



**CITY OF LAGUNA HILLS
TRAFFIC COMMISSION
REGULAR MEETING AGENDA
MAY 18, 2016
7:00 PM**

Steven Beeuwsaert - Chair

**Mark Jones - Vice Chair
Greg Staar - Commissioner**

**Mike Caputo - Commissioner
Larry Woodruff - Commissioner**

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

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

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

CALL TO ORDER

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

PLEDGE OF ALLEGIANCE

ROLL CALL OF COMMISSION MEMBERS

1. PUBLIC COMMENTS

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

2. MINUTES**3. PRESENTATIONS****4. ADMINISTRATIVE REPORTS**

- 4.1 PARKING CONTROLS ON MILL CREEK DRIVE NORTHERLY OF RIDGE ROUTE DRIVE
- 4.2 CONFIRMATION OF NO PARKING ZONES ON DEL LAGO DRIVE BETWEEN ALCALDE DRIVE AND LA CADENA DRIVE
- 4.3 DRAFT TRAFFIC SIGNAL MASTER PLAN UPDATE

5. INFORMATIONAL ITEMS

- 5.1 SHERIFF'S DEPARTMENT VERBAL REPORT
- 5.2 RADAR SPEED TRAILER

6. COMMISSIONER COMMENTS**7. ADJOURNMENT**

The next Regular Meeting of the Traffic Commission will be July 20, 2016, at 7:00 PM, in the City Council Chamber, located at 24035 El Toro Road, Laguna Hills, California.

CERTIFICATION

I, KENNETH H. ROSENFELD, Director of Public Services/City Engineer of the City of Laguna Hills, do hereby certify that a copy of the foregoing Agenda was posted at Laguna Hills City Hall, Laguna Hills Community Center, and the Courtyard at La Paz Center by May 12, 2016, at 5:00 PM.



KENNETH H. ROSENFELD
DIRECTOR OF PUBLIC SERVICES/
CITY ENGINEER

May 18, 2016

DATE

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

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

**CITY OF LAGUNA HILLS
TRAFFIC COMMISSION MEETING
ADJOURNED REGULAR MEETING MINUTES
MARCH 23, 2016**

CALL TO ORDER

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

PLEDGE OF ALLEGIANCE

The Pledge of Allegiance was led by Chair Beeuwsaert.

ROLL CALL OF COMMISSION MEMBERS

Present: Chair Steven Beeuwsaert, Vice Chair Mark Jones, Commissioner Mike Caputo, Commissioner Greg Staar and Commissioner Larry Woodruff

Director of Public Services/City Engineer Kenneth H. Rosenfield, informed the Traffic Commission of an inadvertent technical error at the January 27, 2016, Traffic Commission meeting, which caused the exterior doors of City Hall to lock at 7:00 PM. While there were members of the public at the January 27th meeting, other members of the public stated they were unable to attend the meeting. Therefore, Mr. Rosenfield stated it was appropriate to repeat the action items from the January 27th meeting for the Election of Chair and Vice Chair, and Review of Beckenham Street Parking Conditions.

1. ELECTION OF CHAIR

Motion was made by Chair Beeuwsaert to open nominations to elect a new Chair. Commissioner Mike Caputo nominated Chair Steven Beeuwsaert. The nomination was seconded by Commissioner Larry Woodruff. There were no further nominations.

APPROVED BY A VOTE OF 5-0

2. ELECTION OF VICE CHAIR

Motion was made by Chair Beeuwsaert to open nominations to elect a new Vice Chair. Commissioner Larry Woodruff nominated Vice Chair Mark Jones. The nomination was seconded by Commissioner Greg Staar. There were no further nominations.

APPROVED BY A VOTE OF 5-0

**CITY OF LAGUNA HILLS
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MARCH 23, 2016**

3. PUBLIC COMMENTS

Resident David Oslinker of Laguna Village, addressed the Commission regarding street sweeping on Mill Creek Road. Mr. Oslinker requested the City post no parking signs on the days and times of street sweeping on Mill Creek Road, to allow the street sweeper to sweep the street more efficiently.

4. MINUTES

**THE TRAFFIC COMMISSION APPROVED THE MINUTES OF THE JANUARY 27, 2016, ADJOURNED REGULAR MEETING, BY M/COMMISSIONER STAAR, S/COMMISSIONER WOODRUFF.
APPROVED BY A VOTE OF 5-0**

5. PRESENTATIONS

There were no Presentations.

6. ADMINISTRATIVE REPORTS

6.1 REVIEW OF BECKENHAM STREET PARKING CONDITIONS

Director of Public Services/City Engineer, Kenneth H. Rosenfield, indicated over the course of the past 18 months, staff has responded to resident concerns regarding an increase in overnight parking activity on Beckenham Street. The Traffic Commission has reviewed the existing parking regulations, the results of multiple night surveys of vehicle parking and considered several parking control options to address residents concerns. Most recently, the City Council discussed the potential creation of a Permit Parking Zone on Beckenham Street with Permits being made available only to residents of the Acacia Knolls community and the Sunset Place community. However, after public comments on this proposal, the City Council requested an alternate approach of the addition of a no overnight parking zone on the southerly side of Beckenham Street across the frontage of Acacia Knolls. Director Rosenfield indicated this regulation was implemented as of November 30, 2015, and staff had performed before and after parking counts on Beckenham Street. The most recent survey on March 8, 2016, indicated the new parking regulation on Beckenham Street did not have a significant impact on night parking usage on the nearby streets of Sunset Place West, Sunset Place East, Costeau Street or Camberwell Street. Vehicle parking in the area continues to occur in a legal manner and has not consumed the

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available parking supply. Director Rosenfield indicated that unless new information or concerns are expressed about the newly established No Parking Zone, staff recommends that no further parking control options need to be considered at this time.

Director Rosenfield indicated the City Council also requested staff look at extending parking on Laguna Hills Drive to address overflow parking from Beckenham Street. Director Rosenfield stated parking on the City's arterial highways is generally prohibited for traffic flow and operational purposes, but Laguna Hills Drive is one of the few exceptions. There is a Permit Parking Zone on a portion of the north side of Laguna Hills Drive westerly of Paseo de Valencia that exists for the sole benefit of the medical office uses at that corner. Open parking is not permitted on the north side of Laguna Hills Drive to avoid its daily use by students of Laguna Hills High School and the resultant potential undesirable mid-block student-pedestrian crossing of this arterial highway. Day time parking only is allowed on the south side of Laguna Hills Drive to accommodate student parking needs. There is no overnight parking on Laguna Hills Drive in the area easterly of Paseo de Valencia. While nightly parking on the north side of Laguna Hills Drive, beyond the existing Permit Parking Zone could be allowed, beginning 1000' westerly of Paseo de Valencia, it may not be necessary and it may be too distant to be effective to pull parking off of Beckenham Street. In the alternative, the Permit Parking Zone could be expanded or modified in favor of "first come, first served" utilization of the potential parking supply with permits offered to City residents, but this alternative raises other issues, particularly for the medical office building. Director Rosenfield indicated staff recommends that no action on this parking supply option be pursued at this time.

Resident Dee Dee Gollwitzer of Sunset Place, spoke in favor of permit parking on Laguna Hills Drive, and concerns about potential overflow parking onto Sunset Place, if permit parking were extended on Beckenham Street.

Resident Lou Greenleaf of Acacia Knolls, requested the City allow residents of Acacia Knolls to park on Beckenham Street, in the no overnight parking section, while Acacia Knolls performs upcoming curb, gutter and asphalt repairs.

Resident Norma Sangalang of Acacia Knolls, spoke in favor of permit parking on Beckenham Street.

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Resident Hugh Meador of Acacia Knolls, spoke in favor of permit parking on Beckenham Street.

Resident Gary Steinberg of Sunset Place, spoke in favor of permit parking on Laguna Hills Drive, and against permit parking on Beckenham Street.

Resident Nancy Yuu of Acacia Knolls, stated the parking conditions are difficult for the Acacia Knolls residents.

Debbie Rey, HOA President for Acacia Knolls, stated there are 99 units in Acacia Knolls, 25% of the units do not have driveways and Acacia Knolls only has 26 guest parking spaces. Ms. Rey spoke in favor of permit parking on Beckenham Street.

**THE TRAFFIC COMMISSION RECEIVED AND FILED THE REPORT, BY
M/COMMISSIONER WOODRUFF, S/COMMISSIONER STAAR.
APPROVED BY A VOTE OF 5-0**

**6.2 REVIEW OF HON AVENUE TO KENNINGTON DRIVE PASS-
THROUGH TRAFFIC AND TRAFFIC SPEED CONDITIONS NEAR
CLARINGTON PARK**

Director Rosenfield indicated a resident recently contacted staff with an expressed concern that the residential neighborhood northerly of Alicia Parkway (referred to as the Missions Planned Community), which is accessed via Alicia Parkway/Hon Avenue and Paseo de Valencia/Kennington Drive, was a “major cut-through” for drivers intending to avoid traffic conditions along either or both Alicia Parkway and Paseo de Valencia. There was also an expressed concern over traffic vehicle speed near Clarington Park and a request for Speed Humps. Staff initiated an evaluation of the above issues and retained the consulting firm of Hartzog and Crabill, Inc., to evaluate the field conditions. Hartzog and Crabill, Inc., initiated an Origin and Destination Study, which determined a 19% pass-through condition of traffic during the three-hour study period. The vehicular traffic speed in the report found an 85th percentile speed, the speed at which 85% of the drivers are driving at or below, to be 29 mph near Clarington Park. The 10 mile per hour pace was 20 to 29 mph covering 82% of all vehicles. The expected traffic speed on a 25 mph speed limit street has been shown to be between 32 and 34 mph. However, in this case, the traffic speed was consistent with the speed limit. The use of physical devices to address traffic conditions is addressed in the City’s Residential Streets Management Policy, which states,

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ADJOURNED REGULAR MEETING MINUTES
MARCH 23, 2016**

relative to speed humps, that these devices will only be considered when all other traffic control options and police enforcement have been exhausted and where the prevailing speed of traffic is greater than 34 mph for two speed surveys taken one month apart. In the current evaluation, the vehicular traffic speed does not support considering physical devices. Director Rosenfield stated the survey results of a 19% pass-through condition and an 85th percentile speed of 29 mph were not unusual or inconsistent with the usage of these roadways.

**THE TRAFFIC COMMISSION RECEIVED AND FILED THE REPORT, BY
M/VICE CHAIR JONES, S/COMMISSIONER STAAR.
APPROVED BY A VOTE OF 5-0**

7. INFORMATIONAL ITEMS

7.1 SHERIFF'S DEPARTMENT PRESENTATION

Sergeant Prince gave a verbal report updating the Traffic Commission on traffic issues in the City. Sergeant Prince updated the Commission on the Sheriff's response to the Beckenham Street vehicle vandalism, and reported they have increased patrols in the area. Staff selected a Deputy to fill a vacant Motor Deputy position, and pending successful completion of training, the new Motor Deputy should begin patrol in the summer. Sergeant Prince acknowledged Motor Deputy Joseph Bucaro, who has worked extra hours to help backfill the vacant Motor Deputy position. Deputy Bucaro successfully interacts with the public and is excellent with public relations, and has provided the City with a balanced traffic index rating. Sergeant Prince stated Deputy Bucaro is making a difference for the safety of our community.

7.2 RADAR SPEED TRAILER

Staff submitted the schedule for the radar trailer. Staff stated resident Mike Bland on Lost Colt Drive, requested the trailer be placed in a different location on Lost Colt Drive, and staff is accommodating Mr. Bland's request.

8. COMMISSIONER COMMENTS

Commissioner Mike Caputo

Commissioner Caputo wanted to thank Deputy Joseph Bucaro for his service.

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Chair Steven Beeuwsaert

Chair Beeuwsaert recommended the Traffic Commission request the City Council acknowledge Deputy Joseph Bucaro for his service to the community.

7. ADJOURNMENT

There being no further business before the Traffic Commission at this session, Chair Beeuwsaert declared the meeting adjourned at 8:03 p.m.

Prepared by:

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

Approved By:

STEVEN BEEUWSAERT, CHAIR



City of Laguna Hills Traffic Commission Staff Report

DATE: May 18, 2016

TO: TRAFFIC COMMISSIONERS

FROM: KENNETH H. ROSENFELD, P.E.
DIRECTOR OF PUBLIC SERVICES/CITY ENGINEER

ISSUE: PARKING CONTROLS ON MILL CREEK DRIVE NORTHERLY OF RIDGE
ROUTE DRIVE

RECOMMENDATION: THAT THE TRAFFIC COMMISSION RECOMMEND TO THE
CITY COUNCIL THE ESTABLISHMENT OF NO PARKING
ZONES AT SELECT LOCATIONS OF MILL CREEK DRIVE
NORTHERLY OF RIDGE ROUTE DRIVE.

SUMMARY:

In response to a resident comment at the March 23, 2016, Traffic Commission meeting, staff has reviewed parking conditions on Mill Creek Drive northerly of Ridge Route Drive relative to conflicts with street sweeping activity. Staff has observed approximately 30 vehicles legally parking on Mill Creek Drive on a regular basis in this general location. The parking does conflict with the weekly street sweeping of this collector street. The City has not established a citywide street sweeping parking control and one does not currently exist on Mill Creek Drive. However, one of the goals of street sweeping is to clean the storm drain catch basin inlets and two inlets are blocked from street sweeping by the observed parking. Hence, staff recommends an interim step of establishing a no parking zone on both the easterly and westerly side of Mill Creek Drive in the immediate vicinity of the identified catch basin inlets.

BACKGROUND:

A resident of the community addressed the Traffic Commission at the meeting of May 23, 2016, with an expressed concern that street sweeping is not effectively being performed due to parked vehicles blocking the gutter along Mill Creek Drive from Ridge Route Drive to several hundred feet northerly. Street Sweeping occurs on Mill Creek Drive on a weekly basis as a part of the arterial highway sweeping schedule. There are not any parking controls on Mill Creek Drive in this area.

In response to this information, staff conducted three early morning observations of parking in this area on the day of street sweeping (Monday) as follows:

<u>Date</u>	<u>Westerly side Parked Vehicles</u>	<u>Easterly side Parked Vehicles</u>
4-18-2016	20	6
4-25-2016	20	3
5-02-2016	29	3

The parked vehicles are typically passenger vehicles emanating from the adjacent residential community of Laguna Village. Laguna Village spans from Mill Creek Drive to westerly of Santa Vittoria Drive both northerly and southerly of Ridge Route Drive. This 900 plus unit development primarily consists of private streets with only a few perimeter public streets. No parking is allowed on Ridge Route Drive, parking is allowed on Santa Vittoria Drive (with street sweeping day restrictions) and parking is allowed on Mill Creek Drive. While there is no vehicular access to Mill Creek Drive from Laguna Village, a number of homes are located adjacent to this street and the observed parking is an apparent convenience for the residents.

Staff has considered the application of a no parking control during the hours and days of street sweeping on Mill Creek Drive. To date, street sweeping parking controls have typically only been applied in locations requested by Homeowner Associations or by a petition of fronting residential property owners over an entire street segment. In this case, there are neither fronting residential properties nor a request by a Homeowner's Association.

The displacement of all parking as a result of a street sweeping parking control may be of limited benefit as only a short section of Mill Creek Drive street sweeping is impacted by the parking. The more critical element of street sweeping is to clean the catch basin inlet screens where trash and debris often collects. Staff proposes, as an interim measure, that no parking anytime zones be established in the vicinity of the two catch basin inlets as shown on the attached sketch. The no parking zones would be created as follows:

- 1) Northerly bound Mill Creek Drive from 340' to 420' northerly of Ridge Route Drive (length = 80').
- 2) Southerly bound Mill Creek Drive from 3335' to 3435' southerly of Lake Forest Drive (length = 100').

If these no parking zones do not improve the results of the street sweeping, then the City can revisit the issue and consider additional parking controls.

FISCAL IMPACT:

The creation of the above-described No Parking Anytime Zones will require the installation of up to four signs at an estimated cost of \$400. Funds for this work are included in the FY2015-16 Public Services Budget.

ATTACHMENTS:

- Mill Creek Drive Vicinity Map



NORTH

20m

POTENTIAL NO PARKING ZONES TO ACCESS CATCH BASINS
80ft MILL CREEK DRIVE NORTH OF RIDGE ROUTE DRIVE

Date: 05/09/16



5/18/2016 ITEM NO. 4.1



City of Laguna Hills Traffic Commission Staff Report

DATE: May 18, 2016

TO: TRAFFIC COMMISSIONERS

FROM: KENNETH H. ROSENFELD, P.E.
DIRECTOR OF PUBLIC SERVICES/CITY ENGINEER

ISSUE: CONFIRMATION OF NO PARKING ZONES ON DEL LAGO DRIVE
BETWEEN ALCALDE DRIVE AND LA CADENA DRIVE

RECOMMENDATION: THAT THE TRAFFIC COMMISSION RECOMMEND TO THE CITY COUNCIL THE CONFIRMATION OF EXISTING NO PARKING ZONES TO ADDRESS SITE DISTANCE VISIBILITY RESTRICTIONS AT VARIOUS LOCATIONS ON DEL LAGO DRIVE BETWEEN ALCALDE DRIVE AND LA CADENA DRIVE.

SUMMARY:

A proprietor on Del Lago Drive contacted staff with a concern about a lack of site distance visibility upon exiting a driveway serving 23288 Del Lago Drive. Upon field review, staff determined that a no parking zone southerly of this driveway location was needed and appropriate. A review of the governing documents for the No Parking Zones on Del Lago Drive between Alcalde Drive and La Cadena Drive revealed that they pre-date the City's annexation of this area and it is appropriate to confirm all of the parking controls on this street segment.

BACKGROUND:

Del Lago Drive is a business district two lane street providing access to the Mixed Use Zone of business developments from Lake Forest Drive to Alcalde Drive. The street is accessed by multiple driveways and is signed with a variety of parking controls to improve site distance visibility at these driveway access locations. A proprietor on Del Lago Drive recently contacted staff with a concern about a lack of site distance visibility upon exiting a driveway serving 23288 Del Lago Drive. Upon field review, staff determined that a no parking zone southerly of this driveway location was needed and appropriate.

During this review, it also appeared to staff that it was the original intention of the No Parking Zones in this area to include the section that was the source of the site distance constraint. However, the governing documents for the parking controls on Del Lago Drive between Alcalde Drive and La Cadena Drive pre-date the City's annexation of the area and this expectation could not be confirmed. Therefore, it is appropriate to confirm all of the No Parking Zones in this street segment which exist to improve site distance visibility upon exiting driveways. Please see the attached vicinity map for a location of the No Parking Zones as more particularly described below:

Northbound Del Lago Drive as measured from Alcalde Drive

<u>From</u>	<u>To</u>	<u>Distance</u>
240'	470'	230'
615'	740'	125'
960'	1180'	220'

Southbound Del Lago Drive as measured from La Cadena Drive

<u>From</u>	<u>To</u>	<u>Distance</u>
0'	60'	60'
125'	350'	225'
425'	675'	250'
730'	840'	110'
950'	1080'	130'

FISCAL IMPACT:

All of the no parking signs on Del Lago Drive are currently in place except for one sign to be added as discussed above. The estimated cost for this work is \$100 and funds are available for this work in the FY 2015-16 Public Services Budget.

ATTACHMENTS:

- Del Lago Drive Vicinity Map



 NORTH
100ft
45m
Date: 05/09/16

NO PARKING ZONES
DEL LAGO DRIVE



5/18/2016 ITEM NO. 4.2



City of Laguna Hills Traffic Commission Staff Report

DATE: May 18, 2016

TO: TRAFFIC COMMISSIONERS

FROM: KENNETH H. ROSENFELD, P.E.
DIRECTOR OF PUBLIC SERVICES/CITY ENGINEER

ISSUE: DRAFT TRAFFIC SIGNAL MASTER PLAN UPDATE

RECOMMENDATION: THAT THE TRAFFIC COMMISSION REVIEW THE 2016 TRAFFIC SIGNAL MASTER PLAN AND RECOMMEND APPROVAL BY THE CITY COUNCIL.

SUMMARY:

The Traffic Signal Master Plan serves as a planning document for the basis of considering the installation of new traffic signals where warranted and which meet other factors. The draft 2016 update to the Traffic Signal Master Plan is provided for the review of the Traffic Commission. Based upon data collection in 2015, up to five new traffic signals have been identified as meeting one or more State warrants. Traffic signals are not to be installed unless they meet such warrants, but are not required to be installed solely on the basis of meeting a warrant. Following the review of the Traffic Signal Master Plan, the plan will be submitted to the City Council for use as a planning document in the next budget cycle.

BACKGROUND:

The City utilizes a Traffic Signal Master Plan (TSMP) to aid in the planning of potential future installations of new traffic signals. The traffic engineers of Hartzog & Crabill, Inc., have recently updated the TSMP and the 2016 Draft TSMP is attached for the review of the Traffic Commission. The TSMP evaluates all arterial highway intersections that are not currently controlled by a traffic signal.

Traffic signals aid in traffic safety and traffic flow when they are installed at a location that meets certain standards. Traffic signals are only to be installed if they meet one or more "warrants" as established in the Traffic Manual of the State of California. However, traffic signals are not required to be installed solely because the site has met one or more warrants.

The TSMP applies the readily measurable warrants against data that was collected in 2015. This information primarily relies upon traffic volume counts, traffic collision history and the physical conditions of the site. The data analysis is followed by scoring criteria to aid in the prioritization of new Traffic Signals.

Staff will review the draft 2016 Traffic Signal Master Plan with the Traffic Commission and incorporate any comments into the final document, as needed.

ATTACHMENTS:

- Draft Traffic Signal Master Plan Update

DRAFT

**CITY OF LAGUNA HILLS
TRAFFIC SIGNAL MASTER PLAN
2016 PLAN UPDATE**

Prepared for:

**City of Laguna Hills
24035 El Toro Road
Laguna Hills, CA 92653**

**Attention: Mr. Kenneth H. Rosenfield, P.E.
Director of Public Services**

Presented by:

**Hartzog & Crabill, Inc.
Traffic Engineers
17852 E. 17th Street, Suite 101
Tustin, CA 92780
(714) 731-9455**



April 15, 2016

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EXECUTIVE SUMMARY

Goals and Objectives

Similar to earlier versions of the City's Traffic Signal Master Plan (TSMP), the goal of this assessment based upon 2015 data is to provide City staff with a useful and logical planning tool for future traffic signal construction. The objective in developing the assessment is to establish a prioritized listing of those existing intersections that may qualify for future traffic signal installation. While priorities may change depending upon future traffic and demographic conditions, the methodology used in the current analysis will continue to provide a basis for evaluation and relative prioritization of existing and future candidate intersections, and provide supporting documentation for the City's budgeting decisions relative to traffic signal construction.

Study Methodology

The study methodology for this analysis is consistent with previous Traffic Signal Master Plan assessments. Since most traffic signal construction decisions are based on satisfying criteria, or Warrants, as described and specified in the State of California Manual on Uniform Traffic Control Devices (CA MUTCD), new 2015 twenty-four hour, directional traffic counts were conducted at each of the 19 candidate locations. The resulting traffic count data was input into the appropriate CA MUTCD Warrants for the Major and Minor streets at each of the candidate intersections. Also, using the Statewide Integrated Traffic Records System (SWITRS) database, the previous three year accident history at each of the candidate intersections was analyzed and the resulting findings incorporated into the study. Additionally, street and adjacent development characteristics such as horizontal and vertical street alignment, sight distance, lane and intersection configuration, and the candidate intersections' proximity to schools, parks, churches and other land uses that would benefit or be negatively impacted from a traffic signal installation were considered in the prioritization process.

The same basic rating system as used in previous assessments is utilized in the current study, where each element of the study such as traffic volumes, accident history, street characteristics, etc., is given a numerical value based on a variety of factors. The total point values for each of the candidate intersections is compiled and a prioritization is established based on highest to lowest point totals. New intersections or current candidate intersections experiencing a change in characteristics can be comparatively evaluated and prioritized using this methodology.

EXECUTIVE SUMMARY
(continued)

Traffic Signal Justification

As noted, the intended use of this analysis is to assist City planners in their determination as to where and when traffic signal control is needed and should be installed. While justification for the installation of traffic signals is based on the CA MUTCD warrants, traffic signals are not factually required because they simply meet one or more of the Warrant criteria. An equally important factor in the decision making process is the engineering professionals' judgment based on his/her knowledge of the conditions and circumstances of the location in question, along with community priorities, funding, and other factors.

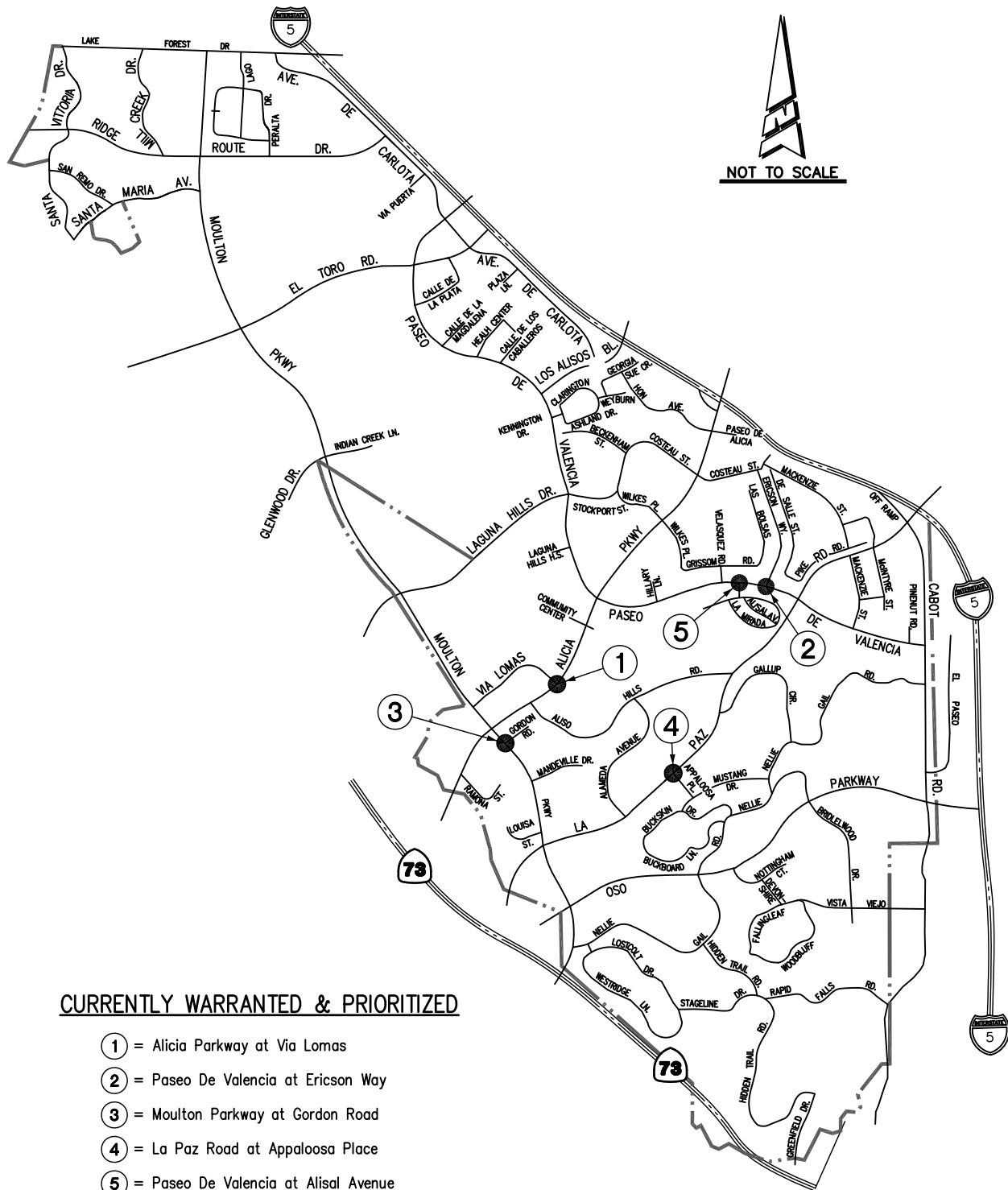
Study Findings

Results of the Traffic Signal Master Plan assessment indicate that the following five (5) candidate locations, in priority order, have met the minimum MUTCD requirements for traffic signal installation:

<u>Location</u>	<u>Intersection</u>
15	Alicia Parkway at Via Lomas
8	Paseo de Valencia at Ericson Way
16	Moulton Parkway at Gordon Road
13	La Paz Road at Appaloosa Place
7	Paseo de Valencia at Alisal Avenue

It should be further noted that Location 12, La Paz Road at Alameda Avenue, which was on the 2007 TSMP list for traffic signal installation, did not meet the CA MUTCD Warrants in this assessment.

Please see Exhibit 1 on the next page for a citywide map overview.



INTERSECTIONS CURRENTLY WARRANTED FOR SIGNALS 2015 SIGNAL MASTER PLAN

ANALYSIS COMPONENTS AND RESULTS

Introduction

The City of Laguna Hills requested that Hartzog & Crabill, Inc. (HCI), Traffic and Transportation Engineers, assist them in upgrading their Citywide Traffic Signal Master Plan (TSMP) to reflect existing traffic and land use conditions. To accomplish this task HCI developed or obtained current traffic counts, accident histories and characteristics, street geometrics and adjacent land uses that may be positively or negatively affected by traffic signal construction; applied this data to recognized standards for traffic signal installation; and, prioritized the 19 candidate intersections provided by the City for possible traffic signal installation.

It is anticipated that the updated TSMP will provide the basis for the City's planning, budgeting and construction of future traffic signals.

The Importance of Traffic Signals and Growth Monitoring

The control of vehicle, pedestrian and bicycle traffic by means of signalized intersection operation has long proven to be an effective technique to reduce accidents and generally improve the quality of traffic flow. To assist the City in the maintenance of a satisfactory signal monitoring program, this report has been prepared as part of a continuing series of periodic signal evaluations with a goal of assisting in future signal improvement decisions and the municipal budgeting process.

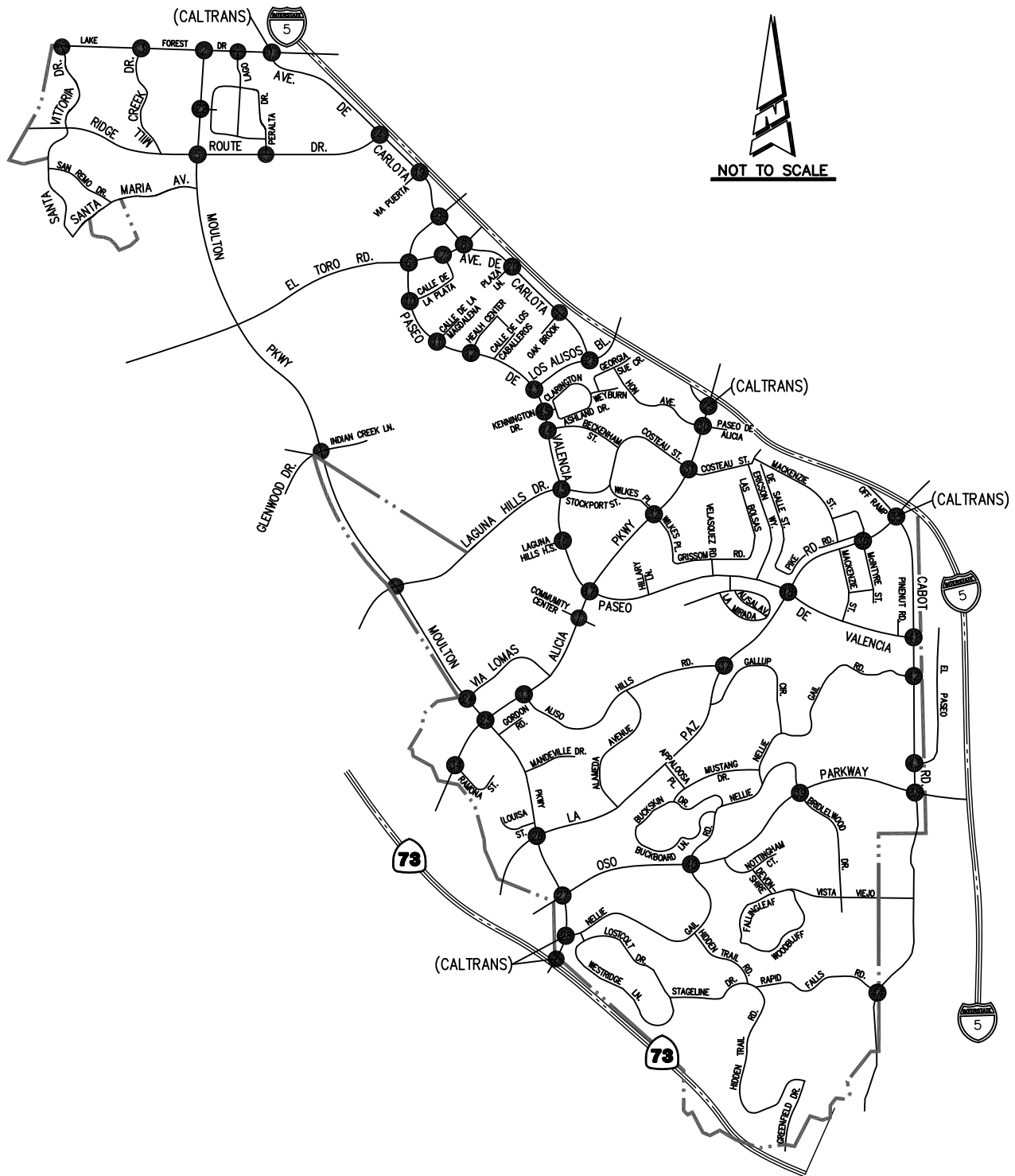
The importance of traffic signals is clearly exemplified by their significant influence over the orderly flow of area traffic volumes. When justified, properly designed and maintained, a traffic signal may achieve the following:

- Reduce the frequency of certain types of accidents
- Effect orderly traffic movement
- Provide for a continuous platoon of traffic flow
- Allow vehicle and pedestrians to better cross opposing directions of traffic

However, should a traffic signal be unjustified or poorly maintained, any or all of the following may result:

- Increased accident frequency
- Excessive delay (driver frustration)
- Disregard of signal indications
- Circuitous travel via alternate routes imparting adjacent increase in traffic

The existing City Traffic Signal System is shown on Exhibit 2 (next page).



EXISTING SIGNAL LOCATIONS 2015 SIGNAL MASTER PLAN

Traffic Signal Justification

While justification for the installation of traffic signals is based, in large part, on the CA MUTCD requirements and Warrants, traffic signals are not factually required because they simply meet one or more of the Warrant criteria. An equally important part of the decision making process is the engineering professionals' judgment based on his/her knowledge of the conditions and circumstances associated with the location in question, along with community priorities, funding, and other factors. However, the CA MUTCD Warrants do have a standing in law and, subsequently, the installation of an unwarranted traffic signal or the failure to install a warranted traffic signal without sound justification or a viable alternative solution can have serious ramifications in respect to liability. Neither action should be taken without legal counsel.

Study Methodology

The study methodology used for this analysis update is generally consistent with previous TSMP assessments with the exception that the State of California Department of Transportation (Caltrans) requirements and Warrants for traffic signal installation have been superseded by those of the CA MUTCD. The study data, tables and exhibits have been modified to reflect this change.

To evaluate the 19 candidate intersections and provide a basis for comparison with the 2007 Traffic Signal Master Plan, new 24-hour, directional traffic counts were conducted at each intersection. The resulting count data was applied to the appropriate CA MUTCD Warrants for traffic signal installation. Also, using the Statewide Integrated Traffic Records System (SWITRS) database, the accident history for the previous three years for each of the intersections was prepared and evaluated to determine if there had been 5 or more reported accidents of a type considered correctible by traffic signal control having occurred during any consecutive twelve months of the 3-year period. No studied locations met this criteria.

Street and adjacent development characteristics such as horizontal or vertical street alignment, sight distance, lane and intersection configuration and the candidate intersections' proximity to schools, parks, churches and other land uses that would benefit or be negatively impacted by traffic installation were considered in the prioritization process.

The same basic rating system as used in previous assessments is utilized in this study whereas each element of the study such as traffic volumes, accident history, street characteristics, etc., is given a numerical value based on a variety of factors. The total point value for each of the candidate intersections is totaled and a priority or ranking of the intersections is established based on highest to lowest point totals. New intersections or current candidate intersections experiencing a change in characteristics can be comparatively evaluated and relatively prioritized using this methodology.

The 2015 traffic counts per direction of travel for each candidate intersection are shown on Table 1 below.

Table 1
2015 Traffic Volumes at Candidate Intersections

Location	Major Street	Traffic Volumes		Minor Street	Traffic Volumes	
	Name (Speed Limit)	Approach Direction	2015 Volumes	Name (Speed Limit)	Approach Direction	2015 Volumes
1	Santa Vittoria (30 mph)	NB	2,302	Ridge Route Dr.	EB	N/A
		SB	2,857		WB	1,991
		Total	5,159		Total	1,991
2	Ridge Route Dr. (45 mph)	EB	2,141	Mill Creek Dr.	NB	N/A
		WB	2,781		SB	1,192
		Total	4,922		Total	1,192
3	St. Maria (40 mph)	EB	3,640	San Remo Dr.	NB	N/A
		WB	4,381		SB	1,389
		Total	8,021		Total	1,389
4	P.D. Valencia (40 mph)	EB	N/A	Calle Caballeros (RTO)	NB	N/A
		WB	9,291		SB	848
		Total	9,291		Total	848
5	P.D. Valencia (45 mph)	EB	5,784	Hillary Ln.	NB	N/A
		WB	5,300		SB	423
		Total	11,024		Total	423
6	P.D. Valencia (45 mph)	EB	5,623	Velasquez Rd.	NB	N/A
		WB	5,248		SB	353
		Total	10,910		Total	353
7	P.D. Valencia (45 mph)	EB	5,482	Alisal Ave.	NB	1,018
		WB	5,352		SB	N/A
		Total	10,834		Total	1,018
8	P.D. Valencia (45 mph)	EB	5,647	Ericson Wy.	NB	N/A
		WB	5,248		SB	892
		Total	10,895		Total	892

N/A = Non-Applicable. Typically the minor street leg of a "T" intersection.
RTO = Right Turn Only.

Table 1
(continued)

9	P.D. Valencia (45 mph)	EB	2,966	Mackenzie St.	NB	N/A
		WB	2,791		SB	460
		Total	5,697		Total	460
10	P.D. Valencia (45 mph)	EB	2,904	Pine Nut Rd.	NB	N/A
		WB	2,901		SB	397
		Total	5,805		Total	397
11	Oso Pkwy. (50 mph)	EB	14,776	Nottingham Ct. (RTO)	NB	355
		WB	N/A		SB	N/A
		Total	14,776		Total	355
12	La Paz Rd. (50 mph)	EB	8,454	Alameda	NB	N/A
		WB	7,583		SB	813
		Total	16,037		Total	813
13	La Paz Rd. (50 mph)	EB	8,109	Appaloosa Pl.	NB	1,032
		WB	7,905		SB	N/A
		Total	16,014		Total	1,032
14	La Paz Rd. (50 mph)	NB	8,189	Gallup Dr.	EB	N/A
		SB	8,129		WB	549
		Total	16,318		Total	549
15	Alicia Pkwy. (45 mph)	NB	21,144	Via Lomas	EB	1,407
		SB	23,067		WB	N/A
		Total	44,211		Total	1,407
16	Moulton Pkwy. (45 mph)	NB	11,600	Gordon Rd.	EB	N/A
		SB	11,056		WB	1,024
		Total	22,656		Total	1,024
17	Moulton Pkwy. (45 mph)	NB	11,284	Mandeville Dr.	EB	N/A
		SB	11,332		WB	517
		Total	22,616		Total	517
18	Moulton Pkwy. (45 mph)	NB	11,416	Louisa St.	EB	630
		SB	10,763		WB	N/A
		Total	22,179		Total	630
19	Moulton Pkwy. (50 mph)	NB	12,558	Indian Hill	EB	N/A
		SB	11,693		WB	662
		Total	24,251		Total	662

N/A = Non-Applicable. Typically the minor street leg of a "T" intersection.
RTO = Right Turn Only.

Traffic Volume Warrants

Entering traffic volumes are a major consideration in the determination as to if a traffic signal is needed or justified at an intersection. Over a period of many years and untold hours of research, transportation professionals such as the Institute of Transportation Engineers (ITE) and leading transportation agencies such as Caltrans have established threshold traffic volumes to determine the number of vehicles on a Major street that would preclude the safe access or crossing of that street by traffic on the Minor street. The threshold traffic volumes have been further refined to consider the number of lanes on both the Major and Minor Street and whether the intersection is considered a 'Urban' or 'Rural' environment (i.e., the typical 'Rural' intersection usually experiences higher approach speeds on the Major Street and the threshold volumes on the Minor Street are reduced to compensate for this condition). This reduction can also be applied to Major Streets in an urban environment if the speed on the Major Street exceeds 40MPH, as do all of the Major Streets of the candidate intersections. The threshold volumes are shown on Table 2 as Warrant 1 – Condition A (see next page).

A second factor relative to traffic volumes at an intersection is consideration of the delay experienced by the motorist on the Minor Street as he/she attempts to access or cross the Major Street. The Warrants address this issue through Warrant 1 - Condition B whereas threshold volumes are reduced for the Minor Street and increased for the Major Street. These threshold volumes are also shown on Table 2 (next page).

The 2015 traffic volumes were applied to Warrant 1 – Condition A and Warrant 1-Condition B as shown in Table 3 (following page). As noted, 18 of the 19 Major Streets at the candidate intersections have approach speeds at or in excess of 40 MPH, therefore the Rural criteria of Warrant 1A and 1B is applicable for these streets. The Rural criteria represents 80% of the Urban criteria.

Table 4 further reflects the 80% factor by expressing the Major and Minor Street traffic volumes as the percent of the traffic volume criteria; consequently, when the Major and Minor Street traffic volumes exceed 80%, that warrant is satisfied.

Table 4 also consolidates Table 3 to a single Yes or No relative to meeting the traffic volume warrants, but includes Warrant 7, which considers the accident history of the intersection. As will be explained later in this study, it has a traffic volume component.

Table 5 indicates those intersections that have met the minimum Traffic Volume and Accident Warrants for traffic signal installation.

Table 2
Minimum Traffic Volumes

Warrant 1 – Condition A
Based on Estimated Average Daily Traffic Volume

Approach Lanes On Major Street	Approach Lanes On Minor Street	Vehicles/day on Major Street (Total both approaches)		Vehicles/day on higher volume Minor Street (one direction only)	
Number	Number	Urban	Rural	Urban	Rural
1	1	8,000	5,600	2,400	1,680
2 or more	1	9,600	6,720	2,400	1,680
2 or more	2 or more	9,600	6,720	3,200	2,240
1	2 or more	8,000	5,600	3,200	2,240

(Warrant 1 Based on Hourly Volumes – Eight Highest Hours)

Approach Lanes On Major Street	Approach Lanes On Minor Street	Major Street Total Approach Volumes		Minor Street Highest Approach Volumes	
Number	Number	Urban	Rural	Urban	Rural
1	1	500	350	150	105
2 or more	1	600	420	150	105
2 or more	2 or more	600	420	200	140
1	2 or more	500	350	200	140

Warrant 1 – Condition B
Interruption of Continuous Traffic

Approach Lanes On Major Street	Approach Lanes On Minor Street	Vehicles/day on Major Street (Total both approaches)		Vehicles/day on higher volume Minor Street (one direction only)	
Number	Number	Urban	Rural	Urban	Rural
1	1	12,000	8,400	1,200	850
2 or more	1	14,400	10,800	1,200	850
2 or more	2 or more	14,400	10,800	1,600	1,120
1	2 or more	12,000	8,400	1,600	1,120

(Warrant 2 Based on Hourly Volumes – Eight Highest Hours)

Approach Lanes On Major Street	Approach Lanes On Minor Street	Major Street Total Approach Volumes		Minor Street Highest Approach Volumes	
Number	Number	Urban	Rural	Urban	Rural
1	1	750	525	75	53
2 or more	1	900	630	75	53
2 or more	2 or more	900	630	100	70
1	2 or more	750	525	100	70

Table 3
Traffic Signal Warrants – Percentage Satisfied

Location	Major Street	Minor Street	CA MUTCD Warrants							
			Traffic Volume % of Warrant Met						Correctible Accidents	
			1A major/minor	Met	1B major/minor	Met	1A & 1B major/minor	Met	7	Met
1	Santa Vittoria	Ridge Route Dr.	64/83		43/166		61/234		1	
2	Ridge Route Dr.	Mill Creek Dr.	73/71		48/140		N/A		0	
3	St. Maria Ave.	San Remo Dr.	119/83		80/163		N/A		0	
4	P.D. Valencia	*Calle Caballeros	N/A		N/A		N/A		N/A	
5	P.D. Valencia	Hillary Ln.	165/25		110/50		N/A		0	
6	P.D. Valencia	Velasquez Rd.	142/21		108/42		N/A		1	
7	P.D. Valencia	Alisal Ave.	161/61		107/120	✓	N/A		0	
8	P.D. Valencia	Ericson Wy.	162/53		108/105	✓	N/A		1	
9	P.D. Valencia	Mackenzie St.	85/27		57/54		N/A		0	
10	P.D. Valencia	Pine Nut Rd.	86/24		58/47		N/A		1	
11	Oso Pkwy.	*Nottingham Ct.	N/A		N/A		N/A		N/A	
12	La Paz Rd.	Alameda	239/48		148/96		N/A		0	
13	La Paz Rd.	Appaloosa Pl.	238/61		159/121	✓	N/A		0	
14	La Paz Rd.	Gallup Dr.	243/33		147/65		N/A		0	
15	Alicia Pkwy.	Via Lomas	658/84		439/166	✓	N/A		2	
16	Moulton Pkwy.	Gordon Rd.	337/61		225/120	✓	N/A		1	
17	Moulton Pkwy.	Mandeville Dr.	437/31		224/61		N/A		1	
18	Moulton Pkwy.	Louisa St.	330/38		260/74		N/A		1	
19	Moulton Pkwy.	Indian Hill	361/39		241/78		N/A		2	

* Right Turn Only

Warrant 1A – Minimum Vehicle Volume. See Table 2 for threshold traffic volumes.

Warrant 1B – Interruption of Continuous Traffic. See Table 2 for threshold traffic volumes.

Warrant 1A & 1B Combination – Applicable to Location 1 only as approach speeds at intersection is below 40 mph. Urban criteria applies. Criteria is 80% of 1A and 1B.
 Warrant 7 – Correctable Accidents in a previous 12 month period. Minimum Criteria is 5 Correctable Accidents.

Table 4
Signal Warrants – Existing Traffic Volumes

Location	Major Street	Minor Street	Warrant Satisfied (12 Month Period)			
			1A	1B	7	1A & 1B
1	Santa Vittoria	Ridge Route Dr.	NO	NO	NO	NO
2	Ridge Route Dr.	Mill Creek Dr.	NO	NO	NO	N/A
3	St. Maria Ave.	San Remo Dr.	NO	NO	NO	N/A
4	P.D. Valencia	*Calle Caballeros	N/A	N/A	N/A	N/A
5	P.D. Valencia	Hillary Ln.	NO	NO	NO	N/A
6	P.D. Valencia	Velasquez Rd.	NO	NO	NO	N/A
7	P.D. Valencia	Alisal Ave.	NO	YES	NO	N/A
8	P.D. Valencia	Ericson Wy.	NO	YES	NO	N/A
9	P.D. Valencia	Mackenzie St.	NO	NO	NO	N/A
10	P.D. Valencia	Pine Nut Rd.	NO	NO	NO	N/A
11	Oso Pkwy.	*Nottingham Ct.	N/A	N/A	N/A	N/A
12	La Paz Rd.	Alameda	NO	NO	NO	N/A
13	La Paz Rd.	Appaloosa Pl.	NO	YES	NO	N/A
14	La Paz Rd.	Gallup Dr.	NO	NO	NO	N/A
15	Alicia Pkwy.	Via Lomas	NO	YES	NO	N/A
16	Moulton Pkwy.	Gordon Rd.	NO	YES	NO	N/A
17	Moulton Pkwy.	Mandeville Dr.	NO	NO	NO	N/A
18	Moulton Pkwy.	Louisa St.	NO	NO	NO	N/A
19	Moulton Pkwy.	Indian Hill	NO	NO	NO	N/A

* Right Turn Only

Warrant 1A – Minimum Vehicle Volume. See Table 2 for threshold traffic volumes.

Warrant 1B – Interruption of Continuous Traffic. See Table 2 for threshold traffic volumes.

Warrant 1A & 1B Combination – Applicable to Location 1 only as approach speeds at intersection are below 40 mph. Urban criteria applies. Criteria is 80% of 1A and 1B.

Warrant 7 – Correctable Accidents in a previous 12 month period. Minimum Criteria is 5 Correctable Accidents.

Table 5
Intersections Meeting Minimum Warrants for Traffic Signal Installation
Traffic Signal Warrants – Percentage Satisfied

<u>Location</u>	<u>Intersection</u>
7	Paseo de Valencia at Alisal Avenue
8	Paseo de Valencia at Ericson Way
13	La Paz Road at Appaloosa Place
15	Alicia Parkway at Via Lomas
16	Moulton Parkway at Gordon Road

Priority Rating System

Prioritization of those locations meeting the minimum warrants for traffic signalization in this assessment was accomplished by reviewing the traffic and safety characteristics identified in the seven rating items. This procedure is identical to that used in previous assessments.

Rating Item 1 – Satisfaction of Warrant 1 – Condition B (Interruption of Continuous Traffic)

The greater the traffic volume is on the Major Street the more difficult, and sometimes hazardous, it is for vehicular and pedestrian traffic on the Minor Street to access or cross the Major Street. Using this premise, a rating item is created where points are allocated in ascending order based on the traffic volume on the Major Street. The point allocation for the candidate streets is shown on Table 6 (next page).

Table 6 – Rating Item 1
Warrant 1B Satisfaction
(Interruption of Continuous Traffic)

Location	Major Street				Minor Street				Points
	Name	Lanes	Volume		Name	Lanes	Volume		
			Leg 1	Leg 2			Leg 1	Leg 2	
1	Santa Vittoria	1/1	2,302	2,857	Ridge Route Dr.	2	1,991	-	0
2	Ridge Route Dr.	2/2	2,141	2,781	Mill Creek Dr.	1	1,192	-	0
3	St. Maria Ave.	2/2	3,640	4,381	San Remo Dr.	1	1,389	-	3
4	P.D. Valencia	N/A	N/A	N/A	*Calle Caballeros	N/A RTO	N/A	-	N/A
5	P.D. Valencia	2/2	5,784	5,300	Hillary Ln.	1	423	-	7
6	P.D. Valencia	2/2	5,623	5,248	Velasquez Rd.	1	353	-	7
7	P.D. Valencia	2/2	5,482	5,352	Alisal Ave.	1	1,018	-	7
8	P.D. Valencia	2/2	5,647	5,248	Ericson Wy.	1	892	-	7
9	P.D. Valencia	2/2	2,900	2,791	Mackenzie St.	1	460	-	1
10	P.D. Valencia	2/2	2,904	2,901	Pine Nut Rd.	1	397	-	1
11	Oso Pkwy.	N/A	N/A	N/A	*Nottingham Ct.	N/A RTO	N/A	-	N/A
12	La Paz Rd.	2/2	8,454	7,583	Alameda	1	813	-	9
13	La Paz Rd.	2/2	8,109	7,905	Appaloosa Pl.	1	1,032	-	9
14	La Paz Rd.	2/2	8,189	8,129	Gallup Dr.	1	546	-	9
15	Alicia Pkwy.	3/3	21,144	23,067	Via Lomas	1	1,407	-	10
16	Moulton Pkwy.	3/3	11,600	11,056	Gordon Rd.	1	1,084	-	10
17	Moulton Pkwy.	3/3	11,284	11,332	Mandeville Dr.	1	517	-	10
18	Moulton Pkwy.	3/3	11,416	10,763	Louisa St.	1	630	-	10
19	Moulton Pkwy.	3/3	12,558	11,693	Indian Hill	2	662	-	10

* Right Turn Only

Rating Item 2- Coordinated Movement

Points are increased if a proposed traffic signal can be incorporated into a coordinated system without significantly impacting the system operation. Conversely, fewer points are given if a proposed signal cannot be effectively incorporated into a coordinated system and the operation of the system is degraded. Table 7 shows HCI's assessment of this rating item.

Table 7 – Rating Item 2
Coordinated Movement

Loc.	Major Street	Minor Street	Approaching Platoon			Points
			Intact	Spread	Disburse	
1	Santa Vittoria	Ridge Route Dr.			X	0
2	Ridge Route Dr.	Mill Creek Dr.			X	0
3	St. Maria Ave.	San Remo Dr.			X	0
4	P.D. Valencia	*Calle Caballeros	N/A	N/A	N/A	N/A
5	P.D. Valencia	Hillary Ln.			X	0
6	P.D. Valencia	Velasquez Rd.			X	0
7	P.D. Valencia	Alisal Ave.			X	0
8	P.D. Valencia	Ericson Wy.			X	0
9	P.D. Valencia	Mackenzie St.			X	0
10	P.D. Valencia	Pine Nut Rd.			X	0
11	Oso Pkwy.	*Nottingham Ct.	N/A	N/A	N/A	N/A
12	La Paz Rd.	Alameda			X	0
13	La Paz Rd.	Appaloosa Pl.			X	5
14	La Paz Rd.	Gallup Dr.			X	0
15	Alicia Pkwy.	Via Lomas		X		3
16	Moulton Pkwy.	Gordon Rd.		X		3
17	Moulton Pkwy.	Mandeville Dr.		X		2
18	Moulton Pkwy.	Louisa St.		X		2
19	Moulton Pkwy.	Indian Hill	X			5

* Right Turn Only

Rating Item 3 – Accident Evaluation Results

An elevated intersection accident rate can be an indication that there are insufficient gaps in the traffic stream on the Major Street to allow traffic on the Minor Street to merge onto or cross the Major Street. This condition usually results in increased incidences of broadside, left-turn, and vehicle/pedestrian/bicycle types of collisions occurring at the intersection. As these types of accidents are generally correctible by the installation of a traffic signal, points are allocated in the prioritization process based on the number of potentially correctible accidents a traffic signal installation may preclude. Table 8 represents the results of this analysis factor and incorporates the traffic volume component intended with the Accident Warrant.

Table 8 – Rating Item 3
Accident Evaluation Results

Location	Major Street	Minor Street	Warrant Requirements					Intersection Satisfies Accident Warrant	Points
			⁽¹⁾ TOTAL	⁽²⁾ CORRECTIBLE	⁽³⁾ One Condition 80% Satisfied				
			Accidents	Accidents	Warrant 1A	Warrant 1B	Warrant 4		
			(12 months)	(12 months)					
1	Santa Vittoria	Ridge Route Dr.	1	1					3
2	Ridge Route Dr.	Mill Creek Dr.	0	0					0
3	St. Maria Ave.	San Remo Dr.	0	0					0
4	P.D. Valencia	*Calle Caballeros	3	0	N/A	N/A	N/A	N/A	0
5	P.D. Valencia	Hillary Ln.	0	0					0
6	P.D. Valencia	Velasquez Rd.	1	1					3
7	P.D. Valencia	Alisal Ave.	0	0		✓			0
8	P.D. Valencia	Ericson Wy.	1	1		✓			3
9	P.D. Valencia	Mackenzie St.	0	0					0
10	P.D. Valencia	Pine Nut Rd.	0	0					0

Table 8 – Rating Item 3 (cont'd)
Accident Evaluation Results

Location	Major Street	Minor Street	Warrant Requirements					Intersection Satisfies Accident Warrant	Points
			⁽¹⁾ TOTAL Accidents (12 months)	⁽²⁾ CORRECTIBLE Accidents (12 months)	⁽³⁾ One Condition 80% Satisfied				
					Warrant 1A Min Vol.	Warrant 1B Interruption	Warrant 4 Peds		
11	Oso Pkwy.	*Nottingham Ct.	1	1	N/A	N/A	N/A	N/A	3
12	La Paz Rd.	Alameda	0	0					0
13	La Paz Rd.	Appaloosa Pl.	1	1		✓			3
14	La Paz Rd.	Gallup Dr.	0	0					0
15	Alicia Pkwy.	Via Lomas	5	2		✓			6
16	Moulton Pkwy.	Gordon Rd.	2	2		✓			6
17	Moulton Pkwy.	Mandeville Dr.	1	1					3
18	Moulton Pkwy.	Louisa St.	1	1					3
19	Moulton Pkwy.	Indian Hill	2	2					6

* Right Turn Only

✓ Warrant requirements satisfied.

(1) Greatest number of accidents occurring in a continuous 12 month period in a previous 3 year period.

(2) Broadside, left-turning, and vehicle/pedestrian/bicycle accidents.

(3) Traffic Volume component of accident warrant.

Rating Item 4 – Special Conditions

This rating item considers area facilities, conditions and circumstances that are not addressed in other rating items that could benefit from an adjacent or nearby traffic signal installation. These include, for example, the presence of schools, churches, parks, and other public buildings. The identified facilities and conditions are shown on Table 9.

Table 9 – Rating Item 4
Special Conditions

Location	Major Street	Minor Street	Special Conditions							Points
			School	Church	Public Bldg/ Park	Curve	Hill	Sight Distance	Other	
1	Santa Vittoria	Ridge Route Dr.			X		X	X		7
2	Ridge Route Dr.	Mill Creek Dr.			X		X	X		7
3	St. Maria Ave.	San Remo Dr.	X			X	X	X		10
4	P.D. Valencia	*Calle Caballeros								N/A
5	P.D. Valencia	Hillary Ln.	X			X	X	X		10
6	P.D. Valencia	Velasquez Rd.	X			X	X	X		10
7	P.D. Valencia	Alisal Ave.				X	X	X		7
8	P.D. Valencia	Ericson Wy.				X	X	X		7
9	P.D. Valencia	Mackenzie St.	X			X	X	X		10
10	P.D. Valencia	Pine Nut Rd.	X			X	X	X		10
11	Oso Pkwy.	*Nottingham Ct.								N/A
12	La Paz Rd.	Alameda					X	X		5
13	La Paz Rd.	Appaloosa Pl.					X			2
14	La Paz Rd.	Gallup Dr.				X	X	X		7
15	Alicia Pkwy.	Via Lomas	X		X					6
16	Moulton Pkwy.	Gordon Rd.				X	X	X		7
17	Moulton Pkwy.	Mandeville Dr.			X	X	X	X		10
18	Moulton Pkwy.	Louisa St.				X	X	X		7
19	Moulton Pkwy.	Indian Hill				X	X	X		7

* Right Turn Only

Rating Item 5 – Safety Index

This rating item uses accident totals and characteristics to develop a Benefit/Cost ratio. As there are always several costs associated with accidents depending upon their severity, and as the cost of traffic signals varies depending, in general, upon their configuration, a ratio and subsequent point allocation can be made by relating the accident and traffic signal cost factors. The resultant safety index is shown on Table 10.

Table 10 – Rating Item 5
Safety Index

Location	Major Street	Minor Street	Correctable Accidents (Consecutive 12 month Period)			
			Fatal	Injury	PDO	Points
1	Santa Vittoria	Ridge Route Dr.	0	0	1	0
2	Ridge Route Dr.	Mill Creek Dr.	0	0	0	0
3	St. Maria Ave.	San Remo Dr.	0	0	0	0
4	P.D. Valencia	Calle Caballeros	0	0	0	0
5	P.D. Valencia	Hillary Ln.	0	0	0	0
6	P.D. Valencia	Velasquez Rd.	0	1	0	7
7	P.D. Valencia	Alisal Ave.	0	0	0	0
8	P.D. Valencia	Ericson Wy.	0	1	0	7
9	P.D. Valencia	Mackenzie St.	0	0	0	0
10	P.D. Valencia	Pine Nut Rd.	0	0	1	0
11	Oso Pkwy.	Nottingham Ct.	0	1	0	7
12	La Paz Rd.	Alameda	0	0	0	0
13	La Paz Rd.	Appaloosa Pl.	0	0	0	0
14	La Paz Rd.	Gallup Dr.	0	0	0	0
15	Alicia Pkwy.	Via Lomas	0	1	1	7
16	Moulton Pkwy.	Gordon Rd.	0	0	1	0
17	Moulton Pkwy.	Mandeville Dr.	0	1	0	7
18	Moulton Pkwy.	Louisa St.	0	1	0	7
19	Moulton Pkwy.	Indian Hill	0	1	1	7

Rating Item 6 – Environmental Conditions

This subjective evaluation considers the ramifications of a traffic signal installation on the adjacent environment. Such factors would include increased pollution generated by idling vehicles, impact on aesthetics, or loss of habitat. HCI's evaluation of potential environmental impact associated with traffic signal installation at the study intersections is shown on Table 11.

Table 11 – Rating Item 6
Environmental Impact Assessment

Loc.	Major Street	Minor Street	Environmental Impact			Points
			Minimal	Moderate	Substantial	
1	Santa Vittoria	Ridge Route Dr.	X			5
2	Ridge Route Dr.	Mill Creek Dr.	X			5
3	St. Maria Ave.	San Remo Dr.	X			5
4	P.D. Valencia	Calle Caballeros	N/A	Right	Turn Only	N/A
5	P.D. Valencia	Hillary Ln.	X			5
6	P.D. Valencia	Velasquez Rd.	X			5
7	P.D. Valencia	Alisal Ave.	X			5
8	P.D. Valencia	Ericson Wy.	X			5
9	P.D. Valencia	Mackenzie St.	X			5
10	P.D. Valencia	Pine Nut Rd.	X			5
11	Oso Pkwy.	Nottingham Ct.	N/A	Right	Turn Only	N/A
12	La Paz Rd.	Alameda		X		2
13	La Paz Rd.	Appaloosa Pl.	X			2
14	La Paz Rd.	Gallup Dr.	X			2
15	Alicia Pkwy.	Via Lomas	X			5
16	Moulton Pkwy.	Gordon Rd.	X			2
17	Moulton Pkwy.	Mandeville Dr.	X			2
18	Moulton Pkwy.	Louisa St.	X			2
19	Moulton Pkwy.	Indian Hill	X			2

Rating Item 7 – Highway Geometry

Traditionally, streets are assigned classification and, subsequently, a number of through and turning lanes based on the traffic volumes that the street has or is expected to reach. The service area, land use, number of feeder streets and length of the street determine or produces the traffic volume on a given street. Typical classifications are Arterial, Collector, or Local with a function of single-lane Local streets distributing traffic to multilane Collector streets, and the Collector streets distributing traffic to multilane Arterial streets. Street geometry is the number of lanes a street has, and intersection geometry is the configuration of the intersecting streets (i.e., usually a 4-legged or T-configuration). Under normal circumstances, a traffic signal installation at an Arterial/Arterial intersection with its inherently greater traffic volumes and service area will have a greater Cost/Benefit than a traffic signal installed, for example, at a Collector/Local intersection. The geometry based ranking of the candidate intersections is shown on Table 12.

Table 12 – Rating Item 7
Highway Geometry

Loc.	Inter. Type	Major Street		Minor Street		Points
		Name	Class.	Name	Class.	
1	4	Santa Vittoria	Arterial	Ridge Route Dr.	Collector	4
2	T	Ridge Route Dr.	Arterial	Mill Creek Dr.	Collector	3
3	T	St. Maria Ave.	Arterial	San Remo Dr.	Collector	3
4	T	P.D. Valencia	Arterial	Calle Caballeros	Collector	3
5	T	P.D. Valencia	Arterial	Hillary Ln.	Collector	3
6	T	P.D. Valencia	Arterial	Velasquez Rd.	Collector	3
7	T	P.D. Valencia	Arterial	Alisal Ave.	Collector	3
8	T	P.D. Valencia	Arterial	Ericson Wy.	Collector	3
9	T	P.D. Valencia	Arterial	Mackenzie St.	Collector	3
10	T	P.D. Valencia	Arterial	Pine Nut Rd.	Collector	3
11	T	Oso Pkwy.	Arterial	Nottingham Ct.	Collector	3
12	T	La Paz Rd.	Arterial	Alameda	Collector	3
13	T	La Paz Rd.	Arterial	Appaloosa Pl.	Collector	3
14	T	La Paz Rd.	Arterial	Gallup Dr.	Collector	3
15	T	Alicia Pkwy.	Arterial	Via Lomas	Collector	3
16	T	Moulton Pkwy.	Arterial	Gordon Rd.	Collector	3
17	T	Moulton Pkwy.	Arterial	Mandeville Dr.	Collector	3
18	T	Moulton Pkwy.	Arterial	Louisa St.	Collector	3
19	T	Moulton Pkwy.	Arterial	Indian Hill	Collector	3

Locations Satisfying Minimum Warrant Criteria and Priority Ranking

The findings of City of Laguna Hills' Traffic Signal Master Plan 2016 Update indicates that the following five (5) locations have satisfied the minimum CA MUTCD warrants for traffic signal installation:

7. Paseo de Valencia at Alisal Avenue
8. Paseo de Valencia at Ericson Way
13. La Paz Road at Appaloosa Place
15. Alicia Parkway at Via Lomas
16. Moulton Parkway at Gordon Road

Table 13 ranks the warranted locations based on the rating system employed in the Traffic Signal Master Plan Update.

Table 13
Priority Ranking of Study Intersections
Meeting Minimum Warrants for Traffic Signal Installation

Location	Major Street	Minor Street	Rating Item Number							
			1	2	3	4	5	6	7	Total
	Maximum Points		10	5	20	15	10	5	5	70
15	Alicia Pkwy.	Via Lomas	10	3	6	6	7	5	3	40
8	P.D. Valencia	Ericson Wy.	7	0	3	7	7	5	3	32
16	Moulton Pkwy.	Gordon Rd.	10	3	6	7	0	2	3	31
13	La Paz Rd.	Appaloosa Pl.	9	5	3	2	0	2	3	24
7	P.D. Valencia	Alisal Ave.	7	0	0	7	0	5	3	22

Recommendations

HCI recommends that this TSMP Update act as a guide for future traffic signal installation in the City of Laguna Hills. HCI also recommends that the TSMP be re-evaluated on a periodic basis to address changes in traffic volumes, accident history, and in the character and operational characteristics of the study intersections, as well as for inclusion of new locations as the need for potential traffic signalization occurs.

RATING ITEMS

RATING ITEM 1
Interruption of Continuous Traffic (10 Points Maximum)
(Warrant 1B)

Vehicles attempting to cross the major flow of traffic, or enter that flow, can cause the traffic on the Through street to be delayed or slow down unnecessarily. The installation of a signal at such locations may actually speed up the traffic flow on the Major street. Table A1 shows the percent of the maximum assigned points based on the Major street daily volume. For example, an intersection where the traffic volume on the Major street averages 11,000 vehicles per day would receive 70% of the maximum allowed. In this example, the intersection would receive 7 points for this rating area.

Table A1 – Percent of Maximum points – Interruption of Continuous Traffic

Major Street Volume Of at Least...	Percent of Maximum and Points Allowed
4,700	0% (0 points)
5,600	10% (1 points)
6,400	20% (2 points)
7,300	30% (3 points)
8,200	40% (4 points)
9,000	50% (5 points)
10,000	60% (6 points)
10,700	70% (7 points)
11,600	80% (8 points)
12,400	90% (9 points)
17,500	100% (10 points)

RATING ITEM 2
Coordinated Movement (5 Points Maximum)

When a traffic signal turns green and the waiting vehicles start down the roadway, they are in a relatively compact grouping referred to as a “platoon”. As the group of vehicles progresses down the street, they become more and more disbursed due to differences in driving speeds. As a result, some of the cars in the original platoon are unable to pass through the next signal and are forced to stop. In certain cases, the installation of a signal between the original two intersections can keep this platoon intact and actually reduce the overall driving delay. This item depends on engineering judgment and should include present and future traffic demands of the area.

A signal may be justified when it forms a part of an interconnected or coordinated system and would serve the purpose of maintaining traffic volumes in relatively concentrated platoons of vehicles. Typically, the following question is asked: “Would a signal at this location cause the platoon approaching the next signal to be intact (5 points), spread (2 points), or disbursed (0 points)?”

RATING ITEM 3
Accident Hazards

An elevated intersection accident rate can be a sign of vehicles (and pedestrians) trying to enter the flow of traffic or cross the street when there are insufficient gaps in the Major street traffic. Only those accidents susceptible to correction by traffic signals should be considered when evaluating this item. And even then, only if less restrictive measures such as warning signs, proper lighting, painted markings, etc., have failed. Accidents which are susceptible to correction by a traffic signal are normally considered to be “broadside” or right-angle accidents, left-turn accidents, and those accidents involving vehicles/pedestrians. In this item, the maximum number of points is assigned to the intersection with the highest number of correctable accidents and 0 is assigned to the lowest. Table A2 illustrates the points that would be assigned if the highest intersection had six accidents and the lowest intersection had none.

Table A2 – Percent of Maximum Points – Accident Hazard

Correctible Accidents	Points
6 or more	20
5	16
4	13
3	10
2	6
1	3
0	0

RATING ITEM 4
Special Conditions (15 Points Maximum)

This item considers extenuating circumstances that are not covered in other items in the rating system. These may include the proximity of schools, churches, public buildings, and other traffic and pedestrian generation; an abrupt change from rural to an urban area; the need for police control during portions of the day; a steep hill; a horizontal curve; or restricted sight distance. This requires engineering judgment based on physical inspection of the site. Equal weights should be given to each of the items considered here. In Table A3, the percentages and points are based on how many of 6 conditions were located at an intersection.

Table A3 – Percent of Maximum Points – Special Conditions

Conditions Located	Points
6	100% (15 points)
5	83% (12 points)
4	67% (10 points)
3	50% (7 points)
2	33% (5 points)
1	17% (2 points)
0	0% (0 points)

RATING ITEM 5
Safety Index (15 Points Maximum)

A safety index is the Benefit/Cost ratio for a safety improvement expressed as a number. The costs and benefits are directly related to the number of accidents at a location which are susceptible to correction by a traffic signal. Points are assigned by setting the highest Benefit/Cost ratio to the maximum allowed points and the minimum Benefit/Cost ratio to zero. Ratings in between are allocated a proportion of the number to points between zero and the maximum. The accidents are grouped into categories, with costs, and weighted. The “benefit” portion of the ratio is actually the estimated cost of the severity categories as listed below.

Table A4 – “Costs” of Traffic Accidents

Category	Cost
Fatal Accidents	\$4,800,000
Injury Accidents	\$67,400
Property Damage Accidents	\$10,200

Table A5 – Typical Signal Installation Costs in Southern California

Intersection Type	Cost
Four Legged Intersection	\$400,000
T Intersection	\$300,000

RATING ITEM 6
Environmental Conditions (5 Points Maximum)

This is the only rating item that can actually be assigned negative points. An evaluation of the environmental impacts associated with a traffic signal installation is performed, and a point value made for each location. A project that has minimum impacts receives the maximum 5 points while a project that could have a substantial adverse effect receives a negative 5 points. Gradations may be employed between the two limits.

RATING ITEM 7
Highway Geometry (5 Points Maximum)

In general, it is more cost effective and more productive to signalize a four-legged intersection than a T-intersection. Also, a traffic signal at an intersection of two arterial streets will better serve the community than will a traffic signal at an intersection of two local residential streets.

Higher Volume Street Is...	Lower Volume Street Is...	Maximum Points if...	
		Intersection is T	Intersection is 4 Legged
Local	Local	0	0
Collector	Local	0	1
	Collector	1	2
Arterial	Local	2	3
	Collector	3	4
	Arterial	4	5

CITY OF LAGUNA HILLS

MAY 2016

RADAR TRAILER SCHEDULE (RAINY DAYS EXCLUDED)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10 Nellie Gail E/O Empty Saddle 25 MPH	11 Woodbluff W/O Middleridge 25 MPH	12 Bridlewood S/O Laurel Crest 25 MPH	13	14
15	16	17	18	19	20	21
22	23	24 San Remo Mid-block 30 MPH	25 Rapid Falls W/O Sundowner 25 MPH	26 Lost Colt E/O Beargrass 25 MPH	27	28
29	30 HOLIDAY	31				

5/18/2016 ITEM NO. 5.2

CITY OF LAGUNA HILLS

JUNE 2016

RADAR TRAILER SCHEDULE (RAINY DAYS EXCLUDED)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
5	6	7 Nellie Gail E/O Empty Saddle 25 MPH	8 Bridlewood S/O Laurel Crest 25 MPH	9 Santa Vittoria N/O Ridge Route 25 MPH	10	11
12	13	14	15	16	17	18
19	20	21 Rapid Falls W/O Sundowner 25 MPH	22 Lost Colt W/B Mid-block 25 MPH	23 Woodbluff W/O Middleridge 25 MPH	24	25
26	27	28	29	30		

CITY OF LAGUNA HILLS

JULY 2016

RADAR TRAILER SCHEDULE (RAINY DAYS EXCLUDED)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4 HOLIDAY	5 Alameda S/O El Pardo 25 MPH	6 Nellie Gail E/O Empty Saddle 25 MPH	7 San Remo Mid-block 30 MPH	8	9
10	11	12	13	14	15	16
17	18	19 Lost Colt E/O Beargrass 25 MPH	20 Rapid Falls W/O Sundowner 25 MPH	21 Bridlewood S/O Laurel Crest 25 MPH	22	23
24 31	25	26	27	28	29	30

5/18/2016 ITEM NO. 5.2

Rainy Days Excluded

Radar Trailer Calendar 2016 Bi-weekly
5/11/2016

