage Only)

Primary Collision Factor

A - (Vehicle) Code Violation
 B - Other Improper Driving
 C - Other Than Driver
 D - Unknown
 E - Fell Asleep
 - - Not Stated

PCF Violation Category

01 - Driving or Bicycling Under Influence
 02 - Impeding Traffic
 03 - Unsafe Speed
 04 - Following Too Closely
 05 - Wrong Side of Road
 06 - Improper Passing
 07 - Unsafe Lane Change
 08 - Improper Turning
 09 - Automobile ROW
 10 - Pedestrian ROW
 11 - Pedestrian Violation
 12 - Traffic Signals and Signs
 13 - Hazardous Parking
 14 - Lights
 15 - Brakes
 16 - Other Equipment
 17 - Other Hazardous Violation
 18 - Other Than Driver (or Ped)
 19 -
 20 -
 21 - Unsafe Starting or Backing
 22 - Other Improper Driving
 23 - Pedestrian or "Other" Under the Influence
 24 - Fell Asleep
 00 - Unknown
 - - 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

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

Road Surface

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

Origin-Destination Study Data

Prepared by National Data and Surveying Services

Origin and Destination Study**Day:** Wednesday**Date:** 12/12/2018**City:** Laguna Hills**Project:** 18-1263

Path	7:00:00 AM	7:05:00 AM	7:45:00 AM	7:50:00 AM	8:05:00 AM	8:10:00 AM	8:15:00 AM	8:50:00 AM	8:55:00 AM	Total
2 to 1	1	1	1		3		1			7
1 to 2				2	1	2	1	1	1	8
Grand Total	1	1	1	2	4	2	2	1	1	15

Location ID	Street
1	Wilkes Place S/O Alicia Pkwy
2	Velasquez Road N/O Paseo de Valencia
*All times correspond to vehicle origin time	



City of Laguna Hills

Traffic Commission

Staff Report

DATE: January 16, 2019
TO: Traffic Commissioners
FROM: Amber Shah
Associate Engineer
ISSUE: Repeat Speed Survey on Bridlewood Drive

RECOMMENDATION: That the Traffic Commission Request Staff Implement Additional Pavement Legends and Markings on Southbound Bridlewood Drive Between Vista Viejo Road and Laurel Crest Drive and Repeat the Speed Survey of Bridlewood Drive in Six Months' Time.

SUMMARY:

Staff was contacted by a resident of Moulton Ranch in April 2018 regarding concerns of vehicular speeding and traffic collisions on Bridlewood Drive, between Vista Viejo Road and Laurel Crest Drive, and on Devonshire Road, between Falling Leaf Drive and Nottingham Court. Please see the attached Vicinity Map. Based upon the resident's concern and in accordance with the Residential Streets Management Policy, staff subsequently initiated a review of the vehicular speeds, traffic volume and traffic collision history on Bridlewood Drive and on Devonshire Road. The report presented at the July 18, 2018 meeting of the Traffic Commission concluded the 85th percentile speed measurement of Bridlewood Drive was higher than expected and considered to be unacceptable for a residential character street. Additional traffic speed enforcement and use of the radar trailer were utilized to address this issue. The Traffic Commission requested staff repeat the speed survey of Bridlewood Drive in six months' time.

In accordance with the Traffic Commission's request, the Traffic Engineers of Hartzog & Crabill, Inc., (HCI) completed the attached January 9, 2019, speed survey of Bridlewood Drive from Vista Viejo Road to Laurel Crest Drive. This speed survey determined the 85th percentile speed on Bridlewood Drive reduced from 37.1 mph, as recorded in the first

Repeat Speed Survey on Bridlewood Drive

January 16, 2019

Page 2

speed survey in May 2018, to 36.1 mph in December 2018. The 85th percentile speed measurement of Bridlewood Drive is still higher than expected and considered to be unacceptable for a residential character street. The study also determined the percent of vehicles on Nellie Gail Road exceeding 34 mph has only slightly declined from 24.6% to 24.2% which is also a higher percentage than the expected percentage, typically at approximately 15%.

Based upon the results of this speed survey indicating vehicular speed remains an issue on Bridlewood Drive, staff field reviewed the existing number and locations of speed limit signage and pavement markings. Currently, there are 25 mph pavement legends and 25 mph signs posted at multiple locations along northbound Bridlewood Drive between Vista Viejo Road and Laurel Crest Drive and 25 mph signage but no pavement legends along southbound Bridlewood Drive. Staff recommends painting two “25” mph pavement legends adjacent to the posted speed limits signs along southbound Bridlewood Drive and “Stop Ahead” pavement markings in advance of the stop sign at Vista Viejo Road. Continued concentrated police enforcement of driver behavior is the best and appropriate remedy for residential streets vehicular speeding and is recommended for Bridlewood Drive. Staff will continue to work with the Sheriff’s Department on enforcement activity in this area and will also post the radar trailer in this area to increase driver education as to the appropriate speed on Bridlewood Drive. In addition, a follow-up speed survey is recommended to be performed in six months’ time. Should the speeding issue remain, the next incremental action will be evaluated.

ATTACHMENTS:

- Vicinity Map - Bridlewood Drive
- Traffic Study
- Bridlewood Dr Traffic Commission Agenda Item 4.2 7-18-18



Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, Esri Korea, Esri China (Hong Kong), Esri India, Esri Taiwan, Swisstopo, GEBCO, Esri UK, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User community



0 0.02750.055 0.11 mi

VICINITY MAP - BRIDLEWOOD DRIVE





Trammell Hartzog, President
Gerald J. Stock, PE, TE,
Executive Vice President

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

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

www.hartzog-crabill.com

January 9, 2019

Mr. Kenneth H. Rosenfield, PE
Assistant City Manager/Public Services Director
City of Laguna Hills
24035 El Toro Road
Laguna Hills, CA 92653

Subject: Letter of Opinion – Speeding, Cut-through Traffic, and Collision Concerns along Wilkes Place and Grissom Road, and Speeding Along Bridlewood Drive and Nellie Gail Road

Dear Mr. Rosenfield,

Pursuant to your request, Hartzog & Crabill, Inc. (HCI) has prepared this traffic engineering evaluation regarding resident concerns of speeding and cut-through traffic, along with review of collisions, on the following two street segments:

- Wilkes Place, south of Alicia Parkway, and
- Grissom Road, east of Wilkes Place.

This evaluation also includes follow-up spot speed radar surveys along the two following two segments:

- Bridlewood Drive, between Vista Viejo Road and Laurel Crest Drive,
- Nellie Gail Road, between Oso Parkway and Hidden Trail Road.

BACKGROUND

Wilkes Place

Wilkes Place, between Alicia Parkway and Grissom Road, is a 36-foot to 40-foot wide, 2-lane, diagonal north-south residential collector roadway. At the project limits, there is a traffic signal at Alicia Parkway and a 90 degree bend at Grissom Road. There is double-yellow and single-yellow skip centerline striping along the entire segment. There is also an uncontrolled, marked yellow crosswalk across Wilkes Place at Barents Street, along with SCHOOL XING warning signs and advance SLOW SCHOOL XING pavement markings. There is a posted 25 MPH speed limit sign just south of Alicia Parkway. On-street parking is allowed along both sides of Wilkes Place.

Mr. Kenneth H. Rosenfield, PE
 January 9, 2019
 Page 2 of 8

BACKGROUND (continued)

Grissom Road

Grissom Road, between Wilkes Place and Las Bolsas Street, is a 36-foot wide, 2-lane, east-west residential collector roadway. At the project limits, there are 90-degree bends with double-yellow centerlines delineating the curves only. There is no centerline striping along the entire segment, and no posted speed limit signs. On-street parking is allowed along both sides of Grissom Road. An intersecting T-intersection with Velasquez Road connects to Paseo de Valencia.

Bridlewood Drive

Bridlewood Drive, between Vista Viejo Road and Laurel Crest Drive, is a 40-foot wide, 2-lane, north-south residential collector roadway. At the project limits, there is a 1-way stop at Vista Viejo Road and a 3-way stop at Laurel Crest Drive. There is no centerline striping along the entire segment, with exception of a short length of double-yellow centerline at the project limits. There are posted 25 MPH speed limit signs along Bridlewood Drive, between Vista Viejo Road and Laurel Crest Drive. There are also '25' pavement markings adjacent to the sign postings. On-street parking is allowed along both sides of Bridlewood Drive.

Nellie Gail Road

Nellie Gail Road, between Oso Parkway and Hidden Trail Road, is a 40-foot wide, curvy 2-lane, residential collector roadway. There is a traffic signal control at Oso Parkway and a one-way Stop control at Hidden Trail Road. There is a double-yellow centerline stripe along the entire segment, and a raised landscaped center median at Oso Parkway. There are Equestrian Xings with posted warning signs within this segment, along with other advance Side Street warning signs. There are posted 25 MPH speed limit signs along Nellie Gail Road between Oso Parkway and Hidden Trail Road. There is also a '25' pavement marking adjacent to the sign posting just south of Oso Parkway. On-street parking is allowed along both sides of Nellie Gail Road.

TRAVEL SPEED DATA

To determine travel speeds on the four (4) segments of:

- 1) Wilkes Place, between Alicia Parkway and Grissom Road;
- 2) Grissom Road, between Wilkes Place and Las Bolsas Street;
- 3) Bridlewood Drive, between Vista Viejo Road and Laurel Crest Drive;
- 4) Nellie Gail Road, between Oso Parkway and Hidden Trail Road;

a spot speed radar survey was conducted on each of the locations on Tuesday, December 11, and on Wednesday, December 12, 2018. Tables 1 and 2 (next page) summarize the spot speed radar survey data.

TRAVEL SPEED DATA (continued)

TABLE 1
SPEED SURVEY SUMMARY
WILKES PLACE, FROM ALICIA PARKWAY TO GRISSOM ROAD
GRISSOM ROAD, FROM WILKES PLACE TO LAS BOLSAS STREET

Speed Summary	Along Wilkes Place Segment	Along Grissom Road Segment
Posted Speed Limit	25 MPH	25 MPH
85 th Percentile Speed	30 MPH	28.4 MPH
Average Speed	25 MPH	25.2 MPH
10 MPH Pace Range	21 - 30 MPH	20 - 29 MPH
Percent of Vehicles in Pace	74.1%	87.3%

Source: Hartzog & Crabill, Inc., 2018.

TABLE 2
SPEED SURVEY SUMMARY
BRIDLEWOOD DRIVE, FROM VISTA VIEJO ROAD TO LAUREL CREST DRIVE
NELLIE GAIL ROAD, FROM OSO PARKWAY TO HIDDEN TRAIL ROAD

Speed Summary	Along Bridlewood Drive Segment	Along Nellie Gail Road Segment
Posted Speed Limit	25 MPH	25 MPH
85 th Percentile Speed	36.1 MPH	34.8 MPH
Average Speed	29.3 MPH	30.9 MPH
10 MPH Pace Range	25 - 34 MPH	26 - 35 MPH
Percent of Vehicles in Pace	70.7%	77.0%

Source: Hartzog & Crabill, Inc., 2018.

As shown above, the 85th percentile speeds on Wilkes Place and Grissom Road were recorded at 30 MPH and 28.4 MPH, respectively. This data shows that typical travel speeds are occurring for a posted 25 MPH speed limit street. The 85th percentile speeds on Bridlewood Drive and Nellie Gail Road were recorded at 36.1 MPH and 34.8 MPH, respectively. This data shows that higher travel speeds are occurring along Bridlewood Drive. It is noted, back in March 2018, the 85th percentile speed on Bridlewood Drive was recorded at 37.1 MPH. In May 2018, the 85th percentile speed on Nellie Gail Road was recorded at 39 MPH, which has reduced to a typical speed for this type of roadway.

The overall speed radar survey data is attached to this letter.

Mr. Kenneth H. Rosenfield, PE
January 9, 2019
Page 4 of 8

TRAVEL SPEED DATA (continued)

In an effort to lower overall speeds on Bridlewood Drive, the City may want to consider taking an incremental approach that may include the following:

- increased law enforcement
- frequent deployment of portable radar speed-feedback trailers
- neighborhood watch committee meeting to help make all residents aware of speeding

TRAFFIC VOLUME DATA

Average Daily Traffic (ADT) counts were collected for the two (2) segments of Wilkes Place and Grissom Road on Wednesday, December 12, 2018. The ADT, or 24-hour two-way traffic volume, along these segments resulted in 838 and 494 vehicles, respectively.

A two-lane collector street generally has a Level-of-Service (LOS) 'D' capacity of 11,300 vehicles per day. Consequently, the current traffic volumes are well under the roadway capacity, and there are no other recommendations regarding traffic volume data to provide at this time.

The ADT count data collected as part of this evaluation is attached to this letter.

COLLISION DATA

HCI obtained collision data for the past six (6) years, between January 1, 2013 – November 30, 2018, from the Statewide Integrated Traffic Records System website (*i-SWITRS*) database to determine the number of collisions occurring on the two (2) segments of Wilkes Place and Grissom Road.

Tables 3 and 4 (next page) presents the summary collision data.

COLLISION DATA (continued)

TABLE 3
TRAFFIC COLLISION DATA SUMMARY
WILKES PLACE, FROM ALICIA PARKWAY TO GRISSOM ROAD

YEAR	NUMBER OF COLLISIONS	FATAL	INJURY	PROPERTY DAMAGE ONLY
2013	0	0	0	0
2014	0	0	0	0
2015	0	0	0	0
2016	3	0	3	0
2017	0	0	0	0
2018 *	0	0	0	0

* Available SWITRS data up to November 2018 at the time of report preparation.

As shown above, there have been a total of three (3) collisions reported within the last six (6) years on Wilkes Place. It is noted, all three collisions occurred at the intersection of Wilkes Place and Alicia Parkway. There were no collisions determined as ‘speed-related’.

TABLE 4
TRAFFIC COLLISION DATA SUMMARY
GRISSOM ROAD, FROM WILKES PLACE TO LAS BOLSAS STREET

YEAR	NUMBER OF COLLISIONS	FATAL	INJURY	PROPERTY DAMAGE ONLY
2013	0	0	0	0
2014	0	0	0	0
2015	0	0	0	0
2016	0	0	0	0
2017	0	0	0	0
2018 *	1	0	0	1

* Available SWITRS data up November 2018 at the time of report preparation.

As shown above, there has been a total of one (1) collision reported within the last six (6) years on Grissom Road. This collision occurred at the intersection of Grissom Road and Las Bolsas Street, and was not determined as ‘speed-related’.

Consequently, there are no other recommendations regarding collision data on these two segments at this time.

The comprehensive 6-year segment collision history reports are attached to this letter.

CUT-THROUGH TRAFFIC

An Origin and Destination (O&D) study (i.e., license plate survey) was conducted on Wednesday, December 12, 2018 during the AM peak period (7 - 9am) to quantify the amount of traffic that are likely using Wilkes Place and Grissom Road as a short-cut.

The study collected license plate numbers in a 5-minute interval basis for all vehicles entering and exiting Wilkes Place at the project limit of Alicia Parkway, and also entering and exiting Velasquez Road at Paseo de Valencia (via Grissom Road).

Table 5 below shows a summary of the license plate matches recorded per each hour.

TABLE 5
ORIGIN-DESTINATION LICENSE PLATE MATCHES
USING WILKES PLACE AND GRISSOM ROAD

Path	7:00:00 AM	7:05:00 AM	7:45:00 AM	7:50:00 AM	8:05:00 AM	8:10:00 AM	8:15:00 AM	8:50:00 AM	8:55:00 AM	Total
2 to 1	1	1	1		3		1			7
1 to 2				2	1	2	1	1	1	8
Grand Total	1	1	1	2	4	2	2	1	1	15

The numbers (1 to 2 & 2 to 1) in Table 5 above refer to vehicles entering from and exiting to as follows:

Location 1 - Wilkes Place, just south of Alicia Parkway.

Location 2 - Velasquez Road, just north of Paseo de Valencia (short leg leading to Grissom Road).

The overall Origin-Destination Study spreadsheet is attached to this letter.

Per the ADT count data collected, the hourly traffic volumes for these same peak hours are compared as follows:

<u>Hour</u>	<u>ADT Traffic Volume</u>	<u>Cut-Thru</u>	<u>Cut-Thru/Volume</u>
7-8 AM	48	5	10%
8-9 AM	170	10	6%

As shown above, the actual hourly percentages are very low for what may be considered 'cut-through' traffic. Consequently, there are no recommendations regarding 'cut-through' traffic at this time.

Mr. Kenneth H. Rosenfield, PE
 January 9, 2019
 Page 7 of 8

SUMMARY

Wilkes Place and Grissom Road

In summary, the traffic data on Wilkes Place and Grissom Road resulted in the following:

- ✓ typical travel speeds are occurring for these 25 MPH speed limit streets;
- ✓ traffic volumes are well-below the traffic carrying capacity of the two roadways;
- ✓ there is no traffic collision history related to traffic speeds along these segments; and,
- ✓ 'cut-through' traffic is determined as very low.

Bridlewood Drive and Nellie Gail Road

In summary, the recent speed data on Bridlewood Drive and Nellie Gail Road resulted in the following:

- ✓ higher than typical travel speeds are occurring along Bridlewood Drive.
- ✓ the Nellie Gail Road speed results are typical and do not result in recommended actions.

RECOMMENDATIONS

Wilkes Place and Grissom Road

In review of the existing School Xing signage on Wilkes Place, it is recommended to update the signage to the newer standard signs with fluorescent yellow-green background.

Bridlewood Drive

In order to address the higher travel speeds along Bridlewood Drive, it is recommended that an incremental approach continue to be followed, which includes:

- increased law enforcement.
- frequent deployment of portable radar speed-feedback trailers.
- neighborhood watch committee meeting to help make all residents aware of speeding.

Mr. Kenneth H. Rosenfield, PE
January 9, 2019
Page 8 of 8

It has been our pleasure to prepare this letter of opinion regarding speeds, traffic volumes, collisions, and cut-through traffic on these project segments. If you have any questions or need additional information, please feel free to call us anytime at (714) 731-9455.

Sincerely,
HARTZOG & CRABILL, INC.



Gerald J. Stock, PE, TE
Executive Vice President

Attachments: Spot Speed Radar Data
 ADT Traffic Volume Data
 Collision History Data
 Origin-Destination Study

Attachment: Traffic Study (1767 : Repeat Speed Survey on Bridlewood Drive)

Spot Speed Radar Data

SUMMARY OF SPOT SPEED SURVEYS DECEMBER 2018

STREET LOCATION	EXISTING SPEED LIMIT	RECOMMENDED SPEED LIMIT	85 TH PERCENTILE SPEED	AVERAGE SPEED	10 MPH PACE RANGE	PERCENT OF VEHICLES IN PACE	DAY / DATE / TIME
<u>BRIDLEWOOD DRIVE</u>							
LAUREL CREST TO VISTA VIEJO	25	-	36.1	29.3	25-34	70.7	WED / 12-12-18 / MID-DAY (12:15 - 2:00)
<u>GRISSOM ROAD</u>							
WILKES PL TO LAS BOLSAS ST	25	-	28.4	25.2	20-29	87.3	TUES / 12-11-18 / MID-DAY (12:15 - 2:00)
<u>NELLIE GAIL ROAD</u>							
OSO PKWY TO HIDDEN TRAIL RD	25	-	34.8	30.9	26-35	77.0	WED / 12-12-18 / MID-DAY (11:00 - 12:00)
<u>WILKES PLACE</u>							
ALICIA PKWY TO GRISSOM RD	25	-	30.0	25.0	21-30	74.1	TUES / 12-11-18 / MID-DAY (10:45 - 12:15)

Radar Speed Survey Field Sheet

 AGENCY: CITY OF LAGUNA HILLS
 STREET: BRIDLEWOOD
 LOCATION: VISTA VIEJO RD TO LAUREL CREST DR

 WEATHER: SUNNY DATE: 12-12-18
 ROAD CONDITION: DRY START TIME: 12:15 PM
 OBSERVER: CATHY BUENDIA END TIME: 2:00 PM VUB

DIRECTION: <u>SOUTHBOUND</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	/									
39	/									
38										
37										
36										
35	/									
34	/									
33	/									
32	/									
31	/									
30	/									
29	/									
28	/									
27	/									
26	/									
25	/									
24	/									
23	/									
22										
21										
20	/									
19										
18										
17										
16										
15										

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

CUMULATIVE (BOTH DIRECTIONS) _____

DIRECTION: <u>NORTHBOUND</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	/									
39	/									
38										
37	/									
36	/									
35	/									
34	/									
33	/									
32	/									
31	/									
30	/									
29	/									
28	/									
27	/									
26	/									
25	/									
24	/									
23	/									
22	/									
21										
20	/									
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
2	47
0	46
1	45
0	44
0	43
0	42
2	41
0	40
2	39
0	38
3	37
0	36
4	35
4	34
5	33
7	32
9	31
10	30
14	29
11	28
8	27
5	26
11	25
4	24
3	23
1	22
0	21
1	20
	19
	18
	17
	16
	15

Attachment: Traffic Study (1767 : Repeat Speed Survey on Bridlewood Drive)

RADAR SPEED DISTRIBUTION SHEET

HCI

CITY OF LAGUNA HILLS

BRIDLEWOOD DRIVE

DATE: 12/12/2018

TIME: 12:15 PM - 2:00 PM

LAUREL CREST DR TO VISTA VIEJO

SURVEY BY: C. BUENDIA

CHECKED BY: JERRY STOCK

SPEED	NUMBER OF VEHICLES																									VEH.	PCT.	CUM. PCT.	
	5					10					15					20					25								
60																											100.0%		
																											100.0%		
																											100.0%		
																											100.0%		
55																											100.0%		
																											100.0%		
																											100.0%		
																											100.0%		
50																											100.0%		
																											100.0%		
																											100.0%		
																											100.0%		
45	X	X																							2	2.0%	100.0%		
																									0	0.0%	98.0%		
	X																								1	1.0%	98.0%		
	X																								1	1.0%	97.0%		
40																									1	1.0%	96.0%		
	X	X																							0	0.0%	94.9%		
	X	X																							2	2.0%	94.9%		
	X																								1	1.0%	92.9%		
35	X	X	X	X																					4	4.0%	91.9%		
																									0	0.0%	87.9%		
	X	X	X																						3	3.0%	87.9%		
																									0	0.0%	84.8%		
30	X	X	X	X	X																				5	5.1%	84.8%		
	X	X	X	X																					4	4.0%	79.8%		
	X	X	X	X	X																				5	5.1%	75.8%		
	X	X	X	X	X	X	X	X																	7	7.1%	70.7%		
25	X	X	X	X	X	X	X	X	X																	9	9.1%	63.6%	
	X	X	X	X																					6	6.1%	54.5%		
	X	X	X	X	X	X	X	X	X	X	X														4	4.0%	48.5%		
	X	X	X	X	X	X	X	X																	11	11.1%	44.4%		
20	X	X	X	X	X																					8	8.1%	33.3%	
	X	X	X	X	X																				5	5.1%	25.3%		
	X	X	X	X	X	X	X	X	X	X	X														11	11.1%	20.2%		
	X	X	X	X																					4	4.0%	9.1%		
15	X	X	X																							3	3.0%	5.1%	
	X																								1	1.0%	2.0%		
																									0	0.0%	1.0%		
																									1	1.0%	1.0%		
TOTAL VEHICLES																											99		

UPPER LIMIT 10 MPH PACE: 34 MPH

LOWER LIMIT 10 MPH PACE: 25 MPH

PERCENT OVER PACE: 24.2 %

PERCENT IN PACE: 70.7 %

PERCENT UNDER PACE: 9.1 %

85th PERCENTILE SPEED: 36.1 MPH

MEDIAN SPEED: 29.3 MPH

15th PERCENTILE SPEED: 24.5 MPH

Attachment: Traffic Study (1767 : Repeat Speed Survey on Bridlewood Drive)

Radar Speed Survey Field Sheet

HARTZOG AND CRABILL INC.
Consulting Traffic Engineers
11592 Irvine Blvd., Suite 122, Irvine, CA 92618
(714) 731-9455

AGENCY: CITY OF LAGUNA HILLS
STREET: GRISOM ROAD
LOCATION: WILKES PL TO LAS BOISAS ST.

WEATHER: SUNNY DATE: 12-11-18
ROAD CONDITION: DRY START TIME: 12:15 PM
OBSERVER: CATHY BUENDIA END TIME: 2:00 PM

DIRECTION: <u>WESTBOUND</u>										
MPH	NUMBER OF VEHICLES									
	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										
39										
38										
37										
36										
35										
34										
33										
32										
31										
30										
29										
28										
27										
26										
25										
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									
	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										
39										
38										
37										
36										
35										
34										
33										
32										
31										
30										
29										
28										
27										
26										
25										
24										
23										
22										
21										
20										
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
	44
	43
	42
	41
	40
	39
	38
	37
	36
	35
	34
	33
	32
	31
	30
	29
	28
	27
	26
	25
	24
	23
	22
	21
	20
	19
	18
	17
	16
	15

HCI

RADAR SPEED DISTRIBUTION SHEET

CITY OF LAGUNA HILLS

GRISSOM ROAD

DATE: 12/11/2018

TIME: 12:15 PM - 2:00 PM

WILKES PLACE TO LAS BOLSAS ST

SURVEY BY: C. BUENDIA

CHECKED BY: JERRY STOCK

[illegible]

Attachment: Traffic Study (1767 : Repeat Speed Survey on Bridlewood Drive)

UPPER LIMIT 10 MPH PACE: 29 MPH

LOWER LIMIT 10 MPH PACE: 20 MPH

PERCENT OVER PACE: 12.7 %

PERCENT IN PACE: 87.3 %

PERCENT UNDER PACE:	0.0	%
---------------------	-----	---

85th PERCENTILE SPEED: 28.4 MPH

MEDIAN SPEED: 25.2 MPH

15th PERCENTILE SPEED: 22.6 MPH

Radar Speed Survey Field Sheet

 AGENCY: CITY OF LAGUNA HILLS

 STREET: NEELIE GAIL ROAD

 LOCATION: OSO PKWY TO HIDDEN TRAIL RD

 WEATHER: SUNNY DATE: 12-12-18

 ROAD CONDITION: DRY START TIME: 11:00 AM

 OBSERVER: CATHY BUENDIA END TIME: 12:00 PM ✓ OK

DIRECTION: <u>SOUTHBOUND</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										
39										
38	///									
37	///	///								
36	///	///								
35	///	///	///							
34	///	///	///	///						
33	///	///	///	///	///					
32	///	///	///	///	///	///				
31	///	///	///	///	///	///				
30	///	///	///	///	///	///				
29	///	///	///	///	///	///				
28	///	///	///	///	///	///				
27	///	///	///	///	///	///				
26	///	///	///	///	///	///				
25	///	///	///	///	///	///				
24	///	///	///	///	///	///				
23	///	///	///	///	///	///				
22	///	///	///	///	///	///				
21	///	///	///	///	///	///				
20	///	///	///	///	///	///				
19										
18										
17										
16										
15										

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

CUMULATIVE (BOTH DIRECTIONS) _____

DIRECTION: <u>NORTHBOUND</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										
39	///									
38	///									
37	///	///								
36	///	///								
35	///	///	///							
34	///	///	///	///						
33	///	///	///	///	///					
32	///	///	///	///	///	///				
31	///	///	///	///	///	///				
30	///	///	///	///	///	///				
29	///	///	///	///	///	///				
28	///	///	///	///	///	///				
27	///	///	///	///	///	///				
26	///	///	///	///	///	///				
25	///	///	///	///	///	///				
24	///	///	///	///	///	///				
23	///	///	///	///	///	///				
22	///	///	///	///	///	///				
21	///	///	///	///	///	///				
20										
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
	44
2	43
0	42
1	41
1	40
2	39
2	38
8	37
2	36
17	35
11	34
9	33
14	32
11	31
7	30
13	29
11	28
4	27
10	26
5	25
5	24
1	23
2	22
1	21
1	20
	19
	18
	17
	16
	15



RADAR SPEED DISTRIBUTION SHEET

CITY OF LAGUNA HILLS

NELLIE GAIL ROAD

DATE: 12/12/2018

TIME: 11:00 AM - 12:00 PM

OSO PKWY TO HIDDEN TRAIL RD

SURVEY BY: C. BUENDIA

CHECKED BY: JERRY STOCK

SPEED		NUMBER OF VEHICLES																				VEH.	PCT.	CUM. PCT.
		5	10	15	20	25																		
60																							100.0%	
																							100.0%	
																							100.0%	
																							100.0%	
55																							100.0%	
																							100.0%	
																							100.0%	
																							100.0%	
50																							100.0%	
																							100.0%	
																							100.0%	
																							100.0%	
45																							100.0%	
																							100.0%	
																							100.0%	
																							100.0%	
40	X	X																			2	1.4%	100.0%	
																					0	0.0%	98.6%	
	X																				1	0.7%	98.6%	
	X	X																			2	1.4%	97.8%	
35	X																				1	0.7%	97.1%	
	X	X	X	X	X	X	X	X													8	5.8%	95.0%	
	X	X																			2	1.4%	89.2%	
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						17	12.2%	87.8%	
30	X	X	X	X	X	X	X	X	X	X											11	7.9%	75.5%	
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						9	6.5%	67.6%	
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						14	10.1%	61.2%	
	X	X	X	X	X	X	X	X	X	X	X										11	7.9%	51.1%	
25	X	X	X	X	X	X															7	5.0%	43.2%	
	X	X	X	X	X	X	X	X	X	X	X	X	X	X							13	9.4%	38.1%	
	X	X	X	X	X	X	X	X	X	X	X										11	7.9%	28.8%	
	X	X	X	X																	4	2.9%	20.9%	
20	X	X	X	X	X																10	7.2%	18.0%	
	X	X	X	X	X																5	3.6%	10.8%	
	X																				5	3.6%	7.2%	
	X	X																			1	0.7%	3.6%	
15	X																				2	1.4%	2.9%	
	X																				1	0.7%	1.4%	
	X																				1	0.7%	0.7%	
																							0.0%	
																							0.0%	
																							0.0%	
																							0.0%	
																							0.0%	
TOTAL VEHICLES																						139		

UPPER LIMIT 10 MPH PACE: 35 MPH

LOWER LIMIT 10 MPH PACE: 26 MPH

PERCENT OVER PACE: 12.2 %

PERCENT IN PACE: 77.0 %

PERCENT UNDER PACE: 10.8 %

85th PERCENTILE SPEED: 34.8 MPH

MEDIAN SPEED: 30.9 MPH

15th PERCENTILE SPEED: 25.6 MPH

Attachment: Traffic Study (1767 : Repeat Speed Survey on Bridlewood Drive)

Radar Speed Survey Field Sheet

HARTZOG AND CRABILL INC.
Consulting Traffic Engineers
17592 Irvine Blvd., Suite 122, Tustin, CA 92690
(714) 731-9455

AGENCY: CITY OF LAGUNA HILLS
STREET: WILKES PLACE
LOCATION: ALICIA PKWY TO GRISSOM RD

WEATHER: SUNNY DATE: 12-11-18
ROAD CONDITION: DRY START TIME: 10:45 AM
OBSERVER: CATHY BUENDIA END TIME: 12:15 PM VUB

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

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

DIRECTION:									
MPH	5	NUMBER OF VEHICLES				25	30	TOTAL	
	10	15	20						
60									
59									
58									
57									
56									
55									
54									
53									
52									
51									
50									
49									
48									
47									
46									
45									
44									
43									
42									
41									
40									
39									
38									1
37									0
36									0
35									0
34									0
33									0
32									1
31									1
30									4
29									2
28									4
27									4
26									2
25									3
24									2
23									0
22									2
21									2
20									0
19									0
18									1
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
	44
	43
	42
	41
	40
	39
	38
1	37
0	36
0	35
0	34
0	33
2	32
3	31
1	30
6	29
3	28
4	27
4	26
2	25
6	24
3	23
2	22
3	21
7	20
4	19
0	18
2	17
	16
	15

Attachment: Traffic Study (1767 : Repeat Speed Survey on Bridlewood Drive)

CITY OF LAGUNA HILLS

ALICIA PKWY TO GRISSOM ROAD

SURVEY BY: C. BUENDIA

CHECKED BY: JERRY STOCK

[illegible]

Attachment: Traffic Study (1767 : Repeat Speed Survey on Bridlewood Drive)

15th PERCENTILE SPEED: 20.3 MPH

ADT Traffic Volume Data

Prepared by NDS/ATD

VOLUME

Wilkes Pl Bet. Alicia Pkwy & Grissom Rd

Day: Wednesday
Date: 12/12/2018City: Laguna Hills
Project #: CA18_1262_001

DAILY TOTALS					NB	SB	EB				WB	Total
					465	373					0	0
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL	
00:00	2	2			4	12:00	10	6			16	
00:15	1	1			2	12:15	6	3			9	
00:30	0	1			1	12:30	3	7			10	
00:45	0	3	0	4	0	12:45	3	22	9	25	12	
01:00	0	0			0	13:00	6	21			27	
01:15	0	1			1	13:15	55	12			67	
01:30	0	0			0	13:30	15	4			19	
01:45	0	0	1		0	13:45	3	79	6	43	9	
02:00	0	0			0	14:00	6	1			7	
02:15	0	0			0	14:15	3	0			3	
02:30	1	0			1	14:30	3	7			10	
02:45	0	1	0		0	14:45	5	17	3	11	8	
03:00	0	1			1	15:00	6	6			12	
03:15	0	0			0	15:15	1	6			7	
03:30	0	0			0	15:30	4	5			9	
03:45	0	0	1		0	15:45	5	16	1	18	6	
04:00	0	0			0	16:00	6	2			8	
04:15	1	1			2	16:15	5	8			13	
04:30	0	0			0	16:30	8	7			15	
04:45	1	2	1	2	2	16:45	5	24	7	24	12	
05:00	2	0			2	17:00	4	10			14	
05:15	2	1			3	17:15	7	11			18	
05:30	4	0			4	17:30	9	7			16	
05:45	3	11	0	1	3	17:45	6	26	2	30	8	
06:00	1	0			1	18:00	6	9			15	
06:15	2	1			3	18:15	2	5			7	
06:30	2	2			4	18:30	2	6			8	
06:45	7	12	2	5	9	18:45	5	15	8	28	13	
07:00	3	2			5	19:00	0	5			5	
07:15	6	3			9	19:15	1	2			3	
07:30	7	4			11	19:30	5	3			8	
07:45	12	28	11	20	23	19:45	3	9	10	20	13	
08:00	68	29			97	20:00	2	8			10	
08:15	34	3			37	20:15	2	3			5	
08:30	13	5			18	20:30	1	5			6	
08:45	11	126	7	44	18	20:45	3	8	6	22	9	
09:00	2	7			9	21:00	4	3			7	
09:15	4	5			9	21:15	0	5			5	
09:30	3	1			4	21:30	0	2			2	
09:45	5	14	4	17	9	21:45	2	6	1	11	3	
10:00	2	1			3	22:00	1	4			5	
10:15	6	6			12	22:15	1	3			4	
10:30	4	6			10	22:30	1	0			1	
10:45	4	16	4	17	8	22:45	1	4	0	7	1	
11:00	5	8			13	23:00	1	0			1	
11:15	8	3			11	23:15	0	2			2	
11:30	6	2			8	23:30	2	2			4	
11:45	4	23	3	16	7	23:45	0	3	2	6	2	
TOTALS	236	128			364	TOTALS	229	245			474	
SPLIT %	64.8%	35.2%			43.4%	SPLIT %	48.3%	51.7%			56.6	

DAILY TOTALS					NB	SB	EB	WB	Total
					465	373	0	0	838
AM Peak Hour	07:45	07:45		07:45	PM Peak Hour	12:45	12:30		12:4
AM Pk Volume	127	48		175	PM Pk Volume	79	49		125
Pk Hr Factor	0.467	0.414		0.451	Pk Hr Factor	0.359	0.583		0.46
7 - 9 Volume	154	64	0	0	4 - 6 Volume	50	54	0	0
7 - 9 Peak Hour	07:45	07:45		07:45	4 - 6 Peak Hour	17:00	16:30		16:4
7 - 9 Pk Volume	127	48	0	0	4 - 6 Pk Volume	26	35	0	0
Pk Hr Factor	0.467	0.414	0.000	0.000	Pk Hr Factor	0.722	0.795	0.000	0.000

Attachment: Traffic Study (1767 : Repeat Speed Survey on Bridlewood Drive)

Prepared by NDS/ATD

VOLUME

Grissom Rd Bet. Wilkes Pl & Las Bolsas

Day: Wednesday
Date: 12/12/2018City: Laguna Hills
Project #: CA18_1262_002

DAILY TOTALS					NB	SB						EB	WB	Total				
					0	0						259	235					
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL						
00:00			0	0	0		12:00			3	1	4						
00:15			0	0	0		12:15			2	2	4						
00:30			0	0	0		12:30			4	0	4						
00:45			0	0	0		12:45			1	10	5	8	6	18			
01:00			0	1	1		13:00			8	4	12						
01:15			0	0	0		13:15			4	16	20						
01:30			0	0	0		13:30			7	1	8						
01:45			0	0	1	0	1	13:45		4	23	2	23	6	46			
02:00			1	0	1		14:00			5	3	8						
02:15			0	0	0		14:15			8	4	12						
02:30			0	0	0		14:30			4	4	8						
02:45			0	1	0	0	1	14:45		3	20	6	17	9	37			
03:00			0	1	1		15:00			7	3	10						
03:15			0	0	0		15:15			2	2	4						
03:30			0	0	0		15:30			3	4	7						
03:45			0	0	1	0	1	15:45		6	18	8	17	14	35			
04:00			0	0	0		16:00			4	2	6						
04:15			1	0	1		16:15			6	3	9						
04:30			0	2	2		16:30			2	5	7						
04:45			1	2	3	5	4	16:45		9	21	4	14	13	35			
05:00			0	0	0		17:00			8	2	10						
05:15			0	1	1		17:15			13	4	17						
05:30			0	0	0		17:30			3	7	10						
05:45			0	1	2	1	2	17:45		11	35	8	21	19	56			
06:00			0	1	1		18:00			8	1	9						
06:15			3	3	6		18:15			6	2	8						
06:30			0	4	4		18:30			4	2	6						
06:45			3	6	4	12	7	18:45		1	19	4	9	5	28			
07:00			2	1	3		19:00			4	2	6						
07:15			2	5	7		19:15			1	3	4						
07:30			4	8	12		19:30			4	1	5						
07:45			10	18	6	20	16	19:45		4	13	6	12	10	25			
08:00			7	5	12		20:00			4	1	5						
08:15			4	11	15		20:15			1	1	2						
08:30			4	4	8		20:30			3	1	4						
08:45			2	17	4	24	6	20:45		0	8	0	3	0	11			
09:00			6	2	8		21:00			3	1	4						
09:15			3	5	8		21:15			0	0	0						
09:30			0	5	5		21:30			3	1	4						
09:45			2	11	3	15	5	21:45		2	8	1	3	3	11			
10:00			2	2	4		22:00			0	1	1						
10:15			4	3	7		22:15			1	1	2						
10:30			4	4	8		22:30			1	0	1						
10:45			2	12	2	11	4	22:45		0	2	0	2	0	4			
11:00			6	5	11		23:00			0	0	0						
11:15			2	4	6		23:15			0	0	0						
11:30			3	3	6		23:30			0	2	2						
11:45			3	14	1	13	4	23:45		1	1	0	2	1	3			
TOTALS	81				104	185	TOTALS	178				131	309					
SPLIT %	43.8%				56.2%	37.4%	SPLIT %	57.6%				42.4%	62.6					

DAILY TOTALS			NB	SB	EB				WB		Total
			0	0							259
AM Peak Hour			07:30	07:30	07:30	PM Peak Hour			17:00	12:45	17:0
AM Pk Volume			25	30	55	PM Pk Volume			35	26	56
Pk Hr Factor			0.625	0.682	0.859	Pk Hr Factor			0.673	0.406	0.73
7 - 9 Volume	0	0	35	44	79	4 - 6 Volume	0	0	56	35	91
7 - 9 Peak Hour			07:30	07:30	07:30	4 - 6 Peak Hour			17:00	17:00	17:0
7 - 9 Pk Volume	0	0	25	30	55	4 - 6 Pk Volume	0	0	35	21	56
Pk Hr Factor	0.000	0.000	0.625	0.682	0.859	Pk Hr Factor	0.000	0.000	0.673	0.656	0.73

Attachment: Traffic Study (1767 : Repeat Speed Survey on Bridlewood Drive)

Collision History Data

CITY OF LAGUNA HILLS
5-YEAR SWITRS COLLISION DATABASE
WILKES PLACE, FROM ALICIA PARKWAY TO GRISSOM ROAD
JAN. 1, 2013 - NOV. 30, 2018

CASE ID	COLLISION DATE	COLL. TIME	PRIMARY ROAD	SECONDARY ROAD	DIST.	DIR.	INTERS.	WEATH. 1	COLL. SEVERITY	PRIM. COLL. FACT.	PCF VIOL. CAT.	PCF VIOL.	HIT AND RUN	TYPE OF COLL.	MOTOR VEHICLE INVOLVED WITH	RC SL
8090227	20160704	2315	ALICIA PKWY	WILKES PL	0		Y	A	4	D	0		N	A	C	
8180551	20161113	2008	ALICIA PKWY	WILKES PL	0		Y	A	3	A	12	21453	N	D	C	
8197315	20161122	935	ALICIA PKWY	WILKES PL	0		Y	A	4	A	12	21453	N	D	C	

NOTES:**Weather 1**

A - Clear
 B - Cloudy
 C - Raining
 D - Snowing
 E - Fog
 F - Other
 G - Wind
 - - Not Stated

Collision Severity

1 - Fatal
 2 - Injury (Severe)
 3 - Injury (Other Visible)
 4 - Injury (Complaint of Pain)
 0 - PDO (Property Damage Only)

Primary Collision Factor

A - (Vehicle) Code Violation
 B - Other Improper Driving
 C - Other Than Driver
 D - Unknown
 E - Fell Asleep
 - - Not Stated

PCF Violation Category

01 - Driving or Bicycling Under Influence
 02 - Impeding Traffic
 03 - Unsafe Speed
 04 - Following Too Closely
 05 - Wrong Side of Road
 06 - Improper Passing
 07 - Unsafe Lane Change
 08 - Improper Turning
 09 - Automobile ROW
 10 - Pedestrian ROW
 11 - Pedestrian Violation
 12 - Traffic Signals and Signs
 13 - Hazardous Parking
 14 - Lights
 15 - Brakes
 16 - Other Equipment
 17 - Other Hazardous Violation
 18 - Other Than Driver (or Ped)
 19 -
 20 -
 21 - Unsafe Starting or Backing
 22 - Other Improper Driving
 23 - Pedestrian or "Other" Under the Influence
 24 - Fell Asleep
 00 - Unknown
 - - 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

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

Road Surface

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

Attachment: Traffic Study (1767 : Repeat Speed Survey on Bridlewood Drive)

CITY OF LAGUNA HILLS
5-YEAR SWITRS COLLISION DATABASE
GRISSOM ROAD, FROM WILKES PLACE TO LAS BOLSAS AVENUE
JAN. 1, 2013 - NOV. 30, 2018

CASE ID	COLLISION DATE	COLL. TIME	PRIMARY ROAD	SECONDARY ROAD	DIST.	DIR.	INTERS.	WEATH. 1	COLL. SEVERITY	PRIM. COLL. FACT.	PCF VIOL. CAT.	PCF VIOL.	HIT AND RUN	TYPE OF COLL.	MOTOR VEHICLE INVOLVED WITH	RC SL
8636969	20180503	1229	GRISSOM RD	LAS BOLSAS AV	0		Y	A	0	A	8	22107	M	D	E	

NOTES:**Weather 1**

A - Clear
 B - Cloudy
 C - Raining
 D - Snowing
 E - Fog
 F - Other
 G - Wind
 - - Not Stated

Collision Severity

1 - Fatal
 2 - Injury (Severe)
 3 - Injury (Other Visible)
 4 - Injury (Complaint of Pain)
 0 - PDO (Property Damage On

Primary Collision Factor

A - (Vehicle) Code Violation
 B - Other Improper Driving
 C - Other Than Driver
 D - Unknown
 E - Fell Asleep
 - - Not Stated

PCF Violation Category

01 - Driving or Bicycling Under Ir
 02 - Impeding Traffic
 03 - Unsafe Speed
 04 - Following Too Closely
 05 - Wrong Side of Road
 06 - Improper Passing
 07 - Unsafe Lane Change
 08 - Improper Turning
 09 - Automobile ROW
 10 - Pedestrian ROW
 11 - Pedestrian Violation
 12 - Traffic Signals and Signs
 13 - Hazardous Parking
 14 - Lights
 15 - Brakes
 16 - Other Equipment
 17 - Other Hazardous Violation
 18 - Other Than Driver (or Ped)
 19 -
 20 -
 21 - Unsafe Starting or Backing
 22 - Other Improper Driving
 23 - Pedestrian or "Other" Under the Influence
 24 - Fell Asleep
 00 - Unknown
 - - 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

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

Road Surface

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

Attachment: Traffic Study (1767 : Repeat Speed Survey on Bridlewood Drive)

Origin-Destination Study Data

Prepared by National Data and Surveying Services

Origin and Destination Study**Day:** Wednesday**City:** Laguna Hills**Date:** 12/12/2018**Project:** 18-1263

Path	7:00:00 AM	7:05:00 AM	7:45:00 AM	7:50:00 AM	8:05:00 AM	8:10:00 AM	8:15:00 AM	8:50:00 AM	8:55:00 AM	Total
2 to 1	1	1	1		3		1			7
1 to 2				2	1	2	1	1	1	8
Grand Total	1	1	1	2	4	2	2	1	1	15

Location ID	Street
1	Wilkes Place S/O Alicia Pkwy
2	Velasquez Road N/O Paseo de Valencia
*All times correspond to vehicle origin time	



City of Laguna Hills

Traffic Commission

Staff Report

DATE: July 18, 2018
TO: Traffic Commissioners
FROM: Kenneth H. Rosenfield P.E.
 Assistant City Manager/Director of Public Services
ISSUE: Review of Traffic Conditions on Bridlewood Drive and Devonshire Road

RECOMMENDATION: That the Traffic Commission Request Staff Monitor the Speed of Vehicles and Repeat the Speed Survey of Bridlewood Drive Between Vista Viejo Road and Laurel Crest Drive in Six Months Time.

SUMMARY:

Staff was recently contacted by a resident of Moulton Ranch regarding concerns of vehicular speeding and traffic collisions on Bridlewood Drive, between Vista Viejo Road and Laurel Crest Drive, and on Devonshire Road, between Falling Leaf Drive and Nottingham Court. Please see the 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, traffic volume and traffic collision history on Bridlewood Drive and on Devonshire Road.

The Traffic Engineers of Hartzog & Crabill, Inc., (HCI) completed the attached June 1, 2018, study of the traffic attributes of Bridlewood Drive from Vista Viejo Road to Laurel Crest Drive and Devonshire Road from Falling Leaf Drive to Nottingham Court. The speed surveys, performed by HCI, as shown in the study, determined the 85th percentile speeds on Bridlewood Drive and Devonshire Road as 37.1 mph and 32.9 mph, respectively.

Review of Traffic Conditions on Bridlewood Drive and Devonshire Road

July 18, 2018

Page 2

The 85th percentile speed measurement of Bridlewood Drive is higher than expected and considered to be unacceptable for a residential character street. The study also determined 24.6% of the vehicles on Bridlewood Drive were exceeding 34 mph, which is also a higher percentage than the expected percentage, typically at approximately 15%.

The 85th percentile speed measurement of Devonshire Road was fully within the expected range. Staff's long term experience has found the typical prevailing speed range for such streets to be between 32 and 34 mph, without adverse traffic collision history. Hence, the 85th percentile speed on Devonshire of 32 mph is not of concern for this residential character street.

The traffic count data, for both Bridlewood Drive and Devonshire Road, revealed the 24-hr volumes to be very low for a typical residential street that is a connecting, or through, street to other neighborhoods. The traffic volumes are not significant and no action is needed in response to this data.

A five-year traffic collision history review of Bridlewood Drive was also included in the study which determined three traffic collisions, including one not identified in the collision data from SWITRS but noted based on the attached photographic evidence provided by a resident, had occurred on Bridlewood Drive during this time. None of the traffic collisions were identified as speed-related.

The five-year traffic collision history review of Devonshire Road identified a single traffic collision which was not identified as speed-related and is not considered significant for the purposes of this report.

Concentrated police enforcement of driver behavior is the best and appropriate remedy for residential streets vehicular speeding and is recommended for Bridlewood Drive. Staff will work with the Orange County Sheriff's Department on enforcement activity in this area and will also post the radar trailer in this area to increase driver education as to the appropriate speed on Bridlewood Drive. Staff will also provide the Moulton Ranch Homeowners Association (HOA) with a traffic safety article to be included in their newsletter for the residents of their HOA. In addition, a follow-up speed survey is recommended to be performed in six months. Should the speeding issue remain, the next incremental action will be evaluated. Currently, there are 25 mph pavement

Review of Traffic Conditions on Bridlewood Drive and Devonshire Road

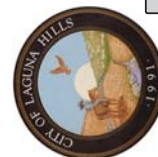
July 18, 2018

Page 3

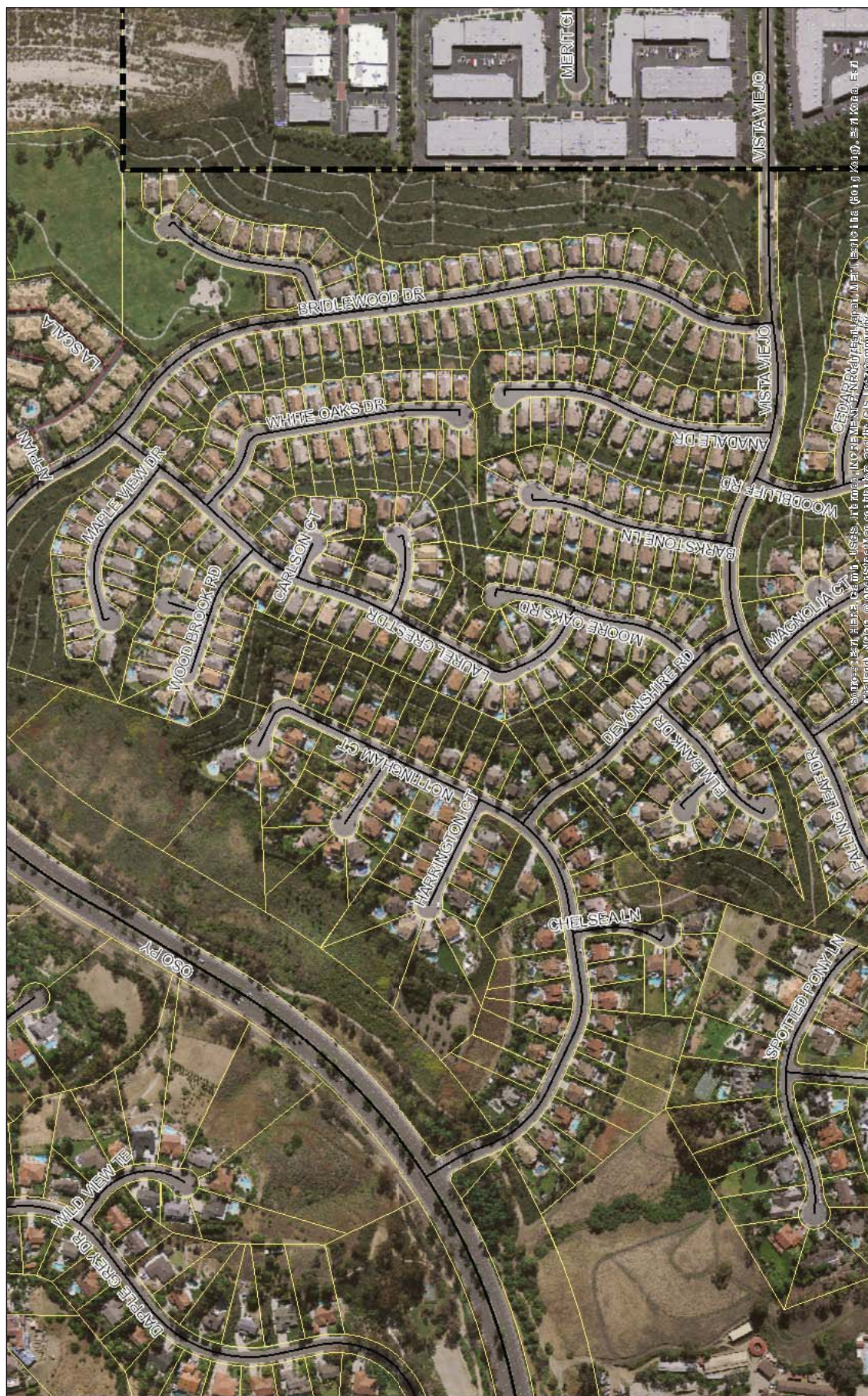
legends and 25 mph signs posted at multiple locations along Bridlewood Drive between Vista Viejo Road and Laurel Crest Drive. While no changes to existing traffic controls are currently proposed, the number and locations of speed limit signage and pavement markings will also be reviewed following the repeat speed survey.

ATTACHMENTS:

- Vicinity Map
- Photograph
- Traffic Evaluation



VICINITY MAP - BRIDLEWOOD DRIVE & DEVONSHIRE ROAD







Trammell Hartzog, President
Gerald J. Stock, PE, TE,
Executive Vice President

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

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

www.hartzog-crabill.com

June 1, 2018

Mr. Kenneth H. Rosenfield, PE
Assistant City Manager/Public Services Director
City of Laguna Hills
24035 El Toro Road
Laguna Hills, CA 92653

**Subject: Traffic Data Evaluation - Letter of Opinion -
Speeding and Collision Concerns along Bridlewood Drive
and Also along Devonshire Road**

Dear Mr. Rosenfield,

Pursuant to your request, Hartzog & Crabill, Inc. (HCI) has prepared this traffic engineering evaluation regarding residential concerns of speeding and collisions along the following two (2) street segments:

- 1) Bridlewood Drive, between Vista Viejo Road and Laurel Crest Drive
- 2) Devonshire Road, between Falling Leaf Drive and Nottingham Court

BACKGROUND

Bridlewood Drive

Bridlewood Drive, between Vista Viejo Road and Laurel Crest Drive, is a 40-foot wide, 2-lane, north-south residential collector roadway. At the project limits, there is a 1-way stop at Vista Viejo Road and a 3-way stop at Laurel Crest Drive. There is no centerline striping along the entire segment, with exception of a short length of double-yellow centerline at the project limits.

There are posted 25 MPH speed limit signs along Bridlewood Drive, between Vista Viejo Road and Laurel Crest Drive. There are also '25' pavement markings adjacent to the sign postings. On-street parking is allowed along both sides of Bridlewood Drive.

Devonshire Road

Devonshire Road, between Falling Leaf Drive and Nottingham Court, is a 40-foot wide, 2-lane, north-south residential collector roadway. At the project limits, both intersections have 1-way stop controls. There is no centerline striping along the entire segment, with exception of a short length of double-yellow centerline at the project limits.

There are posted 25 MPH speed limit signs along Devonshire Road between Falling Leaf Drive and Nottingham Court. There are also '25' pavement markings adjacent to the sign postings. On-street parking is allowed along both sides of Devonshire Road.

Mr. Kenneth H. Rosenfield, PE
 June 1, 2018
 Page 2 of 5

TRAVEL SPEED DATA

To determine travel speeds on Bridlewood Drive and on Devonshire Road, a spot speed radar survey was conducted along each of these residential collector roadways on Wednesday, May 16, 2018, and Thursday, May 17, 2018, respectively. Tables 1 & 2 below summarize the radar speed data.

TABLE 1
SPEED SURVEY SUMMARY
BRIDLEWOOD DRIVE, FROM VISTA VIEJO ROAD TO LAUREL CREST DRIVE

Speed-Count Summary	From Vista Viejo Road to Laurel Crest Drive
85 th Percentile Speed	37.1 MPH
Median Speed	29.5 MPH
15th Percentile Speed	25.0 MPH
10 MPH Pace Speed	25-34 MPH
Average Daily Traffic (ADT)	722 vehicles

As shown above, the 85th percentile speed on Bridlewood Drive was recorded at 37.1 MPH. This data shows that higher than typical travel speeds are occurring above the posted 25 MPH speed limit.

TABLE 2
SPEED SURVEY SUMMARY
DEVONSHIRE ROAD, FROM FALLING LEAF DRIVE TO NOTTINGHAM COURT

Speed-Count Summary	From Falling Leaf Drive to Nottingham Court
85 th Percentile Speed	32.9 MPH
Median Speed	27.9 MPH
15th Percentile Speed	25.0 MPH
10 MPH Pace Speed	25-34 MPH
Average Daily Traffic (ADT)	590 vehicles

As shown above, the 85th percentile speed on Devonshire Road was recorded at 32.9 MPH. This data shows that typical travel speeds are occurring for a posted 25 MPH speed limit street. All radar survey data is attached to this letter.

Mr. Kenneth H. Rosenfield, PE
 June 1, 2018
 Page 3 of 5

TRAFFIC VOLUME DATA

Bridlewood Drive

Average Daily Traffic (ADT) counts were collected for the segment of Bridlewood Drive, between Vista Viejo Road and Laurel Crest Drive, on Wednesday, May 2, 2018. The ADT, or 24-hour two-way traffic volume, along this segment resulted in 722 vehicles.

A two-lane collector street generally has a Level-of-Service (LOS) 'D' capacity of 11,300 vehicles per day. Consequently, the existing traffic volume is well under the roadway capacity.

Devonshire Road

Average Daily Traffic (ADT) counts were collected for the segment of Devonshire Road, between Falling Leaf Drive and Nottingham Court, on Wednesday, May 2, 2018. The ADT, or 24-hour two-way traffic volume, along this segment resulted in 590 vehicles.

As mentioned, a two-lane collector street generally has a Level-of-Service (LOS) 'D' capacity of 11,300 vehicles per day. Consequently, the existing traffic volume is well under the roadway capacity. All traffic volume data is included in the appendix.

COLLISION DATA

Bridlewood Drive

HCI obtained collision data for the past five (5) years, between January 1, 2013 – February 28, 2018, from the Statewide Integrated Traffic Records System website (*i*-SWITRS) database to determine the number of collisions occurring on this segment of Bridlewood Drive. Table 3 below presents the summary collision data.

TABLE 3
TRAFFIC COLLISION DATA SUMMARY
BRIDLEWOOD DRIVE, FROM VISTA VIEJO ROAD TO LAUREL CREST DRIVE

YEAR	NUMBER OF COLLISIONS	FATAL	INJURY	PROPERTY DAMAGE ONLY
2013	1	0	1	0
2014	0	0	0	0
2015	0	0	0	0
2016	0	0	0	0
2017	1	0	0	1
2018 *	1	0	0	1

* Available SWITRS data was only up to February 2018 at the time of report preparation.

Mr. Kenneth H. Rosenfield, PE
 June 1, 2018
 Page 4 of 5

COLLISION DATA (continued)

As shown above, there were a total of three (3) collisions reported along this segment within the last (5) years. The collisions were recorded as Rear End and Head-On types, and categorized as Driving or Bicycling Under Influence and Automobile ROW. As such, there were no collisions determined as ‘speed-related’. Consequently, there are no other recommendations regarding collisions at this time.

It is noted, a resident provided the City with photographic evidence of a two vehicle traffic collision having occurred on Bridlewood Drive on April 5, 2018. The Sheriff’s Department reported that no police report was written as the parties described no injuries and stated they would settle the matter on their own. Accordingly, we have no details on the cause of this traffic collision.

Devonshire Road

HCI also obtained collision data for the past five (5) years, between January 1, 2013 – February 28, 2018, from the Statewide Integrated Traffic Records System website (i-SWITRS) database to determine the number of collisions occurring on the subject segment of Devonshire Road. Table 4 below presents the summary collision data.

**TABLE 4
 TRAFFIC COLLISION DATA SUMMARY
 DEVONSHIRE ROAD, FROM FALLING LEAF DRIVE TO NOTTINGHAM COURT**

YEAR	NUMBER OF COLLISIONS	FATAL	INJURY	PROPERTY DAMAGE ONLY
2013	0	0	0	0
2014	0	0	0	0
2015	0	0	0	0
2016	0	0	0	0
2017	1	0	1	0
2018 *	0	0	0	0

* Available SWITRS data was only up to February 2018 at the time of report preparation.

As shown above, there was only one (1) collision reported along this segment within the last (5) years. This collision was recorded as a Rear End type, and categorized as Improper Turning. As such, there were no collisions determined as ‘speed-related’. Consequently, there are no other recommendations regarding collisions at this time. The comprehensive 5-year segment collision history reports are attached to this letter.

Mr. Kenneth H. Rosenfield, PE
June 1, 2018
Page 5 of 5

RECOMMENDATIONS

As speeding was verified on Bridlewood Drive, it is recommended that an incremental approach be taken to address the higher travel speeds. Initial steps include:

- increased law enforcement.
- deployment of portable radar speed-feedback trailers.
- neighborhood watch committee meeting to help make all residents aware of speeding.

It has been our pleasure to prepare this letter of opinion regarding speeds, traffic volumes, and collisions on Bridlewood Drive, and also on Devonshire Road. If you may have any questions or need additional information, please feel free to call us anytime at (714) 731-9455.

Sincerely,
HARTZOG & CRABILL, INC.



Gerald J. Stock, PE, TE
Executive Vice President

Attachments: Radar Speed Data (Qty. 2)
 ADT Volume Data (Qty. 2)
 Collision History (Qty. 2)

Speed Data

RADAR SPEED DISTRIBUTION SHEET

HCI**CITY OF LAGUNA HILLS****BRIDLEWOOD DRIVE****LAUREL CREST DR TO VISTA VIEJO**

DATE: 5/16/2018

SURVEY BY:

C. BUENDIA

TIME: 9:00 AM - 10:00 AM

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 100.0%
42						X 98.1%
41						X 98.1%
40						X 96.2%
39						X 94.3%
38						X 92.5%
37						X 86.8%
36						X 83.0%
35						X 77.4%
34						X 75.5%
33						X 67.9%
32						X 64.2%
31						X 56.6%
30						X 49.1%
29						X 41.5%
28						X 34.0%
27						X 28.3%
26						X 18.9%
25						X 17.0%
24						X 5.7%
23						X 3.8%
22						X 3.8%
21						X 1.9%
20						X 1.9%
19						X 0.0%
18						X 0.0%
17						X 0.0%
16						X 0.0%
15						X 0.0%

---85PCT

---MEAN

---15PCT

UPPER LIMIT 10 MPH PACE: 34 MPH
 LOWER LIMIT 10 MPH PACE: 25 MPH
 PERCENT OVER PACE: 24.5 %
 PERCENT IN PACE: 69.8 %
 PERCENT UNDER PACE: 5.7 %

85th PERCENTILE SPEED: 36.5 MPH
 MEDIAN SPEED: 30.1 MPH
 15th PERCENTILE SPEED: 24.8 MPH

wood Spot Spd 2018-01

Attachment: Bridlewood Dr Traffic Commission Agenda Item 4.2 7-18-18 (1767 : Repeat Speed Survey on Bridlewood Drive)

Radar Speed Survey Field Sheet

HARTZOG AND CRABILL
 Consulting Traffic Engineers
 10332 Santa Rita Blvd., Suite 102, San Jose, CA 95128
 (408) 251-5452

WEATHER: SUNNY DATE: 5-16-18
 ROAD CONDITION: DRY START TIME: 9:00 AM
 OBSERVER: CATHY BUENDIA END TIME: 10:00 AM VLM

AGENCY: CITY OF LAGUNA HILLS
 STREET: BRIDLEWOOD
 LOCATION: LAUREL CREST DR TO VISTA VIEJO

DIRECTION: <u>NORTHBOUND</u>		NUMBER OF VEHICLES				TOTAL
MPH	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						
39						
38						
37						
36						
35						
34						
33						
32						
31						
30						
29						
28						
27						
26						
25						
24						
23						
22						
21						
20						
19						
18						
17						
16						
15						

Handwritten data in the 30-60 MPH range:
 30: 1
 31: 1
 32: 1
 33: 1
 34: 1
 35: 1
 36: 1
 37: 1
 38: 1
 39: 1
 40: 1
 41: 1
 42: 1
 43: 1
 44: 1
 45: 1
 46: 1
 47: 1
 48: 1
 49: 1
 50: 1
 51: 1
 52: 1
 53: 1
 54: 1
 55: 1
 56: 1
 57: 1
 58: 1
 59: 1
 60: 1

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

DIRECTION: <u>NORTHBOUND</u>		NUMBER OF VEHICLES				TOTAL
MPH	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						
39						
38						
37						
36						
35						
34						
33						
32						
31						
30						
29						
28						
27						
26						
25						
24						
23						
22						
21						
20						
19						
18						
17						
16						
15						

Handwritten data in the 30-60 MPH range:
 30: 1
 31: 1
 32: 1
 33: 1
 34: 1
 35: 1
 36: 1
 37: 1
 38: 1
 39: 1
 40: 1
 41: 1
 42: 1
 43: 1
 44: 1
 45: 1
 46: 1
 47: 1
 48: 1
 49: 1
 50: 1
 51: 1
 52: 1
 53: 1
 54: 1
 55: 1
 56: 1
 57: 1
 58: 1
 59: 1
 60: 1

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

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

RADAR SPEED DISTRIBUTION SHEET

HCI

CITY OF LAGUNA HILLS

BRIDLEWOOD DRIVE

LAUREL CREST DR TO VISTA VIEJO

DATE: 5/16/2018

SURVEY BY:

C. BUENDIA

TIME: 10:00 AM - 11:00 AM

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	98.4%
49					X	98.4%
48					X	98.4%
47					X	98.4%
46					X	98.4%
45					X	98.4%
44					X	98.4%
43					X	98.4%
42					X	98.4%
41					X	96.7%
40					X	95.1%
39					X	93.4%
38					X	91.8%
37				X		82.0%
36				X		78.7%
35				X		78.7%
34				X		75.4% } PACE
33			X			67.2% } PACE
32			X			63.9% } PACE
31			X			60.7% } PACE
30			X			57.4% } PACE
29			X			50.8% } PACE
28			X			45.9% } PACE --- MEAN
27		X				34.4% } PACE
26	X					18.0% } PACE
25	X					13.1% } PACE --- 15PCT
24	X					8.2%
23	X					6.6%
22	X					4.9%
21	X					4.9%
20	X					3.3%
19	X					1.6%
18	X					0.0%
17	X					0.0%
16	X					0.0%
15	X					0.0%

UPPER LIMIT 10 MPH PACE: 34 MPH
 LOWER LIMIT 10 MPH PACE: 25 MPH
 PERCENT OVER PACE: 24.6 %
 PERCENT IN PACE: 67.2 %
 PERCENT UNDER PACE: 8.2 %

85th PERCENTILE SPEED: 37.3 MPH
 MEDIAN SPEED: 28.8 MPH
 15th PERCENTILE SPEED: 25.4 MPH

wood Spot Spd 2018-02

Attachment: Bridlewood Dr Traffic Commission Agenda Item 4.2 7-18-18 (1767 : Repeat Speed Survey on Bridlewood Drive)

RADAR SPEED DISTRIBUTION SHEET

HCI
CITY OF LAGUNA HILLS
BRIDLEWOOD DRIVE
LAUREL CREST DR TO VISTA VIEJO
DATE: 5/16/2018
SURVEY BY:
C. BUENDIA
TIME: 9:00 AM - 11:00 AM
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	99.1%
49					X	99.1%
48					X	99.1%
47					X	99.1%
46					X	99.1%
45					X	99.1%
44					X	99.1%
43					X	99.1%
42					X	98.2%
41					X	97.4%
40					X	95.6%
39					X	93.9%
38					X	92.1%
37				X		84.2%
36				X		80.7%
35				X		78.1%
34				X		75.4% }PACE
33			X			67.5% }PACE
32			X			64.0% }PACE
31			X			58.8% }PACE
30			X			53.5% }PACE
29			X			46.5% }PACE ---MEAN
28			X			40.4% }PACE
27		X				31.6% }PACE
26	X					18.4% }PACE
25	X					14.9% }PACE ---15PCT
24	X					7.0%
23	X					5.3%
22	X					4.4%
21	X					3.5%
20	X					2.6%
19	X					0.9%
18	X					0.0%
17	X					0.0%
16	X					0.0%
15	X					0.0%

UPPER LIMIT 10 MPH PACE: 34 MPH
 LOWER LIMIT 10 MPH PACE: 25 MPH
 PERCENT OVER PACE: 24.6 %
 PERCENT IN PACE: 68.4 %
 PERCENT UNDER PACE: 7.0 %

85th PERCENTILE SPEED: 37.1 MPH
 MEDIAN SPEED: 29.5 MPH
 15th PERCENTILE SPEED: 25.0 MPH

Mod Spot Spd 2018-CUM

Attachment: Bridlewood Dr Traffic Commission Agenda Item 4.2 7-18-18 (1767 : Repeat Speed Survey on Bridlewood Drive)

RADAR SPEED DISTRIBUTION SHEET

HCI

CITY OF LAGUNA HILLS

DEVONSHIRE ROAD
FALLING LEAF DR TO NOTTINGHAM CT

DATE: 5/17/2018

SURVEY BY:

C. BUENDIA

TIME: 9:00 AM - 10:00 AM

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	100.0%
42					X	100.0%
41					X	100.0%
40					X	100.0%
39					X	100.0%
38					X	100.0%
37					X	96.9%
36					X	96.9%
35					X	96.9%
34					X	93.8% }PACE
33				X		78.1% }PACE -- -85PCT
32				X		78.1% }PACE
31				X		75.0% }PACE
30				X		71.9% }PACE
29			X			62.5% }PACE
28			X			50.0% }PACE ---MEAN
27			X			46.9% }PACE
26		X				28.1% }PACE
25		X				21.9% }PACE
24	X					9.4% -- -15PCT
23	X					9.4%
22	X					3.1%
21	X					3.1%
20	X					0.0%
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: 34 MPH
 LOWER LIMIT 10 MPH PACE: 25 MPH
 PERCENT OVER PACE: 6.3 %
 PERCENT IN PACE: 84.4 %
 PERCENT UNDER PACE: 9.4 %

85th PERCENTILE SPEED: 33.4 MPH
 MEDIAN SPEED: 28.0 MPH
 15th PERCENTILE SPEED: 24.5 MPH

Devonshire 2018-01

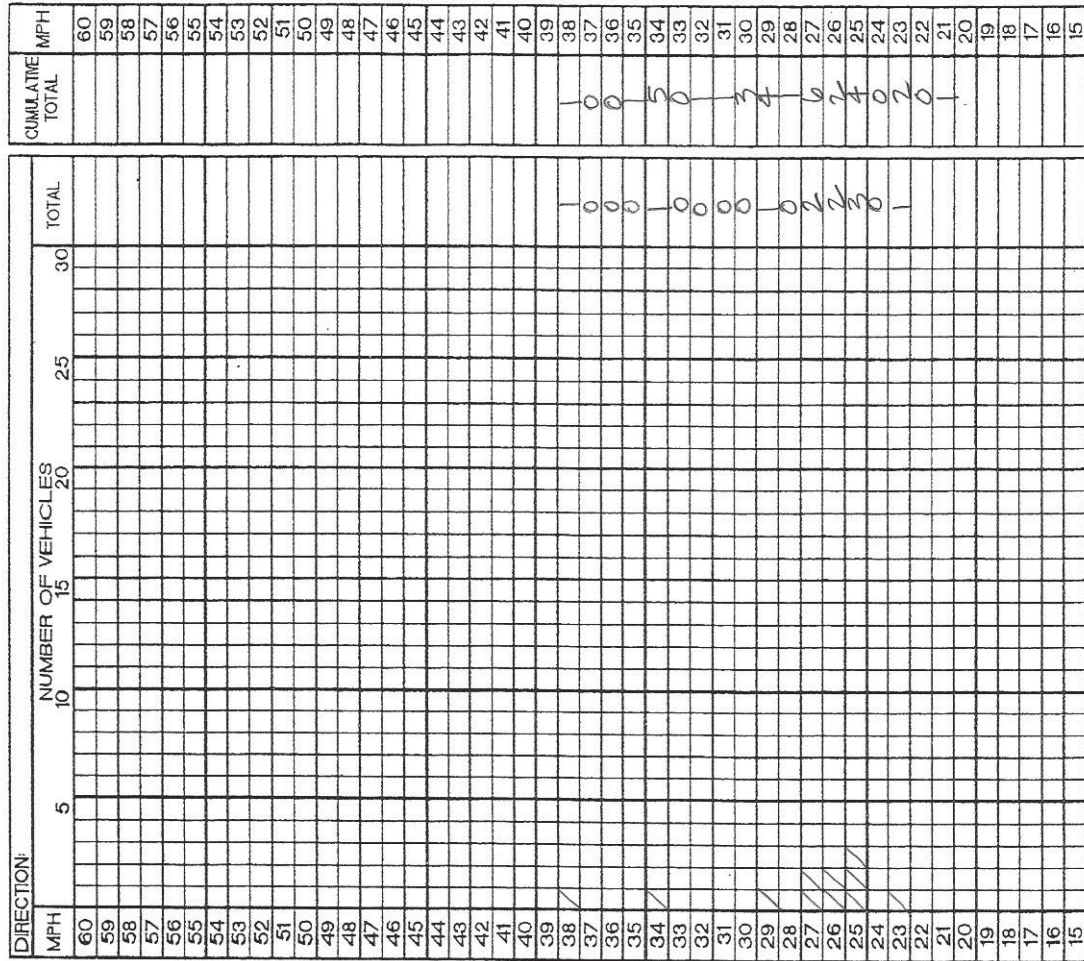
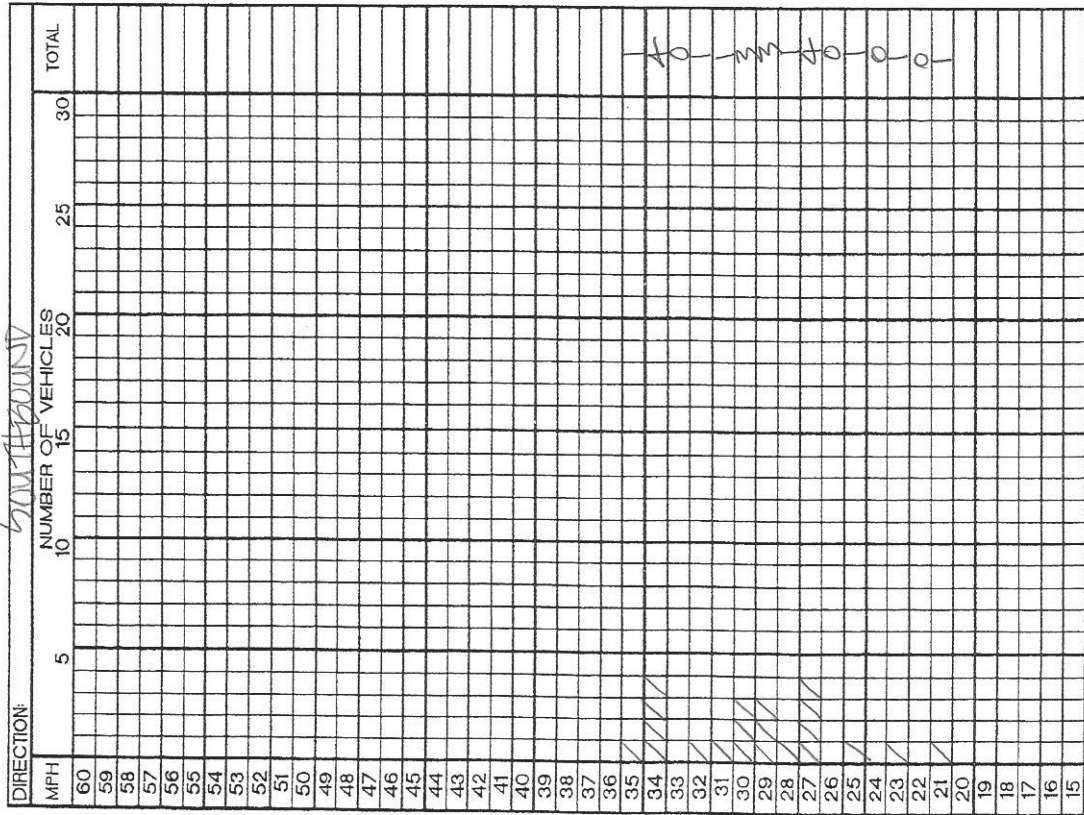
Attachment: Bridlewood Dr Traffic Commission Agenda Item 4.2 7-18-18 (1767 : Repeat Speed Survey on Bridlewood Drive)

Radar Speed Survey Field Sheet

HARTZOG AND CARRILLI
Countywide Traffic Reports
11241 Wren Rd., Suite 100, Dallas, TX 75242
(214) 731-5482

AGENCY: CITY OF LAGUNA HILLS
STREET: DEVONSHIRE ROAD
LOCATION: FALLING LEAF DR. TO NOTTINGHAM CT

WEATHER: WINDY DATE: 05-17-18
ROAD CONDITION: DRY START TIME: 9:00 AM
OBSERVER: CATHY BUENDIA END TIME: 10:00 AM



1 0 0 0 1 0 0 0 0 0 2 2 2 3 1

1 0 0 5 0 3 4 6 2 4 0 2 0 1

RADAR SPEED DISTRIBUTION SHEET

HCI
CITY OF LAGUNA HILLS
DEVONSHIRE ROAD
FALLING LEAF DR TO NOTTINGHAM CT

DATE: 5/17/2018

SURVEY BY:

C. BUENDIA

TIME: 10:00 AM - 11:00 AM

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	100.0%
42					X	100.0%
41					X	100.0%
40					X	100.0%
39					X	100.0%
38					X	100.0%
37					X	100.0%
36					X	95.7%
35					X	95.7%
34					X	95.7% }PACE
33					X	95.7% }PACE
32					X	95.7% }PACE
31					X	87.0% }PACE
30					X	87.0% }PACE
29					X	78.3% }PACE -- 85PCT
28					X	60.9% }PACE
27					X	52.2% }PACE
26					X	39.1% }PACE ---MEAN
25	X				X	21.7% }PACE
24	X				X	4.3% }PACE ---15PCT
23	X				X	0.0%
22	X				X	0.0%
21	X				X	0.0%
20	X				X	0.0%
19	X				X	0.0%
18	X				X	0.0%
17	X				X	0.0%
16	X				X	0.0%
15	X				X	0.0%

UPPER LIMIT 10 MPH PACE: 34 MPH
 LOWER LIMIT 10 MPH PACE: 25 MPH
 PERCENT OVER PACE: 4.3 %
 PERCENT IN PACE: 95.7 %
 PERCENT UNDER PACE: 0.0 %

85th PERCENTILE SPEED: 30.8 MPH
 MEDIAN SPEED: 27.8 MPH
 15th PERCENTILE SPEED: 25.6 MPH

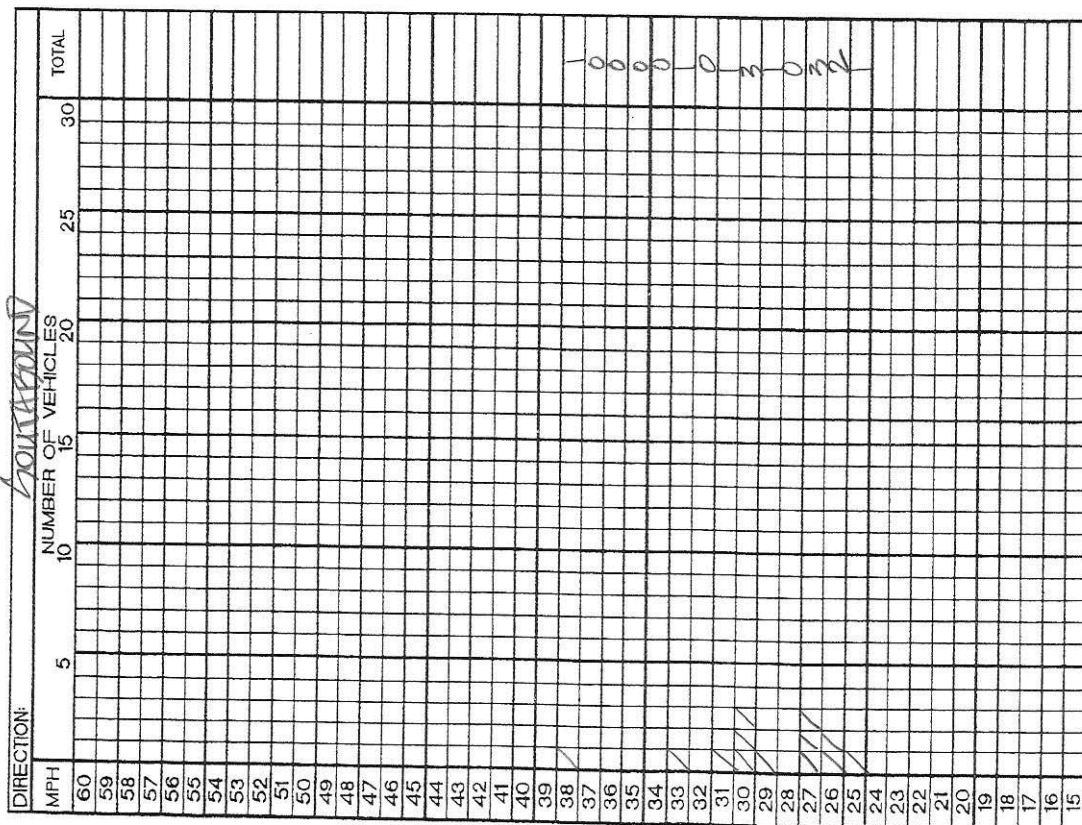
Devonshire 2018-02

Radar Speed Survey Field Sheet

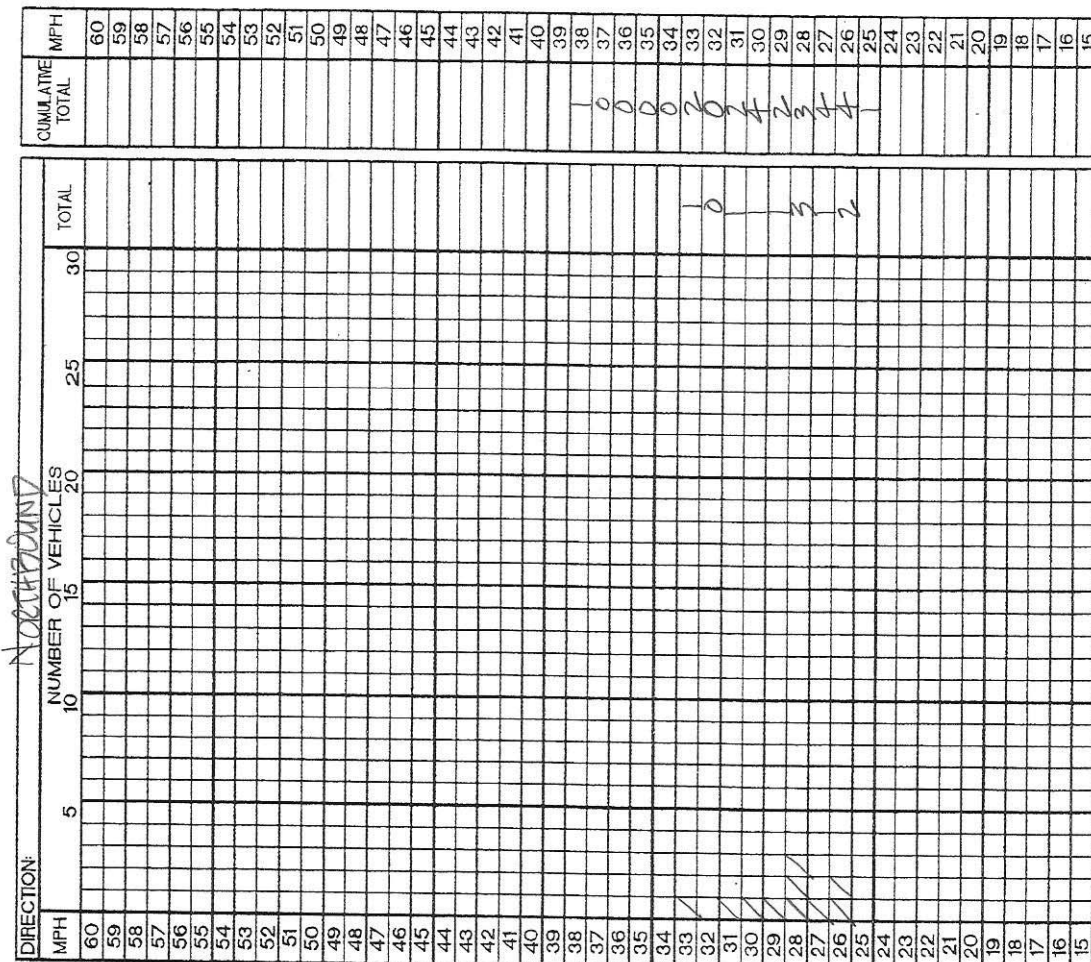
HARTZOG AND CRABILL
Consulting Health Engineers
13521 Irvine Blvd., Suite 122 Irvine, CA 92618
(714) 751-5452

AGENCY: CITY OF LAGUNA HILLS
STREET: DEVONSHIRE ROAD
LOCATION: FALLING LEAF DR TO NOTTINGHAM CT

WEATHER: SUNNY DATE: 5-17-18
ROAD CONDITION: DRY START TIME: 10:00 AM
OBSERVER: CATHY BUENDIA END TIME: 11:00 AM



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



CRITICAL PACE
SPEED: _____

AVERAGE
SPEED:

PACE
SPEED:

CUMULATIVE (BOTH DIRECTIONS)

RADAR SPEED DISTRIBUTION SHEET

HCI
CITY OF LAGUNA HILLS
DEVONSHIRE ROAD
FALLING LEAF DR TO NOTTINGHAM CT
DATE: 5/17/2018
SURVEY BY:
C. BUENDIA
TIME: 9:00 AM - 11:00 AM
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	100.0%
42					X	100.0%
41					X	100.0%
40					X	100.0%
39					X	100.0%
38					X	100.0%
37					X	96.4%
36					X	96.4%
35					X	96.4%
34					X	94.5% }PACE
33				X		85.5% }PACE
32				X		81.8% }PACE ---85PCT
31				X		80.0% }PACE
30				X		74.5% }PACE
29			X			61.8% }PACE
28			X			50.9% }PACE
27		X				43.6% }PACE ---MEAN
26		X				25.5% }PACE
25	X					14.5% }PACE ---15PCT
24	X					5.5%
23	X					5.5%
22	X					1.8%
21	X					1.8%
20	X					0.0%
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: 34 MPH
 LOWER LIMIT 10 MPH PACE: 25 MPH
 PERCENT OVER PACE: 5.5 %
 PERCENT IN PACE: 89.1 %
 PERCENT UNDER PACE: 5.5 %

85th PERCENTILE SPEED: 32.9 MPH
 MEDIAN SPEED: 27.9 MPH
 15th PERCENTILE SPEED: 25.0 MPH

Devonshire 2018 CUM

Attachment: Bridlewood Dr Traffic Commission Agenda Item 4.2 7-18-18 (1767 : Repeat Speed Survey on Bridlewood Drive)

ADT Volume Data

Prepared by NDS/ATD

VOLUME

Bridlewood Dr Bet. Vista Viejo Rd & Laurel Crest Dr

Day: Wednesday

Date: 5/2/2018

City: Laguna Hills

Project #: CA18_1093_001

DAILY TOTALS					NB	SB	EBWB					Total
					454	268						0
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL	
00:00	0	0			0	12:00	5	10			15	
00:15	1	1			2	12:15	6	9			15	
00:30	0	0			0	12:30	7	3			10	
00:45	0	1	0	1	0	12:45	7	25	4	26	11	
01:00	0	0			0	13:00	5	2			7	
01:15	0	0			0	13:15	6	4			10	
01:30	0	0			0	13:30	8	4			12	
01:45	0	0			0	13:45	2	21	9	19	11	
02:00	0	0			0	14:00	8	7			15	
02:15	0	0			0	14:15	7	4			11	
02:30	0	0			0	14:30	7	5			12	
02:45	0	0			0	14:45	9	31	5	21	14	
03:00	0	0			0	15:00	5	7			12	
03:15	0	0			0	15:15	9	5			14	
03:30	0	0			0	15:30	3	6			9	
03:45	0	0			0	15:45	8	25	4	22	12	
04:00	1	1			2	16:00	12	5			17	
04:15	0	0			0	16:15	10	7			17	
04:30	1	0			1	16:30	6	3			9	
04:45	1	3	0	1	1	16:45	11	39	3	18	14	
05:00	1	1			2	17:00	4	2			6	
05:15	0	0			0	17:15	4	3			7	
05:30	2	0			2	17:30	15	10			25	
05:45	1	4	0	1	1	17:45	9	32	5	20	14	
06:00	2	1			3	18:00	4	2			6	
06:15	1	1			2	18:15	10	8			18	
06:30	5	0			5	18:30	10	4			14	
06:45	2	10	1	3	3	18:45	7	31	6	20	13	
07:00	9	3			12	19:00	12	7			19	
07:15	8	5			13	19:15	3	1			4	
07:30	7	4			11	19:30	4	4			8	
07:45	15	39	4	16	19	19:45	4	23	3	15	7	
08:00	11	7			18	20:00	4	1			5	
08:15	11	4			15	20:15	4	1			5	
08:30	16	5			21	20:30	4	3			7	
08:45	7	45	2	18	9	20:45	3	15	1	6	4	
09:00	9	6			15	21:00	4	1			5	
09:15	11	1			12	21:15	3	2			5	
09:30	8	4			12	21:30	2	4			6	
09:45	4	32	4	15	8	21:45	1	10	0	7	1	
10:00	4	2			6	22:00	0	4			4	
10:15	6	4			10	22:15	0	2			2	
10:30	11	4			15	22:30	2	0			2	
10:45	8	29	5	15	13	22:45	1	3	0	6	1	
11:00	6	8			14	23:00	1	1			2	
11:15	7	4			11	23:15	0	0			0	
11:30	13	2			15	23:30	0	0			0	
11:45	8	34	3	17	11	23:45	1	2	0	1	1	
TOTALS	197	87			284	TOTALS	257	181			438	
SPLIT %	69.4%	30.6%			39.3%	SPLIT %	58.7%	41.3%			60.7	

DAILY TOTALS					NB	SB	EB	WB	Total
					454	268	0	0	722
AM Peak Hour	07:45	11:45		07:45	PM Peak Hour	16:00	12:00		18:1
AM Pk Volume	53	25		73	PM Pk Volume	39	26		64
Pk Hr Factor	0.828	0.625		0.869	Pk Hr Factor	0.813	0.650		0.84
7 - 9 Volume	84	34	0	0	4 - 6 Volume	71	38	0	0
7 - 9 Peak Hour	07:45	07:15		07:45	4 - 6 Peak Hour	16:00	17:00		16:0
7 - 9 Pk Volume	53	20	0	0	4 - 6 Pk Volume	39	20	0	0
Pk Hr Factor	0.828	0.714	0.000	0.000	Pk Hr Factor	0.813	0.500	0.000	0.000

Attachment: Bridlewood Dr Traffic Commission Agenda Item 4.2 7-18-18 (1767 : Repeat Speed Survey on Bridlewood Drive)

Prepared by NDS/ATD

VOLUME

Devonshire Rd Bet. Falling Leaf Dr & Nottingham Ct

Day: Wednesday
Date: 5/2/2018City: Laguna Hills
Project #: CA18_1093_002

DAILY TOTALS					NB	SB						EB		WB		Total
					174	416						0	0	590		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL					
00:00	0	0			0	12:00	2	9			11					
00:15	0	0			0	12:15	2	7			9					
00:30	0	0			0	12:30	3	6			9					
00:45	0	0			0	12:45	4	11	8	30	12	41				
01:00	0	0			0	13:00	2	5			7					
01:15	0	0			0	13:15	5	7			12					
01:30	0	0			0	13:30	3	5			8					
01:45	0	0			0	13:45	5	15	3	20	8	35				
02:00	0	0			0	14:00	6	7			13					
02:15	0	0			0	14:15	4	7			11					
02:30	0	0			0	14:30	5	5			10					
02:45	0	0			0	14:45	2	17	6	25	8	42				
03:00	1	0			1	15:00	3	10			13					
03:15	0	0			0	15:15	6	9			15					
03:30	0	0			0	15:30	7	10			17					
03:45	0	1	0		0	15:45	1	17	7	36	8	53				
04:00	0	0			0	16:00	0	6			6					
04:15	0	0			0	16:15	8	4			12					
04:30	0	0			0	16:30	4	9			13					
04:45	0	1	1		1	16:45	7	19	12	31	19	50				
05:00	0	0			0	17:00	3	11			14					
05:15	1	1			2	17:15	6	14			20					
05:30	0	0			0	17:30	3	12			15					
05:45	0	1	1	2	1	17:45	2	14	14	51	16	65				
06:00	1	1			2	18:00	2	14			16					
06:15	0	0			0	18:15	4	19			23					
06:30	0	5			5	18:30	2	7			9					
06:45	0	1	2	8	2	18:45	3	11	8	48	11	59				
07:00	1	2			3	19:00	3	8			11					
07:15	0	3			3	19:15	2	4			6					
07:30	5	1			6	19:30	4	4			8					
07:45	2	8	5	11	7	19:45	1	10	3	19	4	29				
08:00	2	6			8	20:00	1	6			7					
08:15	2	7			9	20:15	2	3			5					
08:30	6	4			10	20:30	1	1			2					
08:45	2	12	5	22	7	20:45	1	5	3	13	4	18				
09:00	3	10			13	21:00	0	2			2					
09:15	0	7			7	21:15	3	5			8					
09:30	4	4			8	21:30	1	4			5					
09:45	3	10	6	27	9	21:45	1	5	1	12	2	17				
10:00	1	9			10	22:00	0	6			6					
10:15	0	3			3	22:15	1	3			4					
10:30	2	5			7	22:30	0	0			0					
10:45	2	5	6	23	8	22:45	2	3	0	9	2	12				
11:00	2	7			9	23:00	1	1			2					
11:15	1	5			6	23:15	0	3			3					
11:30	3	5			8	23:30	0	0			0					
11:45	2	8	5	22	7	23:45	0	1	2	6	2	7				
TOTALS	46	116			162	TOTALS	128	300			428					
SPLIT %	28.4%	71.6%			27.5%	SPLIT %	29.9%	70.1%			72.5					

DAILY TOTALS					NB	SB	EB	WB	Total
					174	416	0	0	590
AM Peak Hour	08:15	09:00		08:15	PM Peak Hour	16:15	17:30		17:30
AM Pk Volume	13	27		39	PM Pk Volume	22	59		70
Pk Hr Factor	0.542	0.675		0.750	Pk Hr Factor	0.688	0.776		0.76
7 - 9 Volume	20	33	0	53	4 - 6 Volume	33	82	0	115
7 - 9 Peak Hour	07:45	07:45		07:45	4 - 6 Peak Hour	16:15	17:00		16:4
7 - 9 Pk Volume	12	22	0	34	4 - 6 Pk Volume	22	51	0	68
Pk Hr Factor	0.500	0.786	0.000	0.000	Pk Hr Factor	0.688	0.911	0.000	0.000

Attachment: Bridlewood Dr Traffic Commission Agenda Item 4.2 7-18-18 (1767 : Repeat Speed Survey on Bridlewood Drive)

Collision History

JAN. 1, 2013 - FEB. 28, 2018

JAN. 1, 2013 - FEB. 28, 2013

CASE ID	COLL. DATE	COLL. TIME	PRIMARY ROAD	SECONDARY ROAD	DIST.	DIR.	INTERS.	WEATH.	COLL. SEVERITY	PRIM. COLL. FACT.	PCF VIOL CAT.	PCF VIOL.	HIT AND RUN VIOL.	HIT AND RUN VIOL.	TYPE OF COLL.	MOTOR VEHICLE INVOLVED WITH	ROA SURI
8361526	20170326	10	BRIDLEWOOD DR	VISTA VIEJO RD	488	N	N	A	0	A	1	23152	N	C	E	A	
6174038	20130806	1741	VISTA VIEJO	BRIDLEWOOD LN	0		Y	A	4	A	9	21801	N	A	C	A	

NOTES:

Weather 1	Collision Severity	Primary Collision Factor	PCF Violation Category	Hit and Run	Type of Collision
A - Clear	1 - Fatal	A - (Vehicle) Code Violation	01 - Driving or Bicycling Under Influence	F - Felony	A - Head-On
B - Cloudy	2 - Injury (Severe)	B - Other Improper Driving	02 - Impeding Traffic	M - Misdemeanor	B - Sideswipe
C - Raining	3 - Injury (Other Visible)	C - Other Than Driver	03 - Unsafe Speed	N - Not Hit & Run	C - Rear-End
D - Snowing	4 - Injury (Complaint of Pain)	D - Unknown	04 - Following Too Closely		D - Broadside
E - Fog	0 - PDO (Property Damage Only)	E - Fell Asleep	05 - Wrong Side of Road		E - Hit Object
F - Other		-- Not Stated	06 - Improper Passing		F - Overturned
G - Wind			07 - Unsafe Lane Change		G - Vehicle/Pedestrian
-- Not Stated			08 - Improper Turning		H - Other
			09 - Automobile ROW		-- Not Stated

Motor Vehicle Involved With:

Road Surface	
A - Non-Collision	11 - Pedestrian Violation
B - Pedestrian	12 - Traffic Signals and Signs
C - Other Motor Vehicle	13 - Hazardous Parking
D - Motor Vehicle on Other Roadway	14 - Lights
E - Parked Motor Vehicle	15 - Brakes
F - Train	16 - Other Equipment
G - Bicycle	17 - Other Hazardous Violation
H - Animal	18 - Other Than Driver (or Ped)
I - Fixed Object	19 -
J - Other Object	20 -
-- Not Stated	21 - Unsafe Starting or Backing
	22 - Other Improper Driving
	23 - Pedestrian or "Other" Under the Influence
	24 - Fell Asleep
	00 - Unknown
	-- Not Stated



City of Laguna Hills

Traffic Commission

Staff Report

DATE: January 16, 2019
TO: Traffic Commissioners
FROM: Amber Shah
Associate Engineer
ISSUE: Repeat Speed Survey on Nellie Gail Road Between Oso Parkway and Hidden Trail Road

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

SUMMARY:

Staff was contacted by a resident in February 2018 regarding concerns of vehicular speeding and cut-through traffic on Nellie Gail Road between Oso Parkway and Moulton Parkway. Please see the attached Vicinity Map. Based upon the resident's concern and in accordance with the Residential Streets Management Policy, staff subsequently initiated a review of the vehicular speeds, traffic collision history and an origin and destination study (cut-through traffic analysis) on Nellie Gail Road between Oso Parkway and Moulton Parkway. The report presented at the May 16, 2018 meeting of the Traffic Commission concluded the 85th percentile speed measurement of Nellie Gail Road south of Oso Parkway (generally between Oso Parkway and Hidden Trail Road) was higher than expected and considered to be unacceptable for a residential character street. Additional traffic speed enforcement and use of the radar trailer were utilized to address this issue. The Traffic Commission requested staff repeat the speed survey of Nellie Gail Road between Oso Parkway and Hidden Trail Road in six months' time.

In accordance with the Traffic Commission's request, the Traffic Engineers of Hartzog & Crabill, Inc., (HCI) completed the attached January 9, 2019, speed survey of Nellie Gail Road from Oso Parkway to Hidden Trail Road. This speed survey determined the 85th percentile speed on Nellie Gail Road has reduced from 39 mph, as recorded in the first speed survey in May 2018, to 34.8 mph in December 2018. Staff's experience has found

Repeat Speed Survey on Nellie Gail Road Between Oso Parkway and Hidden Trail Road
January 16, 2019
Page 2

the typical prevailing speed range for such streets to be between 32 and 34 mph, without traffic safety concerns. The study also determined the percent of vehicles on Nellie Gail Road exceeding 35 mph has declined from 36% to 12.2% which is now within the expected percentage (15%).

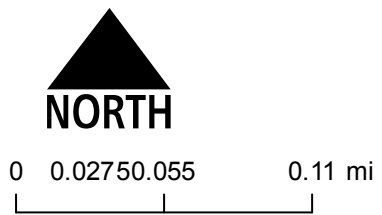
Continued police enforcement of driver behavior is the best and appropriate remedy for this location and issue of concern. Staff will continue to work with the Sheriff's Department on enforcement activity in this area and post the radar trailer in this area to increase driver education as to the appropriate speed on Nellie Gail Road.

ATTACHMENTS:

- Vicinity Map - Nellie Gail Road
- Traffic Study
- Nellie Gail Traffic Commission Agenda Item 4.2 5-16-18



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Ireland), NCCO, © OpenStreetMap contributors, and the GIS User community



VICINITY MAP - NELLIE GAIL ROAD





Trammell Hartzog, President
Gerald J. Stock, PE, TE,
Executive Vice President

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

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

www.hartzog-crabill.com

January 9, 2019

Mr. Kenneth H. Rosenfield, PE
Assistant City Manager/Public Services Director
City of Laguna Hills
24035 El Toro Road
Laguna Hills, CA 92653

Subject: Letter of Opinion – Speeding, Cut-through Traffic, and Collision Concerns along Wilkes Place and Grissom Road, and Speeding Along Bridlewood Drive and Nellie Gail Road

Dear Mr. Rosenfield,

Pursuant to your request, Hartzog & Crabill, Inc. (HCI) has prepared this traffic engineering evaluation regarding resident concerns of speeding and cut-through traffic, along with review of collisions, on the following two street segments:

- Wilkes Place, south of Alicia Parkway, and
- Grissom Road, east of Wilkes Place.

This evaluation also includes follow-up spot speed radar surveys along the two following two segments:

- Bridlewood Drive, between Vista Viejo Road and Laurel Crest Drive,
- Nellie Gail Road, between Oso Parkway and Hidden Trail Road.

BACKGROUND

Wilkes Place

Wilkes Place, between Alicia Parkway and Grissom Road, is a 36-foot to 40-foot wide, 2-lane, diagonal north-south residential collector roadway. At the project limits, there is a traffic signal at Alicia Parkway and a 90 degree bend at Grissom Road. There is double-yellow and single-yellow skip centerline striping along the entire segment. There is also an uncontrolled, marked yellow crosswalk across Wilkes Place at Barents Street, along with SCHOOL XING warning signs and advance SLOW SCHOOL XING pavement markings. There is a posted 25 MPH speed limit sign just south of Alicia Parkway. On-street parking is allowed along both sides of Wilkes Place.

Mr. Kenneth H. Rosenfield, PE
January 9, 2019
Page 2 of 8

BACKGROUND (continued)

Grissom Road

Grissom Road, between Wilkes Place and Las Bolsas Street, is a 36-foot wide, 2-lane, east-west residential collector roadway. At the project limits, there are 90-degree bends with double-yellow centerlines delineating the curves only. There is no centerline striping along the entire segment, and no posted speed limit signs. On-street parking is allowed along both sides of Grissom Road. An intersecting T-intersection with Velasquez Road connects to Paseo de Valencia.

Bridlewood Drive

Bridlewood Drive, between Vista Viejo Road and Laurel Crest Drive, is a 40-foot wide, 2-lane, north-south residential collector roadway. At the project limits, there is a 1-way stop at Vista Viejo Road and a 3-way stop at Laurel Crest Drive. There is no centerline striping along the entire segment, with exception of a short length of double-yellow centerline at the project limits. There are posted 25 MPH speed limit signs along Bridlewood Drive, between Vista Viejo Road and Laurel Crest Drive. There are also '25' pavement markings adjacent to the sign postings. On-street parking is allowed along both sides of Bridlewood Drive.

Nellie Gail Road

Nellie Gail Road, between Oso Parkway and Hidden Trail Road, is a 40-foot wide, curvy 2-lane, residential collector roadway. There is a traffic signal control at Oso Parkway and a one-way Stop control at Hidden Trail Road. There is a double-yellow centerline stripe along the entire segment, and a raised landscaped center median at Oso Parkway. There are Equestrian Xings with posted warning signs within this segment, along with other advance Side Street warning signs. There are posted 25 MPH speed limit signs along Nellie Gail Road between Oso Parkway and Hidden Trail Road. There is also a '25' pavement marking adjacent to the sign posting just south of Oso Parkway. On-street parking is allowed along both sides of Nellie Gail Road.

TRAVEL SPEED DATA

To determine travel speeds on the four (4) segments of:

- 1) Wilkes Place, between Alicia Parkway and Grissom Road;
- 2) Grissom Road, between Wilkes Place and Las Bolsas Street;
- 3) Bridlewood Drive, between Vista Viejo Road and Laurel Crest Drive;
- 4) Nellie Gail Road, between Oso Parkway and Hidden Trail Road;

a spot speed radar survey was conducted on each of the locations on Tuesday, December 11, and on Wednesday, December 12, 2018. Tables 1 and 2 (next page) summarize the spot speed radar survey data.

TRAVEL SPEED DATA (continued)

TABLE 1
SPEED SURVEY SUMMARY
WILKES PLACE, FROM ALICIA PARKWAY TO GRISSOM ROAD
GRISSOM ROAD, FROM WILKES PLACE TO LAS BOLSAS STREET

Speed Summary	Along Wilkes Place Segment	Along Grissom Road Segment
Posted Speed Limit	25 MPH	25 MPH
85 th Percentile Speed	30 MPH	28.4 MPH
Average Speed	25 MPH	25.2 MPH
10 MPH Pace Range	21 - 30 MPH	20 - 29 MPH
Percent of Vehicles in Pace	74.1%	87.3%

Source: Hartzog & Crabill, Inc., 2018.

TABLE 2
SPEED SURVEY SUMMARY
BRIDLEWOOD DRIVE, FROM VISTA VIEJO ROAD TO LAUREL CREST DRIVE
NELLIE GAIL ROAD, FROM OSO PARKWAY TO HIDDEN TRAIL ROAD

Speed Summary	Along Bridlewood Drive Segment	Along Nellie Gail Road Segment
Posted Speed Limit	25 MPH	25 MPH
85 th Percentile Speed	36.1 MPH	34.8 MPH
Average Speed	29.3 MPH	30.9 MPH
10 MPH Pace Range	25 - 34 MPH	26 - 35 MPH
Percent of Vehicles in Pace	70.7%	77.0%

Source: Hartzog & Crabill, Inc., 2018.

As shown above, the 85th percentile speeds on Wilkes Place and Grissom Road were recorded at 30 MPH and 28.4 MPH, respectively. This data shows that typical travel speeds are occurring for a posted 25 MPH speed limit street. The 85th percentile speeds on Bridlewood Drive and Nellie Gail Road were recorded at 36.1 MPH and 34.8 MPH, respectively. This data shows that higher travel speeds are occurring along Bridlewood Drive. It is noted, back in March 2018, the 85th percentile speed on Bridlewood Drive was recorded at 37.1 MPH. In May 2018, the 85th percentile speed on Nellie Gail Road was recorded at 39 MPH, which has reduced to a typical speed for this type of roadway.

The overall speed radar survey data is attached to this letter.

Mr. Kenneth H. Rosenfield, PE
January 9, 2019
Page 4 of 8

TRAVEL SPEED DATA (continued)

In an effort to lower overall speeds on Bridlewood Drive, the City may want to consider taking an incremental approach that may include the following:

- increased law enforcement
- frequent deployment of portable radar speed-feedback trailers
- neighborhood watch committee meeting to help make all residents aware of speeding

TRAFFIC VOLUME DATA

Average Daily Traffic (ADT) counts were collected for the two (2) segments of Wilkes Place and Grissom Road on Wednesday, December 12, 2018. The ADT, or 24-hour two-way traffic volume, along these segments resulted in 838 and 494 vehicles, respectively.

A two-lane collector street generally has a Level-of-Service (LOS) 'D' capacity of 11,300 vehicles per day. Consequently, the current traffic volumes are well under the roadway capacity, and there are no other recommendations regarding traffic volume data to provide at this time.

The ADT count data collected as part of this evaluation is attached to this letter.

COLLISION DATA

HCI obtained collision data for the past six (6) years, between January 1, 2013 – November 30, 2018, from the Statewide Integrated Traffic Records System website (*i-SWITRS*) database to determine the number of collisions occurring on the two (2) segments of Wilkes Place and Grissom Road.

Tables 3 and 4 (next page) presents the summary collision data.

COLLISION DATA (continued)

TABLE 3
TRAFFIC COLLISION DATA SUMMARY
WILKES PLACE, FROM ALICIA PARKWAY TO GRISSOM ROAD

YEAR	NUMBER OF COLLISIONS	FATAL	INJURY	PROPERTY DAMAGE ONLY
2013	0	0	0	0
2014	0	0	0	0
2015	0	0	0	0
2016	3	0	3	0
2017	0	0	0	0
2018 *	0	0	0	0

* Available SWITRS data up to November 2018 at the time of report preparation.

As shown above, there have been a total of three (3) collisions reported within the last six (6) years on Wilkes Place. It is noted, all three collisions occurred at the intersection of Wilkes Place and Alicia Parkway. There were no collisions determined as ‘speed-related’.

TABLE 4
TRAFFIC COLLISION DATA SUMMARY
GRISSOM ROAD, FROM WILKES PLACE TO LAS BOLSAS STREET

YEAR	NUMBER OF COLLISIONS	FATAL	INJURY	PROPERTY DAMAGE ONLY
2013	0	0	0	0
2014	0	0	0	0
2015	0	0	0	0
2016	0	0	0	0
2017	0	0	0	0
2018 *	1	0	0	1

* Available SWITRS data up November 2018 at the time of report preparation.

As shown above, there has been a total of one (1) collision reported within the last six (6) years on Grissom Road. This collision occurred at the intersection of Grissom Road and Las Bolsas Street, and was not determined as ‘speed-related’.

Consequently, there are no other recommendations regarding collision data on these two segments at this time.

The comprehensive 6-year segment collision history reports are attached to this letter.

CUT-THROUGH TRAFFIC

An Origin and Destination (O&D) study (i.e., license plate survey) was conducted on Wednesday, December 12, 2018 during the AM peak period (7 - 9am) to quantify the amount of traffic that are likely using Wilkes Place and Grissom Road as a short-cut.

The study collected license plate numbers in a 5-minute interval basis for all vehicles entering and exiting Wilkes Place at the project limit of Alicia Parkway, and also entering and exiting Velasquez Road at Paseo de Valencia (via Grissom Road).

Table 5 below shows a summary of the license plate matches recorded per each hour.

TABLE 5
ORIGIN-DESTINATION LICENSE PLATE MATCHES
USING WILKES PLACE AND GRISSOM ROAD

Path	7:00:00 AM	7:05:00 AM	7:45:00 AM	7:50:00 AM	8:05:00 AM	8:10:00 AM	8:15:00 AM	8:50:00 AM	8:55:00 AM	Total
2 to 1	1	1	1		3		1			7
1 to 2				2	1	2	1	1	1	8
Grand Total	1	1	1	2	4	2	2	1	1	15

The numbers (1 to 2 & 2 to 1) in Table 5 above refer to vehicles entering from and exiting to as follows:

Location 1 - Wilkes Place, just south of Alicia Parkway.

Location 2 - Velasquez Road, just north of Paseo de Valencia (short leg leading to Grissom Road).

The overall Origin-Destination Study spreadsheet is attached to this letter.

Per the ADT count data collected, the hourly traffic volumes for these same peak hours are compared as follows:

<u>Hour</u>	<u>ADT Traffic Volume</u>	<u>Cut-Thru</u>	<u>Cut-Thru/Volume</u>
7-8 AM	48	5	10%
8-9 AM	170	10	6%

As shown above, the actual hourly percentages are very low for what may be considered 'cut-through' traffic. Consequently, there are no recommendations regarding 'cut-through' traffic at this time.

Mr. Kenneth H. Rosenfield, PE
 January 9, 2019
 Page 7 of 8

SUMMARY

Wilkes Place and Grissom Road

In summary, the traffic data on Wilkes Place and Grissom Road resulted in the following:

- ✓ typical travel speeds are occurring for these 25 MPH speed limit streets;
- ✓ traffic volumes are well-below the traffic carrying capacity of the two roadways;
- ✓ there is no traffic collision history related to traffic speeds along these segments; and,
- ✓ 'cut-through' traffic is determined as very low.

Bridlewood Drive and Nellie Gail Road

In summary, the recent speed data on Bridlewood Drive and Nellie Gail Road resulted in the following:

- ✓ higher than typical travel speeds are occurring along Bridlewood Drive.
- ✓ the Nellie Gail Road speed results are typical and do not result in recommended actions.

RECOMMENDATIONS

Wilkes Place and Grissom Road

In review of the existing School Xing signage on Wilkes Place, it is recommended to update the signage to the newer standard signs with fluorescent yellow-green background.

Bridlewood Drive

In order to address the higher travel speeds along Bridlewood Drive, it is recommended that an incremental approach continue to be followed, which includes:

- increased law enforcement.
- frequent deployment of portable radar speed-feedback trailers.
- neighborhood watch committee meeting to help make all residents aware of speeding.

Mr. Kenneth H. Rosenfield, PE
January 9, 2019
Page 8 of 8

It has been our pleasure to prepare this letter of opinion regarding speeds, traffic volumes, collisions, and cut-through traffic on these project segments. If you have any questions or need additional information, please feel free to call us anytime at (714) 731-9455.

Sincerely,
HARTZOG & CRABILL, INC.



Gerald J. Stock, PE, TE
Executive Vice President

Attachments: Spot Speed Radar Data
 ADT Traffic Volume Data
 Collision History Data
 Origin-Destination Study

Spot Speed Radar Data

SUMMARY OF SPOT SPEED SURVEYS DECEMBER 2018

STREET LOCATION	EXISTING SPEED LIMIT	RECOMMENDED SPEED LIMIT	85 TH PERCENTILE SPEED	AVERAGE SPEED	10 MPH PACE RANGE	PERCENT OF VEHICLES IN PACE	DAY / DATE / TIME
<u>BRIDLEWOOD DRIVE</u>							
LAUREL CREST TO VISTA VIEJO	25	-	36.1	29.3	25-34	70.7	WED / 12-12-18 / MID-DAY (12:15 - 2:00)
<u>GRISSOM ROAD</u>							
WILKES PL TO LAS BOLSAS ST	25	-	28.4	25.2	20-29	87.3	TUES / 12-11-18 / MID-DAY (12:15 - 2:00)
<u>NELLIE GAIL ROAD</u>							
OSO PKWY TO HIDDEN TRAIL RD	25	-	34.8	30.9	26-35	77.0	WED / 12-12-18 / MID-DAY (11:00 - 12:00)
<u>WILKES PLACE</u>							
ALICIA PKWY TO GRISSOM RD	25	-	30.0	25.0	21-30	74.1	TUES / 12-11-18 / MID-DAY (10:45 - 12:15)

Radar Speed Survey Field Sheet

 AGENCY: CITY OF LAGUNA HILLS
 STREET: BRIDLEWOOD
 LOCATION: VISTA VIEJO RD TO LAUREL CREST DR

 WEATHER: SUNNY DATE: 12-12-18
 ROAD CONDITION: DRY START TIME: 12:15 PM
 OBSERVER: CATHY BUENDIA END TIME: 2:00 PM VUB

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

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

CUMULATIVE (BOTH DIRECTIONS) _____

DIRECTION: <u>NORTHBOUND</u>						
MPH	5	NUMBER OF VEHICLES				TOTAL
	10	15	20	25	30	
60						
59						
58						
57						
56						
55						
54						
53						
52						
51						
50						
49						
48						
47	/					1
46						0
45	/					1
44						0
43						0
42						0
41	//					2
40	/					1
39	//					2
38						0
37	//					3
36	/					1
35	//					2
34	/					1
33	/					1
32	//					2
31	//					2
30	//					2
29	//					2
28	//					2
27	/					1
26	/					1
25	/					1
24	/					1
23	/					1
22	/					1
21	/					1
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
2	47
0	46
1	45
1	44
0	43
0	42
2	41
1	40
4	39
0	38
3	37
0	36
5	35
4	34
5	33
7	32
9	31
10	30
12	29
11	28
8	27
5	26
11	25
4	24
3	23
1	22
0	21
1	20
	19
	18
	17
	16
	15

RADAR SPEED DISTRIBUTION SHEET

HCI

CITY OF LAGUNA HILLS

BRIDLEWOOD DRIVE

DATE: 12/12/2018

TIME: 12:15 PM - 2:00 PM

LAUREL CREST DR TO VISTA VIEJO

SURVEY BY: C. BUENDIA

CHECKED BY: JERRY STOCK

VEHICLE SPEEDS CHECKED BY CERNI BOOK																												
SPEED	NUMBER OF VEHICLES																									VEH.	PCT.	CUM. PCT.
60																											100.0%	
																											100.0%	
																											100.0%	
																											100.0%	
55																											100.0%	
																											100.0%	
																											100.0%	
																											100.0%	
50																											100.0%	
																											100.0%	
																											100.0%	
																											100.0%	
45	X	X																									100.0%	
																											0	
	X																										1	
	X																										1	
40	X																										1	
	X	X																									0	
	X	X	X	X																							2	
	X																										1	
35	X	X	X	X																							4	
	X	X	X	X	X																						5	
	X	X	X	X	X																						4	
	X	X	X	X	X	X	X																				5	
30	X	X	X	X	X	X	X																				7	
	X	X	X	X	X	X	X	X	X																		9	
	X	X	X	X	X	X																					6	
	X	X	X	X	X																						4	
25	X	X	X	X	X	X	X	X	X	X	X																11	
	X	X	X	X	X																						8	
	X	X	X	X	X																						5	
	X	X	X	X																							4	
20	X																										3	
																											1	
																											0	
																											0	
15																											0	
																											0	
																											0	
																											0	
TOTAL VEHICLES																										99		

UPPER LIMIT 10 MPH PACE: 34 MPH

LOWER LIMIT 10 MPH PACE: 25 MPH

PERCENT OVER PACE: 24.2 %

PERCENT IN PACE: 70.7 %

PERCENT UNDER PACE: 9.1 %

85th PERCENTILE SPEED: 36.1 MPH

MEDIAN SPEED: 29.3 MPH

15th PERCENTILE SPEED: 24.5 MPH

Attachment: Traffic Study (1768 : Repeat Speed Survey on Nellie Gail Road Between Oso Parkway and Hidden Trail Road)

Radar Speed Survey Field Sheet

HARTZOG AND CRABILL INC.
Consulting Traffic Engineers
11592 Irvine Blvd., Suite 122, Irvine, CA 92618
(714) 731-9455

AGENCY: CITY OF LAGUNA HILLS

STREET: GRISCOM ROAD

LOCATION: WILKES PL TO LAS BOISAS ST.

WEATHER: SUNNY DATE: 12-11-18

ROAD CONDITION: DRY START TIME: 12:15 PM

OBSERVER: CATHY BUENDIA END TIME: 2:00 PM

DIRECTION: <u>WESTBOUND</u>										
MPH	NUMBER OF VEHICLES									
	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										
39										
38										
37										
36										
35										
34										
33										
32										
31										
30										
29										
28										
27										
26										
25										
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									
	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										
39										
38										
37										
36										
35										
34										
33										
32										
31										
30										
29										
28										
27										
26										
25										
24										
23										
22										
21										
20										
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
	44
	43
	42
	41
	40
	39
	38
	37
	36
	35
	34
	33
	32
	31
	30
	29
	28
	27
	26
	25
	24
	23
	22
	21
	20
	19
	18
	17
	16
	15



RADAR SPEED DISTRIBUTION SHEET

CITY OF LAGUNA HILLS

GRISSOM ROAD

DATE: 12/11/2018

TIME: 12:15 PM - 2:00 PM

WILKES PLACE TO LAS BOLSAS ST

SURVEY BY: C. BUENDIA

CHECKED BY: JERRY STOCK

[illegible]

UPPER LIMIT 10 MPH PACE: 29 MPH

LOWER LIMIT 10 MPH PACE: 20 MPH

PERCENT OVER PACE: 12.7 %

PERCENT IN PACE: 87.3 %

PERCENT UNDER PACE:	0.0	%
---------------------	-----	---

85th PERCENTILE SPEED: 28.4 MPH

MEDIAN SPEED: 25.2 MPH

15th PERCENTILE SPEED: 22.6 MPH

Radar Speed Survey Field Sheet

 AGENCY: CITY OF LAGUNA HILLS

 STREET: NELLIE GAIL ROAD

 LOCATION: OSO PKWY TO HIDDEN TRAIL RD

 WEATHER: SUNNY

 DATE: 12-12-18

 ROAD CONDITION: DRY

 START TIME: 11:00 AM

 OBSERVER: CATHY BUENDIA

 END TIME: 12:00 PM ✓ OK

DIRECTION: <u>SOUTHBOUND</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										
39										
38	///									
37	///	///								
36	///	///								
35	///	///	///							
34	///	///	///	///						
33	///	///	///	///	///					
32	///	///	///	///	///	///				
31	///	///	///	///	///	///				
30	///	///	///	///	///	///				
29	///	///	///	///	///	///				
28	///	///	///	///	///	///				
27	///	///	///	///	///	///				
26	///	///	///	///	///	///				
25	///	///	///	///	///	///				
24	///	///	///	///	///	///				
23	///	///	///	///	///	///				
22	///	///	///	///	///	///				
21	///	///	///	///	///	///				
20	///	///	///	///	///	///				
19										
18										
17										
16										
15										

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

CUMULATIVE (BOTH DIRECTIONS) _____

DIRECTION: <u>NORTHBOUND</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										
39	///									
38	///									
37	///	///								
36	///	///								
35	///	///	///							
34	///	///	///	///						
33	///	///	///	///	///					
32	///	///	///	///	///	///				
31	///	///	///	///	///	///				
30	///	///	///	///	///	///				
29	///	///	///	///	///	///				
28	///	///	///	///	///	///				
27	///	///	///	///	///	///				
26	///	///	///	///	///	///				
25	///	///	///	///	///	///				
24	///	///	///	///	///	///				
23	///	///	///	///	///	///				
22	///	///	///	///	///	///				
21	///	///	///	///	///	///				
20										
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
	44
2	43
0	42
1	41
1	40
2	39
2	38
8	37
2	36
17	35
11	34
9	33
14	32
11	31
7	30
13	29
11	28
4	27
10	26
5	25
5	24
2	23
1	22
1	21
	20
	19
	18
	17
	16
	15



RADAR SPEED DISTRIBUTION SHEET

CITY OF LAGUNA HILLS

NELLIE GAIL ROAD

DATE: 12/12/2018

TIME: 11:00 AM - 12:00 PM

OSO PKWY TO HIDDEN TRAIL 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%
	X	X									2	1.4%	100.0%
											0	0.0%	98.6%
	X										1	0.7%	98.6%
40	X										1	0.7%	97.8%
	X	X									2	1.4%	97.1%
	X										1	0.7%	95.7%
	X	X	X	X	X	X	X	X			8	5.8%	95.0%
	X	X									2	1.4%	89.2%
35	X	X	X	X	X	X	X	X	X	X	17	12.2%	87.8%
	X	X	X	X	X	X	X	X	X	X	11	7.9%	75.5%
	X	X	X	X	X	X	X	X			9	6.5%	67.6%
	X	X	X	X	X	X	X	X	X	X	14	10.1%	61.2%
	X	X	X	X	X	X	X	X	X		11	7.9%	51.1%
30	X	X	X	X	X	X					7	5.0%	43.2%
	X	X	X	X	X	X	X	X	X	X	13	9.4%	38.1%
	X	X	X	X	X	X	X	X	X	X	11	7.9%	28.8%
	X	X	X	X							4	2.9%	20.9%
25	X	X	X	X	X						10	7.2%	18.0%
	X	X	X	X	X						5	3.6%	10.8%
	X										1	0.7%	3.6%
	X	X									2	1.4%	2.9%
	X										1	0.7%	1.4%
20	X										1	0.7%	0.7%
													0.0%
													0.0%
													0.0%
15													0.0%
TOTAL VEHICLES											139		

UPPER LIMIT 10 MPH PACE: 35 MPH

LOWER LIMIT 10 MPH PACE: 26 MPH

PERCENT OVER PACE: 12.2 %

PERCENT IN PACE: 77.0 %

PERCENT UNDER PACE: 10.8 %

85th PERCENTILE SPEED: 34.8 MPH

MEDIAN SPEED: 30.9 MPH

15th PERCENTILE SPEED: 25.6 MPH

Attachment: Traffic Study (1768 : Repeat Speed Survey on Nellie Gail Road Between Oso Parkway and Hidden Trail Road)

Radar Speed Survey Field Sheet

HARTZOG AND CRABILL INC.
Consulting Traffic Engineers
17592 Irvine Blvd., Suite 122, Tustin, CA 92690
(714) 731-9450

AGENCY: CITY OF LAGUNA HILLS
STREET: WILKES PLACE
LOCATION: ALICIA PKWY TO GRISSOM RD

WEATHER: SUNNY DATE: 12-11-18
ROAD CONDITION: DRY START TIME: 10:45 AM
OBSERVER: CATHY BUENDIA END TIME: 12:15 PM VKL

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

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

DIRECTION:										
MPH	5	NUMBER OF VEHICLES				25	30	TOTAL		
		10	15	20						
60										
59										
58										
57										
56										
55										
54										
53										
52										
51										
50										
49										
48										
47										
46										
45										
44										
43										
42										
41										
40										
39										
38	/									1
37									0	0
36									0	0
35									0	0
34									0	0
33									0	2
32	/								1	3
31	/								1	3
30	/								4	30
29	/								2	29
28	/								4	28
27	/								4	27
26	/								2	26
25	/								3	25
24	/								2	24
23	/								0	23
22	/								2	22
21	/								2	21
20	/								0	20
19	/								0	19
18	/								1	18
17										2
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
	44
	43
	42
	41
	40
	39
1	38
0	37
0	36
0	35
0	34
2	33
3	32
1	31
6	30
3	29
4	28
4	27
2	26
6	25
3	24
2	23
3	22
7	21
4	20
0	19
2	18
	17
	16
	15



RADAR SPEED DISTRIBUTION SHEET

CITY OF LAGUNA HILLS

WILKES PLACE

ALICIA PKWY TO GRISSOM ROAD

DATE: 12/11/2018

SURVEY BY: C. BUENDIA

TIME: 10:45 AM - 12:15 PM

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%
55													100.0%
													100.0%
													100.0%
													100.0%
50													100.0%
													100.0%
													100.0%
													100.0%
45													100.0%
													100.0%
													100.0%
													100.0%
40													100.0%
													100.0%
													100.0%
													100.0%
	X										1	1.9%	100.0%
											0	0.0%	98.1%
	X										1	1.9%	98.1%
35											0	0.0%	96.3%
											0	0.0%	96.3%
	X X										2	3.7%	96.3%
	X X X										3	5.6%	92.6%
	X										1	1.9%	87.0%
30	X X X X X X										6	11.1%	85.2%
	X X X										3	5.6%	74.1%
	X X X X										4	7.4%	68.5%
	X X X X										4	7.4%	61.1%
	X X										2	3.7%	53.7%
25	X X X X X X										6	11.1%	50.0%
	X X X										3	5.6%	38.9%
	X X										2	3.7%	33.3%
	X X X										3	5.6%	29.6%
	X X X X X X X										7	13.0%	24.1%
20	X X X X										4	7.4%	11.1%
											0	0.0%	3.7%
	X X										2	3.7%	3.7%
													0.0%
													0.0%
15													0.0%
TOTAL VEHICLES											54		

UPPER LIMIT 10 MPH PACE: 30 MPH

LOWER LIMIT 10 MPH PACE: 21 MPH

PERCENT OVER PACE: 14.8 %

PERCENT IN PACE: 74.1 %

PERCENT UNDER PACE: 11.1 %

85th PERCENTILE SPEED: 30.0 MPH

MEDIAN SPEED: 25.0 MPH

15th PERCENTILE SPEED: 20.3 MPH

Attachment: Traffic Study (1768 : Repeat Speed Survey on Nellie Gail Road Between Oso Parkway and Hidden Trail Road)

ADT Traffic Volume Data

Prepared by NDS/ATD

VOLUME

Wilkes Pl Bet. Alicia Pkwy & Grissom Rd

Day: Wednesday
Date: 12/12/2018City: Laguna Hills
Project #: CA18_1262_001

DAILY TOTALS					NB	SB	EB				WB	Total
					465	373					0	0
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL	
00:00	2	2			4	12:00	10	6			16	
00:15	1	1			2	12:15	6	3			9	
00:30	0	1			1	12:30	3	7			10	
00:45	0	3	0	4	0	12:45	3	22	9	25	47	
01:00	0	0			0	13:00	6	21			27	
01:15	0	1			1	13:15	55	12			67	
01:30	0	0			0	13:30	15	4			19	
01:45	0	0	1		0	13:45	3	79	6	43	122	
02:00	0	0			0	14:00	6	1			7	
02:15	0	0			0	14:15	3	0			3	
02:30	1	0			1	14:30	3	7			10	
02:45	0	1	0		0	14:45	5	17	3	11	28	
03:00	0	1			1	15:00	6	6			12	
03:15	0	0			0	15:15	1	6			7	
03:30	0	0			0	15:30	4	5			9	
03:45	0	0	1		0	15:45	5	16	1	18	34	
04:00	0	0			0	16:00	6	2			8	
04:15	1	1			2	16:15	5	8			13	
04:30	0	0			0	16:30	8	7			15	
04:45	1	2	1	2	2	16:45	5	24	7	24	48	
05:00	2	0			2	17:00	4	10			14	
05:15	2	1			3	17:15	7	11			18	
05:30	4	0			4	17:30	9	7			16	
05:45	3	11	0	1	3	17:45	6	26	2	30	56	
06:00	1	0			1	18:00	6	9			15	
06:15	2	1			3	18:15	2	5			7	
06:30	2	2			4	18:30	2	6			8	
06:45	7	12	2	5	9	18:45	5	15	8	28	43	
07:00	3	2			5	19:00	0	5			5	
07:15	6	3			9	19:15	1	2			3	
07:30	7	4			11	19:30	5	3			8	
07:45	12	28	11	20	23	19:45	3	9	10	20	29	
08:00	68	29			97	20:00	2	8			10	
08:15	34	3			37	20:15	2	3			5	
08:30	13	5			18	20:30	1	5			6	
08:45	11	126	7	44	18	20:45	3	8	6	22	30	
09:00	2	7			9	21:00	4	3			7	
09:15	4	5			9	21:15	0	5			5	
09:30	3	1			4	21:30	0	2			2	
09:45	5	14	4	17	9	21:45	2	6	1	11	17	
10:00	2	1			3	22:00	1	4			5	
10:15	6	6			12	22:15	1	3			4	
10:30	4	6			10	22:30	1	0			1	
10:45	4	16	4	17	8	22:45	1	4	0	7	11	
11:00	5	8			13	23:00	1	0			1	
11:15	8	3			11	23:15	0	2			2	
11:30	6	2			8	23:30	2	2			4	
11:45	4	23	3	16	7	23:45	0	3	2	6	9	
TOTALS	236	128			364	TOTALS	229	245			474	
SPLIT %	64.8%	35.2%			43.4%	SPLIT %	48.3%	51.7%			56.6	

DAILY TOTALS					NB	SB	EB					WB	Total				
					465	373	0					0	838				
AM Peak Hour	07:45	07:45		07:45	PM Peak Hour	12:45	12:30		12:4								
AM Pk Volume	127	48		175	PM Pk Volume	79	49		125								
Pk Hr Factor	0.467	0.414		0.451	Pk Hr Factor	0.359	0.583		0.46								
7 - 9 Volume	154	64	0	0	218	4 - 6 Volume	50	54	0	0					104		
7 - 9 Peak Hour	07:45	07:45		07:45	4 - 6 Peak Hour	17:00	16:30		16:4								
7 - 9 Pk Volume	127	48	0	0	175	4 - 6 Pk Volume	26	35	0	0					60		
Pk Hr Factor	0.467	0.414	0.000	0.000	0.451	Pk Hr Factor	0.722	0.795	0.000	0.000					0.83		

Attachment: Traffic Study (1768 : Repeat Speed Survey on Nellie Gail Road Between Oso Parkway and Hidden Trail Road)

Prepared by NDS/ATD

VOLUME

Grissom Rd Bet. Wilkes Pl & Las Bolsas

Day: Wednesday
Date: 12/12/2018City: Laguna Hills
Project #: CA18_1262_002

DAILY TOTALS					NB	SB	EB					WB	Total
					0	0						259	235
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL		
00:00			0	0	0	12:00			3	1	4		
00:15			0	0	0	12:15			2	2	4		
00:30			0	0	0	12:30			4	0	4		
00:45			0	0	0	12:45			1	10	11		
01:00			0	1	1	13:00			8	4	12		
01:15			0	0	0	13:15			4	16	20		
01:30			0	0	0	13:30			7	1	8		
01:45			0	0	0	13:45			4	23	27		
02:00			1	0	1	14:00			5	3	8		
02:15			0	0	0	14:15			8	4	12		
02:30			0	0	0	14:30			4	4	8		
02:45			0	1	1	14:45			3	20	23		
03:00			0	1	1	15:00			7	3	10		
03:15			0	0	0	15:15			2	2	4		
03:30			0	0	0	15:30			3	4	7		
03:45			0	0	0	15:45			6	18	24		
04:00			0	0	0	16:00			4	2	6		
04:15			1	0	1	16:15			6	3	9		
04:30			0	2	2	16:30			2	5	7		
04:45			1	2	3	16:45			9	21	30		
05:00			0	0	0	17:00			8	2	10		
05:15			0	1	1	17:15			13	4	17		
05:30			0	0	0	17:30			3	7	10		
05:45			0	1	1	17:45			11	35	46		
06:00			0	1	1	18:00			8	1	9		
06:15			3	3	6	18:15			6	2	8		
06:30			0	4	4	18:30			4	2	6		
06:45			3	6	9	18:45			1	19	20		
07:00			2	1	3	19:00			4	2	6		
07:15			2	5	7	19:15			1	3	4		
07:30			4	8	12	19:30			4	1	5		
07:45			10	18	28	19:45			4	13	17		
08:00			7	5	12	20:00			4	1	5		
08:15			4	11	15	20:15			1	1	2		
08:30			4	4	8	20:30			3	1	4		
08:45			2	17	19	20:45			0	8	8		
09:00			6	2	8	21:00			3	1	4		
09:15			3	5	8	21:15			0	0	0		
09:30			0	5	5	21:30			3	1	4		
09:45			2	11	13	21:45			2	8	10		
10:00			2	2	4	22:00			0	1	1		
10:15			4	3	7	22:15			1	1	2		
10:30			4	4	8	22:30			1	0	1		
10:45			2	12	14	22:45			0	2	2		
11:00			6	5	11	23:00			0	0	0		
11:15			2	4	6	23:15			0	0	0		
11:30			3	3	6	23:30			0	2	2		
11:45			3	14	17	23:45			1	1	2		
TOTALS	81				104	TOTALS	178				131	309	
SPLIT %	43.8%				56.2%	SPLIT %	57.6%				42.4%	62.6	

DAILY TOTALS			NB	SB	EB				WB		Total
			0	0							259
AM Peak Hour			07:30	07:30	07:30	PM Peak Hour			17:00	12:45	17:0
AM Pk Volume			25	30	55	PM Pk Volume			35	26	56
Pk Hr Factor			0.625	0.682	0.859	Pk Hr Factor			0.673	0.406	0.73
7 - 9 Volume	0	0	35	44	79	4 - 6 Volume	0	0	56	35	91
7 - 9 Peak Hour			07:30	07:30	07:30	4 - 6 Peak Hour			17:00	17:00	17:0
7 - 9 Pk Volume	0	0	25	30	55	4 - 6 Pk Volume	0	0	35	21	56
Pk Hr Factor	0.000	0.000	0.625	0.682	0.859	Pk Hr Factor	0.000	0.000	0.673	0.656	0.73

Attachment: Traffic Study (1768 : Repeat Speed Survey on Nellie Gail Road Between Oso Parkway and Hidden Trail Road)

Collision History Data

CITY OF LAGUNA HILLS
5-YEAR SWITRS COLLISION DATABASE
WILKES PLACE, FROM ALICIA PARKWAY TO GRISSOM ROAD
JAN. 1, 2013 - NOV. 30, 2018

CASE ID	COLLISION DATE	COLL. TIME	PRIMARY ROAD	SECONDARY ROAD	DIST.	DIR.	INTERS.	WEATH. 1	COLL. SEVERITY	PRIM. COLL. FACT.	PCF VIOL. CAT.	PCF VIOL.	HIT AND RUN	TYPE OF COLL.	MOTOR VEHICLE INVOLVED WITH	RC SL
8090227	20160704	2315	ALICIA PKWY	WILKES PL	0		Y	A	4	D	0		N	A	C	
8180551	20161113	2008	ALICIA PKWY	WILKES PL	0		Y	A	3	A	12	21453	N	D	C	
8197315	20161122	935	ALICIA PKWY	WILKES PL	0		Y	A	4	A	12	21453	N	D	C	

NOTES:**Weather 1**

A - Clear
 B - Cloudy
 C - Raining
 D - Snowing
 E - Fog
 F - Other
 G - Wind
 - - Not Stated

Collision Severity

1 - Fatal
 2 - Injury (Severe)
 3 - Injury (Other Visible)
 4 - Injury (Complaint of Pain)
 0 - PDO (Property Damage On

Primary Collision Factor

A - (Vehicle) Code Violation
 B - Other Improper Driving
 C - Other Than Driver
 D - Unknown
 E - Fell Asleep
 - - Not Stated

PCF Violation Category

01 - Driving or Bicycling Under Ir
 02 - Impeding Traffic
 03 - Unsafe Speed
 04 - Following Too Closely
 05 - Wrong Side of Road
 06 - Improper Passing
 07 - Unsafe Lane Change
 08 - Improper Turning
 09 - Automobile ROW
 10 - Pedestrian ROW
 11 - Pedestrian Violation
 12 - Traffic Signals and Signs
 13 - Hazardous Parking
 14 - Lights
 15 - Brakes
 16 - Other Equipment
 17 - Other Hazardous Violation
 18 - Other Than Driver (or Ped)
 19 -
 20 -
 21 - Unsafe Starting or Backing
 22 - Other Improper Driving
 23 - Pedestrian or "Other" Under the Influence
 24 - Fell Asleep
 00 - Unknown
 - - 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

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

Road Surface

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

CITY OF LAGUNA HILLS
5-YEAR SWITRS COLLISION DATABASE
GRISSOM ROAD, FROM WILKES PLACE TO LAS BOLSAS AVENUE
JAN. 1, 2013 - NOV. 30, 2018

CASE ID	COLLISION DATE	COLL. TIME	PRIMARY ROAD	SECONDARY ROAD	DIST.	DIR.	INTERS.	WEATH. 1	COLL. SEVERITY	PRIM. COLL. FACT.	PCF VIOL. CAT.	PCF VIOL.	HIT AND RUN	TYPE OF COLL.	MOTOR VEHICLE INVOLVED WITH	ROAD SURF.
8636969	20180503	1229	GRISSOM RD	LAS BOLSAS AV	0		Y	A	0	A	8	22107	M	D	E	

NOTES:**Weather 1**

A - Clear
 B - Cloudy
 C - Raining
 D - Snowing
 E - Fog
 F - Other
 G - Wind
 - - Not Stated

Collision Severity

1 - Fatal
 2 - Injury (Severe)
 3 - Injury (Other Visible)
 4 - Injury (Complaint of Pain)
 0 - PDO (Property Damage Only)

Primary Collision Factor

A - (Vehicle) Code Violation
 B - Other Improper Driving
 C - Other Than Driver
 D - Unknown
 E - Fell Asleep
 - - Not Stated

PCF Violation Category

01 - Driving or Bicycling Under Influence
 02 - Impeding Traffic
 03 - Unsafe Speed
 04 - Following Too Closely
 05 - Wrong Side of Road
 06 - Improper Passing
 07 - Unsafe Lane Change
 08 - Improper Turning
 09 - Automobile ROW
 10 - Pedestrian ROW
 11 - Pedestrian Violation
 12 - Traffic Signals and Signs
 13 - Hazardous Parking
 14 - Lights
 15 - Brakes
 16 - Other Equipment
 17 - Other Hazardous Violation
 18 - Other Than Driver (or Ped)
 19 -
 20 -
 21 - Unsafe Starting or Backing
 22 - Other Improper Driving
 23 - Pedestrian or "Other" Under the Influence
 24 - Fell Asleep
 00 - Unknown
 - - 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

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

Road Surface

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

Origin-Destination Study Data

Prepared by National Data and Surveying Services

Origin and Destination Study**Day:** Wednesday**Date:** 12/12/2018**City:** Laguna Hills**Project:** 18-1263

Path	7:00:00 AM	7:05:00 AM	7:45:00 AM	7:50:00 AM	8:05:00 AM	8:10:00 AM	8:15:00 AM	8:50:00 AM	8:55:00 AM	Total
2 to 1	1	1	1		3		1			7
1 to 2				2	1	2	1	1	1	8
Grand Total	1	1	1	2	4	2	2	1	1	15

Location ID	Street
1	Wilkes Place S/O Alicia Pkwy
2	Velasquez Road N/O Paseo de Valencia
*All times correspond to vehicle origin time	



City of Laguna Hills

Traffic Commission

Staff Report

DATE: May 16, 2018

TO: Traffic Commissioners

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

ISSUE: Review of Traffic Conditions on Nellie Gail Road Between Oso Parkway and Moulton Parkway

RECOMMENDATION: That the Traffic Commission Request Staff Monitor the Speed of Vehicles and Repeat the Speed Survey of Nellie Gail Road Between Oso Parkway and Hidden Trail Road in Six Months Time.

SUMMARY:

Staff was recently contacted by a resident regarding concerns of vehicular speeding and cut-through traffic on Nellie Gail Road between Oso Parkway and Moulton Parkway. Please see the 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, traffic collision history and an origin and destination study (cut-through traffic analysis) on Nellie Gail Road between Oso Parkway and Moulton Parkway.

The Traffic Engineers of Hartzog & Crabill, Inc., (HCI) completed the attached May 9, 2018, study of the traffic attributes of Nellie Gail Road from Oso Parkway to Moulton Parkway. The speed survey counts, performed by HCI, as shown in the study, determined the 85th percentile speeds on Nellie Gail Road as 39 mph south of Oso Parkway and 36 mph east of Moulton Parkway, respectively. Related to the portions of Nellie Gail Road that are posted at 25 mph, from Oso Parkway to Lost Colt Drive, Staff's experience has found the typical prevailing speed range for such streets to be between 32 and 34 mph, without adverse traffic collision history. The study also determined 36% of the vehicles on Nellie Gail Road south of Oso Parkway were exceeding 35 mph, which

Traffic Conditions on Nellie Gail Road Between Oso Parkway and Moulton Parkway

May 16, 2018

Page 2

is also a higher percentage than the expected percentage (15%). A portion of Nellie Gail Road from Lost Colt Drive to Oso Parkway is posted at 30 mph and it is expected the 85th percentile speed range would be in the 34 to 37 mph range, as was identified in this study.

The 85th percentile speed measurement of Nellie Gail Road south of Oso Parkway (generally between Oso Parkway and Hidden Trail Road) is higher than expected and considered to be unacceptable for a residential character street.

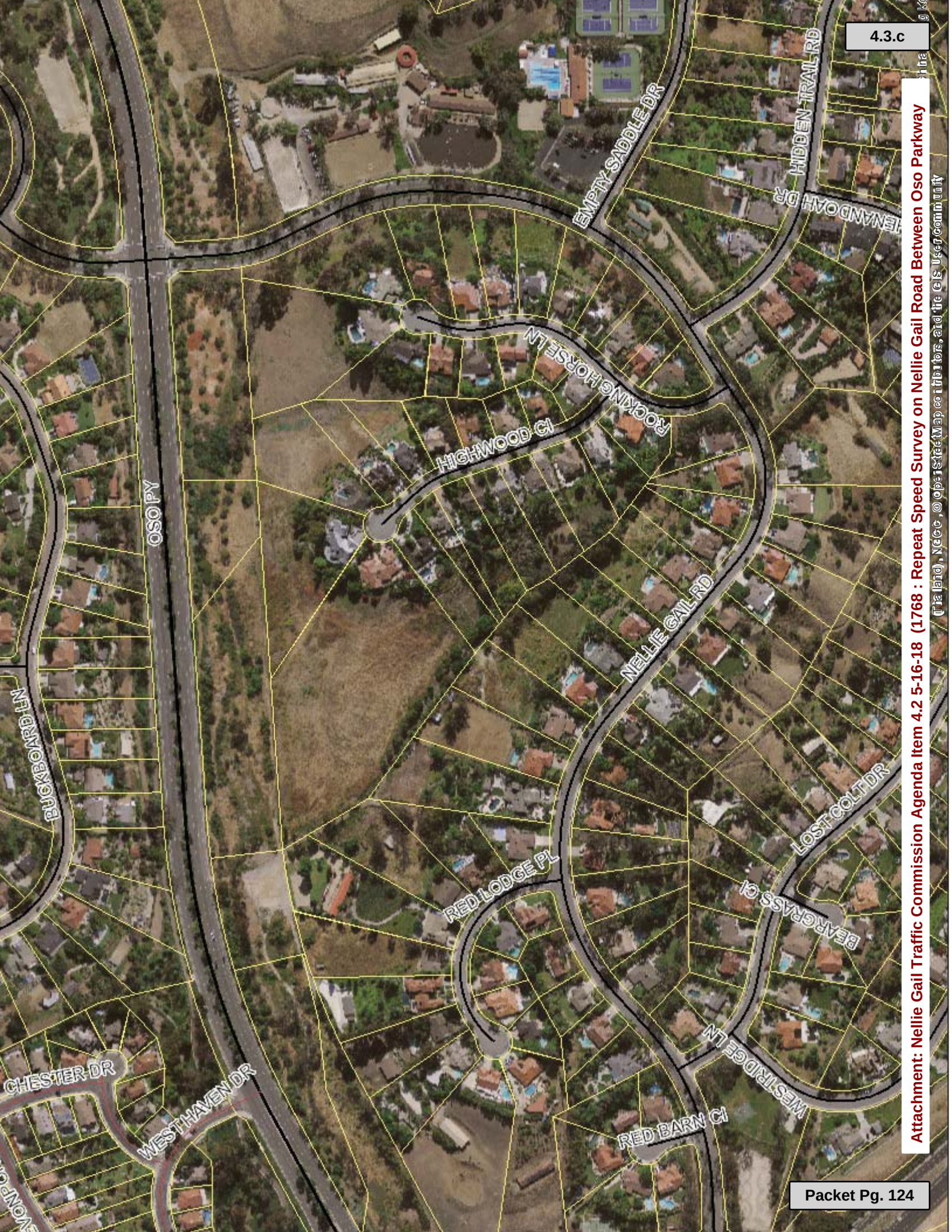
The traffic count data revealed the 24-hr volumes to be low to average for a typical residential street that is a connecting, or through, street to other neighborhoods. The origin and destination study revealed the peak hourly percentages to be low, in the 0-5% range, for what may be considered 'cut-through' traffic. The traffic volumes and cut-through traffic are not significant and no action is needed in response to this data.

A five-year traffic collision history review was also included in the study which determined five traffic collisions had been reported during this time. Although the traffic collisions were not identified as speed-related in the report, given the number of accidents and results of the speed data collection, it is possible speed could have been a contributing factor.

Concentrated 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 will also post the radar trailer in this area to increase driver education as to the appropriate speed on Nellie Gail Road. Staff will also reach out to the Nellie Gail Ranch Homeowners Association (HOA) with a traffic safety article to be included in their newsletter for the residents of their HOA. In addition, a follow-up speed survey is recommended to be performed in six months. Should the speeding issue remain, the next incremental action will be evaluated. While no changes to existing traffic controls are currently proposed, the number and locations of speed limit signage and pavement markings will also be reviewed following the repeat speed survey.

ATTACHMENTS:

- Vicinity Map - Nellie Gail Road
- Nellie Gail Road Analysis





Trammell Hartzog, President
Gerald J. Stock, PE, TE,
Executive Vice President

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

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

www.hartzog-crabill.com

May 9, 2018

Mr. Kenneth H. Rosenfield, PE
Assistant City Manager/Public Services Director
City of Laguna Hills
24035 El Toro Road
Laguna Hills, CA 92653

**Subject: Letter of Opinion – Speeding, Cut-through Traffic,
and Collision Concerns along Nellie Gail Road
from Oso Parkway to Moulton Parkway**

Dear Mr. Rosenfield,

Pursuant to your request, Hartzog & Crabill, Inc. (HCI) has prepared this traffic engineering evaluation regarding resident concerns of speeding, cut-through traffic, and collisions on Nellie Gail Road, between Oso Parkway and Moulton Parkway.

BACKGROUND

Nellie Gail Road, between Oso Parkway and Moulton Parkway, is a 40-foot wide, curvy 2-lane, residential collector roadway. There are traffic signal controls at both project limits. There is a double-yellow centerline stripe along the entire segment, and raised landscaped center medians at the project limits. There are a few Equestrian Xings with posted warning signs within this segment.

There are posted 25 MPH speed limit signs and pavement legends along Nellie Gail Road between Oso Parkway and Lost Colt Drive. From Lost Colt Drive to Moulton Parkway, the speed limit is set and posted at 30 mph. On-street parking is allowed along both sides of Nellie Gail Road.

TRAVEL SPEED DATA

To determine travel speeds on this segment of Nellie Gail Road, a speed-count survey was conducted at two separate locations along this residential collector roadway on Thursday, March 29, 2018.

More specifically, 24-hour mid-week speed/count data was collected at a westerly and northerly project limit location on Nellie Gail Road.

Mr. Kenneth H. Rosenfield, PE
 May 9, 2018
 Page 2 of 5

TRAVEL SPEED DATA *(continued)*

Table 1 below summarizes the speed-count data.

TABLE 1
SPEED SURVEY SUMMARY
NELLIE GAIL ROAD, FROM OSO PARKWAY TO MOULTON PARKWAY

Speed-Count Summary	South of Oso Parkway	East of Moulton Parkway
85 th Percentile Speed	39 MPH	36 MPH
50 th Percentile Speed	33 MPH	30 MPH
15 th Percentile Speed	27 MPH	22 MPH
Percent Above 35 MPH	36%	20%
Average Daily Traffic (ADT)	2,516 vehicles	1,249 vehicles

Source: Hartzog & Crabill, Inc., 2018.

As shown above, the 85th percentile speed on Nellie Gail Road was recorded at 39 MPH near Oso Parkway and at 36 MPH near Moulton Parkway. This data shows that higher travel speeds are occurring along this entire project segment but are mainly inconsistent with the posted speed limit near Oso Parkway. The speed-count survey data is attached to this letter.

In an effort to lower overall speeds, the City may want to consider taking an incremental approach that may include the following:

- increased law enforcement
- deployment of portable radar speed-feedback trailers
- semi-permanent radar speed sign installations
- neighborhood watch committee meeting to help make all residents aware of speeding

TRAFFIC VOLUME DATA

Traffic counts were also gathered at the same two locations where the speed data was collected to assess if traffic volumes have increased on this segment of Nellie Gail Road. The traffic volume data was also collected on Thursday, March 29, 2018. The traffic counts showed that 24-hour two-way traffic volumes at the westerly (Moulton Parkway) and northerly (Oso Parkway) locations are 1,249 and 2,516 vehicles, respectively. The traffic counts are shown in the attached speed-count data.

Mr. Kenneth H. Rosenfield, PE
 May 9, 2018
 Page 3 of 5

TRAFFIC VOLUME DATA *(continued)*

Table 2 below presents historical as well as the most recent traffic volumes on Nellie Gail Road.

TABLE 2
HISTORICAL TRAFFIC VOLUMES
NELLIE GAIL ROAD, FROM OSO PARKWAY TO MOULTON PARKWAY

YEAR	24-HOUR VOLUMES
2005	2,800
2007	2,900
2009	2,500
2011	2,700
2013	2,300
2015	2,100
2017	2,500
March 29, 2018 (2 Locations)	1,249 (W-Location); 2,516 (N-Location)

The above data shows that during the past 13 years (2005 to 2018), traffic volumes range from a low of 2,100 vehicles per day to a high of 2,900 vehicles per day. The recent data shows traffic volumes are within the average of the historical range.

A two-lane collector street generally has a Level-of-Service (LOS) 'D' capacity of 11,300 vehicles per day. Consequently, the current traffic volumes are well under the roadway capacity.

Consequently, since there is not a significant change in recent traffic volumes, there are no other recommendations regarding traffic volume data to provide at this time.

COLLISION DATA

HCI obtained collision data for the past five (5) years, between January 1, 2013 – February 28, 2018, from the Statewide Integrated Traffic Records System website (*i-SWITRS*) database to determine the number of collisions occurring on this segment of Nellie Gail Road.

Table 3 (next page) presents the summary collision data.

Mr. Kenneth H. Rosenfield, PE
 May 9, 2018
 Page 4 of 5

COLLISION DATA *(continued)*

TABLE 3
TRAFFIC COLLISION DATA SUMMARY
NELLIE GAIL ROAD, FROM OSO PARKWAY TO MOULTON PARKWAY

YEAR	NUMBER OF COLLISIONS	FATAL	INJURY	PROPERTY DAMAGE ONLY
2013	0	0	0	0
2014	1	0	0	1
2015	2	0	1	1
2016	2	0	1	1
2017	0	0	0	0
2018 *	0	0	0	0

* Available SWITRS data up to February 2018 at the time of report preparation.

As shown above, there have been a total of five (5) collisions reported within the last (5) years.

The primary collision factor categories are as follows:

Improper Turning
3

Traffic Signals & Signs
1

Unknown
1

As such, there were no collisions determined as ‘speed-related’. Consequently, there are no other recommendations regarding collision data at this time. The comprehensive 5-year segment collision history report is attached to this letter.

CUT-THROUGH TRAFFIC

An Origin and Destination (O&D) study (i.e., license plate survey) was conducted on Thursday, March 29, 2018 during the AM and PM peak periods (7-9am and 4-6pm) to quantify the amount of traffic that are likely using Nellie Gail Road as a short-cut. The study collected license plate numbers for all vehicles entering and exiting Nellie Gail Road at the project limits of Moulton Parkway and at Oso Parkway in a 5-minute interval basis.

Additionally, the study documented from which direction the vehicle is coming in from and out to in order to determine if the vehicle is continuing a natural travel path or is actually cutting through the neighborhood.

Table 4 (next page) shows a summary of the license plate matches recorded per each peak hour.

Mr. Kenneth H. Rosenfield, PE
 May 9, 2018
 Page 5 of 5

CUT-THROUGH TRAFFIC (continued)

TABLE 4
ORIGIN-DESTINATION LICENSE PLATE MATCHES
NELLIE GAIL ROAD, FROM OSO PARKWAY TO MOULTON PARKWAY

	Hourly Summary		
	1 to 2	2 to 1	Totals
7:00:00 AM	0	0	0
8:00:00 AM	2	2	4
4:00:00 PM	8	2	10
5:00:00 PM	1	2	3
	11	6	17

The numbers (1 to 2 & 2 to 1) in Table 4 refer to vehicles entering from and exiting to as follows:

Location 1 (Nellie Gail Road at Moulton Parkway)

Location 2 (Nellie Gail Road at Oso Parkway)

The overall Origin-Destination Study spreadsheet is attached to this letter.

Per the speed-count data, the hourly traffic volumes for these same peak hours are as follows:

<u>Hour</u>	<u>Traffic Volume</u>	<u>Cut-Thru</u>	<u>Cut-Thru/Volume</u>
7-8 AM	123	0	0%
8-9 AM	168	4	3%
4-5 PM	199	10	5%
5-6 PM	186	3	2%

As shown above, the actual hourly percentages are low for what may be considered 'cut-through' traffic. Consequently, there are no recommendations regarding 'cut-through' traffic at this time.

SUMMARY

In summary, the traffic data on Nellie Gail Road results in the following:

- ✓ traffic speeds are considerably higher than the 25 MPH posted speed limit;
- ✓ traffic volumes to be consistent with historic count data, and well-below the traffic carrying capacity of the roadway;
- ✓ there is no traffic collision history related to traffic speeds; and,
- ✓ 'cut-through' traffic is low.

Mr. Kenneth H. Rosenfield, PE
May 9, 2018
Page 6 of 5

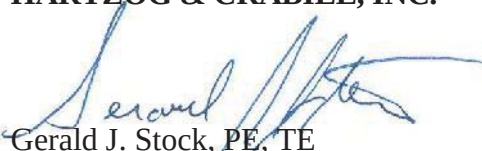
RECOMMENDATIONS

It is recommended that an incremental approach be taken to address the higher travel speeds. Initial steps include:

- increased law enforcement.
- deployment of portable radar speed-feedback trailers.
- semi-permanent radar speed sign installations.
- neighborhood watch committee meeting to help make all residents aware of speeding.

It has been our pleasure to prepare this letter of opinion regarding speeds, traffic volumes, collisions, and cut-through traffic on Nellie Gail Road, between Oso Parkway and Moulton Parkway. If you have any questions or need additional information, please feel free to call us anytime at (714) 731-9455.

Sincerely,
HARTZOG & CRABILL, INC.



Gerald J. Stock, PE, TE
Executive Vice President

Attachments: Speed-Count Data
 Collision History Data
 Origin-Destination Study

Speed-Count Data

SPEED

Nellie Gail Rd E/O Lost Colt Dr

Day: Thursday

Date: 3/29/2018

City: Laguna Hills

Project #: CA18_1062_001

4.2.b

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	1	1	1	1	1	0	0	0	0	0	0	0	0	5
01:00	0	0	2	0	0	0	0	0	0	0	0	0	0	2
02:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
03:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
04:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
05:00	0	0	0	2	1	0	0	0	0	0	0	0	0	3
06:00	0	5	4	14	11	6	1	1	0	0	0	0	0	42
07:00	0	4	5	13	18	14	4	0	0	0	0	0	0	58
08:00	1	11	6	19	21	16	3	0	0	0	0	0	0	77
09:00	2	4	14	20	17	17	3	0	0	0	0	0	0	77
10:00	1	3	15	17	30	10	5	0	0	0	0	0	0	81
11:00	3	11	11	20	30	12	2	0	0	0	0	0	0	89
12:00 PM	1	7	14	26	34	16	0	2	0	0	0	0	0	100
13:00	3	11	11	24	28	13	2	1	0	0	0	0	0	93
14:00	0	6	7	26	35	16	1	1	0	0	0	0	0	92
15:00	2	11	11	25	31	15	0	0	0	0	0	0	0	95
16:00	0	8	9	19	22	15	0	0	0	0	0	0	0	73
17:00	0	10	9	18	35	18	4	0	0	0	0	0	0	94
18:00	2	7	12	19	36	16	0	0	0	0	0	0	0	92
19:00	1	4	9	25	14	8	1	0	1	0	0	0	0	63
20:00	0	2	9	10	11	11	3	0	0	0	0	0	0	46
21:00	1	2	3	10	7	2	1	0	1	0	0	0	0	27
22:00	0	6	2	4	8	4	1	0	0	0	0	0	0	25
23:00	0	0	2	5	3	0	1	0	0	0	0	0	0	11
Totals	18	115	158	317	393	209	32	5	2					1249
% of Totals	1%	9%	13%	25%	31%	17%	3%	0%	0%					100%

Directional Peak Periods All Speeds	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
	Volume	%	Volume	%	Volume	%	Volume	%
AM Volumes	8	41	106	75	1	0	0	0
% AM	1%	3%	8%	6%	0%	0%	0	0
AM Peak Hour	11:00	08:00	09:00	09:00	06:00			
Volume	3	11	20	17	1			89
PM Volumes	10	74	211	134	2	0	0	0
% PM	1%	6%	17%	11%	0%	0%	0	0
PM Peak Hour	13:00	13:00	12:00	17:00	12:00	19:00		
Volume	3	11	26	18	1			100

Street Name Direction

Percentiles

15th

50th

Average

95th

ADT

4.2.b

SPEED

Nellie Gail Rd S/O Oso Pkwy

Day: Thursday

City: Laguna Hills

Date: 3/29/2018

Project #: CA18_1062_002

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	4	3	2	1	0	0	0	0	0	0	10
01:00	2	0	1	1	2	1	0	0	0	0	0	0	0	7
02:00	0	0	0	1	0	0	0	0	0	0	0	0	0	1
03:00	0	1	0	2	0	0	1	0	0	0	0	0	0	4
04:00	0	1	0	2	2	1	1	0	0	0	0	0	0	7
05:00	0	0	0	2	5	4	2	2	0	0	0	0	0	15
06:00	0	1	2	10	32	17	10	1	0	0	0	0	0	73
07:00	0	2	1	9	52	41	15	3	0	0	0	0	0	123
08:00	0	0	10	30	67	51	9	1	0	0	0	0	0	168
09:00	2	1	4	29	49	41	3	1	1	0	0	0	0	131
10:00	1	4	11	26	43	38	14	1	0	0	0	0	0	138
11:00	0	1	7	24	61	51	13	2	1	0	0	0	0	160
12:00 PM	0	3	16	24	62	41	12	1	1	0	0	0	0	160
13:00	2	2	9	46	72	50	5	3	0	0	0	0	0	189
14:00	1	0	9	38	65	49	16	3	0	0	0	0	0	181
15:00	3	3	18	42	83	47	17	1	0	0	0	0	0	214
16:00	2	2	12	39	75	53	16	0	0	0	0	0	0	199
17:00	1	4	11	32	66	52	16	3	1	0	0	0	0	186
18:00	0	1	10	42	80	61	17	4	0	0	0	0	0	215
19:00	0	1	6	26	52	37	7	4	0	1	0	0	0	134
20:00	0	0	6	14	33	19	8	3	0	0	0	0	0	83
21:00	0	1	2	14	31	14	6	2	0	0	0	0	0	70
22:00	0	1	3	11	5	11	3	1	0	0	0	0	0	35
23:00	0	0	0	3	4	5	1	0	0	0	0	0	0	13
Totals	14	29	138	471	944	686	193	36	4	1				2516
% of Totals	1%	1%	5%	19%	38%	27%	8%	1%	0%	0%				100%

Directional Peak Periods All Speeds	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes					
	Volume	%	Volume	%	Volume	%	Volume	%				
AM Volumes	5	11	36	140	247	69	11	2	0	0	0	837
% AM	0%	0%	1%	6%	10%	3%	0%	0%	0%	0%	0%	33%
AM Peak Hour	01:00	10:00	10:00	08:00	08:00	07:00	07:00	09:00				08:00
Volume	2	4	11	30	51	15	3	1				168
PM Volumes	9	18	102	331	439	124	25	2	0	0	0	1679
% PM	0%	1%	4%	13%	17%	5%	1%	0%	0%	0%	0%	67%
PM Peak Hour	15:00	17:00	15:00	13:00	18:00	15:00	18:00	12:00				18:00
Volume	3	4	18	46	61	17	4	1	1			215
Directional Peak Periods												
All Speeds	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes					
	Volume	%	Volume	%	Volume	%	Volume	%	Volume			
	291	12%	349	14%	385	15%	1491	59%				

Collision History Data

CITY OF LAGUNA HILLS

SWITRS COLLISION DATABASE

NELLIE GAIL ROAD, FROM OSO PARKWAY TO MOULTON PARKWAY

JAN. 1, 2013 - FEB. 28, 2018

CASE ID	COLL. DATE	COLL. TIME	PRIMARY ROAD	SECONDARY ROAD	DIST.	DIR.	INTERS.	WEATH.	COLL. SEVERITY	PRIM. COLL. FACT.	PCF VIOL CAT.	PCF VIOL	PCF	HIT AND RUN	HIT	TYPE OF COLL.	MOTOR VEHICLE INVOLVED WITH	ROA SUR
6605740	20140806	1830	NELLIE GAIL RD	OSO PKWY	0		Y	A	0	A	12	21453	N	D	C	A		
7014602	20150723	1310	NELLIE GAIL	OSO PKWY	0		Y	A	0	A	8	22107	M	A	C	A		
7138483	20151202	1300	NELLIE GAIL RD	MOULTON PKWY	0		Y	A	3	D	0		N	G	B	A		
8100329	20160802	1425	NELLIE GAIL RD	RED LODGE	186	E	N	A	0	A	8	22107	N	E	I	A		
8207346	20161227	1357	NELLIE GAIL RD	EMPTY SADDLE DR	28	N	N	A	2	A	8	22107	F	G	B	A		

NOTES:

Weather 1	Collision Severity	Primary Collision Factor	PCF Violation Category	Hit and Run	Type of Collision
A - Clear	1 - Fatal	A - (Vehicle) Code Violation	01 - Driving or Bicycling Under Influence	F - Felony	A - Head-On
B - Cloudy	2 - Injury (Severe)	B - Other Improper Driving	02 - Impeding Traffic	M - Misdemeanor	B - Sideswipe
C - Raining	3 - Injury (Other Visible)	C - Other Than Driver	03 - Unsafe Speed	N - Not Hit & Run	C - Rear-End
D - Snowing	4 - Injury (Complaint of Pain)	D - Unknown	04 - Following Too Closely		D - Broadside
E - Fog	0 - PDO (Property Damage Only)	E - Fell Asleep	05 - Wrong Side of Road		E - Hit Object
F - Other		-- Not Stated	06 - Improper Passing		F - Overturned
G - Wind			07 - Unsafe Lane Change		G - Vehicle/Pedestrian
-- Not Stated			08 - Improper Turning		H - Other
			09 - Automobile ROW		-- Not Stated
			10 - Pedestrian ROW		
			11 - Pedestrian Violation		
			12 - Traffic Signals and Signs		
			13 - Hazardous Parking		
			14 - Lights		
			15 - Brakes		
			16 - Other Equipment		
			17 - Other Hazardous Violation		
			18 - Other Than Driver (or Ped)		
			19 -		
			20 -		
			21 - Unsafe Starting or Backing		
			22 - Other Improper Driving		
			23 - Pedestrian or "Other" Under the Influence		
			24 - Fell Asleep		
			00 - Unknown		
			-- 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	

Road Surface

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

Origin-Destination Study Data

t From Location 1 to 2		
ET	NT	Exit Location 2
NL		

Movement From Location 2 to 1				
Enter Location 2		Exit Location 1		WR
ER	WL	ST	WT	
7:00:00 AM				
7:05:00 AM				
7:10:00 AM				
7:15:00 AM				
7:20:00 AM				
7:25:00 AM				
7:30:00 AM				
7:35:00 AM				
7:40:00 AM				
7:45:00 AM				
7:50:00 AM				
7:55:00 AM				
8:00:00 AM				
8:05:00 AM				
8:10:00 AM				
8:15:00 AM				
8:20:00 AM	1			1
8:25:00 AM				
8:30:00 AM				
8:35:00 AM				
8:40:00 AM				
8:45:00 AM				
8:50:00 AM		1		1
8:55:00 AM				
4:00:00 PM				
4:05:00 PM				
4:10:00 PM				
4:15:00 PM				
4:20:00 PM				
4:25:00 PM				
4:30:00 PM				
4:35:00 PM	1			1
4:40:00 PM				
4:45:00 PM		1		1
4:50:00 PM				
4:55:00 PM				
5:00:00 PM				
5:05:00 PM	1			1
5:10:00 PM				
5:15:00 PM				
5:20:00 PM				
5:25:00 PM				
5:30:00 PM				
5:35:00 PM				
5:40:00 PM				

Hourly Summary 1 to 2		
7:00:00 AM		0
8:00:00 AM		2
4:00:00 AM		8
5:00:00 AM		1
		11

5:50:00 PM
5:55:00 PM



City of Laguna Hills

Traffic Commission

Staff Report

DATE: January 16, 2019
TO: Traffic Commissioners
FROM: Amber Shah
Associate Engineer
ISSUE: Radar Speed Trailer

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

ATTACHMENTS:

- Radar Trailer Calendar 2019

CITY OF LAGUNA HILLS

JANUARY 2019

RADAR TRAILER SCHEDULE (RAINY DAYS EXCLUDED)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 HOLIDAY	2	3	4	5
6	7	8 Woodbluff W/O Middleridge 25 MPH	9 Lost Colt E/O Beargrass 25 MPH	10 Mustang W/O Appaloosa 25 MPH	11	12
13	14	15	16	17	18	19
20	21	22 Nellie Gail E/O Desert Trail 25 MPH	23 Rapid Falls W/O Sundowner 25 MPH	24 Mustang W/O Farrier 25 MPH	25	26
27	28	29	30	31		

Attachment: Radar Trailer Calendar 2019 (1770 : Radar Speed Trailer)

CITY OF LAGUNA HILLS

FEBRUARY 2019

RADAR TRAILER SCHEDULE (RAINY DAYS EXCLUDED)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5 Nellie Gail E/O Desert Trail 25 MPH	6 Rapid Falls W/O Sundowner 25 MPH	7 Hidden Trail Across from 27783 25 MPH	8	9
10	11	12	13	14	15	16
17	18 HOLIDAY	19 Nellie Gail W/O Empty Saddle 25 MPH	20 Rapid Falls W/O Sundowner 25 MPH	21 Hidden Trail Across from 27783 25 MPH	22	23
24	25	26	27	28		

Attachment: Radar Trailer Calendar 2019 (1770 : Radar Speed Trailer)

CITY OF LAGUNA HILLS

MARCH 2019

RADAR TRAILER SCHEDULE (RAINY DAYS EXCLUDED)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5 Mustang W/O Appaloosa 25 MPH	6 Bridlewood S/O Laurel Crest 25 MPH	7 Lost Colt E/O Beargrass 25 MPH	8	9
10	11	12	13	14	15	16
17	18	19 Mustang W/O Farrier 25 MPH	20 Rapid Falls W/O Sundowner 25 MPH	21 Nellie Gail E/O Desert Trail 25 MPH	22	23
24 31	25	26	27	28	29	30

Attachment: Radar Trailer Calendar 2019 (1770 : Radar Speed Trailer)