ENVIRONMENTAL IMPACT REPORT

for

Tentative Tract 51153

PACIFIC HEIGHTS SUBDIVISION

APPENDIX VI:
UPDATED TRAFFIC REPORT

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

DONALD L. WOLFE, Director

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IN REPLY PLEASE
REFER TO FILE: T-4

January 25, 2007

Mr. Scott Sato, P.E.
Urban Crossroads, Inc.
41 Corporate Park, Suite 300
Irvine, CA 92606

Dear Mr. Sato:

PACIFIC HEIGHTS DEVELOPMENT
TENTATIVE TRACT NO. 51153
REVISED TRAFFIC IMPACT STUDY (APRIL 28, 2003)
HACIENDA HEIGHTS AREA

As requested, we have reviewed the above-mentioned document. The proposed project is located at the southerly terminus of Apple Creek Lane south of Colima Road between Hacienda Boulevard and Azusa Avenue in the unincorporated County of Los Angeles area of Hacienda Heights.

The proposed project consists of the development of 47 single-family residences. The project is estimated to generate approximately 450 vehicle trips daily, with 35 and 47 vehicle trips during the a.m. and p.m. peak hours, respectively.

We generally agree with the study that the traffic generated by the project alone will not significantly impact the County and County/City intersections in the area.

We also agree with the study that the project will not have any significant impacts to the Congestion Management Program monitored intersections, arterials, or freeways.

Caltrans has reviewed the proposed project and determined that the project will not have a significant impact to their facilities. No further information is required.

If you have any questions regarding our review of the Traffic Study, please contact Mr. Patrick Arakawa of our Traffic Studies Section at (626) 300-4867.

Very truly yours,

DONALD L. WOLFE
Director of Public Works

WILLIAM J. WINTER
Assistant Deputy Director
Traffic and Lighting Division

EMD:cn
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cc: Caltrans (Cheryl Powell)
Department of Regional Planning (Rudy Silvas)

URBAN
CROSSROADS

41 Corporate Park, Suite 300
Irvine, CA 92606

Prepared by:

Scott Sato P.E.
Saba Hadid

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HACIENDA HEIGHTS
TRAFFIC IMPACT ANALYSIS
HACIENDA HEIGHTS, CALIFORNIA

December 15, 2006

04495-02
SS:SH:lm

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HACIENDA HEIGHTS
TRAFFIC IMPACT ANALYSIS
LOS ANGELES COUNTY, CALIFORNIA

1.0 INTRODUCTION

The purpose of this revised traffic impact analysis (TIA) is to evaluate the potential impacts of the proposed Hacienda Heights development from a traffic circulation standpoint. Based on direction from County Staff, current traffic counts have been collected at the study area intersections. This TIA will provide an evaluation of the following traffic conditions:

- Existing
- Existing plus ambient growth
- Existing plus ambient growth plus project

Also included in this TIA will be the recommendations regarding the project access.

1.1 Proposed Project Development

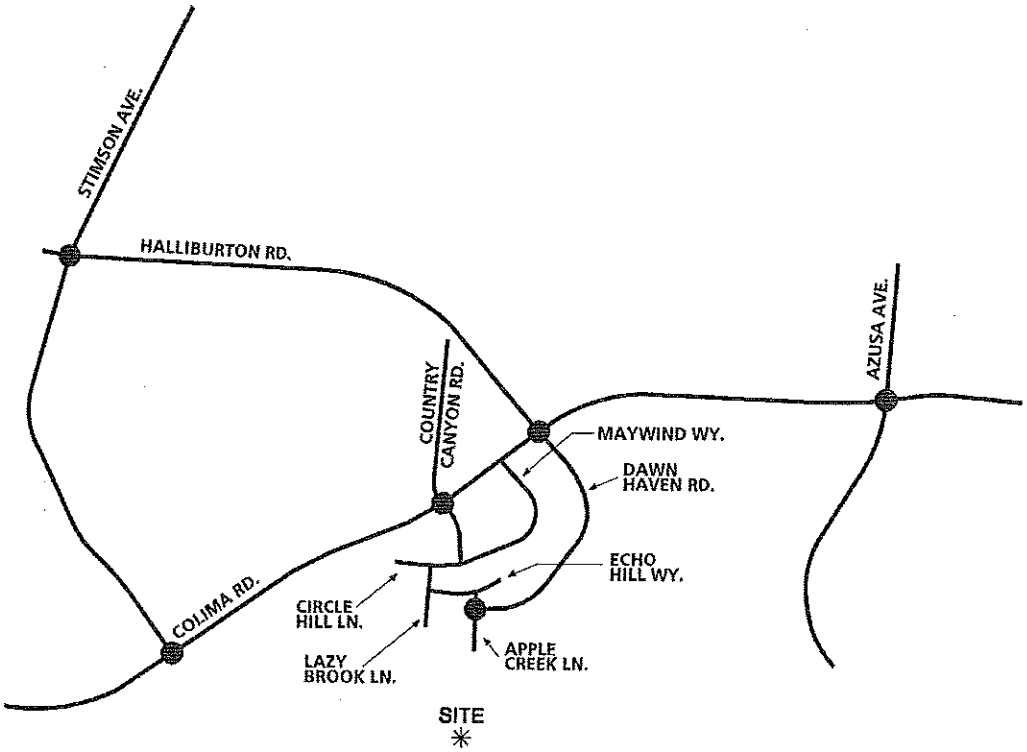
The proposed Hacienda Heights residential project is located at the southerly terminus of Apple Creek Lane, south of Colima Road between Hacienda Boulevard and Azusa Avenue in the County of Los Angeles. Exhibit 1-A illustrates the location of the project site in relation to the surrounding roadway system. The proposed project consists of 47 single-family detached residential dwelling units. The site plan for the proposed project is shown on Exhibit 1-B.

1.2 Project Access

The project site is proposed to have access to Colima Road via Apple Creek Lane and Dawn Haven Road. Regional access is available through State Route 60 (SR-60) Freeway.

EXHIBIT 1-A

INTERSECTION ANALYSIS LOCATION MAP



LEGEND:

● = INTERSECTION ANALYSIS LOCATION

N

HACINEDA HEIGHT TR 51153, California - 04495: 01 IA LOC MAP

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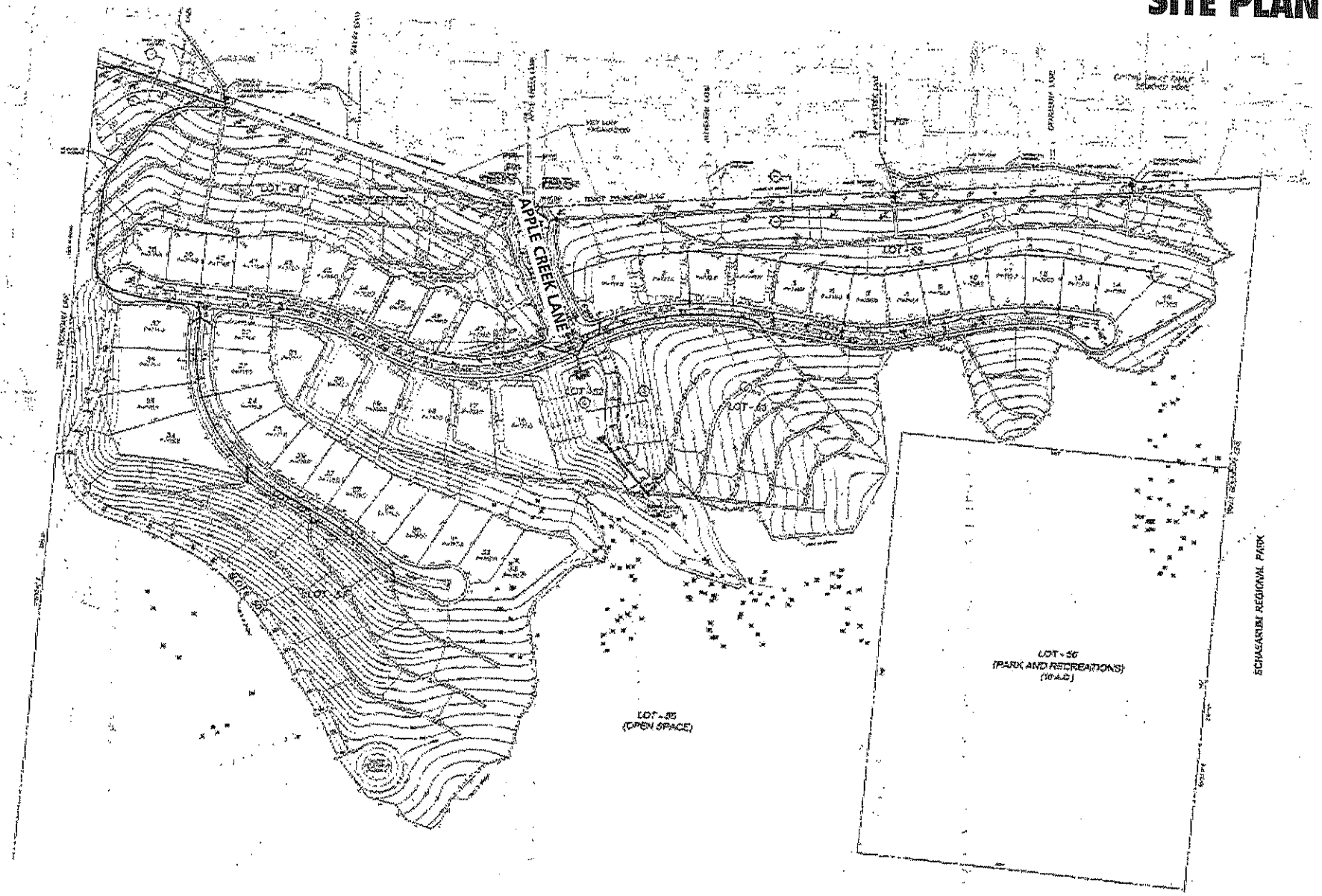
EXHIBIT 1-B

SITE PLAN



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URBAN CROSSROADS

1.3 Ambient Growth

The opening year for the proposed project is anticipated to be Year 2009. To account for Year 2009 traffic conditions, ambient traffic volumes will be added to the roadway system. An annual growth rate of 1.0 % per year for a total growth of 3% will be applied to the existing traffic volumes to reflect the Year 2009 conditions.

1.4 Cumulative Development Traffic Volumes

Cumulative projects have not been identified and therefore have not been included in this study based on direction and discussions with Los Angeles County staff.

1.5 Traffic Study Findings

A. Existing With Ambient Growth Plus Project traffic conditions analysis show that the study area intersections are projected to operate at acceptable levels of service during the peak hours, with existing geometry condition.

B. No significant impact is anticipated at the study area intersections or along Apple Creek Lane due to the additional project traffic.

C. Based upon the analysis presented in this study, the following recommendations are provided:

- Provide stop sign, stop bar and stop legend at the southbound approach of the southerly extension of Apple Creek Lane at Pacific Heights Drive.

- Provide stop sign, stop bar and stop legend at the northbound approach of Summit Place at Pacific Heights Drive.

- Sight distance within the internal project intersections should be reviewed with respect to Caltrans and Los Angeles County sight distance standards at the time of preparation of final grading, landscape and street improvement plans.

- Internal traffic signing and striping should be implemented in conjunction with detailed construction plans for the project.

1.6 Los Angeles County Congestion Management Program (CMP) Consistency Requirements

The purpose of the Los Angeles County Congestion Management Program (CMP) is to address the impact of local growth on the regional transportation system. The goals of the CMP are summarized below:

- To link local land use decisions with their impacts on regional transportation, and air quality;

- To develop a partnership among transportation decision makers on devising appropriate transportation solutions that include all modes of travel; and

- To provide transportation projects which are eligible to compete for state gas tax funds.

The CMP offers the following mechanisms to meet these goals:

- Tracking and analysis to determine how the regional highway and transit systems are performing;

- Analysis of the impacts of local land use decisions on regional transportation;

- Local implementation of Transportation Demand Management design guidelines that ensure new development includes improvements supportive of transit and TDM;
- Tracking new building activity throughout Los Angeles County; and
- Implementation of local strategies which benefit the regional transportation system and offset the impact of new development.

The L.A. CMP criteria indicates that the following issues be reviewed in conjunction with preparing a CMP Traffic Impact Analysis:.

- All CMP arterial monitoring intersections, including freeway on-or off-ramp intersections, where the proposed project will add 50 or more trips during either the a.m. or p.m. peak hours.
- Main line freeway monitoring locations where the project will add 150 or more trips. in either direction, during the a.m. or p.m. weekday peak hours.
- Caltrans must also be consulted to identify other specific locations to be analyzed on the State highway system.

Since the project site is anticipated to generate less than 50 vehicle movements in either of the peak hours, it is anticipated that a CMP analysis is not required.

2.0 EXISTING CONDITIONS

2.1 Study Area Street System

Existing roadways in close proximity to the proposed project site include Apple Creek Lane, Dawn Haven Road, Halliburton Road, Country Canyon Road, Stimson Avenue, Azusa Avenue and Colima Road. Exhibit 2-A illustrates the number of through lanes and intersection controls in the vicinity of the study area.

Existing and future roadways are included in the Los Angeles County Highway Plan and are illustrated on Exhibit 2-B. The exhibit shows the nature and extent of arterial highways that are needed to adequately serve the ultimate development depicted by the land use element and serves to coordinate future arterials between local jurisdictions. Exhibit 2-C depicts the Los Angeles County typical roadway cross-sections.

Apple Creek Road: it is a two-lane undivided residential street with a north-south orientation. The project is located on the southerly terminus of the street.

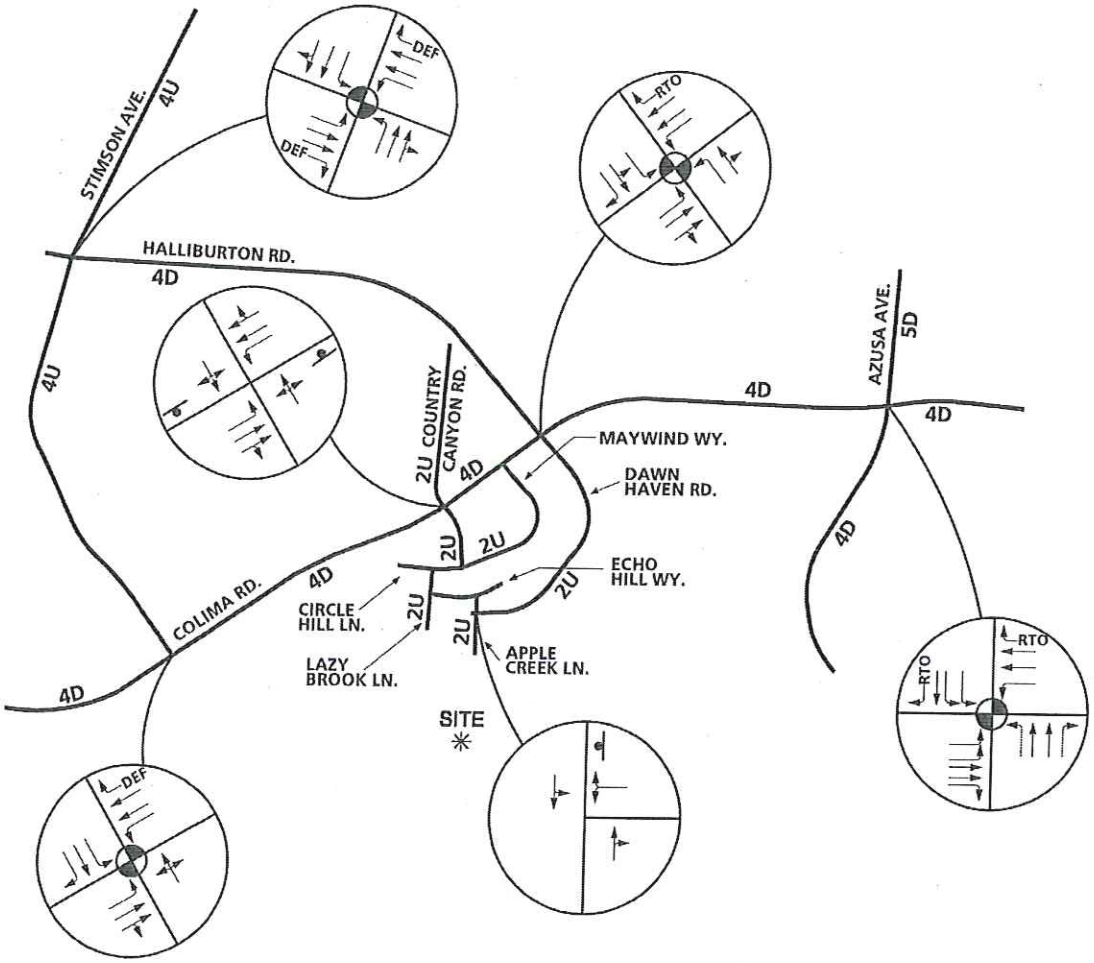
Dawn Haven Road: it is a two-lane undivided residential street that serves as the main access roadway to Colima Road. It becomes Halliburton Road north of Colima Road.

Halliburton Road: it is a two-lane undivided roadway with an east-west orientation. It becomes Dawn Haven Road south of Colima Road.

Country Canyon Road: it is a two-lane undivided residential street with a north-south orientation. The project may have access to Colima Road through Country Canyon Road via Circle Hill Lane, Lazy Brook Lane and Echo Hill Way.

EXHIBIT 2-A

EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS



LEGEND:

- = TRAFFIC SIGNAL
- = STOP SIGN
- 4 = NUMBER OF LANES
- D = DIVIDED
- U = UNDIVIDED
- RTO = RIGHT TURN OVERLAP
- DEF = DEFACTO RIGHT TURN LANE

N

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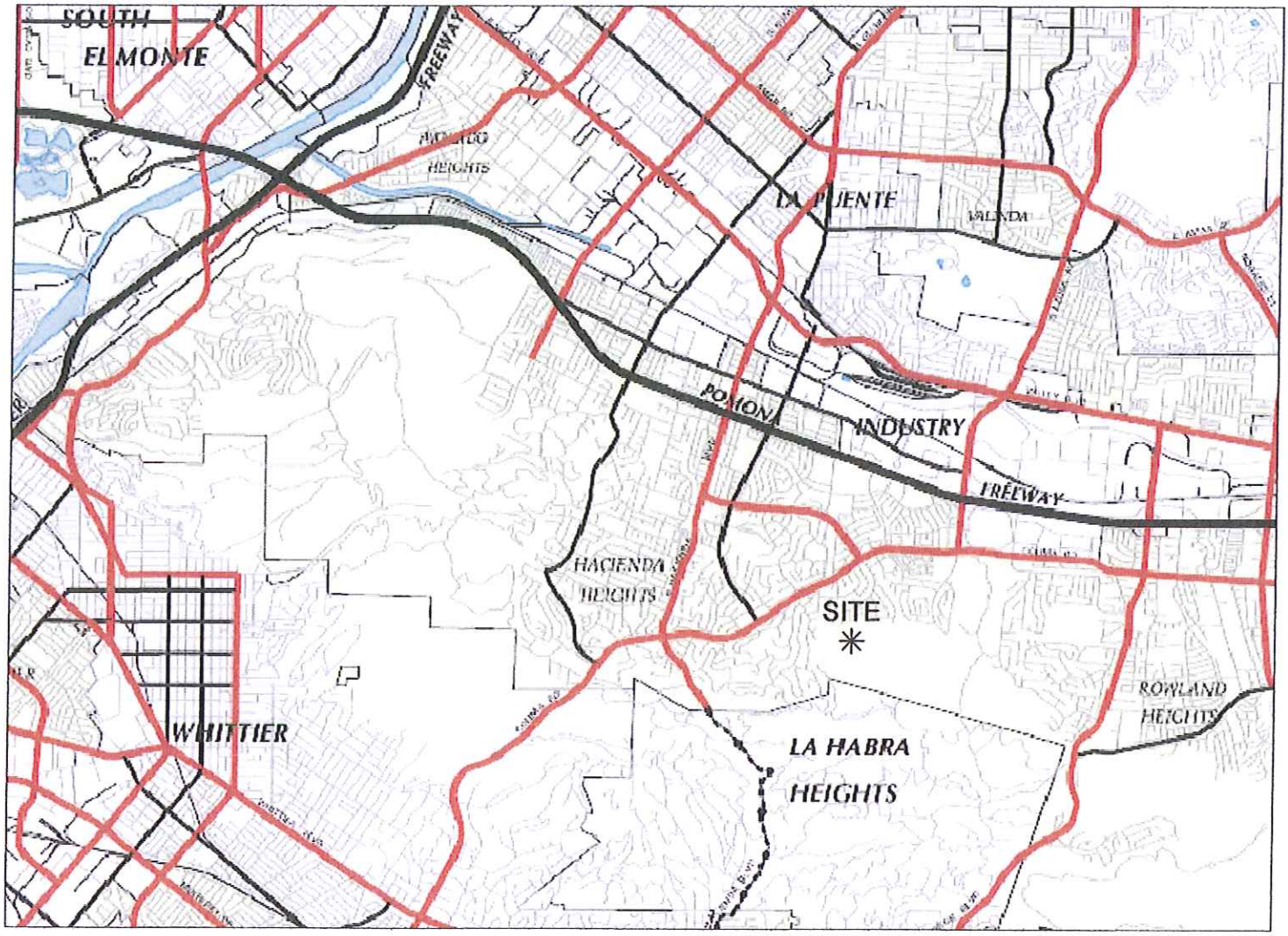
EXHIBIT 2-B

LOS ANGELES COUNTY HIGHWAY PLAN



LEGEND:

MAJOR HIGHWAY
100 feet standard right of way width

- Existing
- Proposed

SECONDARY HIGHWAY
80 feet standard right of way width

- Existing
- Proposed

LIMITED SECONDARY HIGHWAY
64 to 80 feet standard right of way width

- Existing
- Proposed

PARKWAY
Right of way width variable - 80 feet minimum

- Existing
- Proposed

EXPRESSWAY
Right of way width variable - 100 feet maximum

- Existing
- Proposed

FREEWAY
Right of way width variable

- Existing
- Proposed

OTHER MAP FEATURES

- National Forest Boundary
- Unincorporated Area of Los Angeles County
- Local Street (Thomas Bros. Maps Co. street file)

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SOURCE: COUNTY OF LOS ANGELES

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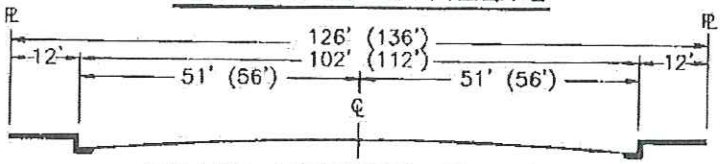
URBAN CROSSROADS

EXHIBIT 2-C

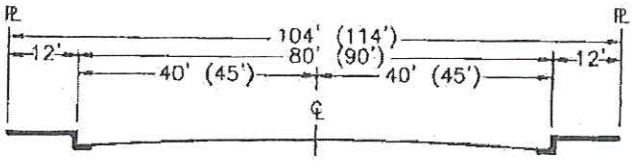
LOS ANGELES COUNTY TYPICAL ROADWAY CROSS-SECTIONS

ARTERIAL STREETS



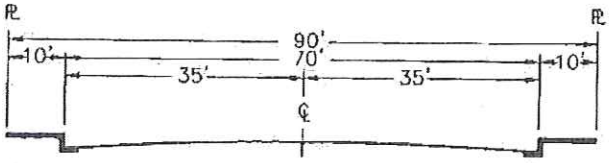
MAJOR HIGHWAY—CLASS I

At intersections with other Major Highways, the larger widths shown in parentheses should be provided, as determined by LADOT, utilizing a Standard Flare Section.



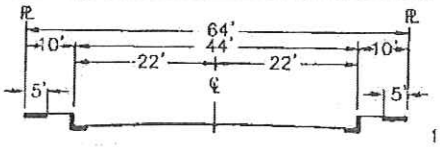
MAJOR HIGHWAY—CLASS II

At intersections where LADOT has determined that dual left turn lanes are required, the larger widths shown in parentheses shall be provided, utilizing a Standard Flare Section.



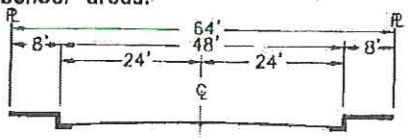
SECONDARY HIGHWAY

NON—ARTERIAL STREETS



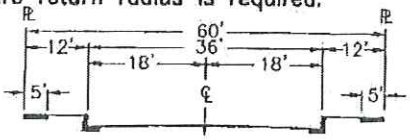
COLLECTOR STREET

For use in quarter mile streets and school areas.



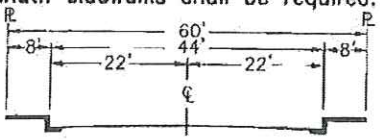
INDUSTRIAL COLLECTOR STREET

For use in industrial areas to assist the flow of local truck traffic within those areas to adjacent arterial streets. A 35' curb return radius is required.



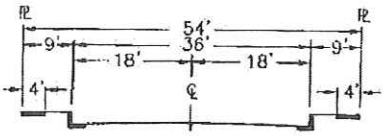
LOCAL STREET

In commercial and multiple residential areas, a 40-foot roadway with 10-foot parkways, and full-width sidewalks shall be required.



INDUSTRIAL LOCAL STREET

For use in industrial areas. A 35' curb return radius is required.



NONCONTINUOUS LOCAL STREET

May include cul-de-sac, loop streets and short connector streets. Where an approved internal pedestrian system is provided the parkway on one side may be reduced to 3-feet.

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SOURCE: COUNTY OF LOS ANGELES

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Stimson Avenue: it is a four-lane undivided roadway with a north-south orientation.

Azusa Avenue: it is a six-lane divided roadway between SR-60 Freeway and Colima Road, and a four-lane divided roadway south of Colima Road. It runs in a north-south orientation with SR-60 loop ramps along Azusa Avenue.

Colima Road: it is a four-lane divided roadway with an east-west orientation.

2.2 Existing Traffic

Existing daily traffic volumes on arterial highways throughout the study area are shown on Exhibit 2-D. Average daily traffic volumes (ADT) are based upon factoring up the peak hour intersection counts using the following formula:

Leg Volume = PM peak hour (inbound leg volume + outbound leg volume) * 10

2.3 Existing Intersection Operations Analysis

Pursuant to the attached scoping agreement (see Appendix "A") and multiple discussions with County of Los Angeles staff, the study area includes the following existing intersections:

Stimson Avenue (NS) at:

- Halliburton Road (EW)
- Colima Rd. (EW)

Country Canyon Road (NS) at:

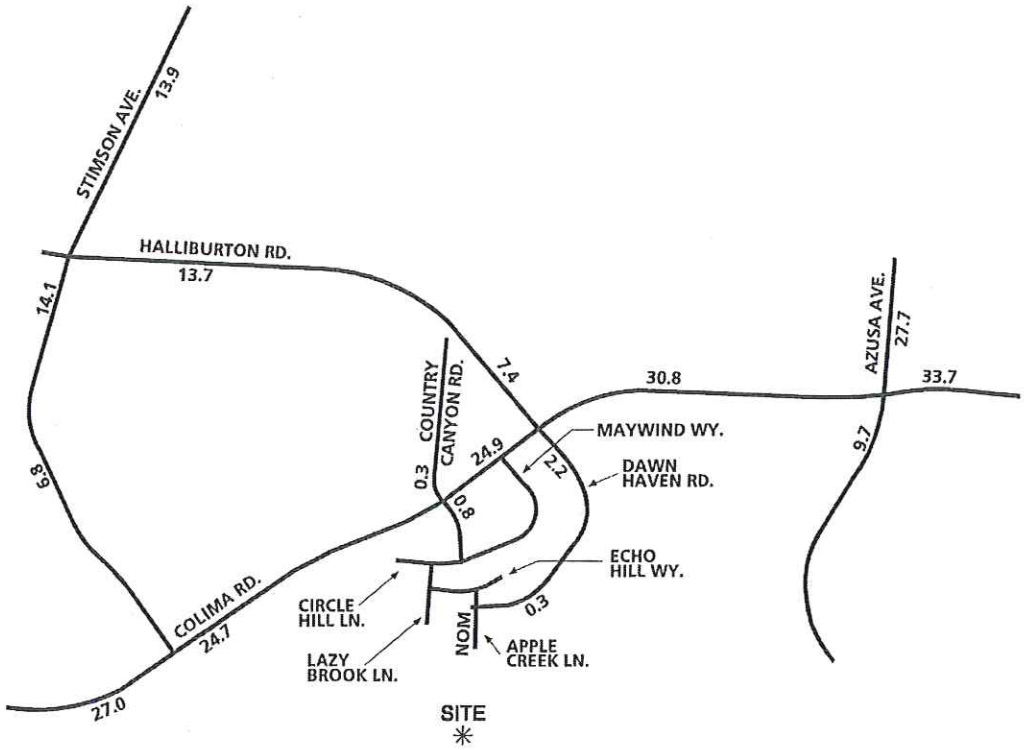
- Colima Road (EW)

Apple Creek Lane (NS) at:

- Dawn Haven Road (EW)

EXHIBIT 2-D

EXISTING AVERAGE DAILY TRAFFIC (ADT)



LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

NOM = NOMINAL, LESS THAN 50 VEHICLES PER DAY

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Halliburton Road (NS) at:

- Colima Road (EW)

Azusa Avenue (NS) at:

- Colima Road (EW)

The Los Angeles County Traffic Impact Analysis Report Guidelines have been used to evaluate the performance of the study area intersections.

The technique used to assess the operation of an intersection is known as Intersection Capacity Utilization (ICU). To calculate an ICU the volume of traffic using the intersection is compared with the capacity of the intersection. ICU is usually expressed as a percent. The percent represents that portion of the hour required to provide sufficient capacity to accommodate all intersection traffic if all approaches operate at capacity.

The definitions of level of service for uninterrupted flow (flow unrestrained by the existence of traffic control devices) are:

- LOS "A" represents free flow. Individual users are virtually unaffected by the presence of others in the traffic stream.

- LOS "B" is in the range of stable flow, but the presence of other users in the traffic stream begins to be noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver.

- LOS "C" is in the range of stable flow, but marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream.

- LOS "D" represents high-density but stable flow. Speed and freedom to maneuver are severely restricted, and the driver experiences a generally poor level of comfort and convenience.

- LOS "E" represents operating conditions at or near the capacity level. All speeds are reduced to a low, but relatively uniform value. Small increases in flow will cause breakdowns in traffic movement.

- LOS "F" is used to define forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount which can traverse the point. Queues form behind such locations.

Calculation Method:

a. Intersection Capacity Utilization (ICU) for study area intersections

b. Daily volume/capacity ratio (V/C) for study links

c. Saturation Flow Rate

   Saturation flow value of 1,600 vehicles per lane per hour for intersections; 2,880 vehicles per lane per hour for dual left-turn lanes.

d. Clearance Interval

   A clearance interval factor of 10% (0.10) is applied to the ICU calculations.

e. Level of Service Ranges

   The following thresholds are used in assigning a letter value to the resulting LOS:

LOS	CRITICAL VOLUME TO CAPACITY RATIO
A	0.00 - 0.60
B	0.61 - 0.70
C	0.71 - 0.80
D	0.81 - 0.90
E	0.91 - 1.00
F	> 1.00

f. Peak-Periods

Weekday peak-hour analysis periods are defined as follows:

7:00 to 9:00 AM
4:00 to 6:00 PM

g. Peak-Hour

The highest one-hour period in both the AM and PM peak periods, as determined by four consecutive 15-minute count periods are used in the ICU calculations. Both AM and PM peak hours are studied.

h. Peak-Hour Data Consistency

Variations in peak-hour volumes can affect LOS calculations because they vary from day-to-day. To minimize these variations, no counts are taken on Mondays, Fridays, holidays or weekends.

i. Right Turn Movements

If the distance from the edge of the outside through lane is at least 19 feet and parking is prohibited during the peak period, right turning vehicles may be assumed to utilize this "unofficial" right turn lane.

Otherwise, all right turn traffic is assigned to the through lane. If a right turn lane exists, right turn activity is checked for conflicts with other critical movements. It is assumed that right turn movements are accommodated during non-conflicting left turn phases (e.g., northbound right turns during westbound left turn phase), as well as non-conflicting through flows (e.g., northbound right turn movements and north/south through flows). Right turn movements become critical when conflicting movements (e.g., northbound right turns, southbound left turns, and eastbound through flows) represent a sum of V/C ratios which are greater than the normal through/left turn critical movements.

If a free right turn lane exists (right turns do not have to stop for the signal), a flow rate of 1,600 vehicles per hour per lane is assumed. The V/C ratio of the right turn lane is reported but not included in the sum of the critical V/C ratios.

The ICU's for the intersections in the vicinity of the site are shown in Table 2-1. Existing ICU's are based upon manual AM and PM peak hour turning movement counts conducted for Urban Crossroads, Inc. in December 2006 (see Exhibits 2-E and 2-F, respectively). Existing peak hour intersection traffic count sheets are included in Appendix "B".

For existing traffic conditions, the study area intersections are currently operating at acceptable levels of service during the peak hours, with existing geometry conditions. Existing operation analysis worksheets for existing conditions are provided in Appendix "C".

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TABLE 2-1
INTERSECTION ANALYSIS FOR EXISTING TRAFFIC CONDITIONS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1]												ICU[2]		LEVEL OF SERVICE	
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND						
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Stimson Avenue (NS) • Halliburton Road (EW)	TS	1	2	0	1	2	0	1	2	1	1	2	1	0.622	0.743	B	C
Stimson Avenue (NS) • Colima Road (EW)	TS	0	1!	0	1	1	1	1	2	0	1	2	1	0.833	0.708	D	C
Country Canyon Road (NS) • Colima Road (EW)	CSS	0	1!	0	0	1!	0	1	2	0	1	2	0	0.641	0.594	B	A
Apple Creek Lane (NS) • Dawn Haven Road (EW)	CSS	0	1	0	0.5	0.5	0	0	0	0	0	1!	0	0.126	0.120	A	A
Halliburton Road(NS) • Colima Road (EW)	TS	1	1	0	1.5	0.5	1	1	2	0	1	2	1	0.637	0.638	B	B
Azusa Avenue (NS) • Colima Road (EW)	TS	1	2	1	2	1	1	2	2	1	1	2	1	0.728	0.807	C	D

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right

[2] Intersection Capacity Utilization (ICU) Planning Method (Volume-to-Capacity ratio)

[3] TS = Traffic Signal
CSS = Cross Street Stop

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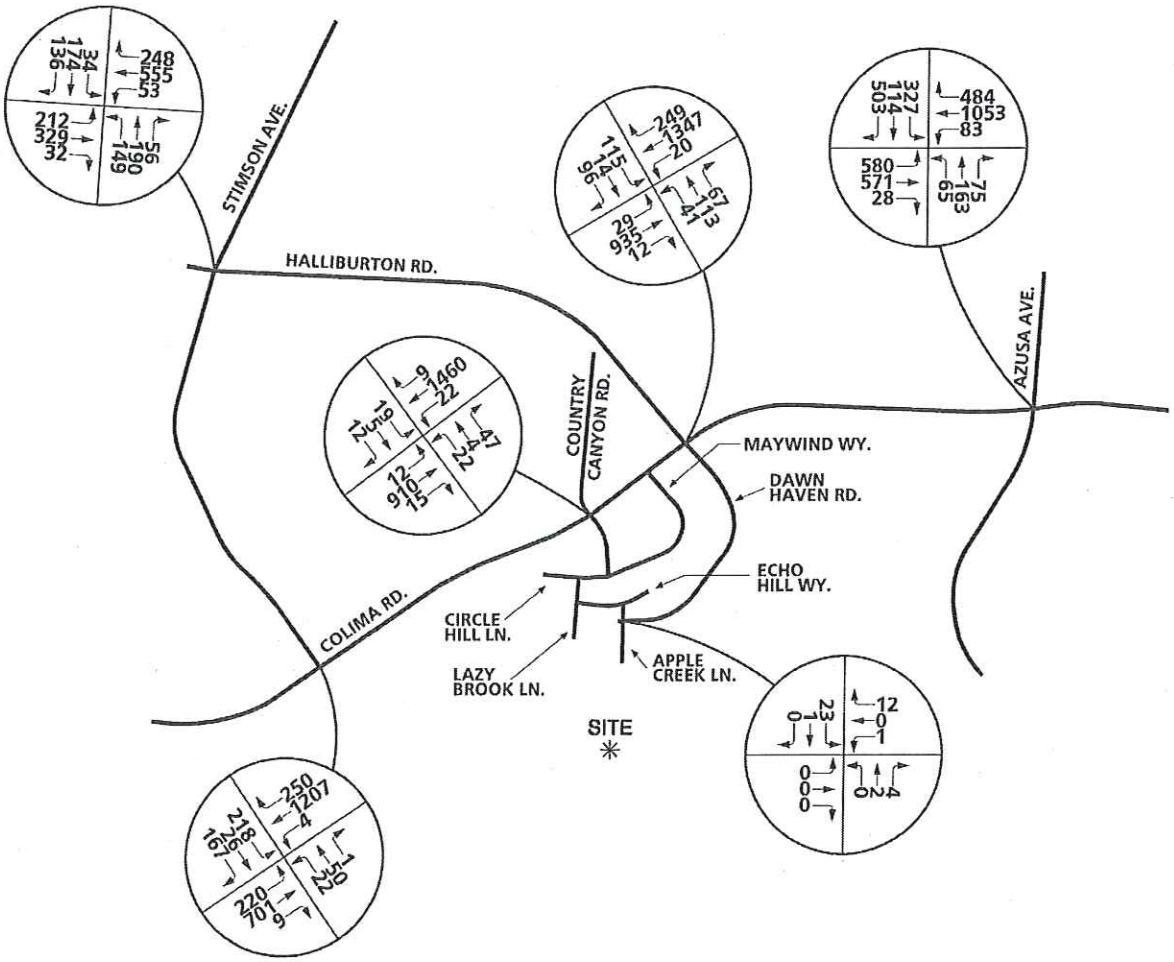
EXHIBIT 2-E

EXISTING AM PEAK HOUR INTERSECTION VOLUMES



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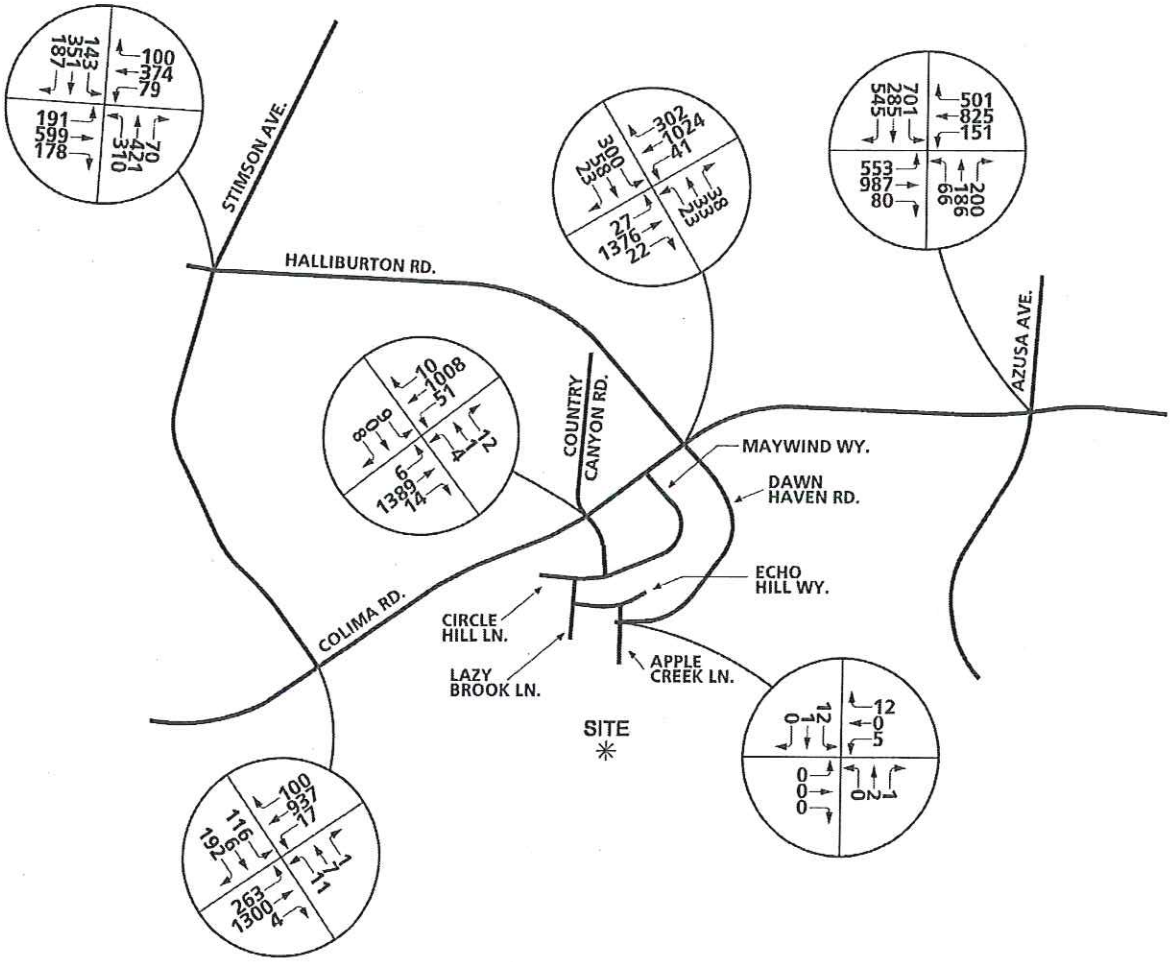
URBAN CROSSROADS

EXHIBIT 2-F

EXISTING PM PEAK HOUR INTERSECTION VOLUMES



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3.0 PROJECT DEVELOPMENT

3.1 Project Trip Generation

The trip generation for this project has been estimated, based upon the specific land uses that have been planned for the Hacienda Heights project. Trip generation rates for the project are shown in Table 3-1, based upon data collected by the Institute of Transportation Engineers (ITE).

The trip generation estimates have been calculated based on 47 single-family residential dwelling units. As Table 3-2 indicates, the proposed use is expected to generate a total of 450 daily trip ends with 35 trips occurring during the AM peak hour and 47 during the PM peak hour.

3.2 Project Trip Distribution

Trip distribution represents the directional orientation of traffic to and from the project site. Trip distribution is heavily influenced by the geographical location of the site, commercial developments and employment opportunities. The directional orientation of traffic was determined by evaluating surrounding land uses within the community.

Trip distribution for this study has been based upon near-term conditions. The trip distribution patterns for the proposed project are graphically depicted on Exhibit 3-A.

3.3 Modal Split

The traffic reducing potential of public transit has not been considered in this report. Essentially the traffic projections are "conservative" in that public transit might be able to reduce the traffic volumes.

TABLE 3-1

TRIP GENERATION RATES[1]

LAND USE	ITE CODE	QUANTITY	UNITS[2]	PEAK HOUR TRIP RATES						DAILY
				AM			PM			
				IN	OUT	TOTAL	IN	OUT	TOTAL	
Single Fam. Detached	210	47	DU	0.19	0.56	0.75	0.64	0.37	1.01	9.57

[1] Source: ITE (Institute of Transportation Engineers) Trip Generation Manual, 7th Edition, 2003.

[2] DU = Dwelling Units

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TABLE 3-2

TRIP GENERATION SUMMARY

LAND USE	QUANTITY	UNITS[1]	PEAK HOUR						DAILY
			AM			PM			
			IN	OUT	TOTAL	IN	OUT	TOTAL	
Single Fam. Detached	47	DU	9	26	35	30	17	47	450
Total			9	26	35	30	17	47	450

[1] DU = Dwelling Units

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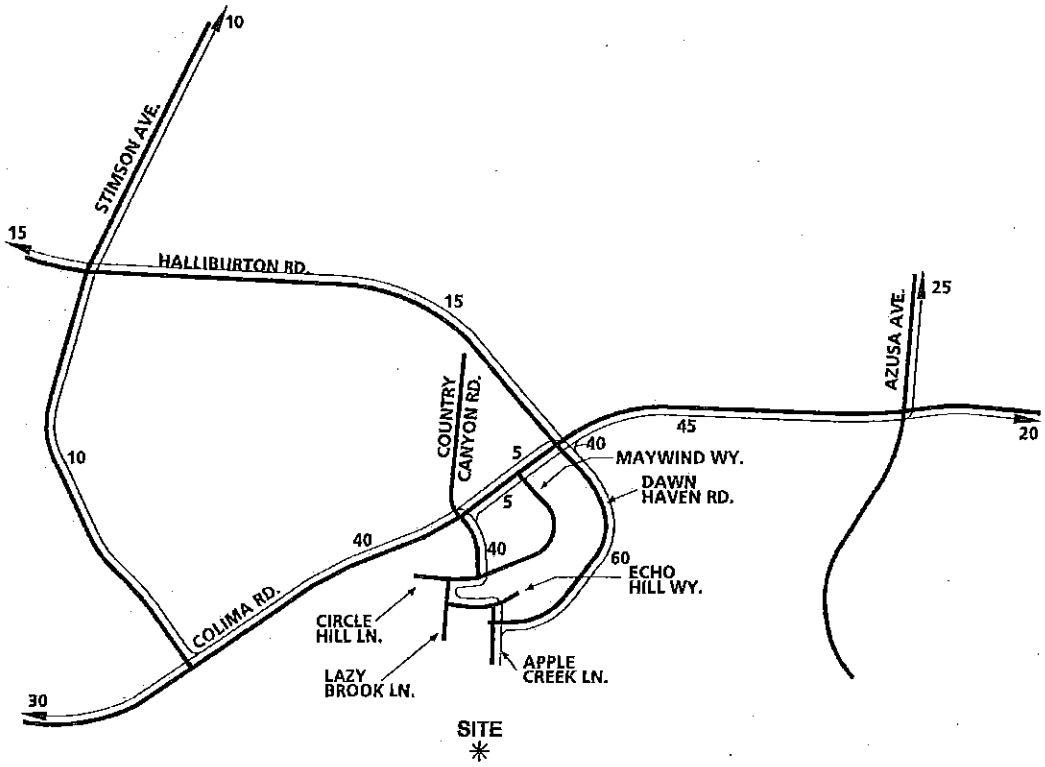
EXHIBIT 3-A

PROJECT TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

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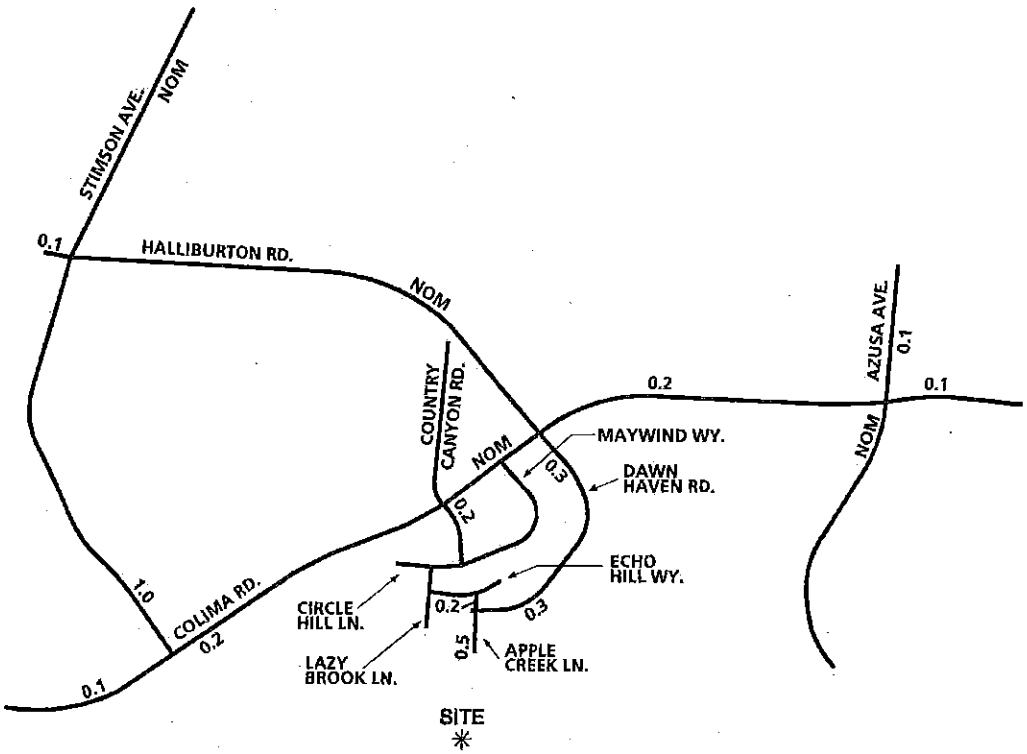
3.4 Project Trip Assignment

The assignment of traffic from the site to the adjoining roadway system has been based upon the site's trip generation, trip distributions, proposed arterial highway and local street systems, which would be in place by the time of occupancy of the project. The average daily traffic for the project is depicted in Exhibit 3-B. The AM and PM peak hour traffic volumes associated with the project have been assigned to the study area roadway system. These traffic volumes are illustrated on Exhibits 3-C and 3-D for the respective timeframes.

EXHIBIT 3-B

PROJECT AVERAGE DAILY TRAFFIC (ADT)



LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

NOM = NOMINAL, LESS THAN 50 VEHICLES PER DAY

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EXHIBIT 3-C

PROJECT AM PEAK HOUR INTERSECTION VOLUMES

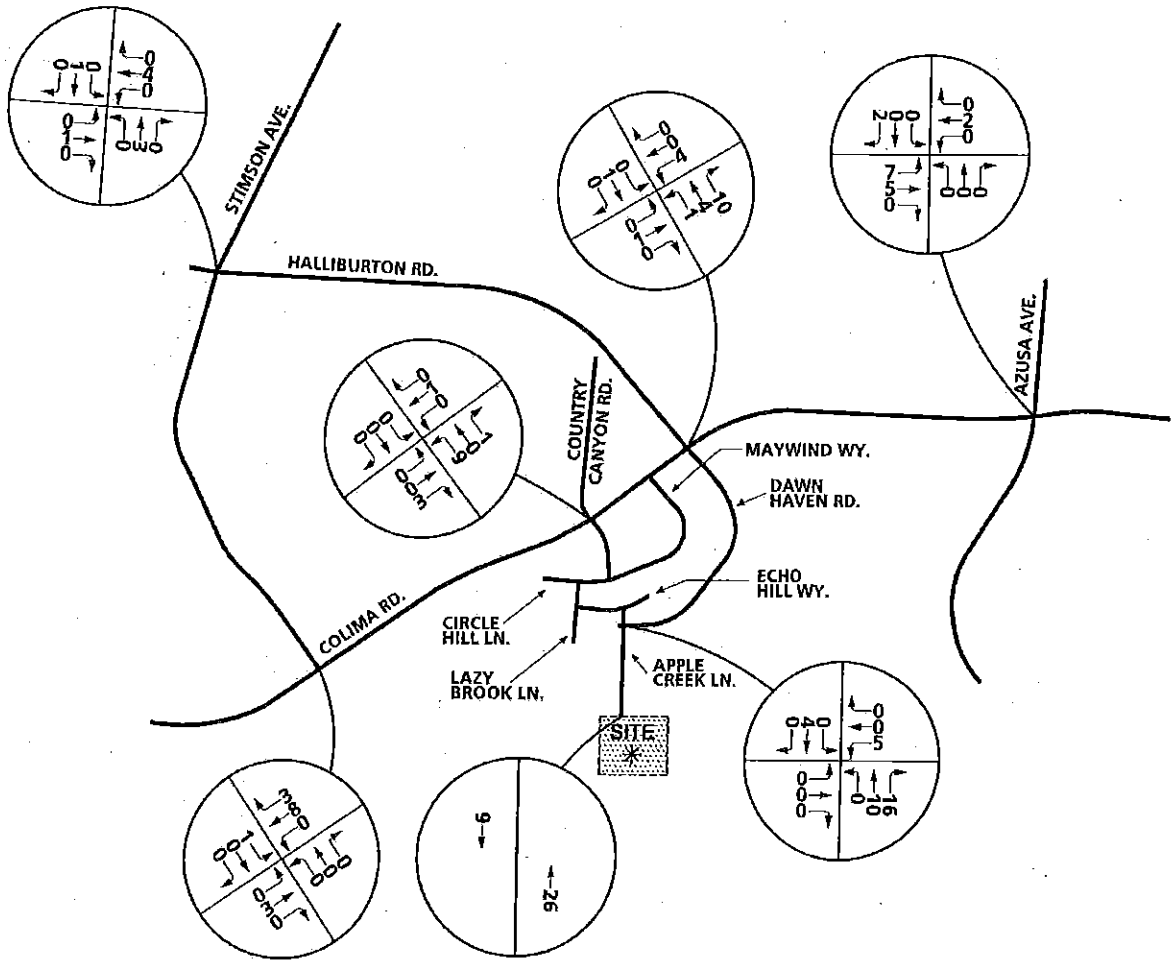

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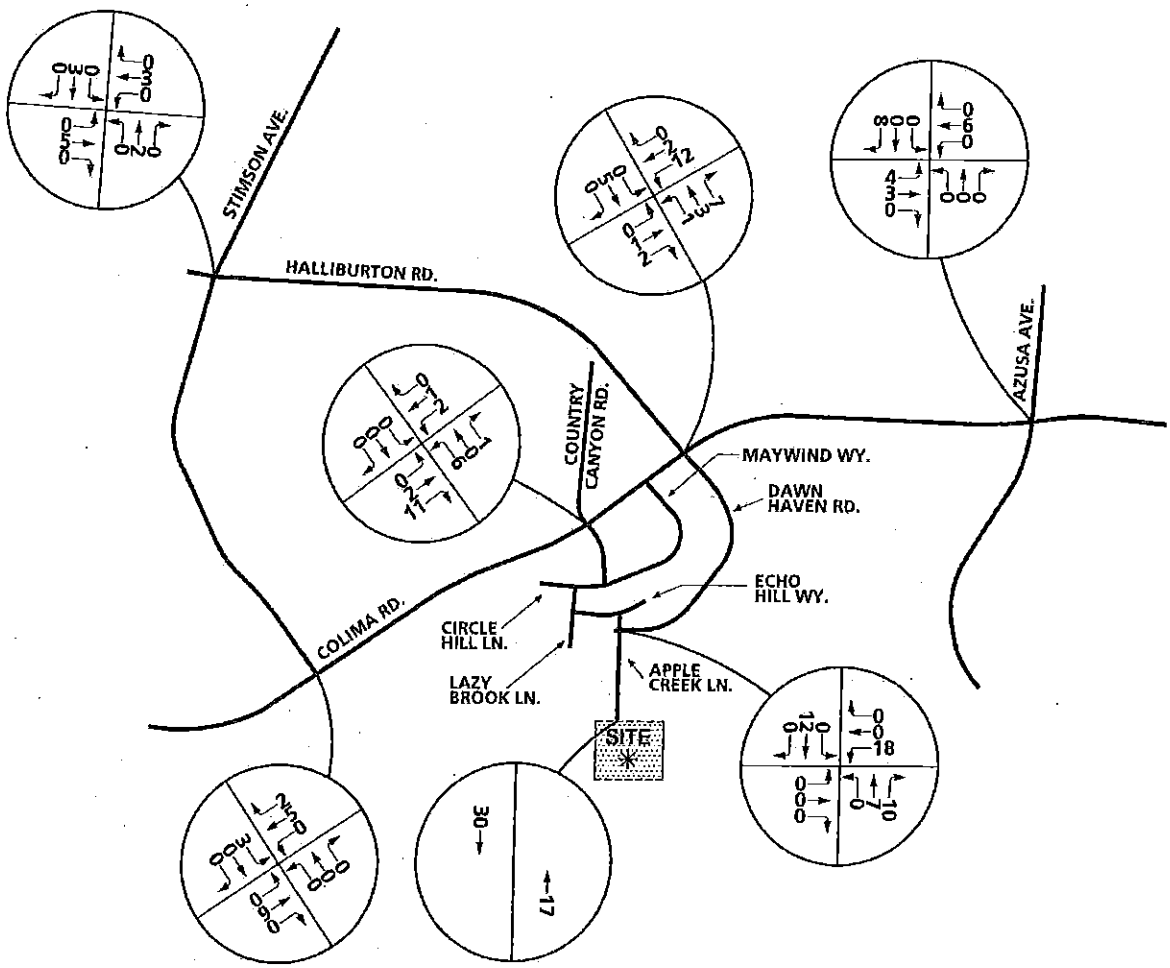
EXHIBIT 3-D

PROJECT PM PEAK HOUR INTERSECTION VOLUMES



4.0 FUTURE TRAFFIC CONDITIONS

Based on the Los Angeles County traffic impact analysis requirements, the following future traffic scenarios have been analyzed to assess the potential impacts associated with the proposed project:

- Existing With Ambient Growth
- Existing With Ambient Growth Plus Proposed Project

4.1 Existing With Ambient Growth Traffic Conditions

Method of Projection

To assess Existing With Ambient Growth traffic conditions, existing traffic is combined with ambient growth. The study year for analysis purposes in this report is 2006.

To account for ambient growth on roadways, future traffic volumes have been calculated based on a 1.0 percent annual growth rate of existing traffic volumes over a three year period (2009) for a total of 3.0 percent.

Existing Plus Ambient Growth Average Daily Traffic

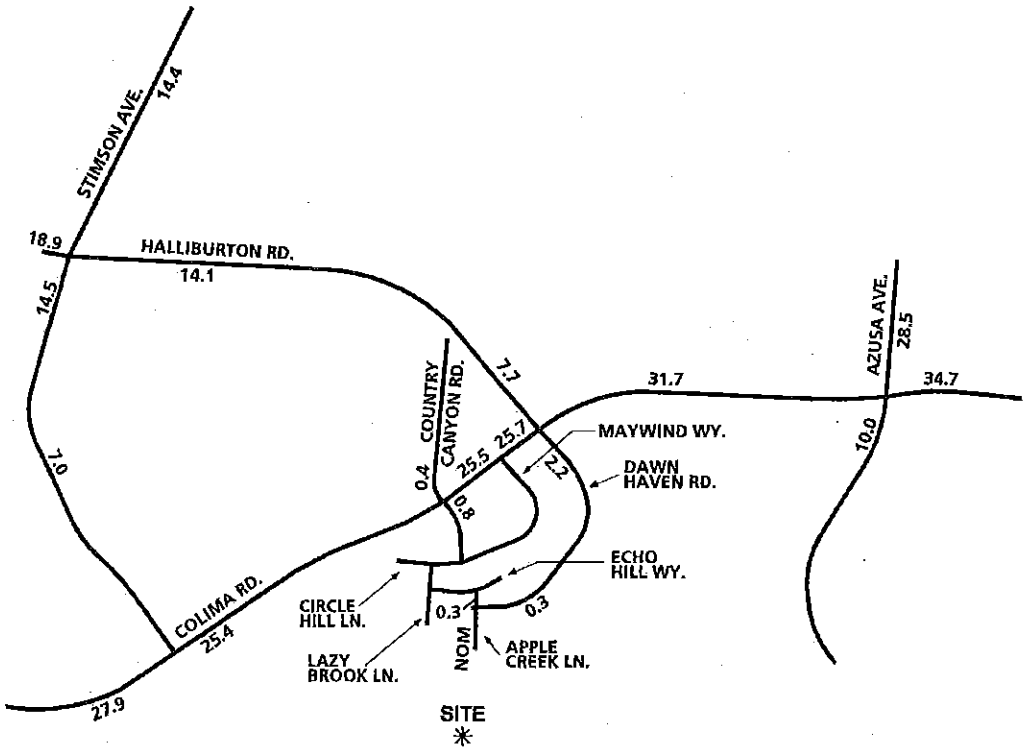
Exhibit 4-A shows ADT volumes for Existing With Ambient Growth traffic conditions. For Existing With Ambient Growth traffic conditions, no traffic signals are projected to be warranted at the unsignalized study area intersections. .

Existing With Ambient Growth Intersection Analysis

Intersection levels of service for Existing With Ambient Growth traffic conditions have been calculated and are shown in Table 4-1. Table 4-1 shows calculations

EXHIBIT 4-A

EXISTING WITH AMBIENT GROWTH AVERAGE DAILY TRAFFIC (ADT)



LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

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URBAN CROSSROADS

TABLE 4-1
INTERSECTION ANALYSIS FOR
EXISTING WITH AMBIENT GROWTH TRAFFIC CONDITIONS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1]												ICU[2]		LEVEL OF SERVICE	
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND						
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Stimson Avenue (NS) • Halliburton Road (EW)	TS	1	2	0	1	2	0	1	2	1	1	2	1	0.638	0.762	B	C
Stimson Avenue (NS) • Colima Road (EW)	TS	0	1l	0	1	1	1	1	2	0	1	2	1	0.855	0.727	D	C
Country Canyon Road (NS) • Colima Road (EW)	CSS	0	1l	0	0	1l	0	1	2	0	1	2	0	0.657	0.608	B	A
Apple Creek Lane (NS) • Dawn Haven Road (EW)	CSS	0	1	0	0.5	0.5	0	0	0	0	0	1l	0	0.127	0.120	A	A
Halliburton Road(NS) • Colima Road (EW)	TS	1	1	0	1.5	0.5	1	1	2	0	1	2	1	0.656	0.657	B	B
Azusa Avenue (NS) • Colima Road (EW)	TS	1	2	1	2	1	1	2	2	1	1	2	1	0.750	0.831	C	D

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right

[2] Intersection Capacity Utilization (ICU) Planning Method (Volume-to-Capacity ratio)

[3] TS = Traffic Signal
CSS = Cross Street Stop

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based on the existing geometrics at the intersections. As shown in Table 4-1, the study area intersections are projected to operate at acceptable levels of service during the peak hours, with existing geometry conditions for Existing With Ambient Growth conditions.

Existing With Ambient Growth Level of Service calculation worksheets are included in Appendix "D". Existing With Ambient Growth AM and PM peak hour turning movement volumes are shown on Exhibits 4-B and 4-C, respectively.

4.2 Existing With Ambient Growth Plus Project Traffic Conditions

Method of Projection

To assess Existing With Ambient Growth Plus Project conditions, project-related traffic volumes are combined with the Existing With Ambient Growth traffic volumes.

Existing With Ambient Growth Plus Project Average Daily Traffic

Exhibit 4-D shows ADT volumes for Existing With Ambient Growth Plus Project traffic conditions.

For Existing With Ambient Growth Plus Project traffic conditions, a traffic signal is not projected to be warranted at the unsignalized study area intersections.

EXHIBIT 4-B

EXISTING WITH AMBIENT GROWTH AM PEAK HOUR INTERSECTION VOLUMES

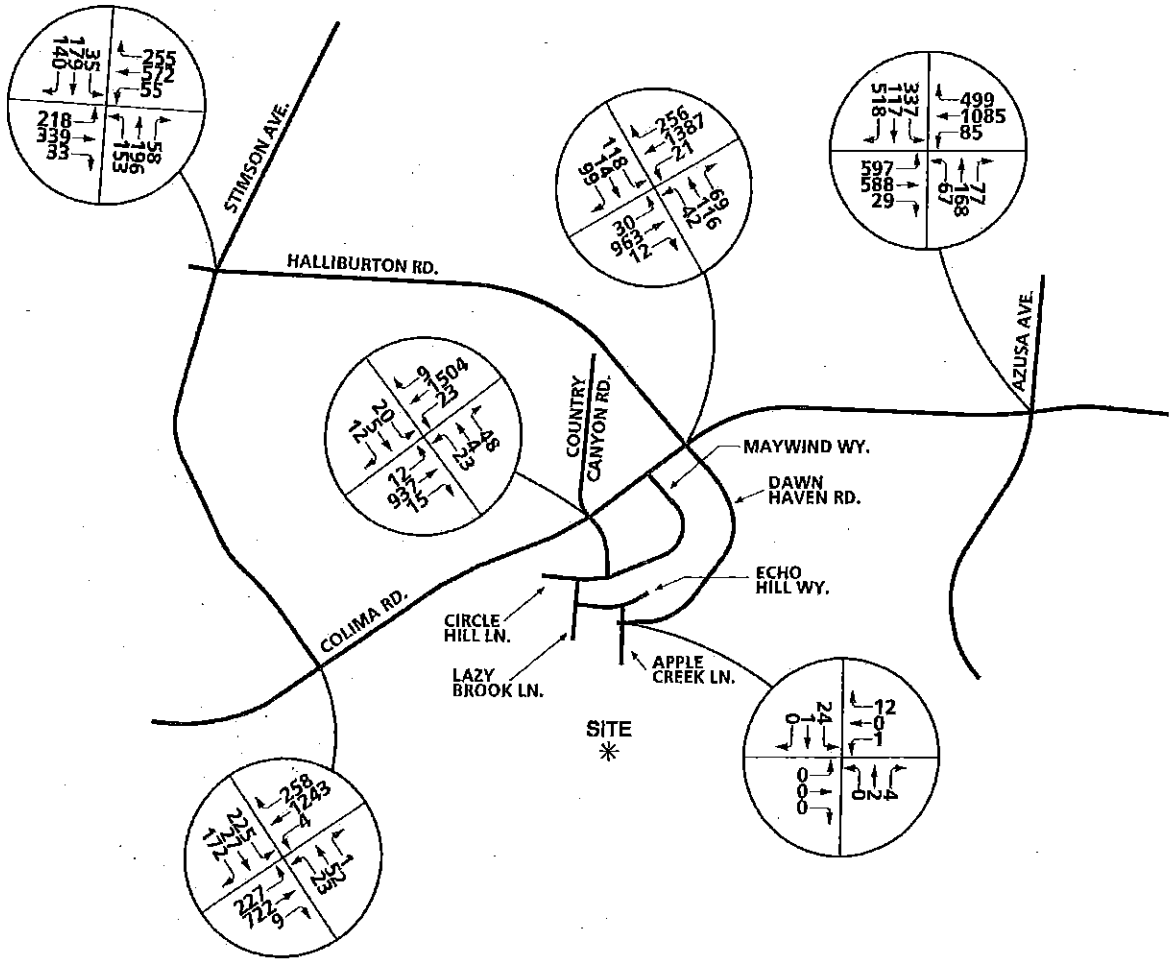
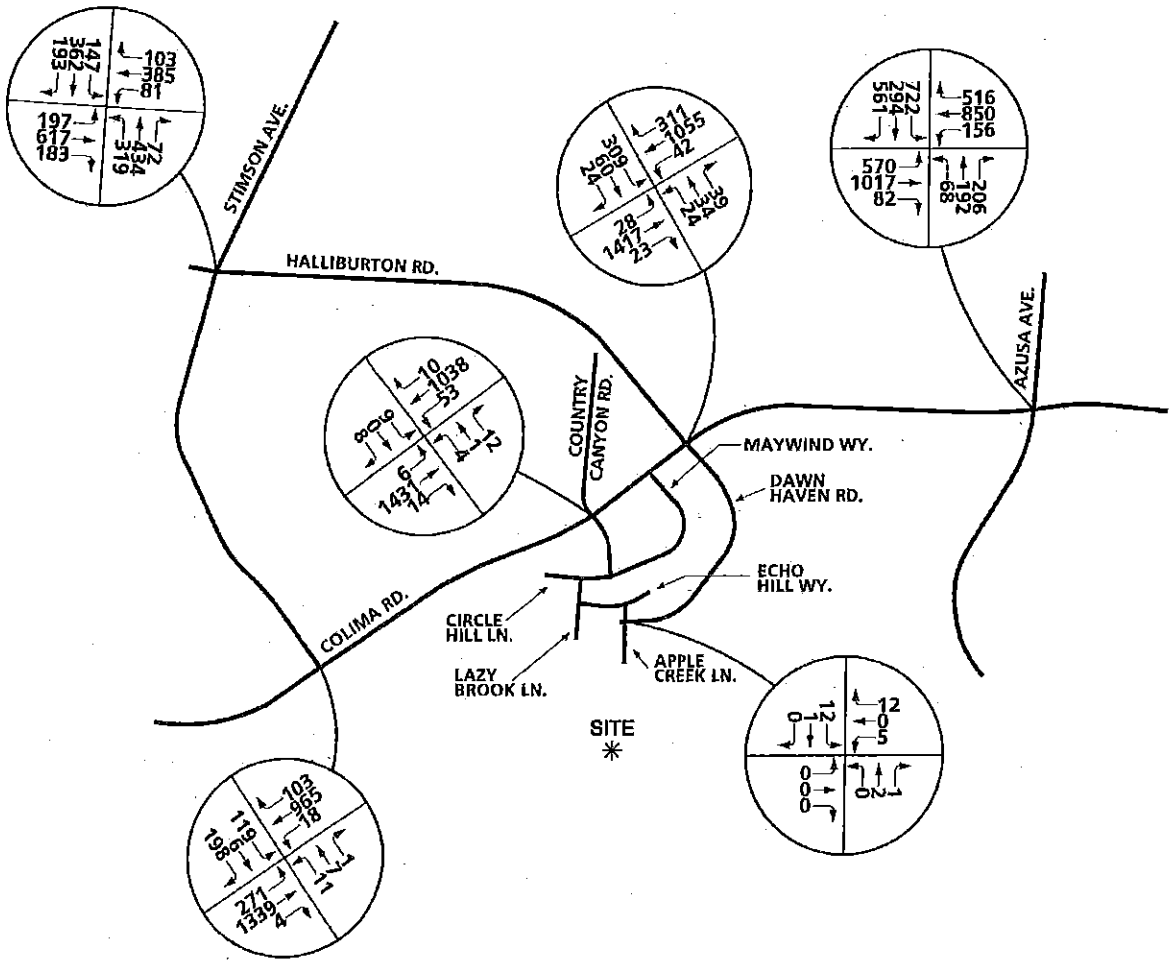


EXHIBIT 4-C

EXISTING WITH AMBIENT GROWTH PM PEAK HOUR INTERSECTION VOLUMES



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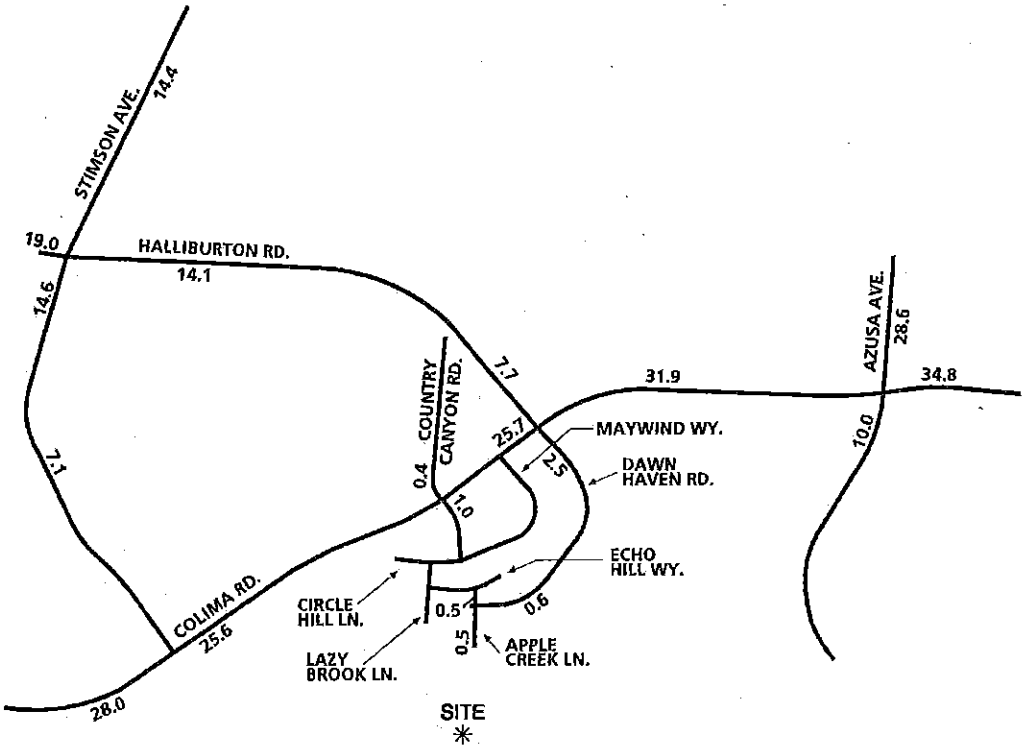
URBAN CROSSROADS

EXHIBIT 4-D

EXISTING WITH AMBIENT GROWTH PLUS PROJECT AVERAGE DAILY TRAFFIC (ADT)



LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

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URBAN CROSSROADS

Existing With Ambient Growth Plus Project Intersection Analysis

Intersection levels of service for Existing With Ambient Growth Plus Project traffic conditions have been calculated and are shown in Table 4-2. Table 4-2 shows calculations based on the existing geometrics at the intersections. As shown in Table 4-2, the study area intersections are projected to operate at acceptable levels of service during the peak hours, with existing geometry conditions for Existing With Ambient Growth Plus Project conditions

Existing With Ambient Growth Plus Project Level of Service calculation worksheets are included in Appendix "E". Existing With Ambient Growth Plus Project AM and PM peak hour turning movement volumes are shown on Exhibits 4-E and 4-F, respectively.

4.3 Existing With Ambient Growth Plus Project And Cumulative Developments Traffic

Method of Projection

A cumulative project that could potentially add traffic to the study area intersections have not been identified and therefore have not been included in this study based on direction and discussion with Los Angeles County staff.

TABLE 4-2
INTERSECTION ANALYSIS FOR
EXISTING WITH AMBIENT GROWTH PLUS PROJECT TRAFFIC CONDITIONS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1]												ICU[2]		LEVEL OF SERVICE	
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND						
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Stimson Avenue (NS) • Halliburton Road (EW)	TS	1	2	0	1	2	0	1	2	1	1	2	1	0.639	0.764	B	C
Stimson Avenue (NS) • Colima Road (EW)	TS	0	1l	0	1	1	1	1	2	0	1	2	1	0.859	0.728	D	C
Country Canyon Road (NS) • Colima Road (EW)	CSS	0	1l	0	0	1l	0	1	2	0	1	2	0	0.664	0.615	B	B
Apple Creek Lane (NS) • Dawn Haven Road (EW)	CSS	0	1	0	0.5	0.5	0	0	0	0	0	1l	0	0.147	0.143	A	A
Halliburton Road(NS) • Colima Road (EW)	TS	1	1	0	1.5	0.5	1	1	2	0	1	2	1	0.665	0.674	B	B
Azusa Avenue (NS) • Colima Road (EW)	TS	1	2	1	2	1	1	2	2	1	1	2	1	0.752	0.834	C	D

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right

[2] Intersection Capacity Utilization (ICU) Planning Method (Volume-to-Capacity ratio)

[3] TS = Traffic Signal
CSS = Cross Street Stop

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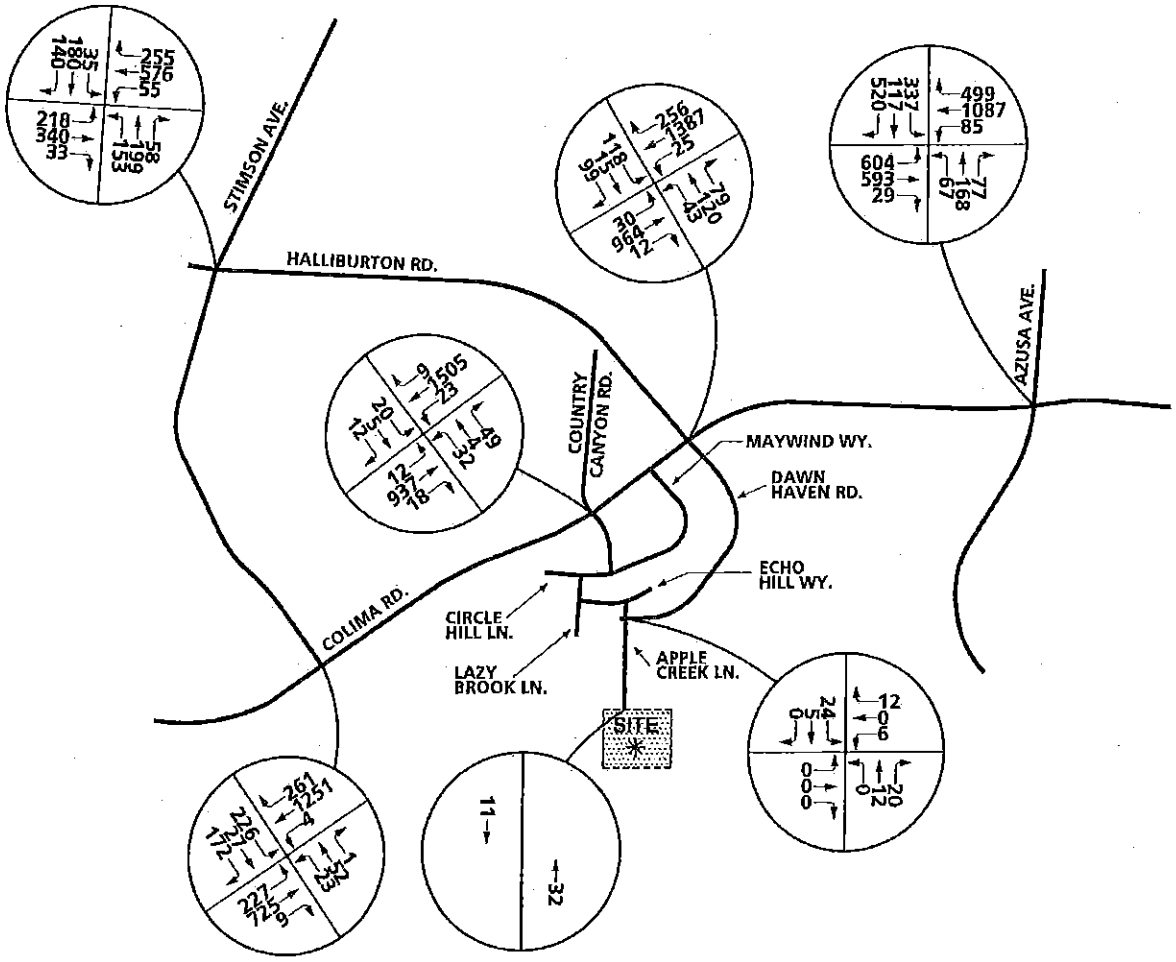
EXHIBIT 4-E

EXISTING WITH AMBIENT GROWTH PLUS PROJECT AM PEAK HOUR INTERSECTION VOLUMES



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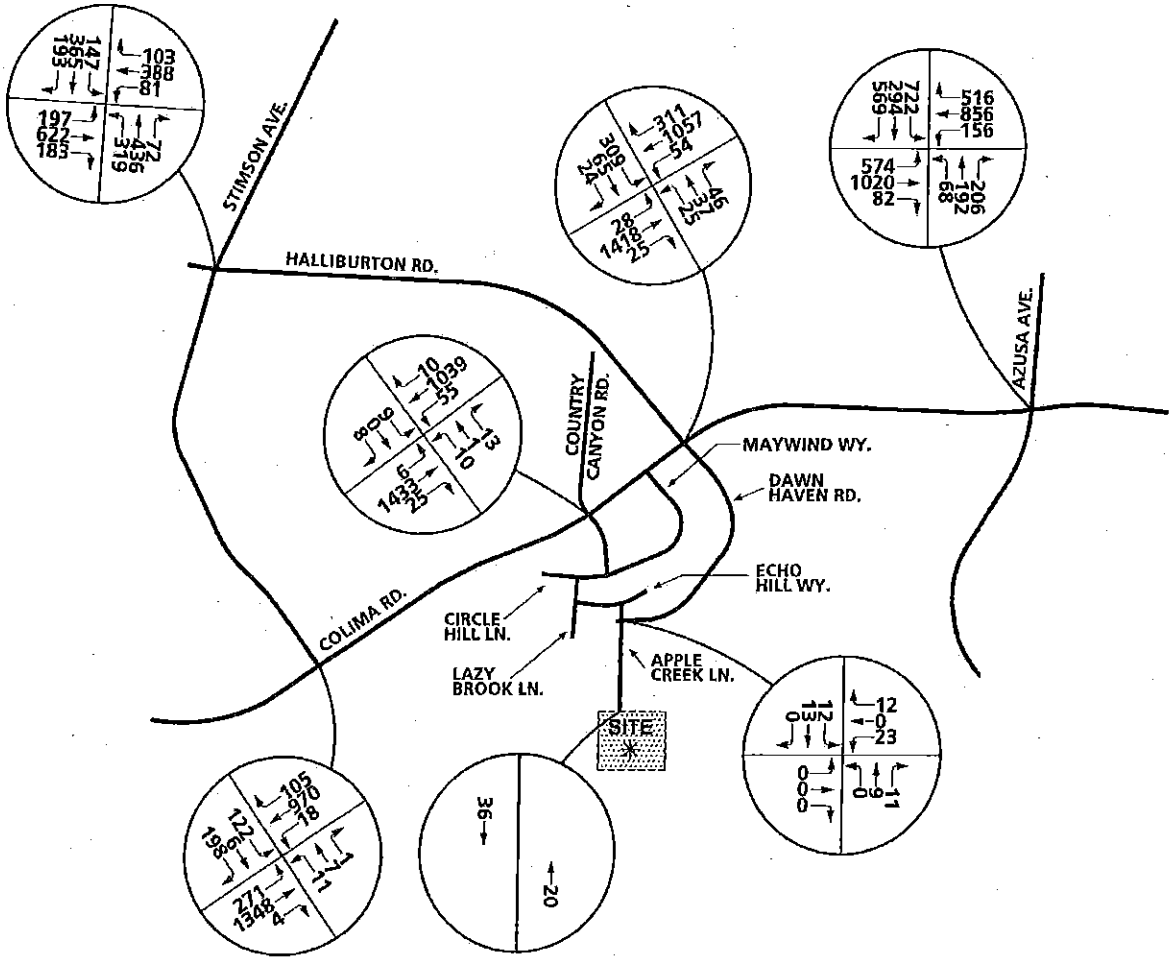
URBAN CROSSROADS

EXHIBIT 4-F

EXISTING WITH AMBIENT GROWTH PLUS PROJECT PM PEAK HOUR INTERSECTION VOLUMES



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4.4 Project Traffic Significant Impacts

SIGNIFICANT IMPACT

LEVEL OF SERVICE	FINAL V/C RATIO	PROJECT-RELATED INCREASE IN V/C
C	> 0.71 - 0.80	equal to or greater than 0.04
D	> 0.81 - 0.90	equal to or greater than 0.02
E, F	0.91 or greater	equal to or greater than 0.01

For the purposes of the traffic analysis conducted for the proposed Hacienda Heights site, the county's guidelines indicate that a significant impact is defined as an increase in the V/C ratio equal to or greater than 0.04 if the intersection is operating at LOS C, an increase in the V/C ratio equal to or greater than 0.02 if the intersection is operating at LOS D, an increase in the V/C ratio equal to or greater than 0.01 if the intersection is operating at LOS E or F. Table 4-5 summarizes the change in V/C ratios between "existing + ambient growth" and "existing + ambient growth + project" conditions for the study area intersections. As indicated in Table 4-5, no significant impact is anticipated at the study area intersections due to the additional project traffic.

TABLE 4-5
PROJECT TRAFFIC SIGNIFICANT IMPACTS

INTERSECTION	EXISTING + AMBIENT GROWTH				EXISTING + AMBIENT GROWTH + PROJECT				PROJECT TRAFFIC IMPACT		
	ICU[1]		LOS[2]		ICU[1]		LOS[2]		ICU[1]		SIGNIFICANT
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	IMPACT[3]
Stimson Avenue (NS) • Halliburton Road (EW)	0.638	0.762	B	C	0.639	0.764	B	C	0.001	0.002	No
Stimson Avenue (NS) • Colima Road (EW)	0.855	0.727	D	C	0.859	0.728	D	C	0.004	0.001	No
Country Canyon Road (NS) • Colima Road (EW)	0.657	0.608	B	A	0.664	0.615	B	B	0.007	0.007	No
Apple Creek Lane (NS) • Dawn Haven Road (EW)	0.127	0.120	A	A	0.147	0.143	A	A	0.02	0.023	No
Halliburton Road(NS) • Colima Road (EW)	0.656	0.657	B	B	0.665	0.674	B	B	0.009	0.017	No
Azusa Avenue (NS) • Colima Road (EW)	0.750	0.831	C	D	0.752	0.834	C	D	0.002	0.003	No

1 Intersection Capacity Utilization (ICU) Planning Method (Volume-to-Capacity ratio)

2 Level of service (LOS)

3 The project impact is considered significant if the project related increase in the volume-to-Capacity(V/C) ratio equals or exceeds 0.04 for LOS "C"(V/C=0.71 to 0.80),or 0.02 for LOS "D" (V/C=0.81 to 0.90), or 0.01 for LOS "E" and "F"(V/C=0.91 or more)

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5.0 SITE ACCESS ISSUES

5.1 Site Access

The project site is proposed to have access to Colima Road via Apple Creek Lane and Dawn Haven Road. Regional access is available through State Route 60 (SR-60) Freeway.

The firm of Urban Crossroads, Inc. recommends the following to improve the circulation to/from the site (see Exhibit 5-A):

- Provide stop sign, stop bar and stop legend at the southbound approach of the southerly extension of Apple Creek Lane at Hacienda Heights Drive.

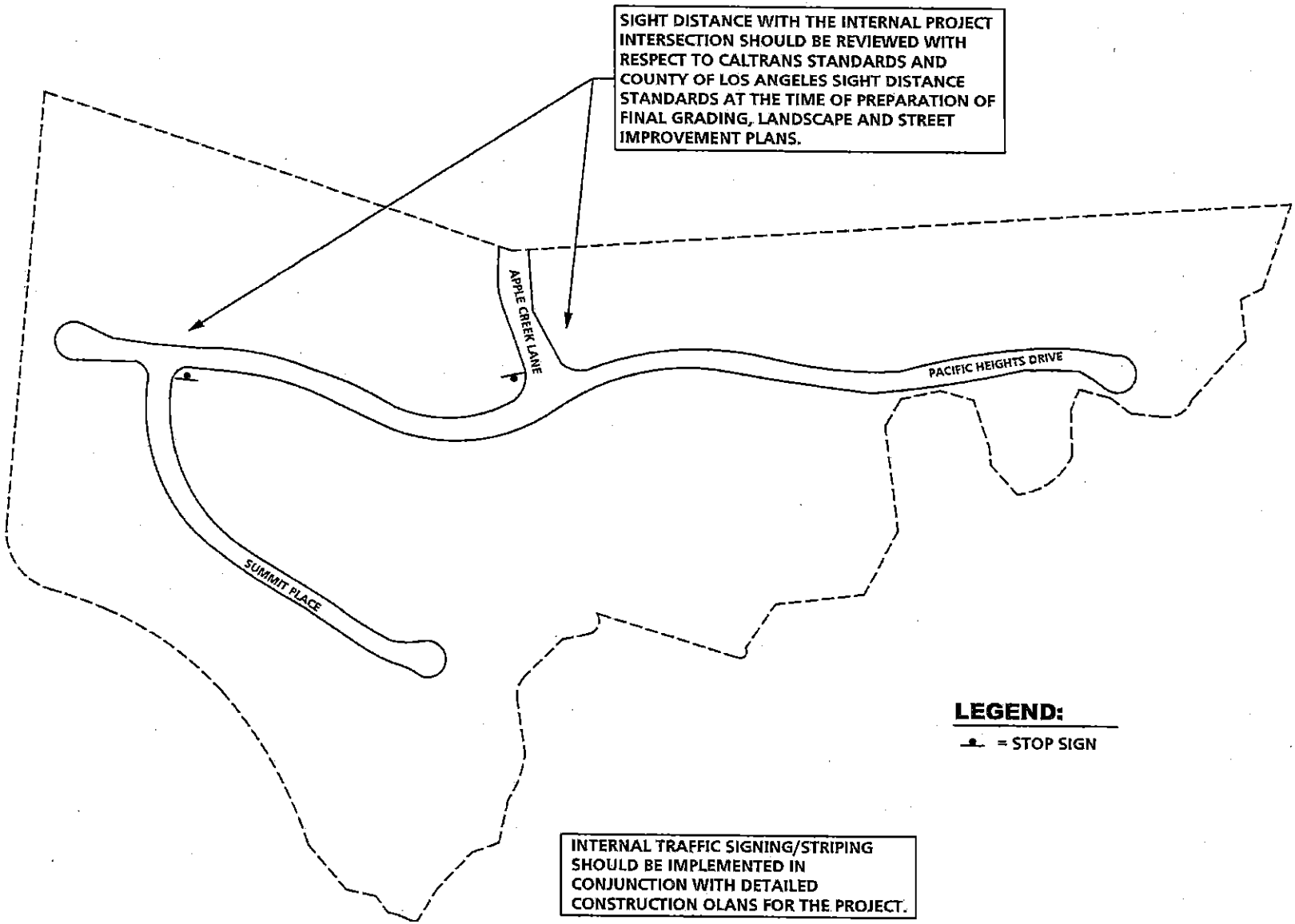
- Provide stop sign, stop bar and stop legend at the northbound approach of Summit Place at Hacienda Heights Drive.

- Sight distance within the internal project intersections should be reviewed with respect to Caltrans and Los Angeles County sight distance standards at the time of preparation of final grading, landscape and street improvement plans.

- Internal traffic signing and striping should be implemented in conjunction with detailed construction plans for the project.

EXHIBIT 5-A

CIRCULATION RECOMMENDATIONS



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6.0 CONCLUSIONS/RECOMMENDATIONS

The following findings have been reached for Existing and Future Conditions.

6.1 Existing Conditions

1. Existing roadways in close proximity to the proposed project site include Apple Creek Lane, Dawn Haven Road, Halliburton Road, Country Canyon Road, Stimson Avenue, Azusa Avenue and Colima Road. Exhibit 2-A presented previously, illustrates the number of through lanes and intersection controls in the vicinity of the study area.

2. Currently, the site is vacant and does not generate a significant amount of traffic.

3. For existing traffic conditions, no unsignalized study areas currently meet traffic signal warrant requirements.

6.2 Project Development

1. The proposed project consists of 47 single-family residential dwelling units. The proposed project is expected to generate a total of 450 daily trips, with 35 trips occurring during the AM peak hour, and 47 trips occurring during the PM peak hour.

6.3 Future Traffic Conditions

1. An ambient growth rate of 1.0 percent per year for three years for a total of 3.0 percent in the vicinity of the study area has been identified.

2. Existing With Ambient Growth traffic conditions analysis show that the study area intersections are projected to operate at acceptable levels of service during the peak hours, with existing geometry condition.

For Existing With Ambient Growth traffic conditions, no unsignalized study area intersections currently meet traffic signal warrant requirements.

3. Existing With Ambient Growth Plus Project traffic conditions analysis show that the study area intersections are projected to operate at acceptable levels of service during the peak hours, with existing geometry condition.

   For Existing With Ambient Growth Plus Project traffic conditions, no unsignalized study area intersections are projected to warrant a traffic signal.

   No significant impact is anticipated at the study area intersections or along Apple Creek Lane due to the additional project traffic.

6.4 Recommendations

Based upon the analysis presented in this study, the following recommendations are provided:

- Provide stop sign, stop bar and stop legend at the southbound approach of the southerly extension of Apple Creek Lane at Pacific Heights Drive.

- Provide stop sign, stop bar and stop legend at the northbound approach of Summit Place at Pacific Heights Drive.

- Sight distance within the internal project intersections should be reviewed with respect to Caltrans and Los Angeles County sight distance standards at the time of preparation of final grading, landscape and street improvement plans.

- Internal traffic signing and striping should be implemented in conjunction with detailed construction plans for the project.

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APPENDIX A

SCOPING AGREEMENT

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
TRAFFIC AND LIGHTING DIVISION
APPLICATION FOR ENVIRONMENTAL IMPACT REPORT
TRAFFIC STUDY REVIEW SERVICES, ORDINANCE NO. 91-0101

Road Fund No:	B03	Revenue Source	9254	Program No:	R291

Department Receipt No.:		Date:	12/05/2006
Project No.:		Studies No.:	EIR06232
Project Name:	Pacific Heights – TT51153		
Applicant/Engineer:	Scott Sato	Telephone No.:	(760) 931-0664
Company:	Urban Crossroads	Fax No.:	(760) 931-1741
Address:	5411 Carlsbad, #100		
City:	Carlsbad	CA	Zip: 90008

The traffic study (TS, required as part of the environmental review process, has been received. **Before a traffic study review can begin, the indicated fee must be paid to this Department.** The fee may be paid in person or mailed to:

In Person	By Mail
Cashier, Mezzanine (626) 458-6399 Los Angeles County Department of Public Works 900 South Fremont Avenue Alhambra, CA 91803-1331	Cashier, Mezzanine Los Angeles County Department of Public Works P.O. Box 1460 Alhambra, CA 91802-1460

Please **return this form** along with your payment to insure proper credit to your account. Make check payable to the **Los Angeles County Department of Public Works.**

TS review fees are based on the number of Average Daily Trips (ADT's) generated by the project and for six traffic conditions as indicated on page 5 of our 1997 guidelines, as follows:

ADT's		**FEE (Effective March 1, 2006)*		Phase
1 - 1,000		$1,461		
1,001 - 5,000		$2,920		
5,001 - 10,000		$3,653		
10,001 and over		$4,383		
ADT For This Project:	450	Fee:	**$1,461**	

* For additional information, http://planning.co.la.ca.us/drp_fees.html#filingFees
** Additional fee is required for additional traffic conditions/phases

	Processing Engineer	Telephone No.	Fax No.	E-Mail Address
	James CHON, P.E.	(626) 300-4721	(626) 300-4736	JChon@ladpw.org
	Lani, ALFONSO, P.E.	(626) 300-4748		LAlfonso@ladpw.org
	Suen Fei LAU, P.E.	(626) 300-4820		SFLau@ladpw.org
✔	Patrick ARAKAWA, P.E.	(626) 300-4867		PArakawa @ladpw.org
	Jesse CLINE	(626) 300-4823		JCline @ladpw.org
	Eric DUNLAP	(626) 300-4848		EDunlap@ladpw.org

cc: Cashier Note: Normal review time is 6-8 weeks after review fee is paid and receipt is received by Land Development Review Unit.

SCOPING FOR TRAFFIC STUDY

Project Name:	Hacienda Heights TT 51153

This Memorandum of Understanding (MOU) acknowledges Los Angeles County Department of Public Works, Traffic and Lighting Division (TLD) requirements of traffic impact analysis for the project and is subject to change:

Project Address:	Southerly terminus of Apple Creek Lane in the unincorporated Hacienda Heights area of Los Angeles County		
Project Description:	47 Single Family Detached Residential Units		
City:	Hacienda Heights		
Project Buildout Year:	2009	**Ambient or CMP Growth Rate per Year:**	1.0 %
Closest Intersection (Xtn) to the Project			
Xtn N/S Street Name:	Apple Creek Ln.		
Xtn E/W Street Name:	Dawn Haven Rd.		
Thomas Guide Pg+Grid:	678 E5	**Los Angeles County Supervisorial District:**	

	Consultant	Developer
Company:	Urban Crossroads, Inc.	Pacific Communities
Name:	Scott Sato	Elsa Trujillo
Address:	5411 Carlsbad, Suite 100	1000 Dove Street, Ste 100
City, State, Zip Code:	Carlsbad, CA, 92008	New Port Beach, CA 92660
Phone #:	(760) 931- 0664	(949) 660-8988
Fax #:	(760) 931- 1741	(949) 660-8866
Email:	ssato@urbanxroads.com	elsa@pcbinc.com

By: Scott Sato

Print Name: Scott Sato

Consultant/Developer's Representative **Date** 12/05/06

Reviewed By: Patrick Arakawa

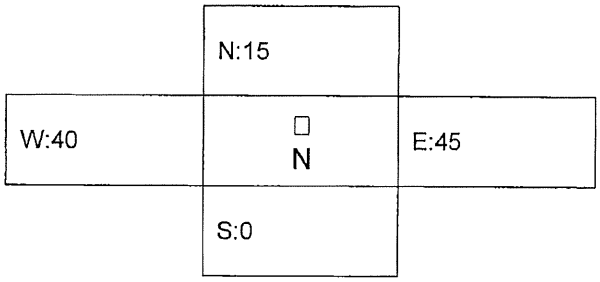
Print Name: PATRICK ARAKAWA 12-5-06

TLD's Representative **Date**

SCOPING FOR TRAFFIC STUDY

Project Name:	Hacienda Heights

1. Traffic Distribution: Figure(s) illustrating project trip distribution in percentages and volumes at the studied intersections analyzed.



Trip Credit: Exact amount of credit subject to approval by TLD.

Transportation Demand Management (TDM)	Yes/no	NO
Existing Active Land Use	Yes/no	NO
Previous Land Use	Yes/no	NO
Internal Trip Reduction	Yes/no	NO
Pass-by Trip Reduction	Yes/no	NO

SCOPING FOR TRAFFIC STUDY

Project Name:	Hacienda Heights

2. Trip Generation

Trip Generation Rate(s) Source:	I – Institute of Transportation Engineers; S – San Diego Traffic Generators; C – County; O – Other:	Edition:	I – 7th Ed.

Land Use Code	Land Use	Rate Based on	Qty	*AVTE vs	ADT	Weekday a.m. peak		Weekday p.m. peak		Weekend peak hour	
						In	Out	In	Out	In	Out
210	Single Family Residential	Avg	47		450	9	26	30	17	N/A	N/A
		Avg/Eqn									
		Avg/Eqn									
		Avg/Eqn									
		Avg/Eqn									
		Avg/Eqn									
		Avg/Eqn									
		Avg/Eqn									
		Avg/Eqn									
		Avg/Eqn									

* - Average Vehicle Trip Ends.

SCOPING FOR TRAFFIC STUDY

Project Name:	Hacienda Heights

3. Study Intersections: At minimum, the study shall include the following intersections. The list is subject to change after related projects, trip generation and distribution are determined. Consultant should check with adjoining Cities regarding their requirements in addition to the following County/City intersections. Documentation of the consultation from these agencies shall be included in the traffic study.

Xtn #	% County	Thomas Guide Page+Grid	N⌉S/E/W Street Name	City	Signalized	CMP
1	100	678 C4	Stimson Ave. (NS) / Haliburton Rd.(EW)		Yes	No
2	100	678 C6	Stimson Ave. (NS) / Colima Rd. (EW)		Yes	No
3	100	678 E5	County Canyon Rd. (NS) / Colima Rd. (EW)		No	No
4	100	678 E5	Apple Creek Ln. (NS) / Dawn Haven Rd. (EW)		No	No
5	100	678 E4	Halliburton Rd. (NS) / Colima Rd. (EW)		Yes	No
6	100	678 G4	Azusa Av. (NS) / Colima Rd. (EW)		Yes	No
7						
8						
9						
10						
11						

Cites to be consulted: _____

SCOPING FOR TRAFFIC STUDY

Project Name:	Hacienda Heights

4. Related Projects: Consultant should check with Los Angeles County Department of Regional Planning and planning departments of adjoining Cities. Documentation of the consultation from these agencies shall be included in the traffic study. Related projects list shall be submitted to TLD for our review and approval before being incorporated in the study.

5. Congested Management Program (CMP): A CMP TIA is required for all projects required to prepare an Environmental Assessment based on local determination or projects requiring a traffic study. Where the project meets the criteria established in the Transportation Impact Analysis (TIA section of the County of Los Angeles' CMP TIA Land Use Analysis Guidelines, a CMP analysis must be prepared. At a minimum, the geographic area examined in the TIA must include the following:

- All CMP arterial monitoring intersections (see Appendix A, exhibit A-2, page A-15 of the 2002 Guidelines), including freeway on- or off-ramp intersections, where the proposed project will add 50 or more trips during either the a.m. or p.m. peak hours.
- Main line freeway monitoring locations (see Chapter 2, exhibit 2-4, page 16 of the 2002 Guidelines) where the project will add 150 or more trips, in either direction, during the a.m. or p.m. weekday peak hours.

A copy of the 2002 CMP Land Use Analysis Guidelines can be obtained by calling the CMP Hotline at (213) 922-2830.

6. Freeway Analysis: The potential traffic impact on the following Freeway(s) must be considered.

_____

_____

_____

The applicant shall consult with the State of California Department of Transportation (Caltrans) to determine the California Environmental Quality Act levels of significance with regard to traffic impacts on Caltrans' freeway facilities. This consultation shall also include a determination of Caltrans requirements for the study of traffic impacts to its facilities and the mitigation of any such impacts. This analysis must follow the most current Caltrans' Guide for the Preparation of Traffic Impact Studies (December 2002) and can be obtained from http://www.dot.ca.gov/hq/traffops/developserv/operationalsystems/reports/tiguide.pdf. If Caltrans finds that the project has a significant impact on the freeway, Caltrans shall be requested to include the basis for this finding in their response. If fees are proposed to mitigate the freeway impact, Caltrans shall be requested to identify the specific project to which the fees will apply. These written comments from Caltrans shall be included with the traffic study and submitted to Public Works for review and approval. If a documented good faith effort is made to consult with Caltrans and written comments cannot be obtained from within a reasonable amount of time, an analysis of the freeway impact shall be made using the County of Los Angeles' CMP Land Use Analysis Guidelines.

SCOPING FOR TRAFFIC STUDY

Project Name:	Hacienda Heights

7. Other:

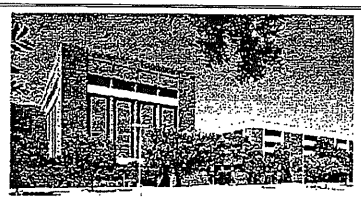
According to discussion with the County Staff, the cumulative development traffic is not considered in this project.

This analysis must follow the most current Traffic Impact Analysis Report Guidelines.

SCOPING FOR TRAFFIC STUDY

Project Name:	Hacienda Heights

Please return signed page 1 of 8 in person, by Mail or by Fax

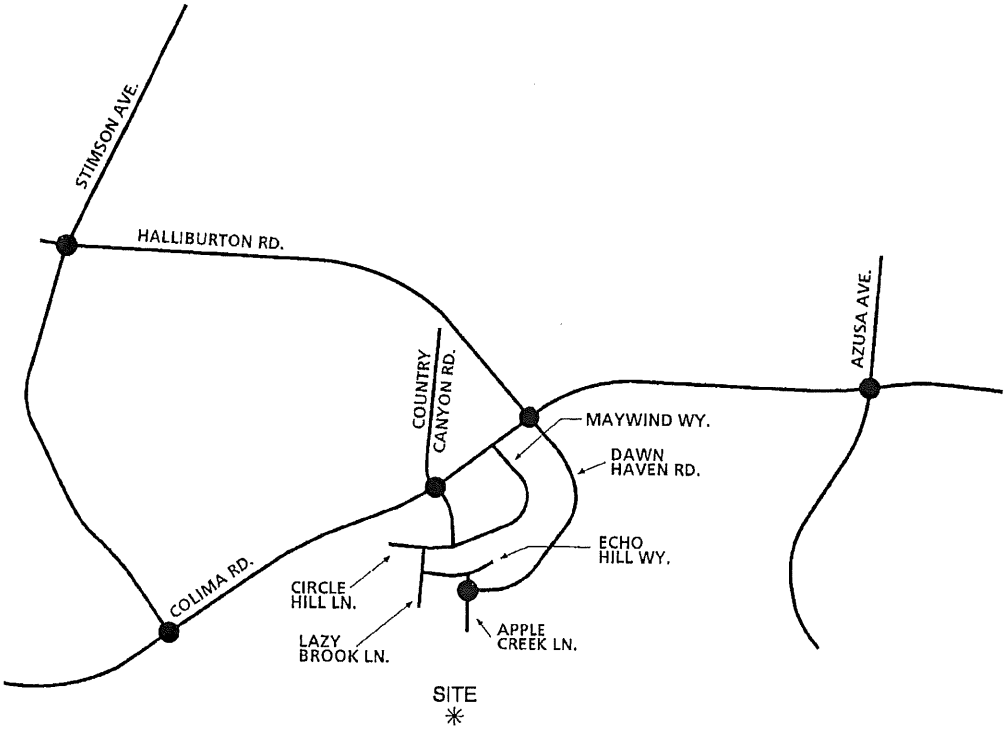
In Person	By Mail
Los Angeles County Department of Public Works **Traffic and Lighting Division,** **Traffic Studies Section, Traffic Studies Unit** **1000 South Fremont Avenue** **Building A-9E, 4th Floor** **Alhambra, CA 91803-8800**  **Our building, on the left with parking structure on the right. Check the following web site, for additional information: http://www.thealhambra.net/index.asp**	**Los Angeles County Department of Public Works** **Traffic and Lighting Division,** **Traffic Studies Section, Traffic Studies Unit** **P.O. Box 1460** **Alhambra, CA 91802-1460**

By Fax

	Processing Engineer	Telephone No.	Fax No.	E-Mail Address
	James CHON, P.E.	(626) 300-4721	(626) 300-4736	jchon@ladpw.org
	Lani ALFONSO, P.E.	(626) 300-4748		lalfonso@ladpw.org
	Suen Fei LAU, P.E.	(626) 300-4820		sflau@ladpw.org
	Kristin NORMAN	(626) 300-4766		knorman @ladpw.org
√	Patrick ARAKAWA, P.E.	(626) 300-4867		parakawa @ladpw.org
	Marian TADROUS	(626) 300-4848		mtadrous@ladpw.org
	Jesse CLINE	(626) 300-4823		jcline@ladpw.org

EXHIBIT A

INTERSECTION ANALYSIS LOCATION MAP



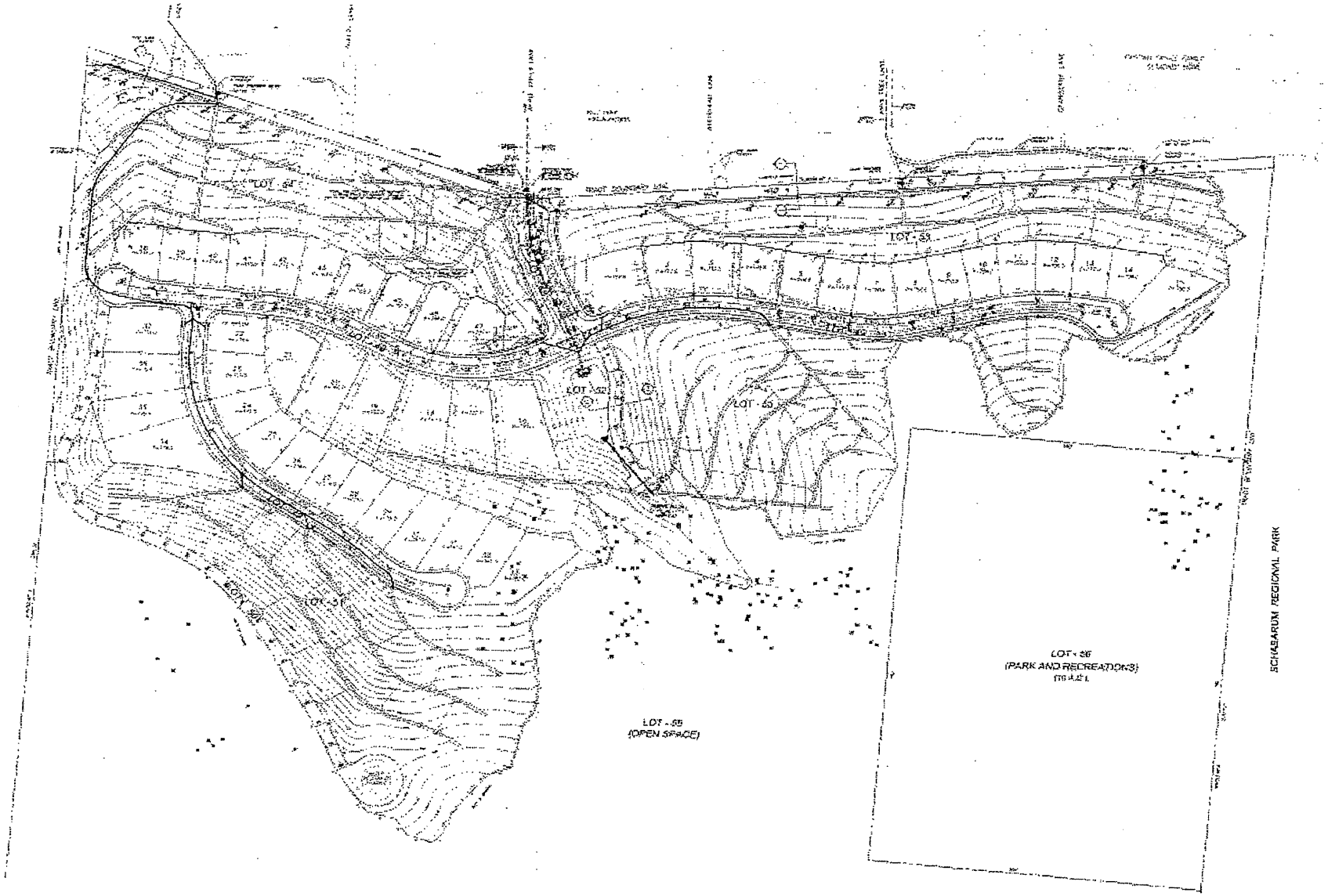
LEGEND:

● = INTERSECTION ANALYSIS LOCATION

N

EXHIBIT B

SITE PLAN



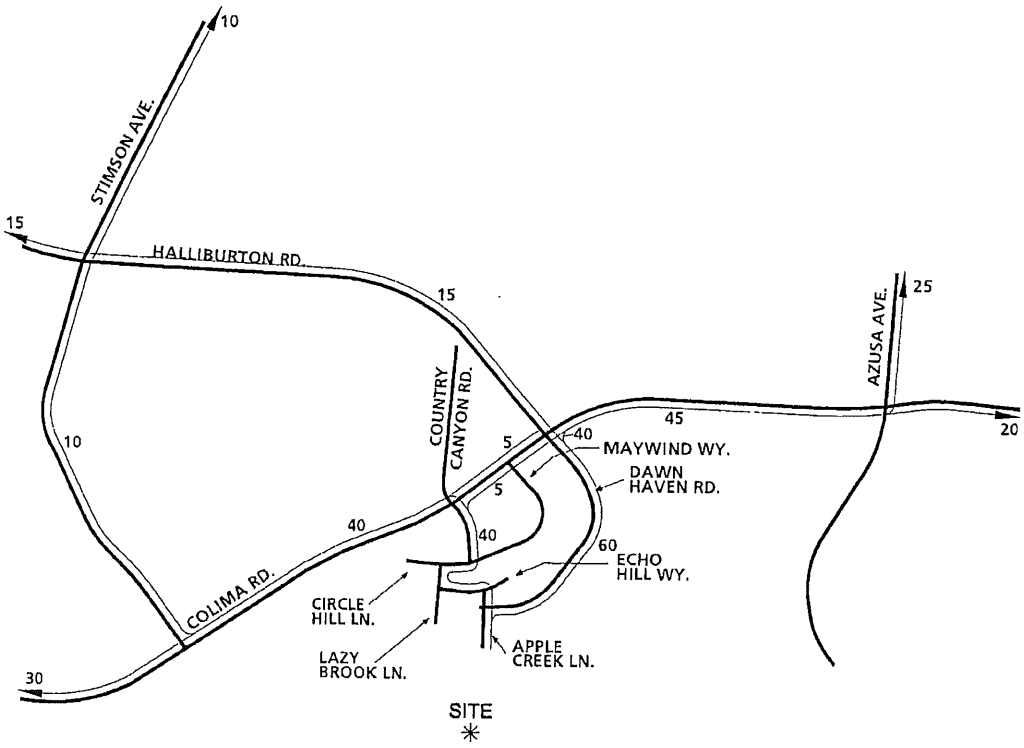
N

HACINEDA HEIGHT TR 51153, California - 04495: 05 SP

URBAN CROSSROADS

EXHIBIT C

PROJECT TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

N

APPENDIX B

INTERSECTION TRAFFIC COUNTS

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: STIMSON
EAST-WEST STREET: HALLIBURTON
JURISDICTION: HACIENDA HEIGHTS

DATE: 12-06-06

PEAK HOUR: 07:30AM

NORTH LEG

TOTAL: 344

	Rt	Thru	Lt
Total	136	174	34
1st	33	47	6
2nd	27	31	7
3rd	36	40	10
4th	40	56	11

EAST LEG TOTAL: 856

	1st	2nd	3rd	4th	Total
Rt	67	61	71	49	248
Thru	141	130	148	136	555
Lt	14	17	9	13	53

WEST LEG TOTAL: 573

	Total	1st	2nd	3rd	4th
Lt	212	49	67	40	56
Thru	329	87	71	90	81
Rt	32	10	9	6	7

SOUTH LEG

TOTAL: 395

	Lt	Thru	Rt
1st	40	48	10
2nd	31	41	17
3rd	47	59	13
4th	31	42	16
Total	149	190	56

PEAK HOUR FACTORS

NORTH LEG = 0.80
SOUTH LEG = 0.83
EAST LEG = 0.94
WEST LEG = 0.97

ALL LEGS = 0.95

HOUR TOTAL: 2,168

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: STIMSON
EAST-WEST STREET: COLIMA
JURISDICTION: HACIENDA HEIGHTS

DATE: 12-06-06

PEAK HOUR: 07:45AM

NORTH LEG

TOTAL: 411

Rt	Thru	Lt	
167	26	218	Total
41	6	26	1st
49	7	70	2nd
42	6	66	3rd
35	7	56	4th

EAST LEG TOTAL: 1,461

	1st	2nd	3rd	4th	Total
Rt	85	56	62	47	250
Thru	271	317	300	319	1207
Lt	0	0	2	2	4

Total	1st	2nd	3rd	4th	
220	64	47	58	51	Lt
701	166	191	177	167	Thru
9	2	2	2	3	Rt

WEST LEG TOTAL: 930

PEAK HOUR FACTORS

NORTH LEG = 0.82
SOUTH LEG = 0.91
EAST LEG = 0.98
WEST LEG = 0.97

ALL LEGS = 0.95

	Lt	Thru	Rt
1st	5	14	0
2nd	6	9	0
3rd	4	15	1
4th	7	12	0
Total	22	50	1

TOTAL: 73

SOUTH LEG

HOUR TOTAL: 2,875

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: COUNTRY CANYON
EAST-WEST STREET: COLIMA
JURISDICTION: HACIENDA HEIGHTS

DATE: 12-07-06

PEAK HOUR: 07:45AM

NORTH LEG

TOTAL: 36

Rt	Thru	Lt	
12	5	19	Total
4	1	5	1st
2	1	3	2nd
2	2	4	3rd
4	1	7	4th

EAST LEG TOTAL: 1,491

	1st	2nd	3rd	4th	Total
Rt	2	2	1	4	9
Thru	351	371	370	368	1460
Lt	6	5	4	7	22

Total	1st	2nd	3rd	4th	
12	3	3	2	4	Lt
910	210	258	231	211	Thru
15	4	2	2	7	Rt

WEST LEG TOTAL: 937

PEAK HOUR FACTORS

NORTH LEG = 0.75
SOUTH LEG = 0.73
EAST LEG = 0.98
WEST LEG = 0.89

ALL LEGS = 0.94

	Lt	Thru	Rt
1st	2	1	12
2nd	9	1	15
3rd	7	2	8
4th	4	0	12
Total	22	4	47

TOTAL: 73

SOUTH LEG

HOUR TOTAL: 2,537

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: APPLE CREEK
EAST-WEST STREET: DAWN HAVEN
JURISDICTION: HACIENDA HEIGHTS

DATE: 12-06-06

PEAK HOUR: 07:45AM

NORTH LEG

TOTAL: 24

	Rt	Thru	Lt	
		1	23	Total
		0	6	1st
		0	6	2nd
		1	8	3rd
		0	3	4th

EAST LEG TOTAL: 13

	1st	2nd	3rd	4th	Total
Rt	1	2	4	5	12
Thru					
Lt	0	0	0	1	1

	Total	1st	2nd	3rd	4th
Lt					
Thru					
Rt					

WEST LEG TOTAL: 0

PEAK HOUR FACTORS

NORTH LEG = 0.67
SOUTH LEG = 0.50
EAST LEG = 0.54
WEST LEG =

ALL LEGS = 0.72

	Lt	Thru	Rt
1st		0	3
2nd		0	0
3rd		2	0
4th		0	1
Total		2	4

TOTAL: 6

SOUTH LEG

HOUR TOTAL: 43

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: HALLIBURTON
EAST-WEST STREET: COLIMA
JURISDICTION: HACIENDA HEIGHTS

DATE: 12-07-06

PEAK HOUR: 07:45AM

NORTH LEG

TOTAL: 225

Rt	Thru	Lt	
96	14	115	Total
16	5	31	1st
27	4	21	2nd
29	2	28	3rd
24	3	35	4th

EAST LEG TOTAL: 1,616

	1st	2nd	3rd	4th	Total
Rt	63	50	59	77	249
Thru	330	341	337	339	1347
Lt	2	4	7	7	20

Total	1st	2nd	3rd	4th	
29	7	6	7	9	Lt
935	220	270	231	214	Thru
12	4	2	3	3	Rt

WEST LEG TOTAL: 976

PEAK HOUR FACTORS

NORTH LEG = 0.91
SOUTH LEG = 0.86
EAST LEG = 0.96
WEST LEG = 0.88

ALL LEGS = 0.96

	Lt	Thru	Rt
1st	10	30	19
2nd	12	37	15
3rd	10	21	20
4th	9	25	13
Total	41	113	67

TOTAL: 221

SOUTH LEG

HOUR TOTAL: 3,038

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: AZUSA
EAST-WEST STREET: COLIMA
JURISDICTION: HACIENDA HEIGHTS

DATE: 12-07-06

PEAK HOUR: 07:30AM

NORTH LEG

TOTAL: 944

Rt	Thru	Lt	
503	114	327	Total
157	24	71	1st
119	29	77	2nd
115	28	97	3rd
112	33	82	4th

EAST LEG TOTAL: 1,620

	1st	2nd	3rd	4th	Total
Rt	125	118	112	129	484
Thru	285	260	255	253	1053
Lt	14	23	24	22	83

Total	1st	2nd	3rd	4th	
580	169	120	137	154	Lt
571	145	148	139	139	Thru
28	4	4	12	8	Rt

WEST LEG TOTAL: 1,179

PEAK HOUR FACTORS

NORTH LEG = 0.94
SOUTH LEG = 0.88
EAST LEG = 0.96
WEST LEG = 0.93

ALL LEGS = 0.94

	Lt	Thru	Rt
1st	18	47	12
2nd	11	37	17
3rd	21	34	20
4th	15	45	26
Total	65	163	75

TOTAL: 303

SOUTH LEG

HOUR TOTAL: 4,046

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: STIMSON
EAST-WEST STREET: HALLIBURTON
JURISDICTION: HACIENDA HEIGHTS

DATE: 12-06-06

PEAK HOUR: 04:45PM

NORTH LEG

TOTAL: 681

Rt	Thru	Lt	
187	351	143	Total
56	90	42	1st
42	100	39	2nd
39	82	30	3rd
50	79	32	4th

EAST LEG TOTAL: 553

	1st	2nd	3rd	4th	Total
Rt	22	27	21	30	100
Thru	92	107	81	94	374
Lt	20	27	15	17	79

Total	1st	2nd	3rd	4th	
191	50	54	41	46	Lt
599	166	159	140	134	Thru
178	52	47	40	39	Rt

WEST LEG TOTAL: 968

PEAK HOUR FACTORS

NORTH LEG = 0.91
SOUTH LEG = 0.96
EAST LEG = 0.86
WEST LEG = 0.90

ALL LEGS = 0.93

	Lt	Thru	Rt
1st	87	100	16
2nd	72	116	21
3rd	80	107	15
4th	71	98	18
Total	310	421	70

TOTAL: 801

SOUTH LEG

HOUR TOTAL: 3,003

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: STIMSON
EAST-WEST STREET: COLIMA
JURISDICTION: HACIENDA HEIGHTS

DATE: 12-06-06

PEAK HOUR: 04:30PM

NORTH LEG

TOTAL: 314

Rt	Thru	Lt	
192	6	116	Total
39	0	20	1st
45	1	32	2nd
58	3	34	3rd
50	2	30	4th

EAST LEG TOTAL: 1,054

	1st	2nd	3rd	4th	Total
Rt	21	27	22	30	100
Thru	221	243	232	241	937
Lt	7	4	2	4	17

Total	1st	2nd	3rd	4th	
263	67	59	77	60	Lt
1300	339	319	335	307	Thru
4	1	0	1	2	Rt

WEST LEG TOTAL: 1,567

PEAK HOUR FACTORS

NORTH LEG = 0.83
SOUTH LEG = 0.95
EAST LEG = 0.96
WEST LEG = 0.95

ALL LEGS = 0.96

	Lt	Thru	Rt
1st	2	2	1
2nd	3	1	0
3rd	3	2	0
4th	3	2	0
Total	11	7	1

SOUTH LEG

TOTAL: 19

HOUR TOTAL: 2,954

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: COUNTRY CANYON
EAST-WEST STREET: COLIMA
JURISDICTION: HACIENDA HEIGHTS

DATE: 12-07-06

PEAK HOUR: 04:45PM

NORTH LEG

TOTAL: 17

	Rt	Thru	Lt
Total	8		9
1st	3	0	3
2nd	2	0	4
3rd	2	0	2
4th	1	0	0

EAST LEG TOTAL: 1,069

	1st	2nd	3rd	4th	Total
Rt	4	3	2	1	10
Thru	265	244	264	235	1008
Lt	12	18	12	9	51

	Total	1st	2nd	3rd	4th
Lt	6	2	1	1	2
Thru	1389	327	350	371	341
Rt	14	5	4	3	2

WEST LEG TOTAL: 1,409

PEAK HOUR FACTORS

NORTH LEG = 0.71
SOUTH LEG = 0.47
EAST LEG = 0.95
WEST LEG = 0.94

ALL LEGS = 0.95

	Lt	Thru	Rt
1st	1	1	7
2nd	2	0	0
3rd	1	0	2
4th	0	0	3
Total	4	1	12

TOTAL: 17

SOUTH LEG

HOUR TOTAL: 2,512

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: APPLE CREEK
EAST-WEST STREET: DAWN HAVEN
JURISDICTION: HACIENDA HEIGHTS

DATE: 12-06-06

PEAK HOUR: 04:00PM

NORTH LEG

TOTAL: 13

	Rt	Thru	Lt	
		1	12	Total
		0	3	1st
		1	4	2nd
		0	1	3rd
		0	4	4th

EAST LEG TOTAL: 17

	1st	2nd	3rd	4th	Total
Rt	4	3	2	3	12
Thru					
Lt	2	1	1	1	5

	Total	1st	2nd	3rd	4th
Lt					
Thru					
Rt					

WEST LEG TOTAL: 0

PEAK HOUR FACTORS

NORTH LEG = 0.65
SOUTH LEG = 0.38
EAST LEG = 0.71
WEST LEG =

ALL LEGS = 0.75

	Lt	Thru	Rt
1st		0	0
2nd		1	1
3rd		0	0
4th		1	0
Total		2	1

TOTAL: 3

SOUTH LEG

HOUR TOTAL: 33

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: HALLIBURTON
EAST-WEST STREET: COLIMA
JURISDICTION: HACIENDA HEIGHTS

DATE: 12-07-06

PEAK HOUR: 04:45PM

NORTH LEG

TOTAL: 381

Rt	Thru	Lt	
23	58	300	Total
5	12	67	1st
9	20	89	2nd
5	11	67	3rd
4	15	77	4th

EAST LEG TOTAL: 1,367

	1st	2nd	3rd	4th	Total
Rt	79	61	79	83	302
Thru	265	250	269	240	1024
Lt	7	9	11	14	41

Total	1st	2nd	3rd	4th	
27	7	9	5	6	Lt
1376	320	350	367	339	Thru
22	5	6	7	4	Rt

WEST LEG TOTAL: 1,425

PEAK HOUR FACTORS

NORTH LEG = 0.81
SOUTH LEG = 0.76
EAST LEG = 0.95
WEST LEG = 0.94

ALL LEGS = 0.97

	Lt	Thru	Rt
1st	5	10	5
2nd	9	12	10
3rd	2	4	14
4th	7	7	9
Total	23	33	38

TOTAL: 94

SOUTH LEG

HOUR TOTAL: 3,267

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: AZUSA
EAST-WEST STREET: COLIMA
JURISDICTION: HACIENDA HEIGHTS

DATE: 12-07-06

PEAK HOUR: 05:00PM

NORTH LEG

TOTAL: 1,531

Rt	Thru	Lt	
545	285	701	Total
111	64	159	1st
137	69	163	2nd
144	61	177	3rd
153	91	202	4th

EAST LEG TOTAL: 1,477

	1st	2nd	3rd	4th	Total
Rt	118	128	123	132	501
Thru	177	197	209	242	825
Lt	29	39	34	49	151

Total	1st	2nd	3rd	4th	
553	136	147	143	127	Lt
987	295	252	235	205	Thru
80	17	25	23	15	Rt

WEST LEG TOTAL: 1,620

PEAK HOUR FACTORS

NORTH LEG = 0.86
SOUTH LEG = 0.94
EAST LEG = 0.87
WEST LEG = 0.90

ALL LEGS = 0.96

	Lt	Thru	Rt
1st	20	55	40
2nd	14	42	48
3rd	13	49	58
4th	19	40	54
Total	66	186	200

TOTAL: 452

SOUTH LEG

HOUR TOTAL: 5,080

Prepared by NEWPORT TRAFFIC STUDIES

APPENDIX C

EXISTING OPERATIONS ANALYSIS WORKSHEETS

Hacienda Heights- TRAFFIC IMPACT ANALYSIS (JN 04495)
Existing Conditions
AM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #8 Stimson Ave./ Haliburton Rd.

Cycle (sec):	100	Critical Vol./Cap.(X):	0.622
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	42	Level Of Service:	B

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Protected					Protected					Permitted					Permitted				
Rights:	Include					Include					Include					Include				
Min. Green:	0	0	0			0	0	0			0	0	0			0	0	0		
Lanes:	1	0	1	1	0	1	0	1	1	0	1	0	2	0	1	1	0	2	0	1
Volume Module:																				
Base Vol:	149	190	56			34	174	136			212	329	32			53	555	248		
Growth Adj:	1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00		
Initial Bse:	149	190	56			34	174	136			212	329	32			53	555	248		
User Adj:	1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00		
PHF Adj:	0.95	0.95	0.95			0.95	0.95	0.95			0.95	0.95	0.95			0.95	0.95	0.95		
PHF Volume:	157	200	59			36	183	143			223	346	34			56	584	261		
Reduct Vol:	0	0	0			0	0	0			0	0	0			0	0	0		
Reduced Vol:	157	200	59			36	183	143			223	346	34			56	584	261		
PCE Adj:	1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00		
MLF Adj:	1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00		
Final Vol.:	157	200	59			36	183	143			223	346	34			56	584	261		
Saturation Flow Module:																				
Sat/Lane:	1600	1600	1600			1600	1600	1600			1600	1600	1600			1600	1600	1600		
Adjustment:	1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00		
Lanes:	1.00	1.54	0.46			1.00	1.12	0.88			1.00	2.00	1.00			1.00	2.00	1.00		
Final Sat.:	1600	2472	728			1600	1796	1404			1600	3200	1600			1600	3200	1600		
Capacity Analysis Module:																				
Vol/Sat:	0.10	0.08	0.08			0.02	0.10	0.10			0.14	0.11	0.02			0.03	0.18	0.16		
Crit Moves:	****						****				****						****			

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Hacienda Heights- TRAFFIC IMPACT ANALYSIS (JN 04495)
Existing Conditions
AM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #3 Stimson Ave./ Colima Rd.

Cycle (sec):	100	Critical Vol./Cap.(X):	0.833
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	75	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	1 0	1 0	1	1 0	1 1	0	1 0	2 0	1
Volume Module:												
Base Vol:	22	50	1	218	26	167	220	701	9	4	1207	250
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	22	50	1	218	26	167	220	701	9	4	1207	250
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	23	53	1	229	27	176	232	738	9	4	1271	263
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	23	53	1	229	27	176	232	738	9	4	1271	263
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	23	53	1	229	27	176	232	738	9	4	1271	263
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.30	0.69	0.01	1.00	1.00	1.00	1.00	1.97	0.03	1.00	2.00	1.00
Final Sat.:	482	1096	22	1600	1600	1600	1600	3159	41	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.01	0.05	0.05	0.14	0.02	0.11	0.14	0.23	0.23	0.00	0.40	0.16
Crit Moves:		****		****			****				****	

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Country Canyon Road (NS) / Colima Road (EW)
Existing
AM PEAK HOUR

# of Lanes (NB-SB)
1

# of Lanes (EB-WB)
2

		12	5	19		
		⇦	⇩	⇨		
12	⇧		SB		⇧	9
910	⇨	EB		WB	⇦	1460
15	⇩		NB		⇩	22
		⇦	⇧	⇨		
		22	4	47		

1. Equivalent Through Volumes NB & SB

NB: 24 TVE = 1.1
NB Equivalent: 75.2

SB: 26 TVE = 1.1
SB Equivalent: 37.9

LOS:
NBT & SBL = 0.047
NBL & SBT = 0.026

2. Equivalent Through Volumes EB & WB

EB: 1482 TVE = 5.0
EB Equivalent: 492.5

WB: 922 TVE = 4.0
WB Equivalent: 778.5

LOS:
EBT & WBL = 0.322
EBL & WBT = 0.494

INTERSECTION ICU VALUE =	0.641
LOS =	B

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Apple Creek Ln. (NS) / Dawn Haven Road (EW)
Existing
AM PEAK HOUR

# of Lanes (NB-SB)
1

# of Lanes (EB-WB)
1

		0	1	23		
		⇦	⇩	⇨		
0	⇧		SB		⇧	12
0	⇨	EB		WB	⇦	0
0	⇩		NB		⇩	1
		⇦	⇧	⇨		
		0	2	4		

1. Equivalent Through Volumes NB & SB

NB: 24 TVE = 1.1
NB Equivalent: 6

SB: 2 TVE = 1.1
SB Equivalent: 26.3

LOS:
NBT & SBL = 0.018
NBL & SBT = 0.016

2. Equivalent Through Volumes EB & WB

EB: 1 TVE = 1.1
EB Equivalent: 0

WB: 0 TVE = 1.1
WB Equivalent: 13.1

LOS:
EBT & WBL = 0.001
EBL & WBT = 0.008

INTERSECTION ICU VALUE =	0.126
LOS =	A

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Hacienda Heights- TRAFFIC IMPACT ANALYSIS (JN 04495)
Existing Conditions
AM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #7 Halliburton Rd./Colima Rd.

Cycle (sec):	100	Critical Vol./Cap.(X):	0.637
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	63	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 0 1 0			1 1 0 0 1			1 0 1 1 0			1 0 2 0 1		
Volume Module:												
Base Vol:	41	113	67	115	14	96	29	935	12	20	1347	249
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	41	113	67	115	14	96	29	935	12	20	1347	249
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	43	118	70	120	15	100	30	974	13	21	1403	259
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	43	118	70	120	15	100	30	974	13	21	1403	259
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	43	118	70	120	15	100	30	974	13	21	1403	259
OvlAdjVol:												159
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.63	0.37	1.78	0.22	1.00	1.00	1.97	0.03	1.00	2.00	1.00
Final Sat.:	1600	1004	596	2853	347	1600	1600	3159	41	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.03	0.12	0.12	0.04	0.04	0.06	0.02	0.31	0.31	0.01	0.44	0.16
OvlAdjV/S :												0.10
Crit Moves:			****			****	****				****	

Hacienda Heights- TRAFFIC IMPACT ANALYSIS (JN 04495)
Existing Conditions
AM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #4 Azusa Ave./Colima Rd.

Cycle (sec):	100	Critical Vol./Cap.(X):	0.728
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	84	Level of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 2 0 1			2 0 1 0 1			2 0 2 0 1			1 0 2 0 1		
Volume Module:												
Base Vol:	65	163	75	327	114	503	580	571	28	83	1053	484
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	65	163	75	327	114	503	580	571	28	83	1053	484
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	69	173	80	348	121	535	617	607	30	88	1120	515
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	69	173	80	348	121	535	617	607	30	88	1120	515
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	69	173	80	348	121	535	617	607	30	88	1120	515
OvlAdjVol:						227						341
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	2.00	1.00	1.00	2.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	3200	1600	3200	1600	1600	3200	3200	1600	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.04	0.05	0.05	0.11	0.08	0.33	0.19	0.19	0.02	0.06	0.35	0.32
OvlAdjV/S :						0.14						0.21
Crit Moves:	****					****	****				****	

Hacienda Heights- TRAFFIC IMPACT ANALYSIS (JN 04495)
Existing Conditions
PM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #8 Stimson Ave./ Haliburton Rd.

Cycle (sec):	100	Critical Vol./Cap.(X):	0.743
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	56	Level Of Service:	C

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Protected					Protected					Permitted					Permitted				
Rights:	Include					Include					Include					Include				
Min. Green:	0	0		0		0	0		0		0	0		0		0	0		0	
Lanes:	1	0	1	1	0	1	0	1	1	0	1	0	2	0	1	1	0	2	0	1
Volume Module:																				
Base Vol:	310	421		70		143	351		187		191	599		178		79	374		100	
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
Initial Bse:	310	421		70		143	351		187		191	599		178		79	374		100	
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
PHF Adj:	0.93	0.93		0.93		0.93	0.93		0.93		0.93	0.93		0.93		0.93	0.93		0.93	
PHF Volume:	333	453		75		154	377		201		205	644		191		85	402		108	
Reduct Vol:	0	0		0		0	0		0		0	0		0		0	0		0	
Reduced Vol:	333	453		75		154	377		201		205	644		191		85	402		108	
PCE Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
MLF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
Final Vol.:	333	453		75		154	377		201		205	644		191		85	402		108	
Saturation Flow Module:																				
Sat/Lane:	1600	1600		1600		1600	1600		1600		1600	1600		1600		1600	1600		1600	
Adjustment:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
Lanes:	1.00	1.71		0.29		1.00	1.30		0.70		1.00	2.00		1.00		1.00	2.00		1.00	
Final Sat.:	1600	2744		456		1600	2088		1112		1600	3200		1600		1600	3200		1600	
Capacity Analysis Module:																				
Vol/Sat:	0.21	0.16		0.16		0.10	0.18		0.18		0.13	0.20		0.12		0.05	0.13		0.07	
Crit Moves:	****						****				****						****			

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Hacienda Heights- TRAFFIC IMPACT ANALYSIS (JN 04495)
Existing Conditions
PM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #3 Stimson Ave./ Colima Rd.

Cycle (sec):	100	Critical Vol./Cap.(X):	0.708
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	51	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	1 0	1 0	1	1 0	1 1	0	1 0	2 0	1
Volume Module:												
Base Vol:	11	7	1	116	6	192	263	1300	4	17	937	100
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	11	7	1	116	6	192	263	1300	4	17	937	100
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	11	7	1	121	6	200	274	1354	4	18	976	104
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	11	7	1	121	6	200	274	1354	4	18	976	104
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	11	7	1	121	6	200	274	1354	4	18	976	104
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.58	0.37	0.05	1.00	1.00	1.00	1.00	1.99	0.01	1.00	2.00	1.00
Final Sat.:	926	589	84	1600	1600	1600	1600	3190	10	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.08	0.00	0.13	0.17	0.42	0.42	0.01	0.31	0.07
Crit Moves:	****					****	****				****	

Country Canyon Road (NS) / Colima Road (EW)
Existing
PM PEAK HOUR

# of Lanes (NB-SB)
1

# of Lanes (EB-WB)
2

		8	0	9		
		⇦	⇩	⇨		
6	⇧		SB		⇧	10
1389	⇨	EB		WB	⇦	1008
14	⇩		NB		⇩	51
		⇦	⇧	⇨		
		4	1	12		

1. Equivalent Through Volumes NB & SB

NB: 9 TVE = 1.1
NB Equivalent: 17.4

SB: 5 TVE = 1.1
SB Equivalent: 17.9

LOS:
NBT & SBL = 0.014
NBL & SBT = 0.011

2. Equivalent Through Volumes EB & WB

EB: 1059 TVE = 5.0
EB Equivalent: 716.5

WB: 1395 TVE = 5.0
WB Equivalent: 636.5

LOS:
EBT & WBL = 0.480
EBL & WBT = 0.402

INTERSECTION ICU VALUE =	0.594
LOS =	A

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Apple Creek Ln. (NS) / Dawn Haven Road (EW)
Existing
PM PEAK HOUR

# of Lanes (NB-SB)
1

# of Lanes (EB-WB)
1

		0	1	12		
		⇦	⇩	⇨		
0	⇧		SB		⇧	12
0	⇨	EB		WB	⇦	0
0	⇩		NB		⇩	5
		⇦	⇧	⇨		
		0	2	1		

1. Equivalent Through Volumes NB & SB

NB: 13 TVE = 1.1
NB Equivalent: 3

SB: 2 TVE = 1.1
SB Equivalent: 14.2

LOS:
NBT & SBL = 0.009
NBL & SBT = 0.009

2. Equivalent Through Volumes EB & WB

EB: 5 TVE = 1.1
EB Equivalent: 0

WB: 0 TVE = 1.1
WB Equivalent: 17.5

LOS:
EBT & WBL = 0.003
EBL & WBT = 0.011

INTERSECTION ICU VALUE =	0.120
LOS =	A

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Hacienda Heights- TRAFFIC IMPACT ANALYSIS (JN 04495)
Existing Conditions
PM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #7 Halliburton Rd./Colima Rd.

Cycle (sec):	100	Critical Vol./Cap.(X):	0.638
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	63	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	0 1	0	1 1	0 0	1	1 0	1 1	0	1 0	2 0	1
Volume Module:												
Base Vol:	23	33	38	300	58	23	27	1376	22	41	1024	302
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	23	33	38	300	58	23	27	1376	22	41	1024	302
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	24	34	39	309	60	24	28	1419	23	42	1056	311
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	24	34	39	309	60	24	28	1419	23	42	1056	311
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	24	34	39	309	60	24	28	1419	23	42	1056	311
OvlAdjVol:												127
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.46	0.54	1.68	0.32	1.00	1.00	1.97	0.03	1.00	2.00	1.00
Final Sat.:	1600	744	856	2682	518	1600	1600	3150	50	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.01	0.05	0.05	0.12	0.12	0.01	0.02	0.45	0.45	0.03	0.33	0.19
OvlAdjV/S :												0.08
Crit Moves:			****		****			****		****		

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Hacienda Heights- TRAFFIC IMPACT ANALYSIS (JN 04495)
Existing Conditions
PM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #4 Azusa Ave./Colima Rd.

Cycle (sec):	100	Critical Vol./Cap.(X):	0.807
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	118	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 2 0 1			2 0 1 0 1			2 0 2 0 1			1 0 2 0 1		
Volume Module:												
Base Vol:	66	186	200	701	285	545	553	987	80	151	825	501
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	66	186	200	701	285	545	553	987	80	151	825	501
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	69	194	208	730	297	568	576	1028	83	157	859	522
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	69	194	208	730	297	568	576	1028	83	157	859	522
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	69	194	208	730	297	568	576	1028	83	157	859	522
OvlAdjVol:						280						157
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	2.00	1.00	1.00	2.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	3200	1600	3200	1600	1600	3200	3200	1600	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.04	0.06	0.13	0.23	0.19	0.35	0.18	0.32	0.05	0.10	0.27	0.33
OvlAdjV/S :						0.17						0.10
Crit Moves:			****	****			****				****	

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APPENDIX D

EXISITING WITH AMBIENT GROWTH
OPERATION ANALYSIS WORKSHEETS

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #8 Stimson Ave./ Haliburton Rd.

Cycle (sec):	100	Critical Vol./Cap.(X):	0.638
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	43	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 1	0	1 0	1 1	0	1 0	2 0	1	1 0	2 0	1
Volume Module:												
Base Vol:	149	190	56	34	174	136	212	329	32	53	555	248
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	153	196	58	35	179	140	218	339	33	55	572	255
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	153	196	58	35	179	140	218	339	33	55	572	255
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	162	206	61	37	189	147	230	357	35	57	602	269
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	162	206	61	37	189	147	230	357	35	57	602	269
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	162	206	61	37	189	147	230	357	35	57	602	269
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.54	0.46	1.00	1.12	0.88	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	2472	728	1600	1796	1404	1600	3200	1600	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.10	0.08	0.08	0.02	0.11	0.11	0.14	0.11	0.02	0.04	0.19	0.17
Crit Moves:	****				****		****				****	

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Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #3 Stimson Ave./ Colima Rd.

Cycle (sec):	100	Critical Vol./Cap.(X):	0.855
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	82	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	1 0	1 0	1	1 0	1 1	0	1 0	2 0	1
Volume Module:												
Base Vol:	22	50	1	218	26	167	220	701	9	4	1207	250
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	23	52	1	225	27	172	227	722	9	4	1243	258
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	23	52	1	225	27	172	227	722	9	4	1243	258
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	24	54	1	236	28	181	239	760	10	4	1309	271
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	24	54	1	236	28	181	239	760	10	4	1309	271
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	24	54	1	236	28	181	239	760	10	4	1309	271
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.30	0.69	0.01	1.00	1.00	1.00	1.00	1.97	0.03	1.00	2.00	1.00
Final Sat.:	482	1096	22	1600	1600	1600	1600	3159	41	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.01	0.05	0.05	0.15	0.02	0.11	0.15	0.24	0.24	0.00	0.41	0.17
Crit Moves:		****		****			****				****	

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Country Canyon Road (NS) / Colima Road (EW)
Existing + Ambient
AM PEAK HOUR

# of Lanes (NB-SB)
1

# of Lanes (EB-WB)
2

		12	5	20		
		⇦	⇩	⇨		
12	⇧		SB		⇧	9
937	⇨	EB		WB	⇦	1504
15	⇩		NB		⇩	23
		⇦	⇧	⇨		
		23	4	48		

1. Equivalent Through Volumes NB & SB

NB: 25 TVE = 1.1
NB Equivalent: 77.3

SB: 27 TVE = 1.1
SB Equivalent: 39

LOS:
NBT & SBL = 0.048
NBL & SBT = 0.026

2. Equivalent Through Volumes EB & WB

EB: 1527 TVE = 5.0
EB Equivalent: 506

WB: 949 TVE = 4.0
WB Equivalent: 802.5

LOS:
EBT & WBL = 0.331
EBL & WBT = 0.509

INTERSECTION ICU VALUE =	0.657
LOS =	B

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Apple Creek Ln. (NS) / Dawn Haven Road (EW)
Existing + Ambient
AM PEAK HOUR

# of Lanes (NB-SB)
1

# of Lanes (EB-WB)
1

		0	1	24		
		⇦	⇩	⇨		
0	⇧		SB		⇧	12
0	⇨	EB		WB	⇦	0
0	⇩		NB		⇩	1
		⇦	⇧	⇨		
		0	2	4		

1. Equivalent Through Volumes NB & SB

NB: 25 TVE = 1.1
NB Equivalent: 6

SB: 2 TVE = 1.1
SB Equivalent: 27.4

LOS:
NBT & SBL = 0.019
NBL & SBT = 0.017

2. Equivalent Through Volumes EB & WB

EB: 1 TVE = 1.1
EB Equivalent: 0

WB: 0 TVE = 1.1
WB Equivalent: 13.1

LOS:
EBT & WBL = 0.001
EBL & WBT = 0.008

INTERSECTION ICU VALUE =	0.127
LOS =	A

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Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #7 Halliburton Rd./Colima Rd.

Cycle (sec):	100	Critical Vol./Cap.(X):	0.656
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	66	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 0 1 0			1 1 0 0 1			1 0 1 1 0			1 0 2 0 1		
Volume Module:												
Base Vol:	41	113	67	115	14	96	29	935	12	20	1347	249
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	42	116	69	118	14	99	30	963	12	21	1387	256
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	42	116	69	118	14	99	30	963	12	21	1387	256
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	44	121	72	123	15	103	31	1003	13	21	1445	267
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	44	121	72	123	15	103	31	1003	13	21	1445	267
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	44	121	72	123	15	103	31	1003	13	21	1445	267
OvlAdjVol:												164
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.63	0.37	1.78	0.22	1.00	1.00	1.97	0.03	1.00	2.00	1.00
Final Sat.:	1600	1004	596	2853	347	1600	1600	3159	41	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.03	0.12	0.12	0.04	0.04	0.06	0.02	0.32	0.32	0.01	0.45	0.17
OvlAdjV/S :												0.10
Crit Moves:			****			****	****				****	

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Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #4 Azusa Ave./Colima Rd.

Cycle (sec):	100	Critical Vol./Cap.(X):	0.750
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	91	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 2 0 1			2 0 1 0 1			2 0 2 0 1			1 0 2 0 1		
Volume Module:												
Base Vol:	65	163	75	327	114	503	580	571	28	83	1053	484
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	67	168	77	337	117	518	597	588	29	85	1085	499
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	67	168	77	337	117	518	597	588	29	85	1085	499
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	71	179	82	358	125	551	636	626	31	91	1154	530
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	71	179	82	358	125	551	636	626	31	91	1154	530
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	71	179	82	358	125	551	636	626	31	91	1154	530
OvlAdjVol:						233						351
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	2.00	1.00	1.00	2.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	3200	1600	3200	1600	1600	3200	3200	1600	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.04	0.06	0.05	0.11	0.08	0.34	0.20	0.20	0.02	0.06	0.36	0.33
OvlAdjV/S :						0.15						0.22
Crit Moves:	****					****	****				****	

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Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #8 Stimson Ave./ Haliburton Rd.

Cycle (sec):	100	Critical Vol./Cap.(X):	0.762
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	59	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 1	0	1 0	1 1	0	1 0	2 0	1	1 0	2 0	1
Volume Module:												
Base Vol:	310	421	70	143	351	187	191	599	178	79	374	100
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	319	434	72	147	362	193	197	617	183	81	385	103
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	319	434	72	147	362	193	197	617	183	81	385	103
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	343	466	78	158	389	207	212	663	197	87	414	111
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	343	466	78	158	389	207	212	663	197	87	414	111
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	343	466	78	158	389	207	212	663	197	87	414	111
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.71	0.29	1.00	1.30	0.70	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	2744	456	1600	2088	1112	1600	3200	1600	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.21	0.17	0.17	0.10	0.19	0.19	0.13	0.21	0.12	0.05	0.13	0.07
Crit Moves:	****				****		****				****	

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #3 Stimson Ave./ Colima Rd.

Cycle (sec):	100	Critical Vol./Cap.(X):	0.727
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	54	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	1 0	1 0	1	1 0	1 1	0	1 0	2 0	1
Volume Module:												
Base Vol:	11	7	1	116	6	192	263	1300	4	17	937	100
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	11	7	1	119	6	198	271	1339	4	18	965	103
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	11	7	1	119	6	198	271	1339	4	18	965	103
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	12	8	1	124	6	206	282	1395	4	18	1005	107
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	12	8	1	124	6	206	282	1395	4	18	1005	107
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	12	8	1	124	6	206	282	1395	4	18	1005	107
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.58	0.37	0.05	1.00	1.00	1.00	1.00	1.99	0.01	1.00	2.00	1.00
Final Sat.:	926	589	84	1600	1600	1600	1600	3190	10	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.08	0.00	0.13	0.18	0.44	0.44	0.01	0.31	0.07
Crit Moves:	****					****	****				****	

Country Canyon Road (NS) / Colima Road (EW)
Existing + Ambient
PM PEAK HOUR

# of Lanes (NB-SB)
1

# of Lanes (EB-WB)
2

		8	0	9		
		⇦	⇩	⇨		
6	⇧		SB		⇧	10
1431	⇨	EB		WB	⇦	1038
14	⇩		NB		⇩	53
		⇦	⇧	⇨		
		4	1	12		

1. Equivalent Through Volumes NB & SB

NB: 9 TVE = 1.1
NB Equivalent: 17.4

SB: 5 TVE = 1.1
SB Equivalent: 17.9

LOS:
NBT & SBL = 0.014
NBL & SBT = 0.011

2. Equivalent Through Volumes EB & WB

EB: 1091 TVE = 5.0
EB Equivalent: 737.5

WB: 1437 TVE = 5.0
WB Equivalent: 656.5

LOS:
EBT & WBL = 0.494
EBL & WBT = 0.414

INTERSECTION ICU VALUE =	0.608
LOS =	A

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Apple Creek Ln. (NS) / Dawn Haven Road (EW)
Existing + Ambient
PM PEAK HOUR

# of Lanes (NB-SB)
1

# of Lanes (EB-WB)
1

		0	1	12		
		⇦	⇩	⇨		
0	⇧		SB		⇧	12
0	⇨	EB		WB	⇦	0
0	⇩		NB		⇩	5
		⇦	⇧	⇨		
		0	2	1		

1. Equivalent Through Volumes NB & SB

NB: 13 TVE = 1.1
NB Equivalent: 3

SB: 2 TVE = 1.1
SB Equivalent: 14.2

LOS:
NBT & SBL = 0.009
NBL & SBT = 0.009

2. Equivalent Through Volumes EB & WB

EB: 5 TVE = 1.1
EB Equivalent: 0

WB: 0 TVE = 1.1
WB Equivalent: 17.5

LOS:
EBT & WBL = 0.003
EBL & WBT = 0.011

INTERSECTION ICU VALUE =	0.120
LOS =	A

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Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #7 Halliburton Rd./Colima Rd.

Cycle (sec):	100	Critical Vol./Cap.(X):	0.657
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	66	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 0 1 0			1 1 0 0 1			1 0 1 1 0			1 0 2 0 1		
Volume Module:												
Base Vol:	23	33	38	300	58	23	27	1376	22	41	1024	302
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	24	34	39	309	60	24	28	1417	23	42	1055	311
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	24	34	39	309	60	24	28	1417	23	42	1055	311
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	24	35	40	319	62	24	29	1461	23	44	1087	321
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	24	35	40	319	62	24	29	1461	23	44	1087	321
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	24	35	40	319	62	24	29	1461	23	44	1087	321
OvlAdjVol:												131
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.46	0.54	1.68	0.32	1.00	1.00	1.97	0.03	1.00	2.00	1.00
Final Sat.:	1600	744	856	2682	518	1600	1600	3150	50	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.02	0.05	0.05	0.12	0.12	0.02	0.02	0.46	0.46	0.03	0.34	0.20
OvlAdjV/S :												0.08
Crit Moves:			****		****			****		****		

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #4 Azusa Ave./Colima Rd.

Cycle (sec):	100	Critical Vol./Cap.(X):	0.831
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	135	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 2 0 1			2 0 1 0 1			2 0 2 0 1			1 0 2 0 1		
Volume Module:												
Base Vol:	66	186	200	701	285	545	553	987	80	151	825	501
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	68	192	206	722	294	561	570	1017	82	156	850	516
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	68	192	206	722	294	561	570	1017	82	156	850	516
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	71	200	215	752	306	585	593	1059	86	162	885	538
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	71	200	215	752	306	585	593	1059	86	162	885	538
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	71	200	215	752	306	585	593	1059	86	162	885	538
OvlAdjVol:						288						161
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	2.00	1.00	1.00	2.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	3200	1600	3200	1600	1600	3200	3200	1600	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.04	0.06	0.13	0.24	0.19	0.37	0.19	0.33	0.05	0.10	0.28	0.34
OvlAdjV/S :						0.18						0.10
Crit Moves:			****	****			****				****	

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APPENDIX E

EXISITING WITH AMBIENT PLUS PROJECT
OPERATION ANALYSIS WORKSHEETS

Hacienda Heights- TRAFFIC IMPACT ANALYSIS (JN 04495)
Existing + Ambient + Project Conditions
AM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #8 Stimson Ave./ Haliburton Rd.

Cycle (sec):	100	Critical Vol./Cap.(X):	0.639
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	43	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 1	1 0		1 0 1	1 0		1 0 2	0 1		1 0 2	0 1	
Volume Module:												
Base Vol:	149	190	56	34	174	136	212	329	32	53	555	248
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	153	196	58	35	179	140	218	339	33	55	572	255
Added Vol:	0	3	0	0	1	0	0	1	0	0	4	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	153	199	58	35	180	140	218	340	33	55	576	255
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	162	209	61	37	190	147	230	358	35	57	606	269
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	162	209	61	37	190	147	230	358	35	57	606	269
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	162	209	61	37	190	147	230	358	35	57	606	269
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.00	1.55	0.45	1.00	1.13	0.87	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	2480	720	1600	1801	1399	1600	3200	1600	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.10	0.08	0.08	0.02	0.11	0.11	0.14	0.11	0.02	0.04	0.19	0.17
Crit Moves:	****				****		****				****	

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Hacienda Heights- TRAFFIC IMPACT ANALYSIS (JN 04495)
Existing + Ambient + Project Conditions
AM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #3 Stimson Ave./ Colima Rd.

Cycle (sec):	100	Critical Vol./Cap.(X):	0.859
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	83	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	1 0	1 0	1	1 0	1 1	0	1 0	2 0	1
Volume Module:												
Base Vol:	22	50	1	218	26	167	220	701	9	4	1207	250
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	23	52	1	225	27	172	227	722	9	4	1243	258
Added Vol:	0	0	0	1	0	0	0	3	0	0	8	3
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	23	52	1	226	27	172	227	725	9	4	1251	261
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	24	54	1	237	28	181	239	763	10	4	1317	274
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	24	54	1	237	28	181	239	763	10	4	1317	274
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	24	54	1	237	28	181	239	763	10	4	1317	274
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.30	0.69	0.01	1.00	1.00	1.00	1.00	1.97	0.03	1.00	2.00	1.00
Final Sat.:	482	1096	22	1600	1600	1600	1600	3160	40	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.01	0.05	0.05	0.15	0.02	0.11	0.15	0.24	0.24	0.00	0.41	0.17
Crit Moves:		****		****			****				****	

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Country Canyon Road (NS) / Colima Road (EW)
Existing + Ambient + Project
AM PEAK HOUR

# of Lanes (NB-SB)
1

# of Lanes (EB-WB)
2

		12	5	20		
		⇦	⇩	⇨		
12	⇧		SB		⇧	9
937	⇨	EB		WB	⇦	1505
18	⇩		NB		⇩	23
		⇦	⇧	⇨		
		32	4	49		

1. Equivalent Through Volumes NB & SB

NB: 25 TVE = 1.1
NB Equivalent: 88.2

SB: 36 TVE = 1.1
SB Equivalent: 39

LOS:
NBT & SBL = 0.055
NBL & SBT = 0.032

2. Equivalent Through Volumes EB & WB

EB: 1528 TVE = 5.0
EB Equivalent: 507.5

WB: 949 TVE = 4.0
WB Equivalent: 803

LOS:
EBT & WBL = 0.332
EBL & WBT = 0.509

INTERSECTION ICU VALUE =	0.664
LOS =	B

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Apple Creek Ln. (NS) / Dawn Haven Road (EW)
Existing + Ambient + Project
AM PEAK HOUR

# of Lanes (NB-SB)
1

# of Lanes (EB-WB)
1

		0	5	24		
		⇦	⇩	⇨		
0	⇧		SB		⇧	12
0	⇨	EB		WB	⇦	0
0	⇩		NB		⇩	6
		⇦	⇧	⇨		
		0	12	20		

1. Equivalent Through Volumes NB & SB

NB: 29 TVE = 1.1
NB Equivalent: 32

SB: 12 TVE = 1.1
SB Equivalent: 31.4

LOS:
NBT & SBL = 0.035
NBL & SBT = 0.020

2. Equivalent Through Volumes EB & WB

EB: 6 TVE = 1.1
EB Equivalent: 0

WB: 0 TVE = 1.1
WB Equivalent: 18.6

LOS:
EBT & WBL = 0.004
EBL & WBT = 0.012

INTERSECTION ICU VALUE =	0.147
LOS =	A

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Project Access
Existing + Ambient + Project
AM PEAK HOUR

# of Lanes (NB-SB)
1

# of Lanes (EB-WB)
0

		0	11	0		
		⇦	⇩	⇨		
0	⇧		SB		⇧	0
0	⇨	EB		WB	⇦	0
0	⇩		NB		⇩	0
		⇦	⇧	⇨		
		0	32	0		

1. Equivalent Through Volumes NB & SB

NB:	11	TVE =	1.1
NB Equivalent:	32		
SB:	32	TVE =	1.1
SB Equivalent:	11		

LOS:

NBT & SBL =	0.020
NBL & SBT =	0.007

2. Equivalent Through Volumes EB & WB

EB:	0	TVE =	1.1
EB Equivalent:	0		
WB:	0	TVE =	1.1
WB Equivalent:	0		

LOS:

EBT & WBL =	0.000
EBL & WBT =	0.000

INTERSECTION ICU VALUE =	0.120
LOS =	A

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Hacienda Heights- TRAFFIC IMPACT ANALYSIS (JN 04495)
Existing + Ambient + Project Conditions
AM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #7 Halliburton Rd./Colima Rd.

Cycle (sec): 100 Critical Vol./Cap.(X): 0.665
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): xxxxxx
Optimal Cycle: 68 Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 0 1 0			1 1 0 0 1			1 0 1 1 0			1 0 2 0 1		
Volume Module:												
Base Vol:	41	113	67	115	14	96	29	935	12	20	1347	249
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	42	116	69	118	14	99	30	963	12	21	1387	256
Added Vol:	1	4	10	0	1	0	0	1	0	4	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	43	120	79	118	15	99	30	964	12	25	1387	256
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	45	125	82	123	16	103	31	1004	13	26	1445	267
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	45	125	82	123	16	103	31	1004	13	26	1445	267
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	45	125	82	123	16	103	31	1004	13	26	1445	267
OvlAdjVol:												164
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.60	0.40	1.77	0.23	1.00	1.00	1.97	0.03	1.00	2.00	1.00
Final Sat.:	1600	966	634	2831	369	1600	1600	3159	41	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.03	0.13	0.13	0.04	0.04	0.06	0.02	0.32	0.32	0.02	0.45	0.17
OvlAdjV/S :												0.10
Crit Moves:			****			****	****				****	

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Hacienda Heights- TRAFFIC IMPACT ANALYSIS (JN 04495)
Existing + Ambient + Project Conditions
AM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #4 Azusa Ave./Colima Rd.

Cycle (sec):	100	Critical Vol./Cap.(X):	0.752
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	92	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 2 0 1			2 0 1 0 1			2 0 2 0 1			1 0 2 0 1		
Volume Module:												
Base Vol:	65	163	75	327	114	503	580	571	28	83	1053	484
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	67	168	77	337	117	518	597	588	29	85	1085	499
Added Vol:	0	0	0	0	0	2	7	5	0	0	2	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	67	168	77	337	117	520	604	593	29	85	1087	499
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	71	179	82	358	125	553	643	631	31	91	1156	530
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	71	179	82	358	125	553	643	631	31	91	1156	530
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	71	179	82	358	125	553	643	631	31	91	1156	530
OvlAdjVol:						232						351
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	2.00	1.00	1.00	2.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	3200	1600	3200	1600	1600	3200	3200	1600	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.04	0.06	0.05	0.11	0.08	0.35	0.20	0.20	0.02	0.06	0.36	0.33
OvlAdjV/S :						0.14						0.22
Crit Moves:	****					****	****				****	

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Hacienda Heights- TRAFFIC IMPACT ANALYSIS (JN 04495)
Existing + Ambient + Project Conditions
PM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #8 Stimson Ave./ Haliburton Rd.

Cycle (sec):	100	Critical Vol./Cap.(X):	0.764
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	60	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 1	0	1 0	1 1	0	1 0	2 0	1	1 0	2 0	1
Volume Module:												
Base Vol:	310	421	70	143	351	187	191	599	178	79	374	100
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	319	434	72	147	362	193	197	617	183	81	385	103
Added Vol:	0	2	0	0	3	0	0	5	0	0	3	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	319	436	72	147	365	193	197	622	183	81	388	103
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	343	468	78	158	392	207	212	669	197	87	417	111
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	343	468	78	158	392	207	212	669	197	87	417	111
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	343	468	78	158	392	207	212	669	197	87	417	111
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.72	0.28	1.00	1.31	0.69	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	2746	454	1600	2094	1106	1600	3200	1600	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.21	0.17	0.17	0.10	0.19	0.19	0.13	0.21	0.12	0.05	0.13	0.07
Crit Moves:	****				****		****				****	

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Hacienda Heights- TRAFFIC IMPACT ANALYSIS (JN 04495)
Existing + Ambient + Project Conditions
PM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #3 Stimson Ave./ Colima Rd.

Cycle (sec):	100	Critical Vol./Cap.(X):	0.728
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	54	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	1 0	1 0	1	1 0	1 1	0	1 0	2 0	1
Volume Module:												
Base Vol:	11	7	1	116	6	192	263	1300	4	17	937	100
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	11	7	1	119	6	198	271	1339	4	18	965	103
Added Vol:	0	0	0	3	0	0	0	9	0	0	5	2
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	11	7	1	122	6	198	271	1348	4	18	970	105
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	12	8	1	128	6	206	282	1404	4	18	1011	109
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	12	8	1	128	6	206	282	1404	4	18	1011	109
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	12	8	1	128	6	206	282	1404	4	18	1011	109
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.58	0.37	0.05	1.00	1.00	1.00	1.00	1.99	0.01	1.00	2.00	1.00
Final Sat.:	926	589	84	1600	1600	1600	1600	3190	10	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.08	0.00	0.13	0.18	0.44	0.44	0.01	0.32	0.07
Crit Moves:	****					****	****				****	

Country Canyon Road (NS) / Colima Road (EW)
Existing + Ambient + Project
PM PEAK HOUR

# of Lanes (NB-SB)
1

# of Lanes (EB-WB)
2

		8	0	9		
		⇦	⇩	⇨		
6	⇧		SB		⇧	10
1433	⇨	EB		WB	⇦	1039
25	⇩		NB		⇩	55
		⇦	⇧	⇨		
		10	1	13		

1. Equivalent Through Volumes NB & SB

NB: 9 TVE = 1.1
NB Equivalent: 25

SB: 11 TVE = 1.1
SB Equivalent: 17.9

LOS:
NBT & SBL = 0.016
NBL & SBT = 0.012

2. Equivalent Through Volumes EB & WB

EB: 1094 TVE = 5.0
EB Equivalent: 744

WB: 1439 TVE = 5.0
WB Equivalent: 662

LOS:
EBT & WBL = 0.499
EBL & WBT = 0.418

INTERSECTION ICU VALUE =	0.615
LOS =	B

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Apple Creek Ln. (NS) / Dawn Haven Road (EW)
Existing + Ambient + Project
PM PEAK HOUR

# of Lanes (NB-SB)
1

# of Lanes (EB-WB)
1

		0	13	12		
		⇦	⇩	⇨		
0	⇧		SB		⇧	12
0	⇨	EB		WB	⇦	0
0	⇩		NB		⇩	23
		⇦	⇧	⇨		
		0	9	11		

1. Equivalent Through Volumes NB & SB

NB: 25 TVE = 1.1
NB Equivalent: 20

SB: 9 TVE = 1.1
SB Equivalent: 26.2

LOS:
NBT & SBL = 0.020
NBL & SBT = 0.016

2. Equivalent Through Volumes EB & WB

EB: 23 TVE = 1.1
EB Equivalent: 0

WB: 0 TVE = 1.1
WB Equivalent: 37.3

LOS:
EBT & WBL = 0.014
EBL & WBT = 0.023

INTERSECTION ICU VALUE =	0.143
LOS =	A

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Project Access
Existing + Ambient + Project
PM PEAK HOUR

# of Lanes (NB-SB)
1

# of Lanes (EB-WB)
0

		0	36	0		
		⇦	⇩	⇨		
0	⇧		SB		⇧	0
0	⇨	EB		WB	⇦	0
0	⇩		NB		⇩	0
		⇦	⇧	⇨		
		0	20	0		

1. Equivalent Through Volumes NB & SB

NB: 36 TVE = 1.1
NB Equivalent: 20

SB: 20 TVE = 1.1
SB Equivalent: 36

LOS:
NBT & SBL = 0.013
NBL & SBT = 0.023

2. Equivalent Through Volumes EB & WB

EB: 0 TVE = 1.1
EB Equivalent: 0

WB: 0 TVE = 1.1
WB Equivalent: 0

LOS:
EBT & WBL = 0.000
EBL & WBT = 0.000

INTERSECTION ICU VALUE =	0.123
LOS =	A

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Hacienda Heights- TRAFFIC IMPACT ANALYSIS (JN 04495)
Existing + Ambient + Project Conditions
PM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #7 Halliburton Rd./Colima Rd.

Cycle (sec):	100	Critical Vol./Cap.(X):	0.674
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	70	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	0 1	0	1 1	0 0	1	1 0	1 1	0	1 0	2 0	1
Volume Module:												
Base Vol:	23	33	38	300	58	23	27	1376	22	41	1024	302
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	24	34	39	309	60	24	28	1417	23	42	1055	311
Added Vol:	1	3	7	0	5	0	0	1	2	12	2	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	25	37	46	309	65	24	28	1418	25	54	1057	311
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	25	38	48	319	67	24	29	1462	25	56	1089	321
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	25	38	48	319	67	24	29	1462	25	56	1089	321
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	25	38	48	319	67	24	29	1462	25	56	1089	321
OvlAdjVol:												128
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.44	0.56	1.65	0.35	1.00	1.00	1.97	0.03	1.00	2.00	1.00
Final Sat.:	1600	712	888	2646	554	1600	1600	3145	55	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.02	0.05	0.05	0.12	0.12	0.02	0.02	0.46	0.46	0.03	0.34	0.20
OvlAdjV/S :												0.08
Crit Moves:		****		****				****		****		

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Hacienda Heights- TRAFFIC IMPACT ANALYSIS (JN 04495)
Existing + Ambient + Project Conditions
PM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #4 Azusa Ave./Colima Rd.

Cycle (sec):	100	Critical Vol./Cap.(X):	0.834
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	138	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Ovl		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 2 0 1			2 0 1 0 1			2 0 2 0 1			1 0 2 0 1		
Volume Module:												
Base Vol:	66	186	200	701	285	545	553	987	80	151	825	501
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	68	192	206	722	294	561	570	1017	82	156	850	516
Added Vol:	0	0	0	0	0	8	4	3	0	0	6	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	68	192	206	722	294	569	574	1020	82	156	856	516
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	71	200	215	752	306	593	597	1062	86	162	891	538
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	71	200	215	752	306	593	597	1062	86	162	891	538
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	71	200	215	752	306	593	597	1062	86	162	891	538
OvlAdjVol:						294						161
Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	2.00	1.00	1.00	2.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1600	3200	1600	3200	1600	1600	3200	3200	1600	1600	3200	1600
Capacity Analysis Module:												
Vol/Sat:	0.04	0.06	0.13	0.24	0.19	0.37	0.19	0.33	0.05	0.10	0.28	0.34
OvlAdjV/S :						0.18						0.10
Crit Moves:			****	****			****				****	