TRAFFIC COMMISSION REGULAR MEETING

SEPTEMBER 21, 2011
7:00 PM

AGENDA

Rick Frazier - Chair

Tim Hillis - Vice Chair | **Donald Froelich - Commissioner**
Pamela Dow - Commissioner | **Ed Rowe - Commissioner**

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

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

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 Secretary prior to an individual being heard by the Commission. No action will be taken on any items not on the Agenda unless the Traffic Commission makes a determination that an emergency exists or that the need to take action on the item arose subsequent to posting of the Agenda. This is the appropriate time for members of the public to make comments regarding items not listed on the agenda.

There will be a time limitation of three minutes per person, an overall time limit of ten minutes for any one subject, and a time limit of thirty minutes for the Public Comments portion of the Agenda.

Traffic Commission Agendas may also be viewed on the City's website: www.ci.laguna-hills.ca.us.

2. MINUTES

2.1 APPROVAL OF MINUTES OF REGULAR MEETING, JULY 20, 2011.

RECOMMENDATION: That the Traffic Commission approve the minutes of the July 20, 2011, regular meeting.

3. PRESENTATIONS

4. ADMINISTRATIVE REPORTS

4.1 ANALYSIS OF LEFT TURN DEMAND AND PEDESTRIAN CONFLICT AT THE INTERSECTION OF PASEO DE VALENCIA AT CALLE DE LA PLATA (0860-50)

RECOMMENDATION: That the Traffic Commission receive and file this report.

4.2 TRAFFIC CONTROL SURVEY ON MUSTANG DRIVE (0860-50)

RECOMMENDATION: That the Traffic Commission recommend to the City Council the addition of yellow "skip" centerline striping along with additional traffic enforcement and the continued use of the radar speed trailer along Mustang Drive from Nellie Gail Road to Appaloosa Place.

4.3 PARKING CONTROLS SURVEY WITHIN THE MANDEVILLE DRIVE AREA NEIGHBORHOOD (0860-50)

RECOMMENDATION: That the Traffic Commission continue this matter to the meeting of November 16, 2011.

4.4 EVALUATION OF TRAFFIC SPEEDS ON LAGUNA HILLS DRIVE (0860-50)

RECOMMENDATION: That the Traffic Commission recommend to the City Council to direct increased police enforcement for speed issues on Laguna Hills Drive from Paseo de Valencia to Moulton Parkway.

5. INFORMATIONAL ITEMS

5.1 RADAR TRAILER SCHEDULE FOR OCTOBER/NOVEMBER (0860-05)

5.2 SHERIFF'S DEPARTMENT VERBAL REPORT

5.3 PUBLIC SERVICES DEPARTMENT VERBAL UPDATE

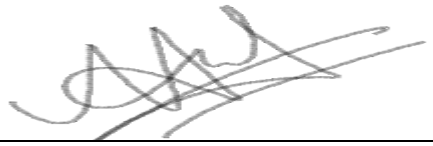
6. COMMISSIONER COMMENTS

7. ADJOURNMENT

The next Regular Meeting of the Traffic Commission will be November 16, 2011, at 7:00 PM, in the City Council Chamber, located at 24035 El Toro Road, Laguna Hills, California.

CERTIFICATION

I, HUMZA JAVED, Traffic Engineer of the City of Laguna Hills, do hereby certify that a copy of the foregoing Agenda was posted at Laguna Hills City Hall, Laguna Hills Community Center, and La Paz Center by September 16, 2011, at 5:00PM.



September 16, 2011

HUMZA JAVED **DATE**
ASSOCIATE CIVIL ENGINEER

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, CALIFORNIA
TRAFFIC COMMISSION MEETING
MINUTES
JULY 20, 2011

CALL TO ORDER

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

PLEDGE OF ALLEGIANCE:

Vice Chair Tim Hillis led the Pledge of Allegiance.

ROLL CALL OF COMMISSION MEMBERS:

Present:	Tim Hillis, Vice Chair Pamela Dow, Commissioner Donald Froelich, Commissioner
Absent:	Rick Frazier, Chair Ed Rowe, Commissioner
Staff Present:	Humza Javed, Associate Engineer; Steve Doan, Chief of Police Services; Cindy Sands, Administrative Assistant

1. PUBLIC COMMENTS

2. APPROVAL OF MINUTES

IT WAS MOVED BY COMMISSIONER PAMELA DOW, SECONDED BY COMMISSIONER DONALD FROELICH, TO APPROVE THE MINUTES OF THE MAY 18, 2011, TRAFFIC COMMISSION MEETING.

The motion carried by the following vote:

AYES:	Commissioners Dow, Froelich, and Vice Chair Hillis
NOES:	
ABSENT:	Chair Frazier, Commissioner Rowe

3. PRESENTATIONS

None

4. ADMINISTRATIVE REPORTS

4.1 ANALYSIS OF LEFT TURN DEMAND AND PEDESTRIAN CONFLICT AT THE INTERSECTION OF PASEO DE VALENCIA AT CALLE DE LA PLATA

Staff stated that this item was continued from the meeting of May 18, 2011, at the request of Ms. Jean Schulte, in order to allow her time to review the report and contact members of the community interested in this item. Ms. Schulte has again contacted staff with a request for a second continuance to the meeting of September 21, 2011, as she is not available to attend this evening's meeting. Staff also reported that an email in favor of left-turn phasing at this intersection has been received. Staff informed the Commission that they have the option to continue this item to the meeting of September 21, 2011, or accept staff's recommendation to receive and file this report.

The Commission engaged in a discussion with staff regarding the various issues and options available if they were to continue this item to the next meeting.

MOTION WAS MADE BY COMMISSIONER FROELICH, SECONDED BY COMMISSIONER DOW, TO RECOMMEND THE CONTINUANCE OF THIS ITEM TO THE MEETING OF SEPTEMBER 21, 2011.

The motion carried by the following vote:

AYES: Commissioners Dow, Froelich, and Vice Chair Hillis
NOES:
ABSENT: Chair Frazier and Commissioner Rowe

4.2 EVALUATION OF TRAFFIC SPEEDS ON MUSTANG DRIVE

Staff stated that this is a follow-up from the two previous Traffic Commission meetings and reported that the three road signs ("T-Intersection Ahead," "Curvilinear Road," and "Strict Enforcement") were installed in mid-April and two "post" speed surveys were performed in

June. These surveys indicated an improvement in the 85th percentile speed limits at 33.8 miles per hour in the morning and 34.8 miles in the afternoon. Staff stated that although these speeds are an improvement, they are still at the upper limit of typical speeds on a residential roadway which are expected to be between 32 and 34 miles per hour, therefore staff is recommending the installation of yellow "skip" centerline striping along Mustang Drive between Nellie Gail Road and Appaloosa Drive. Staff stated that notices were sent to the Nellie Gail Ranch Owner's Association and the affected residents along Mustang Drive regarding this traffic control and reported that one letter had been received in opposition to the traffic striping. Staff is recommending the installation of yellow "skip" centerline striping, increased traffic enforcement, and continued use of the radar speed trailer with a follow-up review in six months.

Mr. Norm Dangelo, a resident of Mustang Drive, stated that he is concerned that the centerline striping may drive motorists closer to the curb resulting in an increased challenge when trying to back out of the residential driveways and suggested increased traffic enforcement to address the problem.

Commissioner Dow commented that she shared Mr. Dangelo's concern regarding the centerline striping and a discussion ensued regarding the various issues and options available to address the traffic conditions. Commissioner Hillis recommended that the City survey the affected residents for their input on the centerline striping.

> MOTION WAS MADE BY COMMISSIONER DOW, SECONDED BY COMMISSIONER FROELICH, TO (1) SURVEY THE RESIDENTS OF MUSTANG DRIVE REGARDING THE INSTALLATION OF YELLOW "SKIP" CENTERLINE STRIPING; (2) PROVIDE ADDITIONAL TRAFFIC ENFORCEMENT; (3) CONTINUED USE OF THE RADAR TRAILER ALONG MUSTANG DRIVE FROM NELLIE GAIL ROAD TO APPALOOSA PLACE; AND (4) REVIEW OF THE ISSUE AT THE TRAFFIC COMMISSION AT THE MEETING OF SEPTEMBER 21, 2011.

The motion carried by the following vote:

AYES:	Commissioners Dow, Froelich, Vice Chair Hillis
NOES:	
ABSENT:	Chair Frazier, Commissioner Rowe

4.3 EVALUATION OF TRAFFIC SPEEDS ON STAGELINE DRIVE

Staff stated that this is an evolving issue that was originally presented to the Traffic Commission at the meeting of November 18, 2009, and reviewed at the meeting of May 18, 2011, at which time a resident addressed the Commission with continued concerns regarding the speed of traffic, traffic volume, and cut-through traffic volume on Stageline Drive. As a result of these concerns, the City's Consulting Traffic Engineers of Hartzog & Crabill, Inc. performed three speed surveys, a mid-block traffic volume count, and a cut-through traffic analysis. The results determined that the 85th percentile speed ranged from 33.6 miles per hour to 34.9 miles per hour, slightly above the routine speed of traffic for a residential roadway, the traffic volume study revealed low to average traffic volumes, and the cut-through analysis was considered to be minor. Staff is recommending the installation of a "Watch Downhill Speed Sign," continued use of the radar speed trailer, and additional traffic enforcement.

Ms. Laura Lowrie, a resident of Stageline Drive, thanked the Traffic Commission and City staff for their efforts and stated that she would like two additional 25 mile per hour speed limit signs installed along with the "Watch Downhill Speed Sign," and stated that she would be in favor of centerline striping along Stageline Drive.

The Commission engaged in a discussion with staff regarding the various issues and options available to address the situation.

MOTION WAS MADE BY COMMISSIONER FROELICH, SECONDED BY COMMISSIONER DOW, TO: (1) RECOMMEND TO THE CITY COUNCIL THE INSTALLATION OF A "WATCH DOWNHILL SPEED" SIGN; (2) THE INSTALLATION OF TWO ADDITIONAL 25 MILE PER HOUR SPEED LIMIT SIGNS; (3) CONTINUED USE OF THE RADAR SPEED TRAILER; AND (4) ADDITIONAL TRAFFIC ENFORCEMENT ALONG STAGELINE DRIVE.

The motion carried by the following vote:

AYES: Commissioners Dow, Froelich, Vice Chair Hillis
NOES:
ABSENT: Commissioner Rowe, Chair Frazier

4.4 ESTABLISHMENT OF PASEO DE VALENCIA NO STOPPING ANYTIME ZONE AT VALENCIA ELEMENTARY SCHOOL

Staff reported that on request by the Principal of Valencia Elementary School, a "Passenger Loading/Unloading Zone" was established in front of the school in February 2010. The Principal has since contacted staff with a request to change the "Passenger Loading/Unloading Zone" to a "No Stopping Anytime Zone" due to potential traffic hazards that have been observed. Staff reported that the school plans to address traffic congestion issues by creating a third internal student drop-off/pick-up zone within the school parking lot to enhance the flow of traffic. Staff is recommending the replacement of the white "Passenger Loading/Unloading Zone" with a red "No Stopping Anytime Zone."

Ms. Keri Follmer, a Valencia Elementary School parent, stated that she is open to the idea of trying the "No Stopping Anytime Zone" but is concerned it will create a new problem and stated that the removal of the "Passenger Loading/Unloading Zone" carries a lot of opposition with other parents for two reasons: (1) in September the entire school will be released at 2:35 p.m. creating an even bigger problem with pick-up traffic; and (2) parents are attempting to pick up students from Valencia and attempting to make it to another school in time to pick up other students creating an intense situation. Ms. Follmer also inquired about the availability of a different "curb side" option.

Mr. Russell Follmer, a Valencia Elementary School parent, stated that he is in favor of creating the "No Stopping Anytime Zone."

Discussion ensued between Commission, Chief Doan, and staff.

MOTION WAS MADE BY COMMISSIONER DOW, SECONDED BY COMMISSIONER FROELICH, TO RECOMMEND TO CITY COUNCIL THE REPLACEMENT OF THE EXISTING PASSENGER LOADING/UNLOADING ZONE WITH A NO STOPPING ANYTIME ZONE ON THE EAST SIDE OF PASEO DE VALENCIA FROM THE NORTHERLY EXIT DRIVEWAY OF THE VALENCIA ELEMENTARY SCHOOL PARKING LOT TO 160 FEET NORTHERLY THEREOF.

The motion carried by the following vote:

AYES: Commissioners Dow, Froelich, Vice Chair Hillis
NOES:
ABSENT: Commissioner Rowe, Chair Frazier

4.5 ESTABLISHMENT OF PARKING CONTROLS ON MANDEVILLE DRIVE

Staff reviewed background information regarding the Permit Parking Program along Gordon Road which was established to alleviate overflow parking from the Crestline Development. Staff reported that the program successfully reduced parking along Mandeville Drive and other adjacent public streets; however, staff has once again been contacted with concerns that Crestline Homeowners Association (HOA) residents continue to park overnight along Mandeville Drive. Staff contacted the Crestline HOA and was informed that no changes have been made to internal parking regulations and staff is working with the Crestline HOA to remind residents about the Permit Parking Program via their newsletter.

At this time, staff is recommending the establishment of a No Overnight Parking Zone on the south side of Mandeville Drive from Moulton Parkway to Santa Rosa Avenue and the establishment of a No Parking Anytime Zone on the north side of Mandeville Drive from Moulton Parkway to the drive approach of 24441 Mandeville Drive as requested by that homeowner. Staff reported that additional comments have been received with concerns that if these restrictions are implemented the overnight parking issue may move up the road creating a new problem. Residents have been requested to attend tonight's meeting to discuss options including the establishment of a Permit Parking Program along Mandeville Drive or a No Overnight Parking Zone which would force residents to park in their driveways.

Ms. Cynthia Orel, a resident of Mandeville Drive, stated that she is in opposition to establishing a No Overnight Parking Zone or No Parking Anytime Zone as it will move the problem further up the street.

Mr. Joseph Turnbow, a resident of Santa Rosa Avenue, stated that he is in agreement with the previous resident, Ms. Cynthia Orel.

Mr. Greg Rankin, a resident of Santa Rosa Avenue, stated that he hopes the neighborhoods can work together in finding a common solution and expressed his concern that painting the curb red would create a parking problem further up Santa Rosa Avenue.

Mr. Pavel Houda, a resident of Santa Rosa Avenue, stated that he has concerns with the proposal in regards to possible sight issues, etc. He also stated that he may be in favor of a permit parking program and

suggested that if No Overnight Parking is established on Mandeville Drive that the red curb continue to the first driveway on Santa Rosa Avenue.

Mr. Mike Caputo, a resident of Santa Rosa Avenue and President of the Moulton/La Paz HOA, stated that he would discuss this issue at the next HOA meeting and survey resident's for their input. Mr. Caputo also stated that his personal preference would be the establishment of a No Overnight Parking Zone or a Permit Parking Program.

Ms. Leilani Tejwani, a resident of Mandeville Drive, made reference to the safety of the neighborhood and requested that a solution be implemented as soon as possible.

Mr. Kikoo Tejwani, a resident of Mandeville Drive, expressed his concerns that this issue is ongoing and still no solution has been implemented.

The Commission engaged in a discussion with staff regarding the various issues and options available to address the situation.

MOTION WAS MADE BY COMMISSIONER FROELICH, SECONDED BY COMMISSIONER DOW, TO RECOMMEND TO CITY COUNCIL: (1) THE ESTABLISHMENT OF A NO OVERNIGHT PARKING ZONE ALONG THE SOUTH SIDE OF MANDEVILLE DRIVE FROM MOULTON PARKWAY TO SANTA ROSA AVENUE; (2) THE ESTABLISHMENT OF NO PARKING ANYTIME RED CURB ZONE ON THE NORTH SIDE OF MANDEVILLE DRIVE FROM MOULTON PARKWAY TO THE DRIVE APPROACH OF 24441 MANDEVILLE DRIVE; (3) THAT MOULTON/LA PAZ HOMEOWNERS ASSOCIATION SURVEY THEIR RESIDENTS FOR THEIR INPUT REGARDING A PERMIT PARKING PROGRAM AND REPORT BACK TO THE NEXT TRAFFIC COMMISSION MEETING FOR FURTHER DISCUSSION; (4) CITY STAFF SURVEY MANDEVILLE DRIVE RESIDENTS FOR THEIR INPUT REGARDING A PERMIT PARKING PROGRAM; AND (5) CITY STAFF PERFORM LICENSE PLATE SURVEY OF CARS PARKED ALONG MANDEVILLE DRIVE TO DETERMINE RESIDENCY.

The motion carried by the following vote:

AYES: Commissioners Dow, Froelich, Vice Chair Hillis
NOES:
ABSENT: Commissioner Rowe, Chair Frazier

5. INFORMATIONAL ITEMS

5.1 RADAR TRAILER SCHEDULE FOR AUGUST/SEPTEMBER

Staff submitted the planned schedule for deployment of the radar trailer and stated the Commission is welcome to make suggestions for other locations.

5.2 SHERIFF'S DEPARTMENT VERBAL REPORT

Chief Doan stated that there was nothing to report.

5.3 PUBLIC SERVICES DEPARTMENT VERBAL UPDATE

Staff gave a brief report on Public Services Department projects including the I-5/La Paz Road Widening, Avenida de la Carlota Widening, the development of the Circuit City site, and improvements to the Taj Mahal site.

6. COMMISSIONER COMMENTS

Commissioner Dow inquired about the lot at Bridlewood Drive and Saddlerock Place. Staff stated that the lot has been graded.

7. ADJOURNMENT

There being no further business before the Traffic Commission at this session, Vice Chair Hillis declared the meeting adjourned at 9:11 p.m. to the meeting of September 21, 2011.

Prepared by:

Humza Javed, P.E.
Associate Engineer

Approved by:

Tim Hillis
Vice Chair

CITY OF LAGUNA HILLS
TRAFFIC COMMISSION
AGENDA REPORT
TRAFFIC ENGINEER DEPARTMENT

ISSUE: ANALYSIS OF LEFT TURN DEMAND AND PEDESTRIAN CONFLICT AT THE INTERSECTION OF PASEO DE VALENCIA AT CALLE DE LA PLATA

SUMMARY:

Upon receiving a complaint from a community member regarding pedestrian safety due to potential vehicle conflicts at the signalized intersection of Paseo de Valencia at Calle de la Plata, staff evaluated traffic collision histories and performed an analysis of left-turn phasing on Calle de la Plata at the subject intersection. Based on traffic collision history and traffic movements, it was determined that the location does not meet State standards for the implementation of left-turn traffic signal phasing. A report of these findings was presented at the May 18, 2011, Traffic Commission meeting. Upon request of the Traffic Commission, staff has installed two "Turning Traffic Must Yield to Pedestrians" signs for traffic along Calle de la Plata turning left onto southbound Paseo de Valencia. At the request of the community member, the Traffic Commission also continued for further discussion of this agenda item twice since the original May 18, 2011 meeting. It is recommended that the Traffic Commission receive and file this report.

BACKGROUND:

Ms. Jean Schulte, a Lake Forest resident and stated regular user of the crosswalk crossing of Paseo de Valencia at Calle de la Plata, expressed concerns that when crossing Paseo de Valencia vehicles turning left from westerly bound Calle de la Plata to southerly bound Paseo de Valencia are failing to yield to pedestrian traffic that is crossing Paseo de Valencia. This concern has been echoed by Mr. and Mrs. Costello of Laguna Woods via email to City staff. In response to the complaint, staff retained the Consulting Traffic Engineers of Hartzog & Crabill, Inc. to evaluate the intersection.

Attached is a full report dated May 12, 2011, from Hartzog & Crabill, Inc., with all of the appurtenant data with regards to traffic movements and traffic collision histories at the location. The report concludes that the addition of left-turn phasing at the subject traffic signal is not justified based upon standards for the installation of left-turn phasing. In

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RECOMMENDATION: THAT THE TRAFFIC COMMISSION RECEIVE AND FILE THIS REPORT.

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addition, there is a single recorded traffic collision incident involving a pedestrian at this intersection which, while unfortunate, does not trigger the standards for which the installation of left-turn phasing is appropriate.

Pedestrian count data was subsequently collected at the intersection on Thursday, May 26, 2011, during morning peak hours (7:00 AM to 9:00 AM) and afternoon peak hours (4:00 PM to 6:00 PM). It was determined that the highest pedestrian count on the south leg occurred during the PM period, in which there were 40 pedestrians counted, an average of 20 pedestrians per hour. This number does not meet the standards to justify the requested left-turn phasing.

In order to remind motorists of their legal responsibility as a driver, the Traffic Commission at its May 18, 2011 meeting, requested staff to install two "Turning Traffic Must Yield to Pedestrians" signs for traffic along Calle de la Plata turning left onto southbound Paseo de Valencia. Both have been installed. One is located on the signal mast arm along Paseo De Valencia facing Calle De La Plata and the other is located in the center median along Calle De La Plata, please see attached photo.

RECOMMENDATION: THAT THE TRAFFIC COMMISSION RECEIVE AND FILE THIS REPORT.

ATTACHMENTS:

- May 12, 2011 Hartzog & Crabill, Inc. Left-Turn Phasing Report
- June 6, 2011 Hartzog & Crabill, Inc. Pedestrian Count Data
- Photo of Sign Installations

HARTZOG & CRABILL, Inc.

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

275 Centennial Way
Suite 208
Tustin, CA 92780

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

www.hartzog-crabill.com

May 12, 2011

Mr. Kenneth H. Rosenfield, P.E.
Director of Public Services
City of Laguna Hills
24035 El Toro Road
Laguna Hills, CA 92653

Subject: **Left-Turn Phasing Analysis at the Intersection of Paseo de Valencia and Calle de La Plata**

Dear Mr. Rosenfield:

Hartzog & Crabill, Inc. (HCI) has completed a Left-Turn Phasing Warrant Analysis at the subject intersection. As you will see in the attached report, the findings of this study show the installation of fully-protected left-turn phasing for the east-west approaches is not recommended at this intersection.

The analysis was completed in response to the City's request to verify if left-turn phasing is warranted, and recommended based on meeting standard guidelines. At the present time, the intersection is signalized with a 6-phase operation with protected left-turn phasing for the north-south approaches and permissive operations on the east-west approaches. The California Manual of Uniform Traffic Control Devices (*California MUTCD*) was used for defining the requirements for left-turn phasing. Highway Capacity Manual (*HCM*) left-turn phasing guidelines were also reviewed. Based on these State guidelines, there are four conditions considered for left-turn phasing: 1) Accident History; 2) Delay; 3) Traffic Volumes; and 4) Miscellaneous (*i.e., impaired sight distance, roadway curvature, etc.*). Of these (4) conditions, none were warranted. There are no other recommendations for this intersection at this time.

It has been our pleasure to prepare this analysis for the City of Laguna Hills. If you have any questions or need more information please call (714) 731-9455.

Very truly yours,
HARTZOG & CRABILL, INC.

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

Attach: Left-Turn Phasing Analysis Report

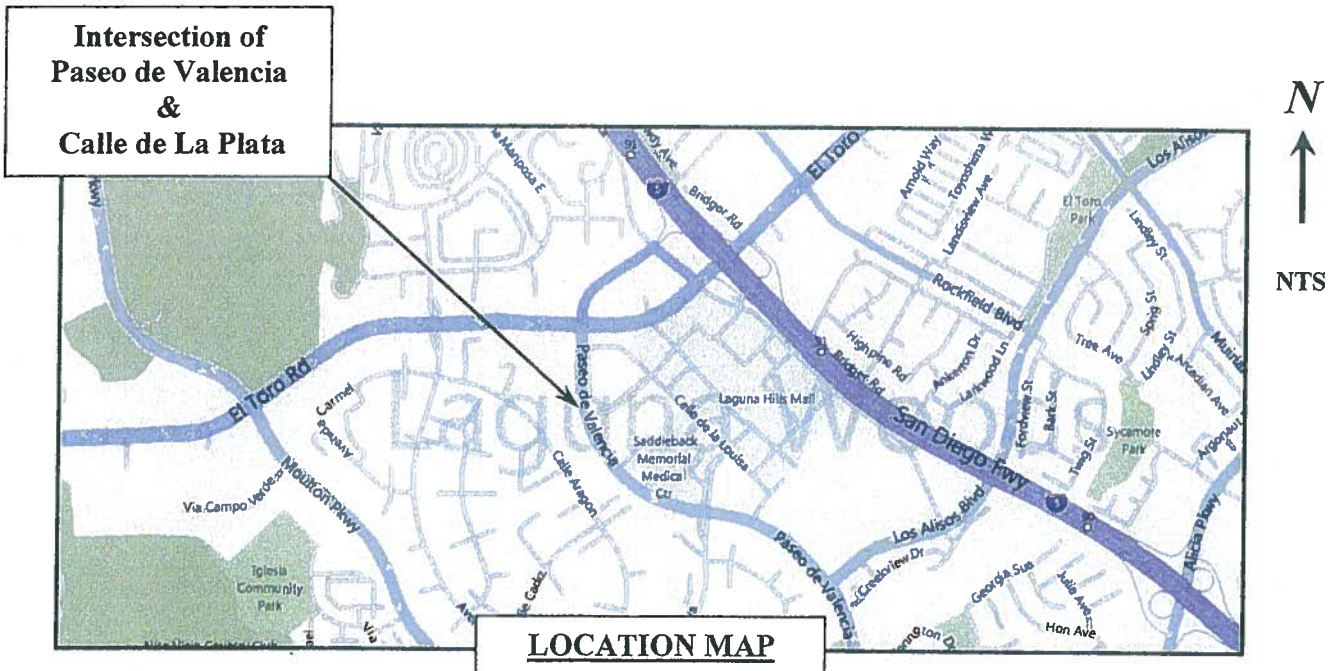
JULY 20, 2011 ITEM NO. 4.1
9/21/2011 ITEM NO. 4.1

LEFT-TURN PHASING ANALYSIS:

INTERSECTION OF PASEO DE VALENCIA AND CALLE DE LA PLATA IN THE CITY OF LAGUNA HILLS, CA

INTRODUCTION

The City of Laguna Hills requested Hartzog & Crabill, Inc. (HCI) to complete a Left-Turn Phasing Warrant Analysis at the intersection of Paseo de Valencia and Calle de La Plata. This analysis was completed in order to verify if left-turn phasing is warranted for the east-west (Calle de La Plata) approaches, and recommended based on meeting standard guidelines. The intersection is considered a standard, four-legged, urbanized commercial intersection with Paseo de Valencia running in the north-south directions and Calle de La Plata in the east-west directions. The intersection is located southwest of the I-5 San Diego Freeway, and just south of El Toro Road (*see Location Map below*). At the present time, the intersection is signalized with a 6-phase operation with protected-left-turn phasing on Paseo de Valencia and permissive left-turns on Calle de La Plata.



LOCATION MAP
City of Laguna Hills
Orange County

9/21/2011 ITEM NO. 4.1
JULY 20, 2011, ITEM NO. 4.1

BACKGROUND

Paseo de Valencia is a 96-foot wide north-south major collector with primarily commercial frontage (banks & office buildings) on both sides of the roadway. The raised landscaped center median provides for two (2) southbound through-lanes and three (3) northbound through-lanes of traffic with bicycle lanes in each direction along with a dedicated left-turn lane in each approach. There is a marked white crosswalk across the south leg of Paseo de Valencia only (no crosswalk across north leg). There are curb, gutter, and sidewalk improvements along both sides of the roadway. Paseo de Valencia has a posted speed limit of 40 MPH. On-street parking is restricted on both sides of the roadway. Currently, the traffic signal provides for protected left-turn phasing for traffic on Paseo de Valencia.

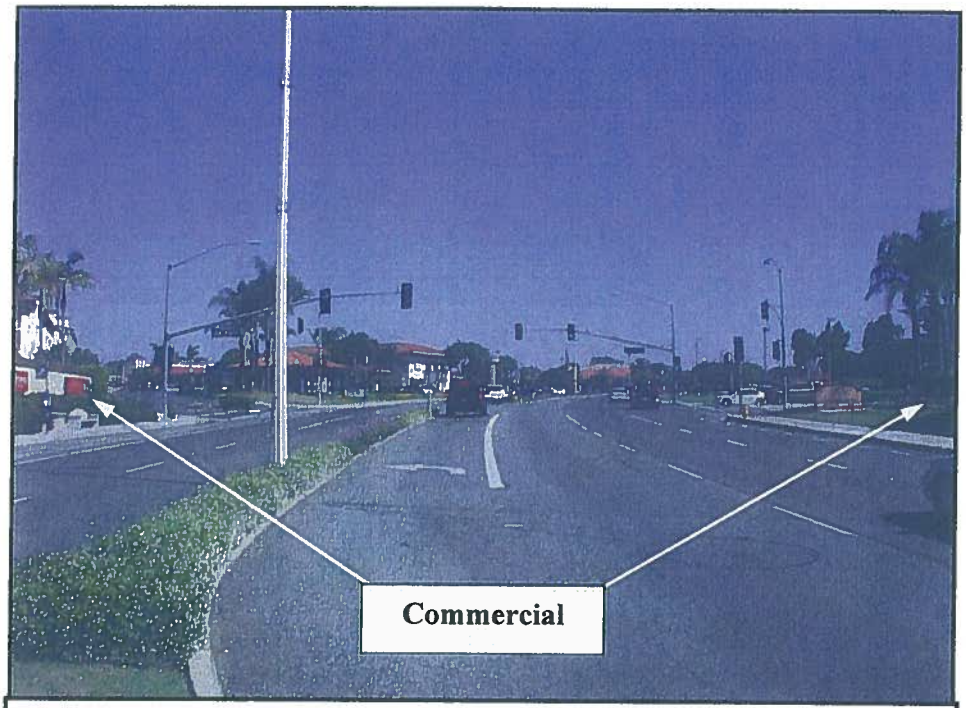
See Exhibit 1 (next page) for photo images of Paseo de Valencia.

Calle de La Plata is a 74-foot wide minor collector on the east leg of the intersection with Paseo de Valencia, with primarily commercial frontage on both sides of the roadway. On the west leg, the roadway is a 62 foot wide local roadway that narrows further away from the intersection and includes residential land use. The roadway provides for one through-lane of traffic on each approach and an exclusive left-turn lane at the intersection with Paseo de Valencia. On the east leg, the striping also provides for a dedicated right-turn lane. The directions are separated by a raised landscaped center median along the east leg and a combination of a small raised landscaped median and yellow centerline striping on the west leg. There are marked white crosswalks across both east and west legs of Calle de La Plata, and curb, gutter, and sidewalk improvements along both sides of the roadway. Calle de La Plata has a posted speed limit of 30 MPH. On-street parking is restricted on both sides of the roadway along the east leg only. Currently, the traffic signal provides for permissive operations for left-turning traffic on Calle de La Plata.

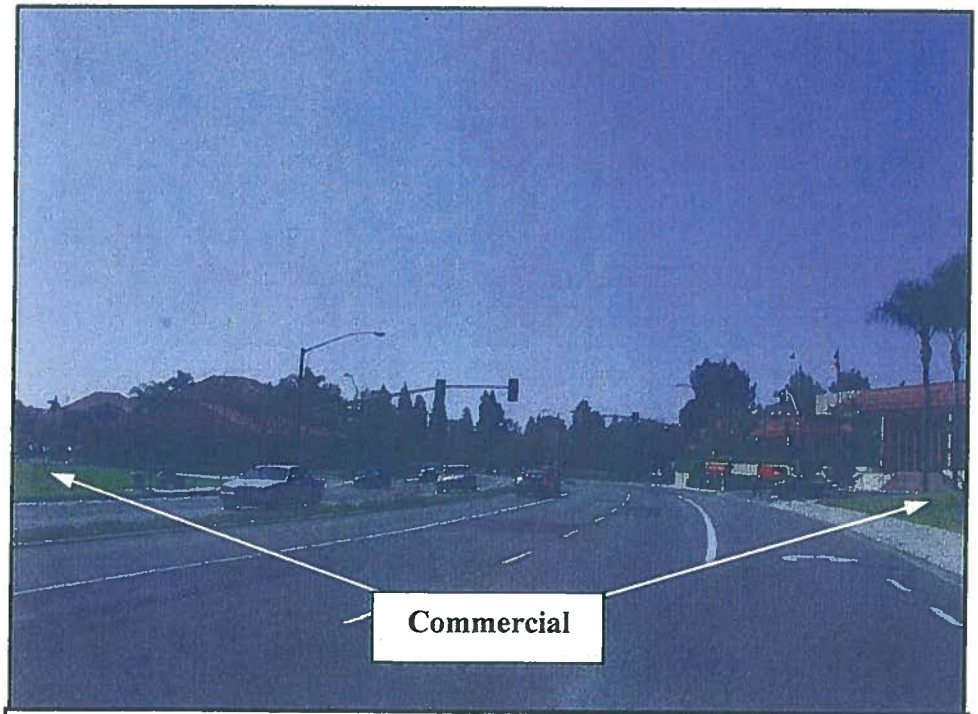
See Exhibit 2 (following page) for photo images of Calle de La Plata.

JULY 9/21/2011 ITEM NO. 4.1

EXHIBIT 1

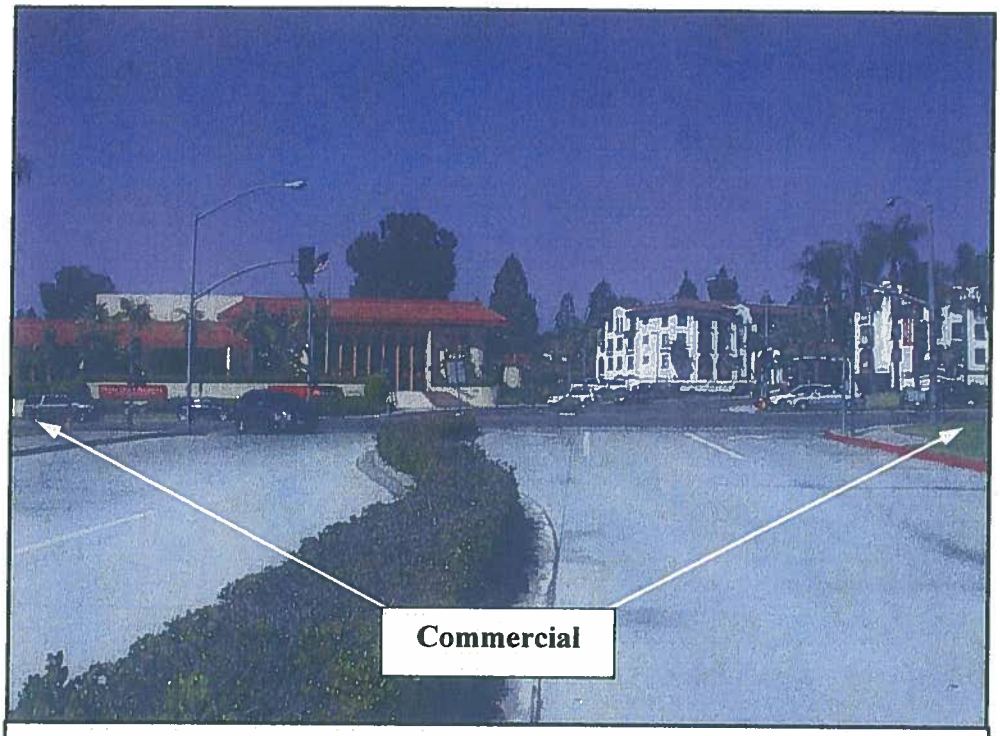


Paseo de Valencia (*Looking Northbound*) @ Calle de La Plata

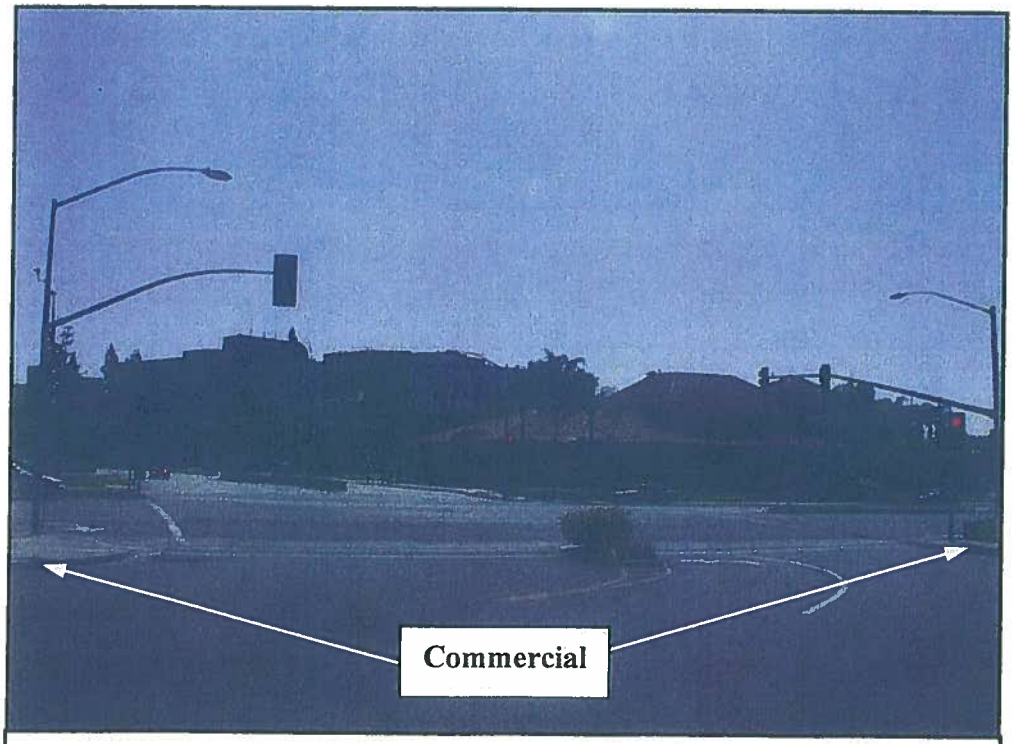


Paseo de Valencia (*Looking Southbound*) @ Calle de La Plata

EXHIBIT 2



Calle de La Plata (*Looking Westbound*) @ Paseo de Valencia



Calle de La Plata (*Looking Eastbound*) @ Paseo de Valencia

JULY 9/21/2011 ITEM NO. 4.1

LEFT-TURN PHASING ANALYSIS

As is common practice with many municipal agencies, the City of Laguna Hills has an adopted practice for using State guidelines as reference standards in order to provide uniformity and consistency in terms of traffic control. Therefore, the following two prevailing sources that address this topic were considered: 1) State of California Manual of Uniform Traffic Control Devices (*California MUTCD*); and 2) State of California Highway Capacity Manual (*HCM*). Both sources were referenced because some diversity exists between them regarding left-turn phasing guidelines ***(see Appendix A for both guidelines)***. Based on the guidelines in the California MUTCD, which is most-typically referenced, there are four conditions that are considered for left-turn phasing: 1) Accident History; 2) Volume; 3) Delay; and 4) Miscellaneous. If any one of these conditions is met, then left-turn phasing should be considered. Accident history and traffic volume data are the conditions most often studied by HCI for left-turn phasing analyses, since both provide a good overall picture of the intersection characteristics. This analysis has focused on accident history and traffic volume data to determine if left-turn phasing is warranted on the east-west approaches of Calle de La Plata; although, delay and other miscellaneous factors are included in the analysis.

Accident History

The guidelines for left-turn phasing contained in the California MUTCD regarding accidents require a minimum of five (5) accidents for a particular left-turn movement during a recent 12-month period. The HCM does not include minimum guidelines for left-turn accidents, but concentrates on left-turning & opposing-through traffic volumes, along with vehicular lane usage.

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Accident History (continued)

The available accident history for the intersection of Paseo de Valencia and Calle de La Plata was gathered from the City of Laguna Hills and reviewed to determine whether there were accidents susceptible to correction by the installation of left-turn phasing. Typically, left-turn type accidents are categorized as 'Broadside' or 'Head-On'. Table 1 below provides a recent 3-year summary of the reported east-west left-turn accident history susceptible to correction at this intersection.

As can be seen below, there was (1) reported Auto-Pedestrian type collision in 2007, which involved the westbound left-turning movement considered susceptible to correction at the intersection. Therefore, the minimum requirement of five (5) accidents susceptible to correction is not satisfied for consideration of protected left-turn phasing in the east-west directions per the California MUTCD guidelines.

A comprehensive 5-year traffic collision history report is included in Appendix B for this intersection.

TABLE 1
LEFT-TURN ACCIDENT SUMMARY

Intersection	2007		2008		2009	
	Date	Type of Acc. / Dir. of Left	Date	Type of Acc. / Dir. of Left	Date	Type of Acc. / Dir. of Left
Paseo de Valencia at Calle de La Plata	12/29	**Auto-Ped / WB**		None Reported		None Reported
				Susceptible to Correction		Susceptible to Correction

Notes: Intersection collision data provided by the City of Laguna Hills on 4/18/11 (***Appendix B***).

Abbreviations:

1) Type of Acc. = Type of Accident.
2) Dir. of Left = Direction of Left-Turning Traffic.

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Traffic Volumes

As noted below and in the California MUTCD, left-turn phasing should be considered when the following left-turn traffic volume criteria are met:

> ***For a pretimed signal or a background-cycle-controlled actuated signal, a left turn volume of more than two vehicles per approach per cycle for a peak hour; or for a traffic-actuated signal, 50 or more left turning vehicles per hour in one direction with the product of the turning and conflicting through traffic during the peak hour of 100,000 or more.***

This particular intersection is a semi-actuated traffic signal since it has vehicle detection loops on each side-street approach and on the left-turn lanes. Therefore, (50) or more left-turning vehicles per hour in one direction are required, along with the left/conflicting-through vehicle product of 100,000. Intersection peak-hour turning movement counts were gathered at the intersection of Paseo de Valencia and Calle de La Plata to determine the activity level during a typical mid-week time period. The traffic volumes were collected on Tuesday, April 26, 2011. The morning peak-hour was determined to start at 8:00 AM and the afternoon peak-hour at 4:45 PM. Table 2 below summarizes the weekday peak-hour traffic counts. ***All peak-hour traffic volume data is included in Appendix C.***

TABLE 2
INTERSECTION WEEKDAY
PEAK-HOUR VEHICLE TURNING MOVEMENT COUNTS

Intersection	Peak Hour	Northbound			Southbound			Eastbound			Westbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Paseo de Valencia and Calle de La Plata	AM	74	618	154	208	612	45	46	11	24	37	8	53
	PM	107	738	79	106	914	44	93	20	93	113	25	128

L = Left-turning vehicles
T = Through vehicles
R = Right-turning vehicles

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Traffic Volumes (continued)

As can be seen from Table 2 above, all left-turn movements meet the minimum (50) left-turning vehicles per hour in one direction that is needed to partially satisfy the Traffic Volume guideline described above, with exception to east-west traffic in the AM peak hour.

The remaining portion of the guideline specifies that the product of the left-turning movement and the conflicting-through traffic during the peak-hour equal 100,000 or greater. It should be noted that the conflicting-through (or opposing) traffic does include opposing right-turning traffic since many left-turning vehicles can be expected to yield until the opposing right-turns complete their movement before proceeding. As shown in Table 3 below, this portion of the guideline is not met in either eastbound or westbound approach to the intersection. Therefore, the minimum traffic volume condition is not satisfied for Calle de La Plata per the California MUTCD guidelines.

TABLE 3
LEFT-TURN PHASING CROSS-PRODUCT CHECK
PASEO DE VALENCIA AT CALLE DE LA PLATA

Product of Left-Turns and Opposing Through Movements	Peak Hour	Northbound			Southbound			Eastbound			Westbound		
		Left	Opposing	Product	Left	Opposing	Product	Left	Opposing	Product	Left	Opposing	Product
	AM	74	657	48,618	208	772	160,576	46	61	2,806	37	35	1,295
	PM	107	958	102,506	106	817	86,602	93	153	14,229	113	113	12,769

In comparison to the California MUTCD, the guidelines given in the Highway Capacity Manual (HCM), 2000 edition, have lower minimum cross-products associated with the number of opposing through-lanes. The threshold set by the HCM establishes a minimum cross-product of 50,000 for left-turns opposed by one (1) through-lane, 90,000 when opposed by (2) lanes, and 110,000 with (3) opposing lanes. Similarly, from Table 3 above, the minimum traffic volume condition is not satisfied for either east-west approach of Calle de La Plata per the HCM guidelines (***see Appendix A for completed HCM Left-Turn Treatment Worksheet***).

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Delay

The left-turn delay condition per the California MUTCD guidelines calls for one or more vehicles, which were waiting at the beginning of the green interval and are still remaining in the left-turn lane at the end of yellow, for at least 80% of the total number of cycles in one hour. A delay study was included in the data collection on Tuesday, April 26, 2011 during the AM and PM peak-periods with the results summarized below:

AM Peak-Hour

During the two (2) hours of delay study in the morning peak period, the highest approach in the east-west directions that experienced any left-turn delay was eastbound. There were (2) cycles *(out of 61)* that were reported as having vehicles at the beginning of green and remaining at the end of the yellow interval during the 8:00 AM hour. This calculates to approximately 3% of the cycles, which does not satisfy the 80% required.

PM Peak-Hour

During the two (2) hours of delay study in the afternoon peak period, the highest approach in the east-west directions that experienced any left-turn delay was also eastbound. There were (7) cycles *(out of 58)* that were reported as having vehicles at the beginning of green and remaining at the end of the yellow interval during the 4:15 PM hour. This calculates to approximately 12% of the cycles, which does not satisfy the 80% required.

Therefore, the left-turn delay data for the east-west approaches at this intersection does not meet the minimum requirements of 80% delayed cycles per the California MUTCD guidelines for either peak period.

Peak-hour delay data is included in Appendix D.

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Miscellaneous

The geometry of the intersection of Paseo de Valencia and Calle de La Plata provides for an approximate 90-degree angle at its intersection, and horizontal roadway curvature on both streets just beyond the intersection. There is also a gradual vertical roadway curvature inclining in the northbound direction along Paseo de Valencia. In consideration of the surrounding urbanized commercial environment, this intersection geometry was field-reviewed and determined to not require special traffic signal head locations for improved visibility or advanced signage for impaired sight distance. As shown in Exhibits 1 and 2, both streets are relatively flat at their intersection, and field observations also showed that a driver's visibility is not restricted due to any existing roadway design, curvature, or physical obstruction.

Driver visibility was verified from the side-streets (Calle de La Plata) and shown to be un-restricted for left-turn maneuvers. In other terms, the visibility between left-turning drivers and opposing traffic and/or pedestrians using the crosswalk across the south leg is not restricted.

ANALYSIS SUMMARY

Based on left-turn accidents in the east-west approaches, the intersection accident history did not satisfy the California MUTCD requirements for installation of left-turn phasing, as there was (1) collision (*not 5*) considered susceptible to correction by protected left-turn phasing in a recent 12-month period.

Based on the minimum traffic volume guidelines set forth in the California MUTCD and Highway Capacity Manual, this analysis showed that existing traffic volumes did not satisfy the guidelines for installation of protected left-turn phasing on the east-west approaches. In other words, traffic volumes on Calle de La Plata at Paseo de Valencia did not meet the minimum volume requirements for the amount of left-turns with opposing through-movements during both peak traffic periods.

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ANALYSIS SUMMARY (*continued*)

In terms of vehicular delay at Paseo de Valencia and Calle de La Plata, a delay study was performed which showed that vehicles did not experience high delay, as the amount of cycles where vehicles experienced left-turn delay were well below the minimum guidelines of 80% of peak-hour cycles. Also, as shown in Table 2, the peak-hour traffic volumes on the Calle de La Plata are significantly less when compared to those using the main street (Paseo de Valencia). Therefore, eastbound and westbound vehicular queuing was also field-verified and not considered significant to warrant protected left-turn phasing.

Engineering judgment should always be included in any decision regarding traffic safety improvements. Further information observed in the field in regards to pedestrian activity describes a moderate-to-high activity, including bicycle traffic since Paseo de Valencia has bicycle lanes. The intersection geometry was field-reviewed and determined to not require special traffic signal head locations for improved visibility or advanced signage for impaired sight distance. Field observations also showed that a driver's visibility was not restricted due to any existing roadway design, curvature, or physical obstruction. Driver visibility was also verified from the Calle de La Plata approaches to the intersection and shown to be un-restricted, especially visibility between left-turning drivers and opposing traffic or pedestrians using the crosswalk across the south leg.

CONCLUSION

Based on the findings of this study, the installation of fully-protected left-turn phasing is not warranted for the east-west approaches on Calle de La Plata at its intersection with Paseo de Valencia. There are no further intersection recommendations at this time.

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APPENDIX A

LEFT-TURN PHASING GUIDELINES:

CALIFORNIA MUTCD
and
HIGHWAY CAPACITY MANUAL

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~~If U-turns are permitted from the approach and if drivers making a right turn from the conflicting approach to the left are simultaneously being shown a right-turn GREEN ARROW signal indication, drivers making a U-turn may be advised of the operation by the installation near the left-turn signal face of a U-TURN YIELD TO RIGHT TURN (R10-16) sign (see Section 2B.45).~~

Standard:

When a RIGHT TURN ARROW controls the Right Turn movement, a conflicting U-turn approach shall be prohibited.

Section 4D.06 Application of Steady Signal Indications for Left Turns

Support:

Left-turning traffic is controlled by one of four modes as follows:

A. Permissive Only Mode—turns made on the CIRCULAR GREEN signal indication after yielding to oncoming traffic and pedestrians;
B. Protected Only Mode—turns made only when the left-turn GREEN ARROW signal indication is displayed;
C. Protected/Permissive Mode—both modes occur on an approach during the same cycle; or
D. Variable Left-Turn Mode—the operating mode changes among the protected only mode and/or the protected/permissive mode and/or the permissive only mode during different periods of the day.

Option:

In areas having a high percentage of elderly drivers, special consideration may be given to the use of protected only mode left-turn phasing, when appropriate.

Standard:

The required left-turn signal faces and operation for an approach shall be determined by the selected mode of left-turn operation, as follows:

A. Permissive Only Mode—The signal indications for permissive only mode left turns shall be provided by the signal faces controlling the through movement, or by a permissive-only left-turn signal face that is either a shared signal face or a separate signal face. A permissive-only shared signal face, regardless of where the permissive-only left-turn signal face is positioned and regardless of how many adjacent through signal faces are provided, shall always simultaneously display the same color of circular indication that the adjacent through signal face or faces display. A separate permissive-only left-turn signal face sometimes displays a different color of circular signal indication than the adjacent through signal faces display.

If a separate left-turn signal face is provided for permissive only left turns, it shall meet the following requirements:

1. During the permissive left-turn movement, the left-turn signal face shall display a CIRCULAR GREEN signal indication.
2. If the CIRCULAR GREEN and CIRCULAR YELLOW signal indications in the left-turn signal face are visibility-limited from the adjacent through movement, the left-turn signal face shall not be required to simultaneously display the same color of circular signal indication as the signal faces for the adjacent through movement.
3. If the CIRCULAR GREEN and CIRCULAR YELLOW signal indications in the left-turn signal face are visibility-limited from the adjacent through movement, the display of a CIRCULAR GREEN signal indication for a permissive left-turn movement while the signal faces for the adjacent through movement display CIRCULAR RED signal indications and the opposing left-turn signal faces display left-turn GREEN ARROW signal indications for a protected left-turn movement shall be permitted.
~~**4. If the left-turn signal face does not simultaneously display the same color of circular signal indication as the signal faces for the adjacent through movement, a LEFT TURN YIELD ON GREEN (symbolic green ball) (R10-12) sign or a LEFT TURN SIGNAL—YIELD ON GREEN (symbolic green ball) (R10-21) sign (see Figure 2B-19) shall be used.**~~

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B. Protected Only Mode—The left-turn signal face shall be capable of displaying one of the following sets of signal indications:

1. Left-turn RED ARROW, YELLOW ARROW, and GREEN ARROW signal indications only. At least one left-turn signal face shall be provided in addition to the two approach signal faces required in Section 4D.15 for the major movement. Only one of the three colors shall be illuminated at any given time. A signal instruction sign shall not be required with this set of signal indications. If used, it shall be a LEFT ON GREEN ARROW ONLY sign (R10-5).

2. CIRCULAR RED, left-turn YELLOW ARROW, and left-turn GREEN ARROW signal indications. At least one left-turn signal face shall be provided in addition to the two approach signal faces required in Section 4D.15 for the major movement. Only one of the three colors shall be illuminated at any given time. Unless the CIRCULAR RED signal indication is shielded, hooded, louvered, positioned, or designed such that it is not readily visible to drivers in the through lane(s), a LEFT TURN SIGNAL sign (R10-10) shall be used.

3. CIRCULAR RED, CIRCULAR YELLOW, CIRCULAR GREEN, and left-turn GREEN ARROW signal indications. This four-section signal face shall be used only when the CIRCULAR GREEN and left-turn GREEN ARROW signal indications begin and terminate together. During each interval, the circular signal indication shall be the same color as the signal indication on the signal face(s) for the adjacent through traffic.

C. Protected/Permissive Mode—The signal indications for protected/permissive mode left turns shall be provided in either a shared signal face or a separate signal face. Any protected/permissive left-turn signal face that always simultaneously displays the same color of circular signal indication that the adjacent through signal faces display shall be considered to be a shared signal face, regardless of where the left-turn signal face is positioned and regardless of how many adjacent through signal faces are provided. Any protected/permissive left-turn signal face that sometimes displays a different color of circular signal indication than the adjacent through signal faces display shall be considered to be a separate signal face. The requirements for each type of signal face are as follows:

1. If a shared signal face is provided, it shall be considered an approach signal face, and shall meet the following requirements:

(a) During the protected left-turn movement, the signal face shall simultaneously display a left-turn GREEN ARROW signal indication and a circular signal indication that is the same color as the signal indication for the adjacent through lane on the same approach as the protected left turn.
During the protected left-turn movement, the signal faces for through traffic on the opposing approach shall simultaneously display CIRCULAR RED signal indications.

(b) During the permissive left-turn movement, all signal faces on the approach shall display CIRCULAR GREEN signal indications.

(c) All signal faces on the approach shall simultaneously display the same color of circular signal indications to both through and left-turn road users.

(d) A supplementary sign shall not be required. If used, it shall be a LEFT TURN YIELD ON GREEN (symbolic green ball) (R10-12) sign (see Figure 2B-19).

2. If a separate signal face is provided, it shall be considered a left-turn signal face, and shall meet the following requirements:

(a) During the protected left-turn movement, the left-turn signal face shall display a left-turn GREEN ARROW signal indication.
During the protected left-turn movement, the signal faces for through traffic on the opposing approach shall simultaneously display CIRCULAR RED signal indications.

(b) During the permissive left-turn movement, the left-turn signal face shall display a CIRCULAR GREEN signal indication.

(c) If the CIRCULAR GREEN and CIRCULAR YELLOW signal indications in the left-turn signal face are visibility-limited from the adjacent through movement, the left-turn signal

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face shall not be required to simultaneously display the same color of circular signal indication as the signal faces for the adjacent through movement.

(d) If the CIRCULAR GREEN and CIRCULAR YELLOW signal indications in the left-turn signal face are visibility-limited from the adjacent through movement, the display of a CIRCULAR GREEN signal indication for a permissive left-turn movement while the signal faces for the adjacent through movement display CIRCULAR RED signal indications and the opposing left-turn signal face displays a left-turn GREEN ARROW for a protected left-turn movement shall be permitted.

(e) If the left-turn signal face does not simultaneously display the same color of circular signal indication as the signal faces for the adjacent through movement, a LEFT TURN SIGNAL—YIELD ON GREEN (symbolic green ball) (R10-21) sign (see Figure 2B-19) shall be used.

D. Variable Left-Turn Mode—If the protected only mode occurs during one or more periods of the day, and the permissive only mode or the combined protected/permissive mode occurs during other periods of the day, the requirements of Items A, B, and C in this Standard that are appropriate to that mode of operation shall be met, subject to the following:

1. The CIRCULAR GREEN and CIRCULAR YELLOW signal indications shall not be displayed when operating in the protected only mode.

2. The left-turn GREEN ARROW and left-turn YELLOW ARROW signal indications shall not be displayed when operating in the permissive only mode.

Option:

Additional appropriate signal indications or changeable message signs may be used to meet the requirements for the variable left-turn mode.

Guidance:

Since separate signal phases for protected left turns will reduce the green time available for other phases, alternate means of handling left turn conflicts should be considered first.

Support:

The most likely possibilities are:

1. Prohibition of left turns. This can be done only if there are convenient alternate means of making the movement. Typical alternate means are:
   a. A series of right and/or left turns around a block to permit getting to the desired destination; or
   b. Making the left turn at an adjacent unsignalized intersection during gaps in the opposing through traffic.
2. Geometric changes to eliminate the left turn. An effective change would be a complete separation or a complete or partial "clover leaf" at grade. Any of these, while eliminating left turns, requires additional cost and right of way.
3. Provide protected-permissive or permissive-protected left turn operation. The protected left turn interval may be prohibited during certain periods of the day to allow only permissive intervals for left turn movement in order to increase the green time available for other phases. Refer to Section 4D.111(CA) for the requirements of protected-permissive or permissive-protected left turn operation.

Guidance:

Protected left turn phases should be considered where such alternatives couldn't be utilized, and one or more of the following conditions exist:

1. Collisions - Five or more left turn collisions for a particular left turn movement during a recent 12-month period.
2. Delay - Left-turn delay of one or more vehicles, which were waiting at the beginning of the green interval and are still remaining in the left turn lane after at least 80% of the total number of cycles for one hour.
3. Volume - At new intersections where only estimated volumes are available, the following criteria may be used. For pretimed signal or a background-cycle-controlled actuated signal, a left turn volume of more than two vehicles per approach per cycle for a peak hour; or for a traffic-actuated signal, 50 or more left turning vehicles per hour in one direction with the product of the turning and conflicting through traffic during the peak hour of 100,000 or more.
4. Miscellaneous. Other factors that might be considered include but are not limited to: impaired sight distance due to horizontal or vertical curvature, or where there are a large percentage of buses and trucks.

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LEFT-TURN TREATMENT WORKSHEET

General Information

Description: Intersection of La Palma Avenue and Moody Street in the City of La Palma

Check #1. Left-Turn Lane Check

Approach	EB	WB	NB	SB
Number of left-turn lanes	1	1	1	1
Protect left turn (Y or N)?	N	N	N	N

If the number of left-turn lanes on any approach exceeds 1, then it is recommended that the left turns on that approach be protected. Those approaches with protected left turns need not be evaluated in subsequent checks.

Check #2. Minimum Volume Check

Approach	EB	WB	NB	SB
Left-turn volume	132	229	219	105
Protect left turn (Y or N)?	N	N	N	N

If left-turn volume on any approach exceeds 240 veh/h, then it is recommended that the left turns on that approach be protected. Those approaches with protected left turns need not be evaluated in subsequent checks.

Check #3. Minimum Cross-Product Check

Approach	EB	WB	NB	SB
Left-turn volume, V_L (veh/h)	132	229	219	105
Opposing mainline volume, V_o (veh/h)	708	574	794	1,045
Cross-product ($V_L * V_o$)	93,456	131,446	173,886	109,725
Opposing through lanes	2	2	2	2
Protected left turn (Y or N)?	Y	Y	Y	Y

Minimum Cross-Product Values for Recommending Left-Turn Protection

Number of Through Lanes	Minimum Cross-Product
1	50,000
2 ✓	90,000 ✓
3	110,000

If the cross-product on any approach exceeds the above values, then it is recommended that the left turns on that approach be protected. Those approaches with protected left turns need not be evaluated in subsequent checks.

Check #4. Sneaker Check

Approach	EB	WB	NB	SB
Left-turn volume, V_L (veh/h)	132	229	219	105
Sneaker capacity = 7200/C	72	72	72	72
Left-turn equivalence, E_{L1} (Exhibit C16-3)	2.5	2.3	2.8	3.3
Protected left turn (Y or N)?	N	N	N	N

If the left-turn equivalence factor is 3.5 or higher (computed in Exhibit A10-4, quick estimation lane volume worksheet) and the unadjusted left turn is greater than the sneaker capacity, then it is recommended that the left turns on that approach be protected.

Notes

1. If any approach is recommended for left-turn protection but the analyst wishes to analyze it as permitted, the planning application may give overly optimistic results. The analyst should instead use the more robust method described in Chapter 16, Signalized Intersections.
2. All volumes used in this worksheet are unadjusted hourly volumes.

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EXHIBIT C16-3. THROUGH-CAR EQUIVALENTS, E_{L1}, FOR PERMITTED LEFT TURNS

Type of Left-Turn Lane	Effective Opposing Flow, $v_{oe} = v_o/f_{LUo}$						
	1	200	400	600	800	1000	1200[a]
Shared	1.4	1.7	2.1	2.5	3.1	3.7	4.5
Exclusive	1.3	1.6	1.9	2.3	2.8	3.3	4.0

Notes:

a. Use formula for effective opposing flow more than 1200; v_{oe} must be > 0.

$E_{L1} = s_{HT}/s_{LT} - 1$ (shared)

$E_{L1} = s_{HT}/s_{LT}$ (exclusive)

$$s_{LT} = \frac{v_{oe} e^{\left(\frac{-v_{oe} t_c}{3600}\right)}}{1 - e^{\left(\frac{-v_{oe} t_f}{3600}\right)}}$$

where

E_{L1} = through-car equivalent for permitted left turns
s_{HT} = saturation flow of through traffic (veh/h/ln) = 1900 veh/h/ln
s_{LT} = filter saturation flow of permitted left turns (veh/h/ln)
t_c = critical gap = 4.5 s
t_f = follow-up headway = 4.5 s (shared), 2.5 s (exclusive)

A reduced form is given as Equation C16-3.

$$f_m = \left(\frac{g_f}{g}\right) + \left(\frac{g_u}{g}\right)\left[\frac{1}{1 + P_L(E_{L1} - 1)}\right] \quad \text{(C16-3)}$$

Sneakers are considered to be part of the left-turn count for the corresponding green interval, even though they may enter and depart the intersection during the yellow or red intervals

Note that there is no term in this formulation to account for sneakers, that is, for drivers completing left turns during the effective red portion of the clearance-and-change interval. This term is missing because in saturation flow rate measurements, vehicles are counted when they enter the intersection, not when they leave it. However, there is a practical minimum number of left turns that will be made on any phase, defined by sneakers.

To account for this situation, a practical minimum value must be imposed on f_m. One sneaker per cycle may be assumed as a minimum. The probability that a second sneaker will be in position at the end of the green phase will be equal to the proportion of left turns in the shared lane, P_L. The estimated number of sneakers per cycle may therefore be computed as $(1 + P_L)$. Assuming an approximate average headway of 2 s per vehicle in an exclusive lane on a protected phase, the practical minimum value of f_m may be estimated as $2(1 + P_L)/g$.

MULTILANE APPROACH WITH OPPOSING MULTILANE APPROACHES

Multilane approaches are legs of intersections with more than one approach lane

For multilane approaches, the impact of left turns on a shared lane must be extended to include their impact on the entire lane group. One might simply assume that the factor for the shared lane is f_m and that the factor for each other lane in the group is 1.0. In this assumption, however, left turns affect only the lane from which they are made. This is incorrect because vehicles typically maneuver from lane to lane to avoid left-turn congestion. Equation C16-4 provides the relationship for computing realistic f_{LT} values.

$$f_{LT} = \frac{f_m + 0.91(N - 1)}{N} \quad \text{(C16-4)}$$

where

f_{LT} = left-turn adjustment factor applied to a total lane group from which left turns are made, and
f_m = left-turn adjustment factor applied only to lane from which left turns are made.

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APPENDIX B

INTERSECTION COLLISION HISTORY DATA

Intersection Magic VER 6.727
City of Laguna Hills, CA 04/18/2011

Accident listing
03/26/2006 - 03/25/2010
Calle De La Plata & Paseo De Valencia
Sorted by <DATE;TIME;ACC#>

CASE ID	DATE	STREET 1	STREET 2	DIST	DIR FROM	VEH 1 MOV	VEH 1 DIR	VEH 2 MOV	VEH 2 DIR	COLL	VIOL CAT	INJ	
9005064	08/27/2006	PASEO DE VALENCIA	CALLE DE LA PLATA	0	Not state	Straight	NORTH	Left turn	SOUTH	Broadside	Traffic signals	0	
3198208	05/03/2007	PASEO DE VALENCIA	CALLE DE LA PLATA	29	South	Straight	NORTH	Stopped	NORTH	Rear end	Unsafe speed	1	
3552989	12/29/2007	PASEO DE VALENCIA	CALLE DE LA PLATA	14	South	Left turn	WEST	Not stated	EAST	Auto-ped	Ped right-of-way	2	*
3685215	03/28/2008	PASEO DE VALENCIA	CALLE DE LA PLATA	18	South	Chging lanes	SOUTH	Straight	SOUTH	Rear end	Unsafe lane chng	1	
3988307	10/14/2008	PASEO DE VALENCIA	CALLE DE LA PLATA	0	Not state	Right turn	EAST	Right turn	EAST	Auto-ped	Ped right-of-way	1	
4080706	01/08/2009	PASEO DE VALENCIA	CALLE DE LA PLATA	0	Not state	Backing	NORTH	Left turn	SOUTH	Other Col	Unsafe start/back	0	
4129164	02/19/2009	PASEO DE VALENCIA	CALLE DE LA PLATA	0	Not state	Straight	WEST	Straight	NORTH	Broadside	Traffic signals	1	
4173781	03/28/2009	PASEO DE VALENCIA	CALLE DE LA PLATA	181	South	Stopped	NORTH	Straight	NORTH	Rear end	Unsafe speed	1	
4466956	11/03/2009	CALLE DE LA PLATA	PASEO DE VALENCIA	5	East	Straight	WEST	Not stated	SOUTH	Auto-ped	Not stated	0	
4552139	11/21/2009	PASEO DE VALENCIA	CALLE DE LA PLATA	225	North	U turn	NORTH	Parked	Not state	Broadside	Improper turning	1	
4539618	12/30/2009	PASEO DE VALENCIA	CALLE DE LA PLATA	0	Not state	Straight	NORTH	Stopped	NORTH	Rear end	Unsafe speed	0	

* Considered correctible by left-turn phasing in the east-west directions.

JULY 20, 2011, ITEM NO. 4.1

APPENDIX C

PEAK-HOUR TURNING MOVEMENT

TRAFFIC VOLUME DATA

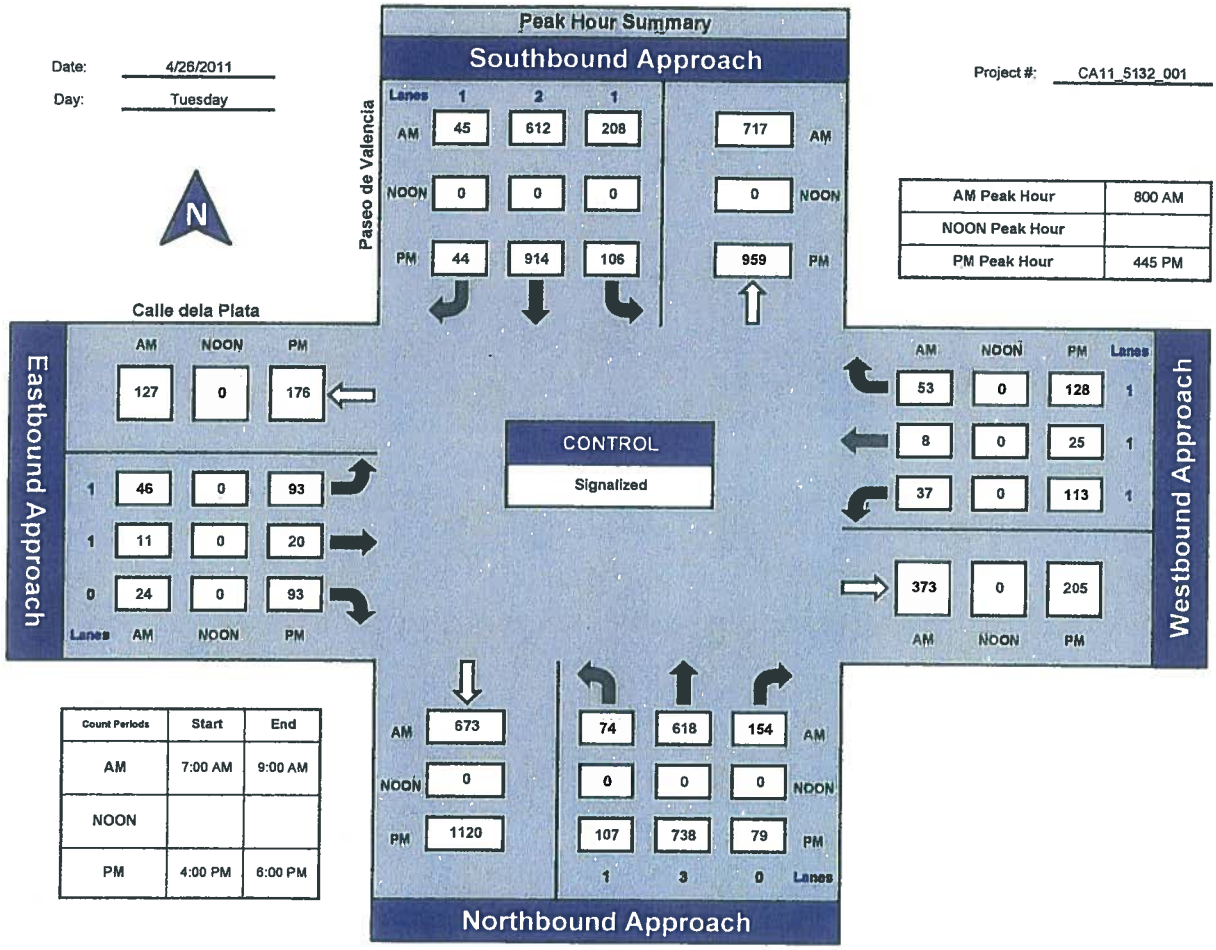
JULY 20, 2011 ITEM NO. 4.1
9/21/2011 ITEM NO. 4.1

ITM Peak Hour Summary

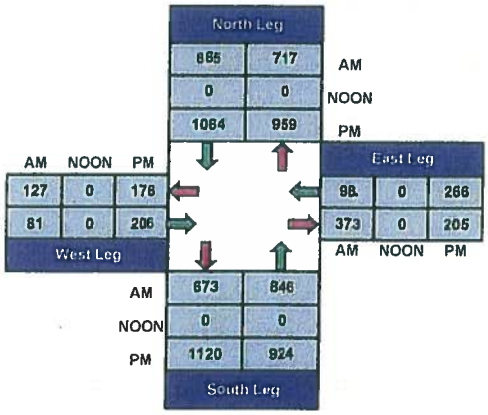
Prepared by:

National Data & Surveying Services

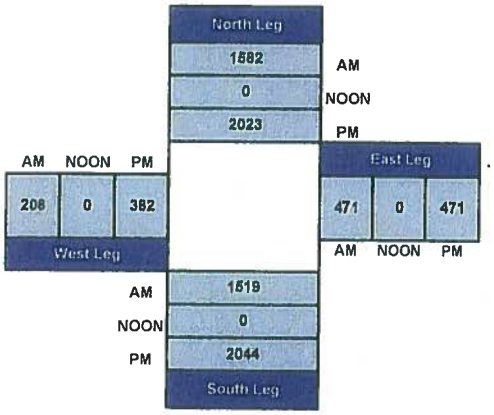
Paseo de Valencia and Calle dela Plata , City of Laguna Hills



Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA11_5132_001

Day: TUESDAY

City: City of Laguna Hills

Date: 4/26/2011

AM

NS/EW Streets:	Paseo de Valencia			Paseo de Valencia			Calle de La Plata			Calle de La Plata			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	3	0	1	2	1	1	1	0	1	1	1	
7:00 AM	5	111	12	29	111	2	4	1	2	2	1	8	288
7:15 AM	8	117	15	34	122	7	3	1	2	5	0	8	322
7:30 AM	7	155	20	30	137	4	12	1	4	6	0	9	385
7:45 AM	10	181	19	46	191	9	8	2	3	6	2	5	482
8:00 AM	18	138	32	52	135	4	7	0	6	9	1	18	420
8:15 AM	13	163	54	61	143	12	11	3	3	8	2	7	480
8:30 AM	23	146	32	49	144	12	14	0	7	10	4	19	460
8:45 AM	20	171	36	46	190	17	14	8	8	10	1	9	530
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	104	1182	220	347	1173	67	73	16	35	56	11	83	3367
APPROACH %'s :	6.91%	78.49%	14.61%	21.87%	73.91%	4.22%	58.87%	12.90%	28.23%	37.33%	7.33%	55.33%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	74	618	154	208	612	45	46	11	24	37	8	53	1890
PEAK HR FACTOR :		0.920			0.855			0.675			0.742		0.892

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: CA11_5132_001

Day: TUESDAY

NS STREET: Paseo de Valencia
City: City of Laguna Hills

DATE: 4/26/2011

LOCATION: City of Laguna Hills
Date: 4/26/2011

EW STREET: Calle de La Plata

DAY: TUESDAY

PROJECT#: 11-5132-001

PM

NS/EW Streets:	Paseo de Valencia			Paseo de Valencia			Calle de La Plata			Calle de La Plata			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 3	NR 0	SL 1	ST 2	SR 1	EL 1	ET 1	ER 0	WL 1	WT 1	WR 1	TOTAL
4:00 PM	22	158	8	27	211	6	24	4	20	17	4	23	524
4:15 PM	27	163	15	24	197	7	19	5	25	19	6	25	532
4:30 PM	33	178	14	29	173	3	22	4	21	22	9	27	535
4:45 PM	31	168	16	41	226	4	18	4	20	28	6	27	589
5:00 PM	19	198	25	21	196	4	27	5	25	38	12	43	613
5:15 PM	28	197	26	26	237	18	28	3	25	24	2	29	643
5:30 PM	29	175	12	18	255	18	20	8	23	23	5	29	615
5:45 PM	26	141	22	23	261	4	21	1	17	20	2	24	562
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	215	1378	138	209	1756	64	179	34	176	191	46	227	4613
APPROACH %'s :	12.42%	79.61%	7.97%	10.30%	86.55%	3.15%	46.02%	8.74%	45.24%	41.16%	9.91%	48.92%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	107	738	79	106	914	44	93	20	93	113	25	128	2460
PEAK HR FACTOR :		0.920			0.914			0.904			0.715		0.956

CONTROL : Signalized

APPENDIX D

LEFT-TURN DELAY DATA

JULY 20, 2011 ITEM NO. 4.1
9/21/2011 ITEM NO. 4.1

Prepared by National Data & Surveying Services

Queue/Delay Study

Location: Paseo de Valencia & Calle de La Plata
City: Laguna Hills

Project #: 11-5132-001
Date: 4/26/2011

Cycle	Time	Number of Vehicles in Queue							
		Direction: NB		Direction: SB		Direction: EB		Direction: WB	
		Lane: Left-Turn		Lane: Left-Turn		Lane: Left-Turn		Lane: Left-Turn	
		BOG*	EOY*	BOG	EOY	BOG	EOY	BOG	EOY
1	7:00	1	0	2	0	0	0	0	0
2		1	0	2	0	0	0	1	0
3		0	0	7	0	0	0	0	0
4		1	0	1	0	0	0	0	0
5		1	0	3	0	1	0	0	0
6						1	0	0	0
7						0	0	1	0
8				3	0	0	0	0	0
9		2	0	1	0				
10				3	1				
11				1	0				
12				1	1				
13		2	0	1	3				
14				3	0				
15						1	0	0	0
16				1	0				
17				3	0				
18		1	0	2	0				
19	7:15			1	0	0	0	0	0
20				2	0				
21				1	0	0	0	0	0
22				3	0				
23				1	0				
24						0	1	2	0
25				2	0	1	0	1	0
26				1	0	0	0	1	0
27				2	0				
28		1	0	2	0	1	0	0	0
29				2	0	0	0	1	0
30				1	0	0	0	0	0
31				1	2				
32				2	1				
33				1	1				
34				1	1				
35				1	1				
36				1	0	0	0	0	0
37	7:30	1	0	1	0				
38				0	0				
39		1	0	3	0	0	0	0	0
40		1	0	5	0	1	0	0	0
41				4	0	2	0	0	0
42		2	0	1	0				
43				6	0				
44		0	0	4	0				
45				1	0	0	0	1	0
46	7:45	1	0	3	1				
47				4	0	2	0	1	0
48		2	1	1	0				
49		0	0	3	0	1	0	0	0
50				7	3	2	0	1	0
51		1	1	4	3				
52				2	1	2	0	0	0
53		3	0	3	0				
54				3	0	0	0	2	0
55				14	9	0	0	0	0
56		2	0	10	0				

9/21/2011 ITEM NO. 4.1

JULY 20, 2011, ITEM NO. 4.1

57				8	2	0	0	2	0
58		3	0	3	0				
59	8:00	1	0	6	0	0	0	1	0
60				9	1	1	0	3	0
61		3	0	3	1				
62				13	5	3	0	0	0
63		1	0	5	1				
64				7	0	0	0	2	0
65		2	0	1	1				
66				9	2	1	0	1	0
67		2	0	4	0				
68				3	2	0	0	1	0
69				3	0				
70				0	0	0	0	1	0
71	8:15			9	1	0	0	1	0
72		1	0	5	0				
73				2	0	0	0	2	0
74		1	0						
75				10	0				
76		6	0			2	0	0	0
77				5	2	1	0	0	0
78				4	0				
79				8	3	4	1	1	0
80		2	0	5	0				
81				3	1	2	0	1	0
82		2	0	2	0				
83				6	1	1	0	2	0
84		1	0	3	0				
85				6	1	2	0	1	0
86	8:30	5	0	1	0				
87				2	0				
88				1	1	1	0	0	0
89		1	0	2	0	0	1	0	0
90		1	0	3	0	1	0	0	0
91		1	0			0	0	0	0
92		1	0	2	0				
93		2	0	1	0	0	0	1	0
94		2	0	5	1				
95		3	0	5	0	2	0	0	0
96		2	0	4	0	0	0	0	0
97				3	0				
98		2	0	2	1	0	0	0	0
99		1	0	1	0	1	0	0	0
100				3	0				
101	8:45	1	0	0	0				
102		1	0						
103				2	2				
104		2	0	6	0	2	0	0	0
105		1	0	7	0	0	0	1	0
106		2	0	3	0				
107		2	0			2	0	1	0
108		1	0	2	2				
109		3	0	3	0	1	0	1	0
110		2	0						
111				9	0				
112		4	0	3	0	1	0	2	0
113						3	0	1	0
114		4	0	7	1				
115		3	1	2	2				
116				3	1				
117						1	0	0	0
118		3	0	3	0				
119				3	0				

NOTES:

* BOG = Vehicles counted at beginning of green
* EOY = Vehicles counted at end of yellow.

Prepared by National Data & Surveying Services

Queue/Delay Study

Location: Paseo de Valencia & Calle de La Plata
City: Laguna Hills

Project #: 11-5132-001
Date: 4/26/2011

Cycle	Time	Number of Vehicles in Queue							
		Direction: NB		Direction: SB		Direction: EB		Direction: WB	
		Lane: Left-Turn		Lane: Left-Turn		Lane: Left-Turn		Lane: Left-Turn	
		BOG*	EOY*	BOG	EOY	BOG	EOY	BOG	EOY
1	4:00			9	2	3	0	1	1
2		6	0						
3				9	5				
4		2	2			2	0	2	0
5				12	5	5	0	1	0
6		7	0						
7						4	0	4	0
8				11	4	3	0	5	0
9		7	0						
10				8	1	5	0	2	0
11		5	0						
12				4	1	1	0	0	0
13		7	0						
14	4:15			4	0	3	0	4	0
15		1	0						
16				6	0				
17		7	0			1	0	1	0
18				6	0				
19						2	0	4	1
20		2	0	7	0				
21		1	0			6	1	2	0
22				3	0	3	0	1	0
23		7	1						
24				6	0	2	0	2	1
25		3	1						
26				5	0	2	0	4	0
27		2	0						
28	4:30			7	1	2	0	1	0
29		4	0						
30				4	0				
31		3	0			2	0	1	0
32				7	0				
33		1	0			3	0	0	0
34				6	0	1	0	3	0
35		2	1						
36				4	1	4	1	6	3
37		3	1	3	0	6	1	3	0
38				3	0				
39		4	1			3	0	4	0
40						1	0	2	0
41		4	0						
42	4:45			4	0	2	2	2	0
43		4	0						
44				4	0	1	0	2	0
45		5	0						
46				6	0				
47						1	0	6	0
48		5	1						
49				10	0	1	0	4	0
50		5	0						
51				3					
52		7	1			3	1	2	1
53				4	0	1	0	9	0
54		5	0						
55				4	2				
56		2	1			2	0	3	0

9/21/2011 ITEM NO. 4.1

JULY 20, 2011, ITEM NO. 4.1

57	5:00			8	0				
58						5	1	6	0
59		7	2						
60				4	0	5	1	6	0
61		6	0						
62						6	0	5	0
63		5	0						
64				3	0				
65		5	1			5	0	4	0
66				8	2	4	0	7	0
67		4	0						
68				2	0				
69		2	1			0	0	3	1
70				3	0	4	0	7	0
71		7	0						
72	5:15			4	0				
73						5	0	4	0
74		1							
75				6	0	5	0	1	0
76		5	0						
77				5	0	3	0	3	0
78		1	0						
79				7	1				
80		4	0			2	0	4	0
81				5	0				
82		5	0			4	0	3	0
83				4	0				
84		3	0			3	1	2	0
85				6	0	5	0	3	0
86	5:30	3	0						
87		3	1	3	0	0	0	0	0
88				3	1	3	0	1	0
89		7							
90				5	0				
91		7	1			1	0	3	0
92		0		1	0				
93		3	0						
94				2	0				
95		4	0			4	0	2	0
96		3	0	2	1	0	0	4	0
97				8	0	8	0	6	0
98	5:45	8	1						
99				3	0	2	0	3	0
100		6	0						
101				6	1				
102		1	0			2	0	1	0
103				6	0				
104		5	0			5	0	4	0
105				5	0				
106		4	2			0	0	0	0
107		5	0	1	0	2	0	3	0
108		4	0	2	0	3	0	3	0
109				3	1	1	0	5	0
110		4	0						
111									
112									
113									

NOTES:

* **BOG = Vehicles counted at beginning of green**
* **EOY = Vehicles counted at end of yellow.**

9/21/2011 ITEM NO. 4.1

HARTZOG & CRABILL, Inc.

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

275 Centennial Way
Suite 208
Tustin, CA 92780

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

www.hartzog-crabill.com

June 6, 2011

TO: Ken Rosenfield, Director of Public Works
City of Laguna Hills

FROM: Jerry Stock, Consulting Traffic Engineer
Hartzog & Crabill, Inc.

SUBJECT: PEDESTRIAN COUNT DATA AT THE INTERSECTION OF PASEO DE VALENCIA AND CALLE DE LA PLATA

As per the City's request, attached please find pedestrian count data taken at the intersection of Paseo de Valencia and Calle de La Plata on Thursday, May 26, 2011.

As you know there are three (3) marked crosswalks at this intersection (there is no crosswalk across the north leg of Paseo de Valencia). Pedestrian count data was collected during the morning and afternoon peak periods. In brief summary, the higher pedestrian volumes occurred across the south leg of the intersection during the PM peak period (4-6pm). During this 2-hour period, there were a total of (40) pedestrians counted.

As you know, Hartzog and Crabill, Inc. (HCI) recently prepared a left-turn phasing warrant analysis at this intersection that resulted in no warrants being satisfied; consequently, no traffic signal changes or intersection recommendations were identified. In review of the pedestrian count data, our conclusion remains that there are no other intersection improvements recommended at this time.

Attached are the pedestrian count data.

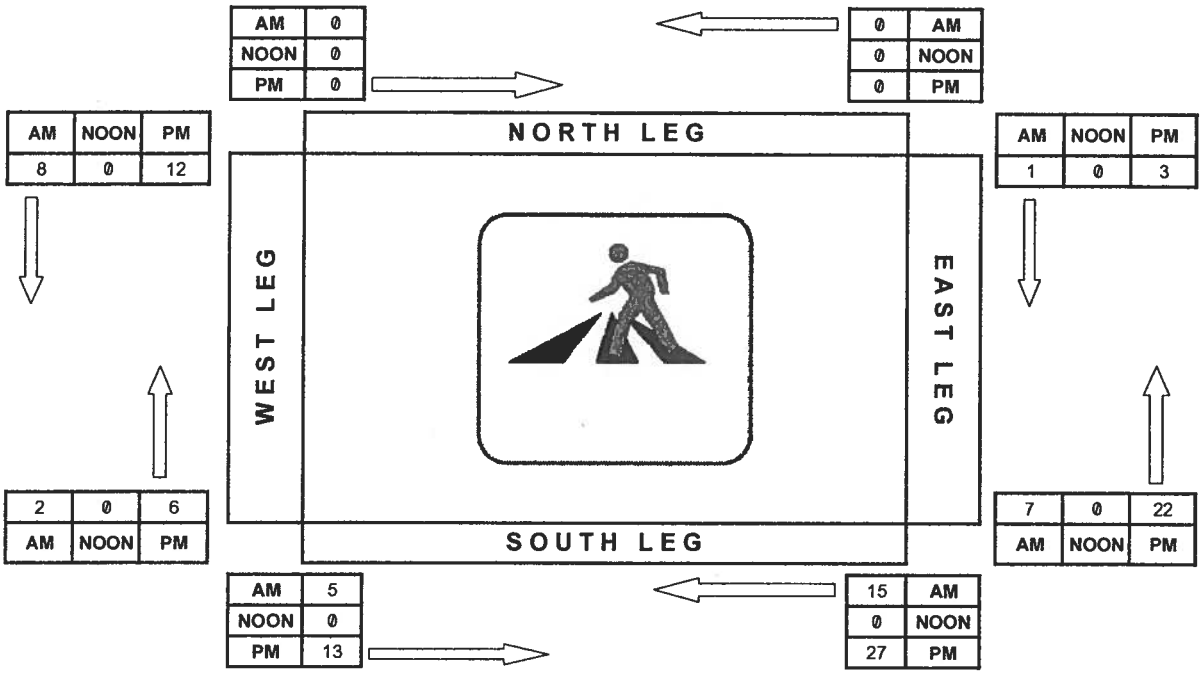
Please let us know if you may have any further questions or comments. I can be reached at (714) 731-9455.

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

Pedestrian Count

	Start:	End:
AM	7:00	9:00
NOON		
PM	16:00	18:00

PROJECT#: 11-1074-001
N/S Street: Paseo De Valencia
E/W Street: Calle La Plata
DATE: 5/26/2011 DAY: Thursday
CITY: Laguna Hills



PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 11-1074-001
N/S Street: Paseo De Valencia
E/W Street: Calle La Plata
DATE: 5/26/2011 DAY: Thursday
CITY: Laguna Hills

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	1	0	1	0	0	1
7:15 AM	0	0	0	0	1	0	0	0
7:30 AM	0	0	0	4	1	0	0	0
7:45 AM	0	0	0	4	0	1	1	1
8:00 AM	0	0	2	1	0	0	0	1
8:15 AM	0	0	0	2	0	0	1	0
8:30 AM	0	0	1	4	0	0	0	0
8:45 AM	0	0	1	0	4	0	0	5
TOTALS	**0**	**0**	**5**	**15**	**7**	**1**	**2**	**8**

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
4:00 PM	0	0	2	7	2	0	2	1
4:15 PM	0	0	3	5	2	2	3	3
4:30 PM	0	0	0	2	4	0	1	2
4:45 PM	0	0	3	4	0	1	0	2
5:00 PM	0	0	0	5	4	0	0	0
5:15 PM	0	0	4	0	0	0	0	3
5:30 PM	0	0	1	1	1	0	0	0
5:45 PM	0	0	0	3	9	0	0	1
TOTALS	**0**	**0**	**13**	**27**	**22**	**3**	**6**	**12**

9/21/2011 ITEM NO. 4.1

TURNING
TRAFFIC
MUST
YIELD TO
PEDESTRIANS
09/08/2011

TURNING
TRAFFIC
MUST
YIELD TO
PEDESTRIANS
La Plata
09/08/2011

9/21/2011 ITEM NO. 4.1

CITY OF LAGUNA HILLS
TRAFFIC COMMISSION
AGENDA REPORT
TRAFFIC ENGINEER DEPARTMENT

ISSUE: TRAFFIC CONTROL SURVEY ON MUSTANG DRIVE

SUMMARY:

Upon request from the Traffic Commission at its meeting of July 20, 2011, City staff performed a survey of residents in order to receive feedback on the proposed installation of yellow "skip" centerline striping along Mustang Drive from Nellie Gail Road to Appaloosa Place. The centerline striping had been recommended by staff as the next incremental traffic control measure to reduce speeding along Mustang Drive. The survey results show that the majority of residents along Mustang Drive believe there to be a speeding problem along Mustang Drive and the majority of residents support the installation of a yellow "skip" centerline striping along Mustang Drive from Nellie Gail Road to Appaloosa Place. Staff is recommending the installation of yellow "skip" centerline striping along Mustang Drive from Nellie Gail Road to Appaloosa Place.

BACKGROUND:

Based on speed survey results performed along Mustang Drive from Nellie Gail Road to Appaloosa Place in June 2011, it was determined that the 85th percentile speeds slightly exceed the City's standards for acceptable speeds in a residential neighborhood. In accordance with the City's Residential Streets Management Policy, staff recommended the installation of a yellow "skip" centerline striping along Mustang Drive from Nellie Gail Road to Appaloosa Place at the July 20, 2011 Traffic Commission Meeting. A notice requesting public input from the affected residents along Mustang Drive of the proposed striping was sent on July 13, 2011. Staff received one letter in opposition to the striping. Moreover, another resident voiced opposition to the striping at the Traffic Commission meeting. Based on the input received, the Traffic Commission requested staff to perform a survey along Mustang Drive to receive additional feedback prior to further action. Surveys were sent out to thirty-eight residents directly affected by the proposed striping along Mustang Drive. Twenty-two survey responses were received. Seventeen respondents agree there is a speeding problem along Mustang Drive while three respondents disagree. Thirteen respondents support the installation of yellow "skip" centerline striping while nine respondents oppose.

RECOMMENDATION: THAT THE TRAFFIC COMMISSION RECOMMEND TO THE CITY COUNCIL THE ADDITION OF YELLOW "SKIP" CENTERLINE STRIPING ALONG WITH ADDITIONAL TRAFFIC ENFORCEMENT AND THE CONTINUED USE OF THE RADAR SPEED TRAILER ALONG MUSTANG DRIVE FROM NELLIE GAIL ROAD TO APPALOOSA PLACE.

Staff also received general comments that striping will not deter speeding, striping is not visually appealing, speed bumps are preferred, stop signs are preferred, and that the street is not wide enough for centerline striping due to allowed on street parking. See attached survey results.

Due to the over-speeding complaints received by residents of Mustang Drive, the Sheriff's Department has increased enforcement and issued a number of citations. Staff recently received a complaint from a resident via a Traffic Commissioner who was issued a citation along Mustang Drive. The resident stated that the additional traffic enforcement along Mustang Drive should be stopped.

Based on the recent speed survey performed by Hartzog & Crabill, Inc. on June 16, 2011, the prevailing speed, the speed at which 85% of motorists are driving at or below, was 33.8 mph from 7:00 AM to 9:00 AM, and 34.8 mph from 4:30 PM to 7:00 PM. These speeds show a slight improvement from the previous surveys performed in June 2010 and February 2011. Moreover, these speeds are not too far from 32-34 mph expected typical prevailing traffic speed range for vehicles in a residential area. The addition of the yellow "skip" centerline striping should further assist in reducing the prevailing speed along this roadway. The centerline striping will not adversely affect the available parking on the street. The placement of the radar speed trailer and additional traffic speed enforcement should also assist in changing driver behavior to reduce speeds. A reevaluation of this roadway segment will be scheduled by staff in the future.

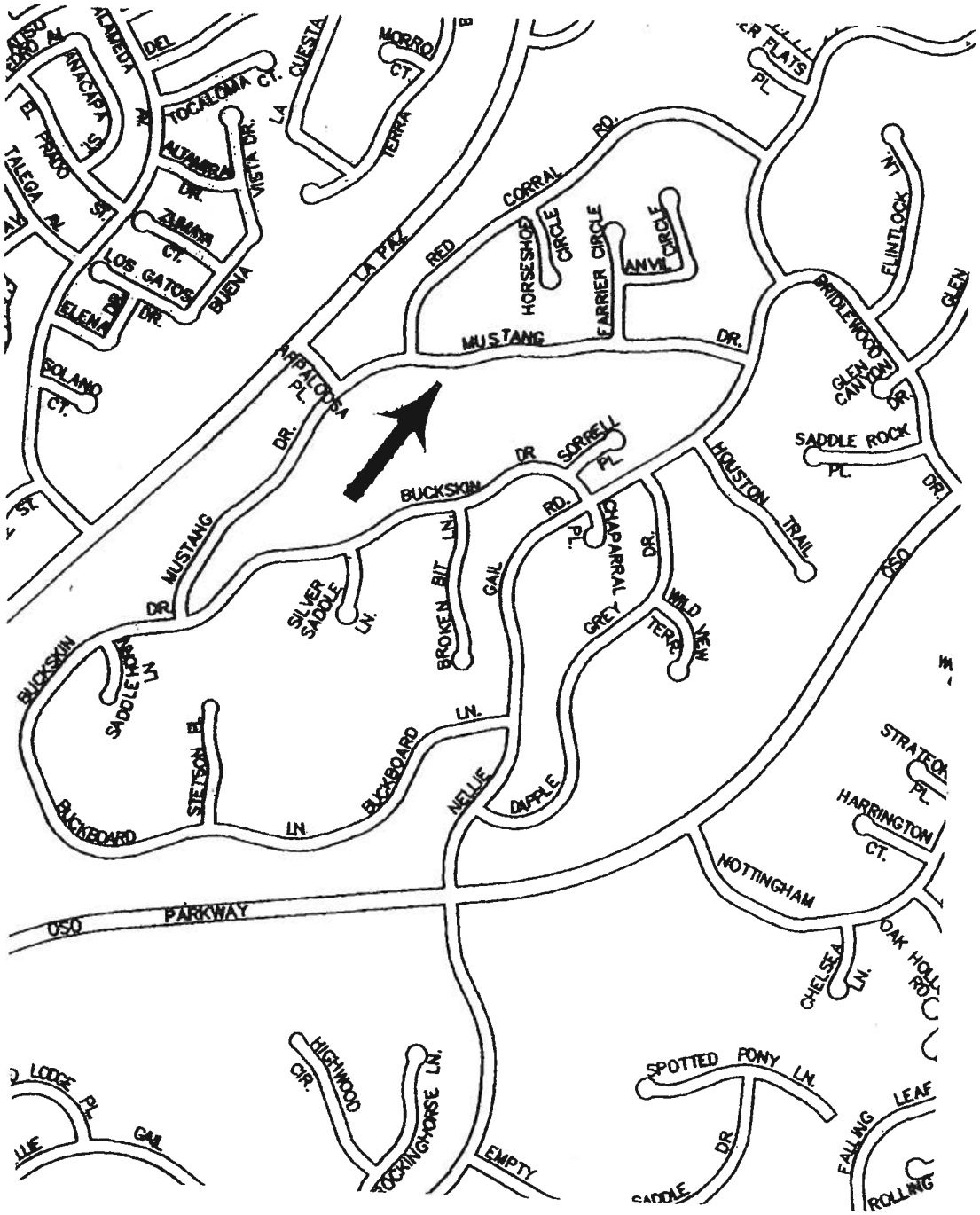
FISCAL IMPACT:

The painting of yellow "skip" centerline striping with reflective yellow raised pavement markers along Mustang Drive from Nellie Gail Road to Appaloosa Place has an estimated cost of $750 and funds are available for this work in the Fiscal Year 2011-2012 Public Works Maintenance Budget.

RECOMMENDATION: THAT THE TRAFFIC COMMISSION RECOMMEND TO THE CITY COUNCIL THE ADDITION OF YELLOW "SKIP" CENTERLINE STRIPING ALONG WITH ADDITIONAL TRAFFIC ENFORCEMENT AND THE CONTINUED USE OF THE RADAR SPEED TRAILER ALONG MUSTANG DRIVE FROM NELLIE GAIL ROAD TO APPALOOSA PLACE.

ATTACHMENTS:

- Vicinity Map
- Survey Results
- CA MUTCD Figure 3B-1, Example of Two-Lane, Two-Way Marking Application



VICINITY MAP

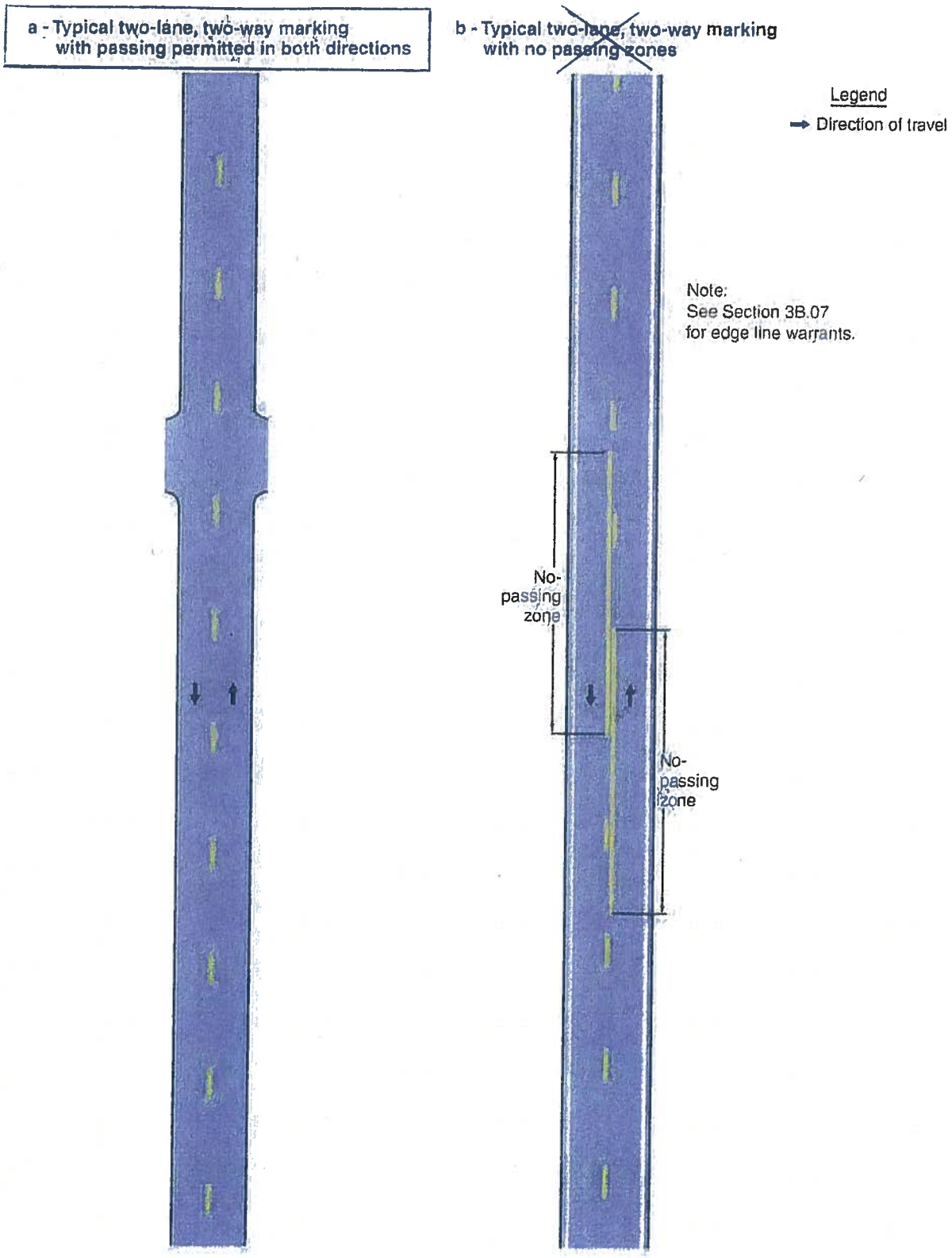
9/21/2011 ITEM NO. 4.2

SURVEY RESULTS
MUSTANG DRIVE CENTERLINE STRIPING

38 SURVEYS MAILED/22 RECEIVED		SPECIFIC COMMENTS BY QUESTION
1. I support the installation of yellow centerline "skip" striping along Mustang Drive from Nellie Gail Road to Appaloosa Place	❑ Support 13 ❑ Oppose 9	Unconvinced this would deter speeding. Speed bump would be preferable. Strongly oppose centerline striping, prefer speed bumps. Concerned striping will visually destroy the beauty of the street and neighborhood.
2. There is a traffic speeding problem on Mustang Drive.	❑ Agree 17 ❑ Disagree 3 *1 No Response *1 Sometimes 3-6 p.m.	Yes, potential danger to children and animals. Speed bumps please. Stop signs at Farrier Circle and/or Red Corral Road would help too.
General Comments:		The street is not wide enough when cars are parked on both sides of the street to need a centerline.

9/21/2011 ITEM NO. 4.2

Figure 3B-1. Examples of Two-Lane, Two-Way Marking Applications



JULY 20, 2011 ITEM NO. 4.2
9/21/2011 ITEM NO. 4.2

9/21/2011 ITEM NO. 4.2

CITY OF LAGUNA HILLS
TRAFFIC COMMISSION
AGENDA REPORT
TRAFFIC ENGINEER DEPARTMENT

ISSUE: PARKING CONTROLS SURVEY WITHIN THE MANDEVILLE DRIVE AREA NEIGHBORHOOD

SUMMARY:

Residents of Mandeville Drive and adjacent streets have voiced concerns regarding undesired on-street parking emanating from the adjacent Crestline Homeowners Association development. Previously, in order to address this issue, a Permit Parking Program was implemented along Gordon Road to the benefit of Crestline to alleviate overflow parking on the nearby public streets of Mandeville Drive to the south and La Cienega Drive to the east. Due to the recent complaints, and upon request of the Traffic Commission at its meeting of July 20, 2011, City Council approved a No Parking Anytime red curb zone on the north side of Mandeville Drive from Moulton Parkway to the drive approach of 24441 Mandeville Drive, and has also performed a parking control survey of the "Mandeville Drive area neighborhood" and the "La Cienega Street area neighborhood." The results of the surveys indicate that the majority of residents on Mandeville Drive, Santa Rosa Avenue, Alta Loma Court, and Sundance Avenue are in favor of a Permit Parking Program. The majority of residents on La Cienega Street and Los Cerros Street are against the establishment of a Permit Parking Program but are in favor of a Parking Restriction during Street Sweeping. It is now recommended that the survey results be shared with each neighborhood area with a request for a "majority vote" of concurrence from the residents be received prior to making a final recommendation to the Traffic Commission.

BACKGROUND:

Residents of the Mandeville Drive neighborhood have raised concerns that residents of the Crestline Homeowners Association continue to park overnight along Mandeville Drive, impacting the parking supply and affecting the integrity of the neighborhood. After similar complaints to the City in 2006/2007, the City established a Permit Parking Program along Gordon Road to the benefit of Crestline in order to accommodate parking overflow. The Permit Parking Program successfully reduced parking on Mandeville Drive and on other adjacent public streets until recently when staff started receiving additional complaints about undesired parking. Staff contacted the Crestline Homeowners Association requesting them to remind their residents of the Permit Parking Program along Gordon

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RECOMMENDATION: THAT THE TRAFFIC COMMISSION CONTINUE THIS MATTER TO THE MEETING OF NOVEMBER 16, 2011.

Road in order to reduce overflow onto Mandeville Drive and other adjacent streets. The HOA has issued an article regarding this matter in their newsletter and they also mentioned to the City that they have not implemented any changes to their current parking regulations that would have triggered their residents to park on adjacent public streets.

Upon the request of the Traffic Commission at its meeting of July 20, 2011, the City Council established a No Parking Anytime red curb zone on the north side of Mandeville Drive from Moulton Parkway to approximately 50 feet easterly to the drive approach of 24441 Mandeville Drive in order to address complaints by the resident residing at 24441 Mandeville Drive. In addition, the formerly proposed no overnight parking zone on the Southside of Mandeville Drive from Moulton Parkway to Santa Rosa Avenue was deferred pending the results of a survey of residents.

Staff implemented a survey of the residents of Mandeville Drive, Santa Rosa Avenue, Alta Loma Court, Sundance Avenue, (the "Mandeville Drive area neighborhood") La Cienega Street and Los Cerros Street (the "La Cienega Street area neighborhood") to determine parking preferences within their neighborhoods. One hundred and twenty-four (124) surveys were sent out on August 29, 2011. Sixty-six (66) surveys were returned, 53% combined, from both neighborhood areas. The survey results indicate that the majority of respondents in the Mandeville Drive area neighborhood favor new parking regulations such as "No Overnight Parking" or a Permit Parking Program. One-half of those respondents are in favor of a Street Sweeping Parking regulation while the other one-half are not. The survey responses also showed the majority of residents in the La Cienega area neighborhood are against new parking regulations; however, they do support a Street Sweeping Parking regulation. Please see attached survey results.

Under a Permit Parking Program in the Mandeville Drive area neighborhood, the City can control the type and number of vehicles that would be allowed to park on these streets. Permits can be issued to vehicles registered along these streets, along with guests, upon request by the residents. Typically, an annual $15 fee is charged for "permanent" permits per vehicle.

A No Parking regulation during Street Sweeping in the La Cienega area neighborhood would not only force "out-of-neighborhood" vehicles to be removed once a week, it would also allow the full length of the roadways to be cleaned by removing debris and materials that can become stagnant and reach the storm drain system, hence, potentially affecting water quality.

The vehicles currently utilizing streets within the Mandeville Drive area neighborhood for parking continue to do so legally, regardless of where the drivers reside. These public streets are open for any member of the public to park at any time for up to 72 hours at any one time. Hence, upon discussion with the Sheriff's department, staff decided not

to run a vehicle registration check as requested by the Traffic Commission on the vehicles parked along the streets in the Mandeville Drive area neighborhood.

Staff feels it is important to give all the residents of the Mandeville Drive area neighborhood and of the La Cienega Street area neighborhood the results of the surveys prior to asking the Traffic Commission to make a recommendation to the City Council. We want to ask each neighborhood to confirm their "majority vote" as to parking controls desired prior to implementing a significant change to the neighborhoods. The current survey response of 53% is of concern as it leads to a potential reliance of just over 25% of the residents becoming a "majority" in making the parking control changes. Therefore, staff recommends continuing this matter to the next Traffic Commission Meeting. In the meantime, staff will advise all residents of the outcome of the survey, the likely parking control recommendation, and request that they provide a final "vote" of their parking control preference.

FISCAL IMPACT:

The establishment of a Permit Parking Zone on Mandeville Drive, Santa Rosa Avenue, Alta Loma Court, and Sundance Avenue and the establishment of a No Parking During Street Sweeping on Sierra Bonita Drive, La Cienega Street, and Los Cerros Street would require new signage in the amount of approximately $3,000. Funds are available for this work in the Fiscal Year 2011-2012 Public Works Maintenance Budget.

RECOMMENDATION: THAT THE TRAFFIC COMMISSION CONTINUE THIS MATTER TO THE MEETING OF NOVEMBER 16, 2011.

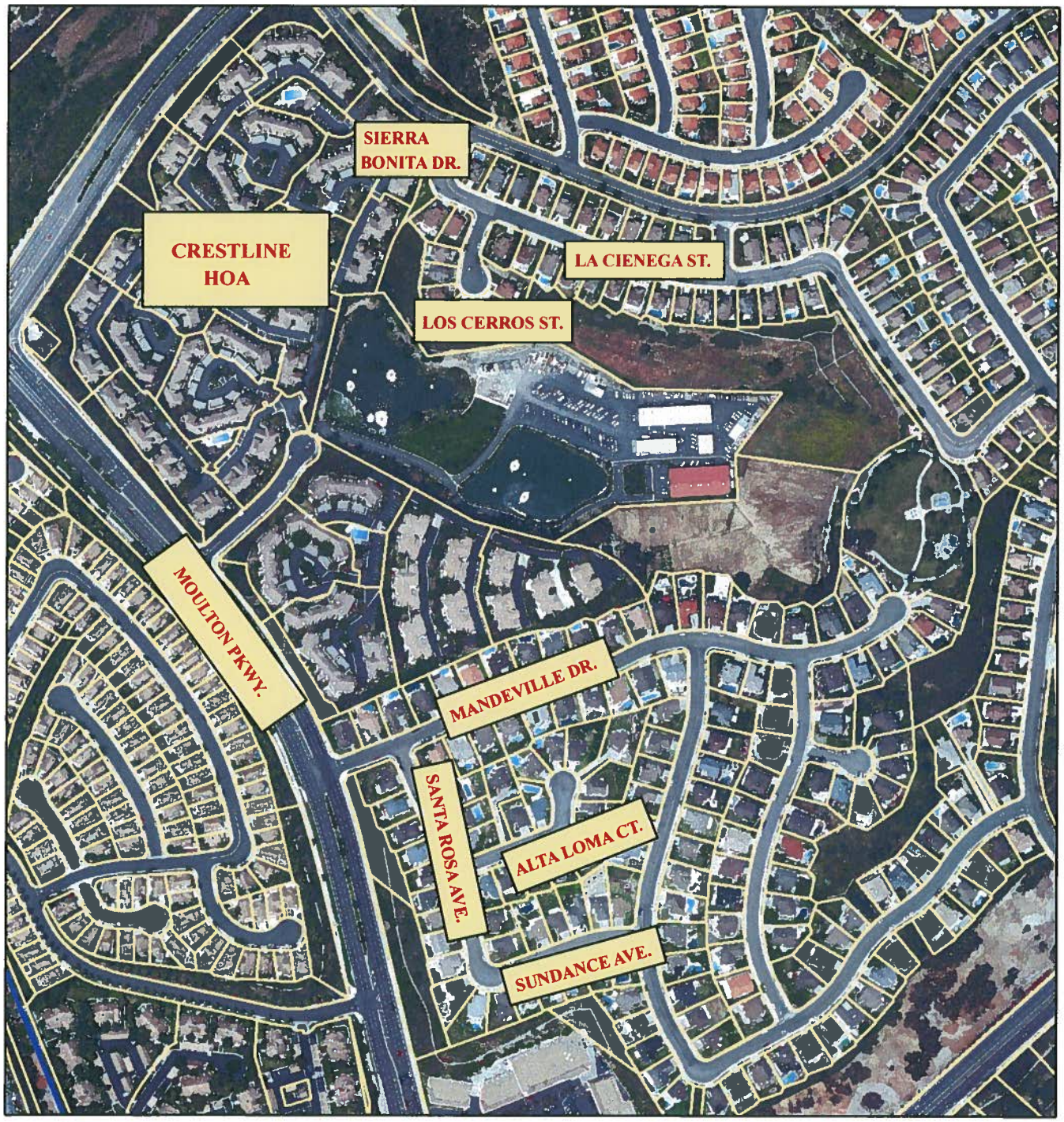
ATTACHMENTS:

- Vicinity Map
- Survey Results

9/21/2011 ITEM NO. 4.3

City of Laguna Hills

VICINITY MAP



420 0 420 Feet

Date Created: 9/15/2011

9/21/2011 ITEM NO. 4.3

9/21/2011 ITEM NO. 4.3

SURVEY RESULTS
MANDEVILLE DR/SANTA ROSA AVE/ALTA LOMA CT/SUNDANCE AVE

84 SURVEYS MAILED/40 RECEIVED		SPECIFIC COMMENTS BY QUESTION
1. Parking of vehicles on the public street in front of or near my home is a concern to me.	❑ Yes 27 ❑ No 13	Great idea for safety, cleanliness and property values! Very much.
2. New parking regulations are needed on my street.	❑ Yes 25 ❑ No 15	Great idea for safety, cleanliness and property values!
3. I would support a "No Overnight Parking" control on my street, such as "No Parking from 2:00 a.m. to 6:00 a.m."	❑ Yes 23 ❑ No 17	Great idea for safety, cleanliness and property values! Many communities have gone to a no parking policy from 2:00 a.m. to 6:00 a.m. This benefits all homeowners with an increase in neighborhood appeal and security. The easiest solution. Absolutely necessary!
4. I would support the establishment of a permit parking control on my street that would significantly limit the ability of vehicles to park on my street.	❑ Yes 24 ❑ No 16	Great idea for safety, cleanliness and property values!
5. I would support a no parking designation on my street during the hours and days of street sweeping.	❑ Yes 20 ❑ No 20	

SURVEY RESULTS
LA CIENEGA ST/LOS CERROS ST

40 SURVEYS MAILED/26 RECEIVED		SPECIFIC COMMENTS BY QUESTION
1. Parking of vehicles on the public street in front of or near my home is a concern to me.	❑ Yes 15 ❑ No 11	
2. New parking regulations are needed on my street.	❑ Yes 11 ❑ No 14 *1 No Response	Including Sierra Bonita and La Cienega, becoming a parking lot with cars being left to work on and trash.
3. I would support a "No Overnight Parking" control on my street, such as "No Parking from 2:00 a.m. to 6:00 a.m."	❑ Yes 8 ❑ No 17 *1 No Response	As long as permitted resident can park on street overnight. Absolutely not.
4. I would support the establishment of a permit parking control on my street that would significantly limit the ability of vehicles to park on my street.	❑ Yes 11 ❑ No 13 *2 No Response	How many per household, cost, convenience? No overnight parking from 12 midnight to 6:00 a.m. unless permitted.
5. I would support a no parking designation on my street during the hours and days of street sweeping.	❑ Yes 14 ❑ No 12	

General Comments:	The problem of non-resident vehicles in the Moulton/La Paz Association area only seems to exist in the Mandeville-Santa Rosa area. Overnight parking has increased over the last year and a half. Adequate parking available at adjacent condominium development. Parking at corner of Mandeville Drive and Moulton Parkway creates a hazard. Crestline should accommodate their residents.

9/21/2011 ITEM NO. 4.3

CITY OF LAGUNA HILLS
TRAFFIC COMMISSION
AGENDA REPORT
TRAFFIC ENGINEER DEPARTMENT

ISSUE: EVALUATION OF TRAFFIC SPEEDS ON LAGUNA HILLS DRIVE

SUMMARY:

A resident of the community requested a speed survey along Laguna Hills Drive due to a concern of excessive traffic speeds. Staff implemented a standard evaluation of the traffic speeds on that roadway by taking radar speed surveys during the morning and afternoon peak period on August 4, 2011. The results of the speed surveys indicate the average 85th percentile speed is 48.8 miles per hour (mph) in the morning and an average of 51.6 mph in the afternoon, which are viewed as not excessive for a street with a 45 mph speed limit. The speed in the afternoon period is slightly higher and staff is recommending additional law enforcement along with placement of the radar speed trailer at this location during the afternoon.

BACKGROUND:

Laguna Hills Drive is a four-lane arterial roadway in the central portion of the City which traverses between Paseo De Valencia and Moulton Parkway in a curvilinear fashion, see attached vicinity map. Mr. Allan Cusolito, a resident of 20 Aspen Creek Lane, Laguna Hills, expressed a concern about the speed of traffic at the July 12, 2011, City Council meeting. Staff implemented our standard practices of data collection for the traffic speed conditions on the street.

Radar speed surveys were collected on Laguna Hills Drive between Paseo De Valencia and Moulton Parkway on August 4, 2011, during the morning and afternoon peak periods. The 85th percentile speed, the speed at which 85 percent of the motorists are driving at or below, an indicator speed, during the morning peak period was 47.7 mph from 7 AM to 8 AM, and 49.8 mph from 8 AM to 9 AM. During the afternoon peak period, the 85th percentile speed was 52 mph from 4 PM to 5 PM, and 51.1 mph from 6 PM to 7 PM.

For a posted 45 mph speed limit street, these speed results are not considered to be

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RECOMMENDATION: THAT THE TRAFFIC COMMISSION RECOMMEND TO THE CITY COUNCIL TO DIRECT INCREASED POLICE ENFORCEMENT FOR SPEED ISSUES ON LAGUNA HILLS DRIVE FROM PASEO DE VALENCIA TO MOULTON PARKWAY.

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significant. The raw speed data that was collected by the City in 2007 reflected an off-peak 85th percentile speed of 48.4 mph. This speed is consistent with the 2011 data in the AM peak period, but there is slight increase in speed in the PM peak period.

The radar speed trailer was also placed along this location on August 8, 2011, for a six hour period, and it revealed that the 85th percentile speed was 50 mph. Mr. Cusolito requested that the City consider the installation of a "permanent" radar speed sign in an effort to reduce speeds by notifying motorists of the speeds at which they are driving. He also stated that the Homeowners Association may be willing to pay for the sign if the City is willing to have it installed. Staff remains of the position that a radar speed sign is not necessary and will not affect motorist speed beyond what the radar speed trailer currently can provide. If the slight speeding is occurring with the placement of the radar speed trailer, it will continue with the installation of a radar speed sign as well. Traffic speed enforcement will influence driver behavior.

In accordance with the City's incremental approach to resolving traffic speed issues, staff is recommending increased law enforcement along with placement of the radar speed trailer during the afternoons on a regular basis.

FISCAL IMPACT:

There is no fiscal impact with the current recommendation.

RECOMMENDATION: THAT THE TRAFFIC COMMISSION RECOMMEND TO THE CITY COUNCIL TO DIRECT INCREASED POLICE ENFORCEMENT FOR SPEED ISSUES ON LAGUNA HILLS DRIVE FROM PASEO DE VALENCIA TO MOULTON PARKWAY.

ATTACHMENTS:

- Vicinity Map
- August 10, 2011 Hartzog & Crabill, Inc. Report

City of Laguna Hills

VICINITY MAP

630 0 630 Feet

Date Created: 8/29/2011

9/21/2011 ITEM NO. 4.4

9/21/2011 ITEM NO. 4.4

HARTZOG & CRABILL, Inc.

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

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August 10, 2011

Mr. Kenneth H. Rosenfield, P.E.
Director of Public Services
City of Laguna Hills
24045 El Toro Road
Laguna Hills, CA 92653

Subject: Summary of Findings– Speeding Concerns – Laguna Hills Drive Between Moulton Parkway and Paseo De Valencia

Dear Mr. Rosenfield:

Pursuant to your request, Hartzog & Crabill, Inc. (HCI) has prepared this letter summarizing travel speeds on the segment of Laguna Hills Drive between Moulton Parkway and Paseo De Valencia.

To determine travel speeds on the subject segment of Laguna Hills Drive, a certified radar technician using a calibrated radar gun conducted radar speed surveys during morning and afternoon peak periods. The morning and afternoon surveys were performed on Thursday, August 4, 2011 between 7:00 AM to 9:00 PM and 4:00 PM and 6:00 PM. Table 1 below summarizes the results of the speed survey:

TABLE 1

RADAR SPEED SURVEY SUMMARY	Aug. 4, 2011 7:00-8:00/8:00-9:00	Aug. 4, 2011 4:00-5:00/6:00-7:00
85th Percentile Speed	47.7/49.8 mph	52.0/51.1 mph
Median Speed	44.0/44.7 mph	46.6/46.1 mph
15th Percentile Speed	40.1/39.3 mph	41.1/39.5 mph
10 MPH Pace	41-50/41-50 mph	43-52/43-52 32 mph
Percent in 10 MPH Pace	79.5/68.9%	67.4/65.7%

Source: Hartzog & Crabill, Inc., 2011.

As shown in Table 1, the 85th percentile speeds on this segment of Laguna Hills Drive are 47.7 and 49.8 mph during the morning peak periods, and 52.0 and 51.1 mph in the afternoon peak periods respectively. The data show that travel speeds are higher in the afternoon peak periods.

Laguna Hills Drive is a four (4)-lane roadway with a posted speed limit of 45 mph. Adjacent land uses include the Laguna Hills High School and non-fronting residential properties. Observations also note the presence of on-street parking, pedestrians and bicyclists.

Radar speed data collected in 2007 reflected an off-peak 85th percentile speed of 48.4 mph indicating relative consistency between the 2007 and 2011 data in the AM peak periods.

The current data show speeding is occurring in the afternoon peak periods. Therefore, it is recommended that an incremental approach be taken to slow travel speeds. Initial steps include increased law enforcement accompanied by the use of a portable radar speed feedback trailer in the afternoon peak periods.

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

Very Truly Yours,
HARTZOG & CRABILL, INC.

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

Attach: Speed Survey Field Sheets

CITY OF LAGUNA HILLS

OCTOBER 2011

RADAR TRAILER SCHEDULE

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4 San Remo N/B Mid-Block 30 MPH	5 Bridlewood S/O Laurel Crest 25 MPH	6 Mustang W/O Appaloosa 25 MPH	7	8
9	10	11 Santa Vittoria S/O San Remo 30 MPH	12 Woodbluff E/O Greenhills 25 MPH	13 Laguna Hills W/O P D Valencia 45 MPH	14	15
16	17	18 Rapid Falls W/O Sundowner 25 MPH	19 Glen Canyon S/O Nellie Gail 25 MPH	20 Buckboard S/O Buckskin 25 MPH	21	22
23 30	24 31	25 Stageline W/O Hidden Trail 25 MPH	26 Lost Colt W/O Stageline 25 MPH	27 Bridlewood S/O Laurel Crest 25 MPH	28	29

9/21/2011 ITEM NO. 5.1

9/21/2011 ITEM NO. 5.1

CITY OF LAGUNA HILLS

November 2011

RADAR TRAILER SCHEDULE

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 Wood Bluff E/O Green Hills 25 MPH	2 Nellie Gail S/O Buckskin 30 MPH	3 Stageline W/O Hidden Trail 25 MPH	4	5
6	7	8 Nellie Gail W/O Empty Saddle 25 MPH	9 Nellie Gail S/O Prairestone 25 MPH	10 Lost Colt E/O Beargrass 25 MPH	11 HOLIDAY	12
13	14	15 Glen Canyon N/O Bridlewood 25 MPH	16 Mustang Mid-block 25 MPH	17 San Remo N/B Mid-block 30 MPH	18	19
20	21	22 Oso Pkwy E/O Bridlewood 50 MPH	23 Nellie Gail N/O Dapple Grey 30 MPH	24 HOLIDAY	25 HOLIDAY	26
27	28	29 Laguna Hills Dr W/O P D Valencia 45 MPH	30 Santa Vittoria N/O Barbera 30 MPH			

Rainy Days Excluded