



KUNZMAN ASSOCIATES, INC.

**700-704 EAST FOOTHILL BOULEVARD
HOTEL DEVELOPMENT**

FOCUSED TRAFFIC ANALYSIS (REVISED)

March 8, 2018



**700-704 EAST FOOTHILL BOULEVARD
HOTEL DEVELOPMENT
FOCUSED TRAFFIC ANALYSIS (REVISED)**

March 8, 2018

Prepared by:

Carl Ballard, LEED GA ■ Daniel Flores ■ William Kunzman, P.E.



KUNZMAN ASSOCIATES, INC.

1111 Town & Country Road, Suite 34 ■ Orange, California 92868
5005 La Mart Drive, Suite 201 ■ Riverside, California 92507
(714) 973-8383 ■ www.traffic-engineer.com
JN 7238

TABLE OF CONTENTS

EXECUTIVE SUMMARY

I.	INTRODUCTION	1
A.	Purpose and Objectives	1
B.	Project Description	1
C.	Study Area	1
D.	Analysis Scenarios	1
II.	METHODOLOGY	5
A.	Intersection Analysis Methodology	5
B.	Level of Service Standards	5
C.	Thresholds of Significance	5
III.	EXISTING CONDITIONS	6
A.	Existing Traffic Controls & Intersection Geometry	6
B.	Existing Traffic Volumes	6
C.	Existing Levels of Service	6
D.	General Plan Circulation Element	6
E.	Truck Routes	7
F.	Bicycle Routes	7
G.	Pedestrian Facilities	7
H.	Transit Service	7
IV.	PROJECT TRIPS	19
A.	Trip Generation	19
B.	Trip Distribution and Assignment	19
V.	FUTURE TRAFFIC VOLUMES	26
A.	Method of Projection	26
B.	Future Traffic Volumes	26
1.	Existing Plus Project Traffic Volumes	26
2.	Opening Year (2019) Without Project Traffic Volumes	26
3.	Opening Year (2019) With Project Conditions Traffic Volumes	26
VI.	FUTURE LEVELS OF SERVICE	41
A.	Existing Plus Project Intersection Level of Service	41
B.	Opening Year (2019) Without Project Intersection Levels of Service	41
C.	Opening Year (2019) With Project Conditions Intersection Levels of Service	41
VII.	CONCLUSIONS	45
A.	Sight Distance Evaluation	45
B.	Proposed Driveway Locations	45
C.	Recommendations	45

APPENDICES

Appendix A – Glossary of Transportation Terms

Appendix B – Scoping Agreement

Appendix C – Intersection Turning Movement Count Worksheets

Appendix D – Explanation and Calculation of Intersection Delay

LIST OF TABLES

Table 1. Existing Intersection Levels of Service 8

Table 2. Project Trip Generation 20

Table 3. Other Development Trip Generation 28

Table 4. Existing Plus Project Intersection Levels of Service 42

Table 5. Opening Year (2019) Without Project Intersection Levels of Service 43

Table 6. Opening Year (2019) With Project Intersection Levels of Service..... 44

LIST OF FIGURES

Figure 1.	Project Location Map.....	3
Figure 2.	Site Plan	4
Figure 3.	Existing Number of Through Travel Lanes and Intersection Controls	9
Figure 4.	Existing Average Daily Traffic Volumes	10
Figure 5.	Existing Morning Peak Hour Intersection Turning Movement Volumes.....	11
Figure 6.	Existing Evening Peak Hour Intersection Turning Movement Volumes	12
Figure 7.	City of Pomona General Plan Circulation Element	13
Figure 8.	City of Pomona General Plan Roadway Cross-Sections.....	14
Figure 9.	City of Pomona Truck Routes	15
Figure 10.	City of Pomona Bicycle Routes	16
Figure 11.	Existing Pedestrian Facilities.....	17
Figure 12.	Existing Transit Routes	18
Figure 13.	Project Outbound Trip Distribution.....	21
Figure 14.	Project Inbound Trip Distribution.....	22
Figure 15.	Project Average Daily Traffic Volumes	23
Figure 16.	Project Morning Peak Hour Intersection Turning Movement Volumes.....	24
Figure 17.	Project Evening Peak Hour Intersection Turning Movement Volumes.....	25
Figure 18.	Other Development Average Daily Traffic Volumes.....	29
Figure 19.	Other Development Morning Peak Hour Intersection Turning Movement Volumes	30
Figure 20.	Other Development Evening Peak Hour Intersection Turning Movement Volumes	31
Figure 21.	Existing Plus Project Average Daily Traffic Volumes.....	32
Figure 22.	Existing Plus Project Morning Peak Hour Intersection Turning Movement Volumes	33
Figure 23.	Existing Plus Project Evening Peak Hour Intersection Turning Movement Volumes	34
Figure 24.	Opening Year (2019) Without Project Average Daily Traffic Volumes.....	35
Figure 25.	Opening Year (2019) Without Project Morning Peak Hour Intersection Turning Movement Volumes	36
Figure 26.	Opening Year (2019) Without Project Evening Peak Hour Intersection Turning Movement Volumes	37
Figure 27.	Opening Year (2019) With Project Average Daily Traffic Volumes	38
Figure 28.	Opening Year (2019) With Project Morning Peak Hour Intersection Turning Movement Volumes	39
Figure 29.	Opening Year (2019) With Project Evening Peak Hour Intersection Turning Movement Volumes	40
Figure 30.	Sight Distance Analysis	47

Figure 31. East Foothill Boulevard Driveway Locations..... 48

Figure 32. Circulation Recommendations 49

EXECUTIVE SUMMARY

The purpose of this report is to provide an assessment of potential traffic impacts resulting from development of the proposed 700-704 East Foothill Boulevard Hotel Development and to identify the traffic mitigation measures necessary to maintain the established level of service standard for the elements of the impacted roadway system. The traffic issues related to the proposed land use and development have been evaluated in the context of the California Environmental Quality Act (CEQA).

The City of Pomona is the lead agency responsible for preparation of the focused traffic analysis, in accordance with California Environmental Quality Act authorizing legislation. This report analyzes traffic impacts for the anticipated opening date with occupancy of the development in Opening Year 2019, at which time it will be generating trips at its full potential.

Although this is a technical report, every effort has been made to write the report clearly and concisely. To assist the reader with those terms unique to transportation engineering, a glossary of terms is provided in Appendix A.

A. Project Description

The approximately 2.7 acre project site is located at 700-704 East Foothill Boulevard in the City of Pomona. The project proposes to convert the vacant lot into a 132 room hotel. The project site is proposed to provide two driveways onto East Foothill Boulevard. For purposes of this analysis, the project is planned to be fully operational by Year 2019.

B. Traffic Conditions

The study intersections currently operates within acceptable Levels of Service during the peak hours for Existing traffic conditions.

The proposed project is forecast to generate approximately 1,104 daily trips, 62 of which will occur during the morning peak hour and 79 which will occur during the evening peak hour.

The study intersections are projected to operate within acceptable Levels of Service during the peak hours for Existing Plus Project traffic conditions.

The following study intersections is projected to operate at an unacceptable Level of Service during the morning peak hour for Opening Year (2019) Without Project traffic conditions:

North Towne Avenue (NS) at:
East Foothill Boulevard (EW) - #3

A northbound right turn overlap traffic signal phasing is recommended at the North Towne Avenue/East Foothill Boulevard intersection for Opening Year (2019) Without Project traffic conditions.

The study intersections are projected to operate within acceptable Levels of Service during the peak hours for Opening Year (2019) With Project traffic conditions, except for the following study intersection that is projected to operate at an unacceptable Level of Service during the morning peak hour:

North Towne Avenue (NS) at:
East Foothill Boulevard (EW) - #3

A northbound right turn overlap traffic signal phasing is recommended at the North Towne Avenue/East Foothill Boulevard intersection for Opening Year (2019) With Project traffic conditions.

C. On-Site/Access Recommendations

Site-specific circulation and access recommendations are depicted on Figure 30.

The proposed project driveways shall be constructed in conformance with City of Pomona standards, including provisions for sight distance.

On-site traffic signing and striping shall be submitted for City of Pomona approval in conjunction with detailed construction plans for the project.

Off-street parking shall be provided to meet City of Pomona parking code requirements. Restrict on-street parking along East Foothill Boulevard adjacent to the project site.

As is the case for any roadway design, the City of Pomona should periodically review traffic operations in the vicinity of the project once the project is constructed to assure that the traffic operations are satisfactory.

I. INTRODUCTION

This section discusses the project location and proposed development and study area. Figure 1 shows the project location map and Figure 2 illustrates the project site plan.

A. Purpose and Objectives

The purpose of this report is to provide an assessment of potential traffic impacts resulting from development of the proposed 700-704 East Foothill Boulevard Hotel Development and to identify the traffic mitigation measures necessary to maintain the established level of service standard for the elements of the impacted roadway system. The traffic issues related to the proposed land use and development have been evaluated in the context of the California Environmental Quality Act (CEQA). The City of Pomona is the lead agency responsible for preparation of the focused traffic analysis, in accordance with California Environmental Quality Act authorizing legislation. This report analyzes traffic impacts for the anticipated opening date with occupancy of the development in Opening Year 2019, at which time it will be generating trips at its full potential.

Although this is a technical report, every effort has been made to write the report clearly and concisely. To assist the reader with those terms unique to transportation engineering, a glossary of terms is provided in Appendix A.

B. Project Description

The approximately 2.7 acre project site is located at 700-704 East Foothill Boulevard in the City of Pomona. The project proposes to convert a vacant lot into a 136 room hotel. The project site is proposed to provide two driveways onto East Foothill Boulevard. For purposes of this analysis, the project is planned to be fully operational by Year 2019.

C. Study Area

Based upon the approved scoping agreement (see Appendix B), the study area consists of the following intersections:

Study Intersections	Jurisdiction
Project West Driveway (NS) at: East Foothill Boulevard (EW) - #1	City of Pomona
Project East Driveway (NS) at: East Foothill Boulevard (EW) - #2	City of Pomona
North Towne Avenue (NS) at: East Foothill Boulevard (EW) - #3	City of Pomona

D. Analysis Scenarios

The following scenarios are analyzed in accordance with the City of Pomona Traffic Impact Study Guidelines (February 2012):

- (1) Existing Conditions;
- (2) Existing Plus Project Conditions¹;
- (3) Opening Year (2019) Without Project;
- (4) Opening Year (2019) With Project.

¹ The Existing Plus Project conditions has been analyzed to comply with the Sunnyvale West Neighborhood Association v. City of Sunnyvale CEQA court case. This scenario assumes the full development of the proposed project and full absorption of the proposed project trips on the circulation system at the present time.

Figure 2
Site Plan

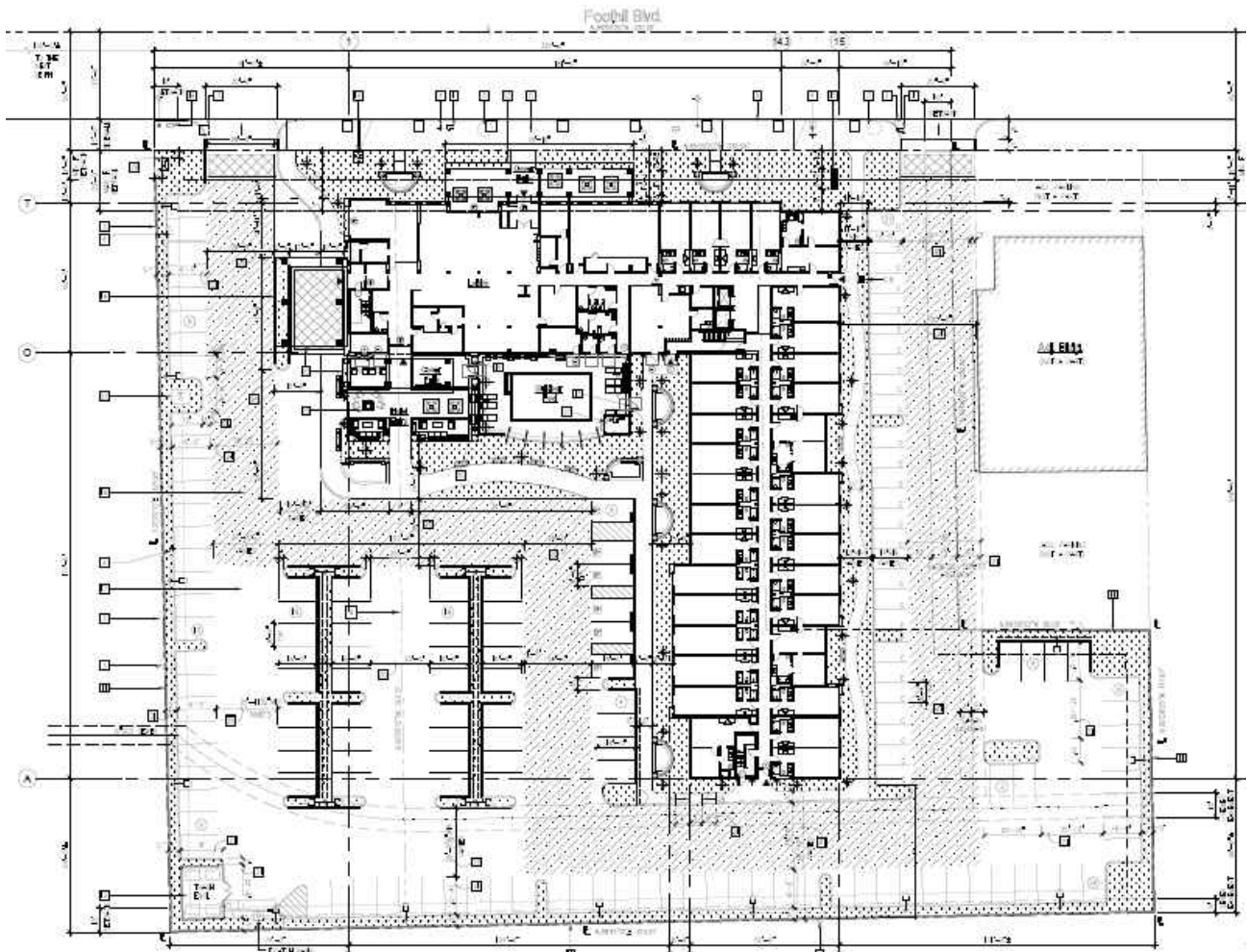


Figure 1
Project Location Map



II. METHODOLOGY

The scope of this focused traffic analysis is based on the guidance provided in the City of Pomona City of Pomona Traffic Impact Study Guidelines (February 2012).

A. Intersection Analysis Methodology

The technique used to assess the performance of an intersection is known as the intersection delay methodology based on the procedures contained in the 2010 Highway Capacity Manual (Transportation Research Board, 2010), and described in Appendix D. The methodology compares the volume of traffic using the intersection to the capacity of the intersection to calculate the delay associated with associated with the traffic control at the intersection. The intersection delay is then correlated to a performance measure known as Level of Service.

B. Level of Service Standards

The City of Pomona has adopted Level of Service D as the minimum acceptable Level of Service for signalized and unsignalized intersections within the City. Study intersections and roadway segments operating at Level of Service E or F are considered deficient.

C. Thresholds of Significance

In accordance with the City of Pomona Traffic Impact Study Guidelines (February 2012), a significant impact is deemed to occur if the Level of Service is forecast to fall below the target Level of Service.

To reduce a potential impact to a less than significant level, feasible mitigation measures should be identified that will maintain the acceptable Level of Service. If a project is forecast to worsen a facility already operating at a deficient Level of Service under pre-project conditions, proposed mitigation measures should maintain operation of the impacted facility at pre-project conditions. Mitigation measures can be in many forms, including addition of lanes, traffic control modification, or demand management measures. If no feasible mitigation measures can be identified for a significantly impacted facility, the impact will remain significant and unavoidable.

III. EXISTING CONDITIONS

A. Existing Traffic Controls & Intersection Geometry

Figure 3 identifies the Existing number of through lanes, intersection traffic controls, and intersection geometry based on a field survey of the study area.

Regional access to/from the project site is provided by the SR-210 Freeway, SR-57 Freeway, and I-10 Freeway located to the north, west, and south, respectively.

B. Existing Traffic Volumes

Existing peak hour intersection turning movement volumes are based upon morning peak period and evening peak period intersection turning movement counts conducted in February 2018 during typical weekday conditions. The morning peak period was counted between 6:30 AM and 9:00 AM and the evening peak period was counted between 4:00 PM and 6:00 PM. The actual peak hour within the peak period is the four consecutive 15-minute periods with the highest total volume when all movements are added together. Thus, the weekday evening peak hour at one intersection may be 4:45 PM to 5:45 PM if those four consecutive 15-minute periods have the highest combined volume. Intersection turning movement count worksheets are provided in Appendix C.

The peak hour intersection turning movement volumes were adjusted to peak 15 minute volumes for analysis purposes using the existing measured peak hour factors for Existing and Opening Year traffic conditions.

The Existing average daily traffic volumes have been factored from peak hour intersection turning movement volumes using the following formula for each intersection leg:

$$\text{PM Peak Hour (Approach Volume + Exit Volume)} \times 10 = \text{Leg Volume.}$$

Figure 4 depicts the Existing average daily traffic volumes. Figure 5 and Figure 6 show the Existing morning peak hour and evening peak hour intersection turning movement volumes, respectively.

C. Existing Levels of Service

The morning and evening peak hour intersection Levels of Service for Existing traffic conditions have been calculated and are shown in Table 1. As shown in Table 1, the study intersections currently operate within acceptable Levels of Service during the peak hours for existing traffic conditions. Existing intersection Level of Service worksheets are provided in Appendix D.

D. General Plan Circulation Element

Figure 7 shows the City of Pomona General Plan Circulation Element. This figure shows the nature and extent of arterial and collector roadways that are needed to adequately serve

the ultimate development designated by the Land Use Element of the General Plan. The City of Pomona General Plan roadway cross-sections are illustrated on Figure 8.

E. Truck Routes

The City of Pomona truck route map is illustrated on Figure 9.

F. Bicycle Routes

The City of Pomona bicycle routes are shown Figure 10.

G. Pedestrian Facilities

Existing pedestrian facilities in the study area are depicted on Figure 11.

H. Transit Service

The study area is currently served by Foothill Transit Route 188, and Transit Route 291 and Transit Route 690 along Foothill Boulevard. The existing bus routes provided within the study area are shown on Figure 12.

Table 1

Existing Intersection Levels of Service

Intersection	Traffic Control ³	Intersection Approach Lanes ¹												Peak Hour Delay-LOS ²	
		Northbound			Southbound			Eastbound			Westbound			Morning	Evening
		L	T	R	L	T	R	L	T	R	L	T	R		
North Towne Avenue (NS) at: East Foothill Boulevard (EW) - #3	TS	1	2	1	1	2	d	1	1.5	0.5	1	1.5	0.5	49.6-D	44.5-D

¹ When a right turn lane 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; d = De Facto Right Turn

² Delay and Level of Service have been calculated using the following analysis software: Vistro, Version 5.00-02. Per the 2010 Highway Capacity Manual, overall average intersection delay and Level of Service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and Level of Service for the worst individual movement (or movements sharing a single lane) are shown.

³ TS = Traffic Signal

Figure 3
Existing Through Travel Lanes and Intersection Controls

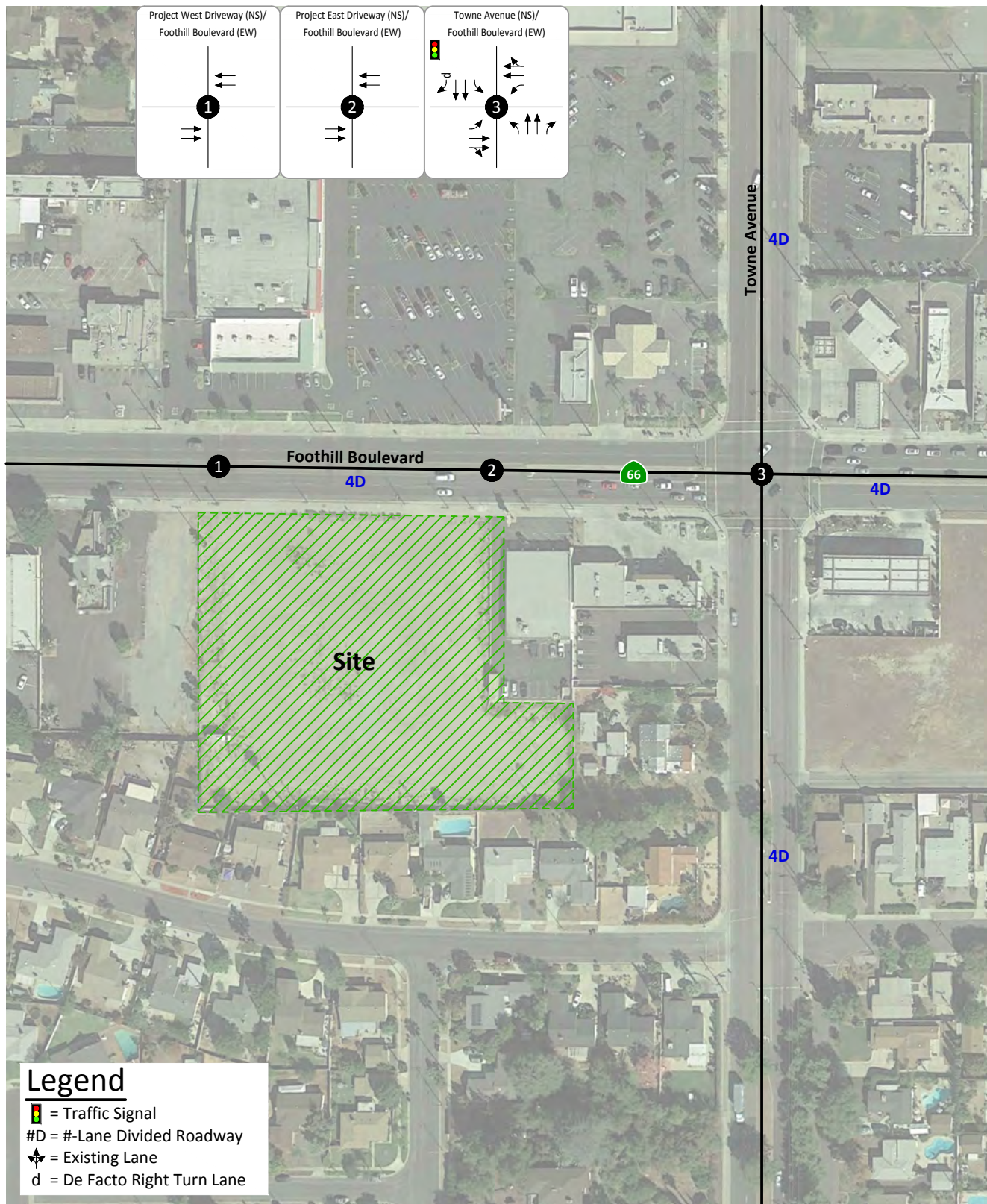


Figure 4
Existing Average Daily Traffic Volumes

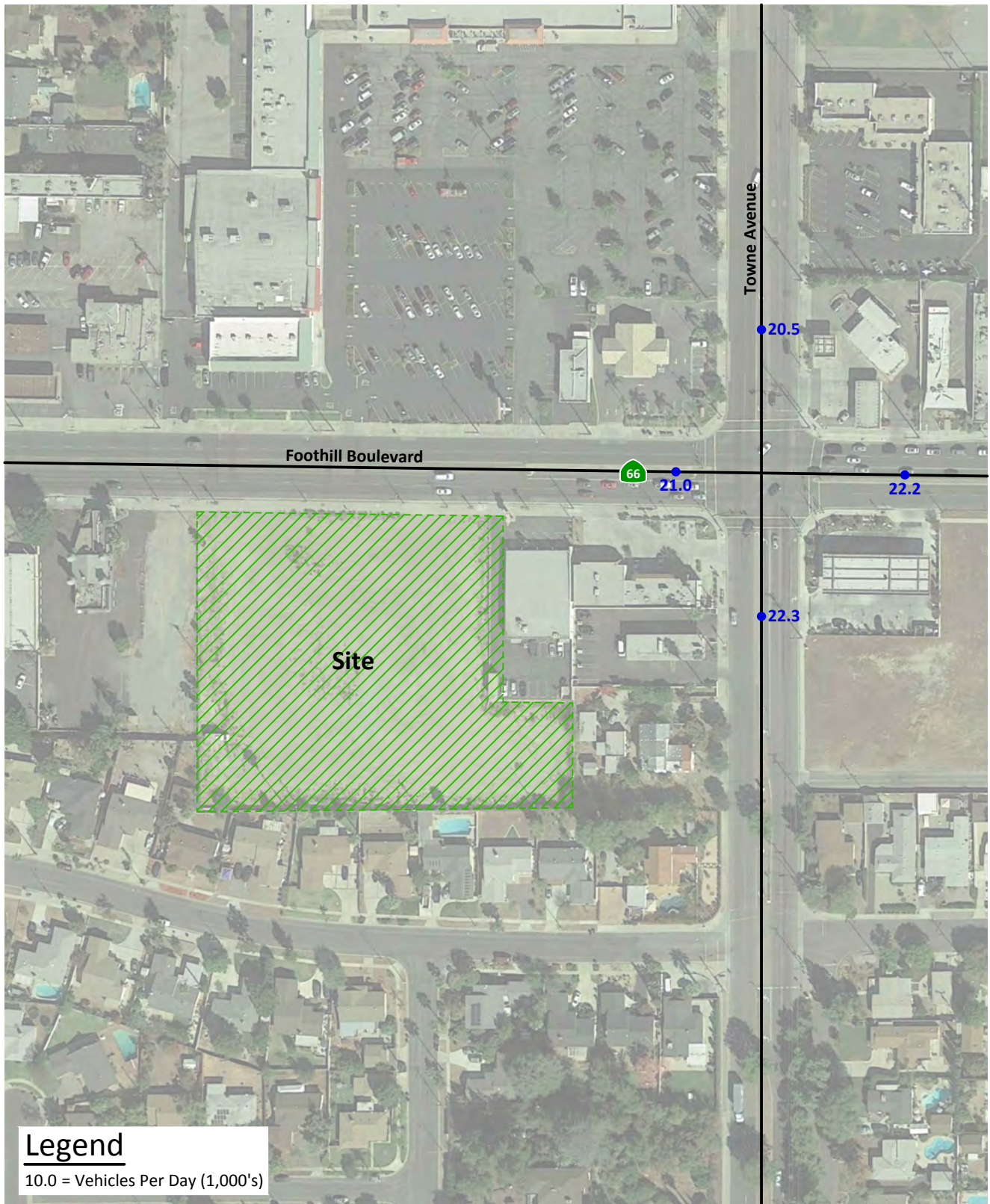


Figure 5
Existing Morning Peak Hour Intersection Turning Movement Volumes



Figure 6 Existing Evening Peak Hour Intersection Turning Movement Volumes



City of Pomona General Plan Circulation Element



Figure 8
City of Pomona General Plan Roadway Cross-Sections

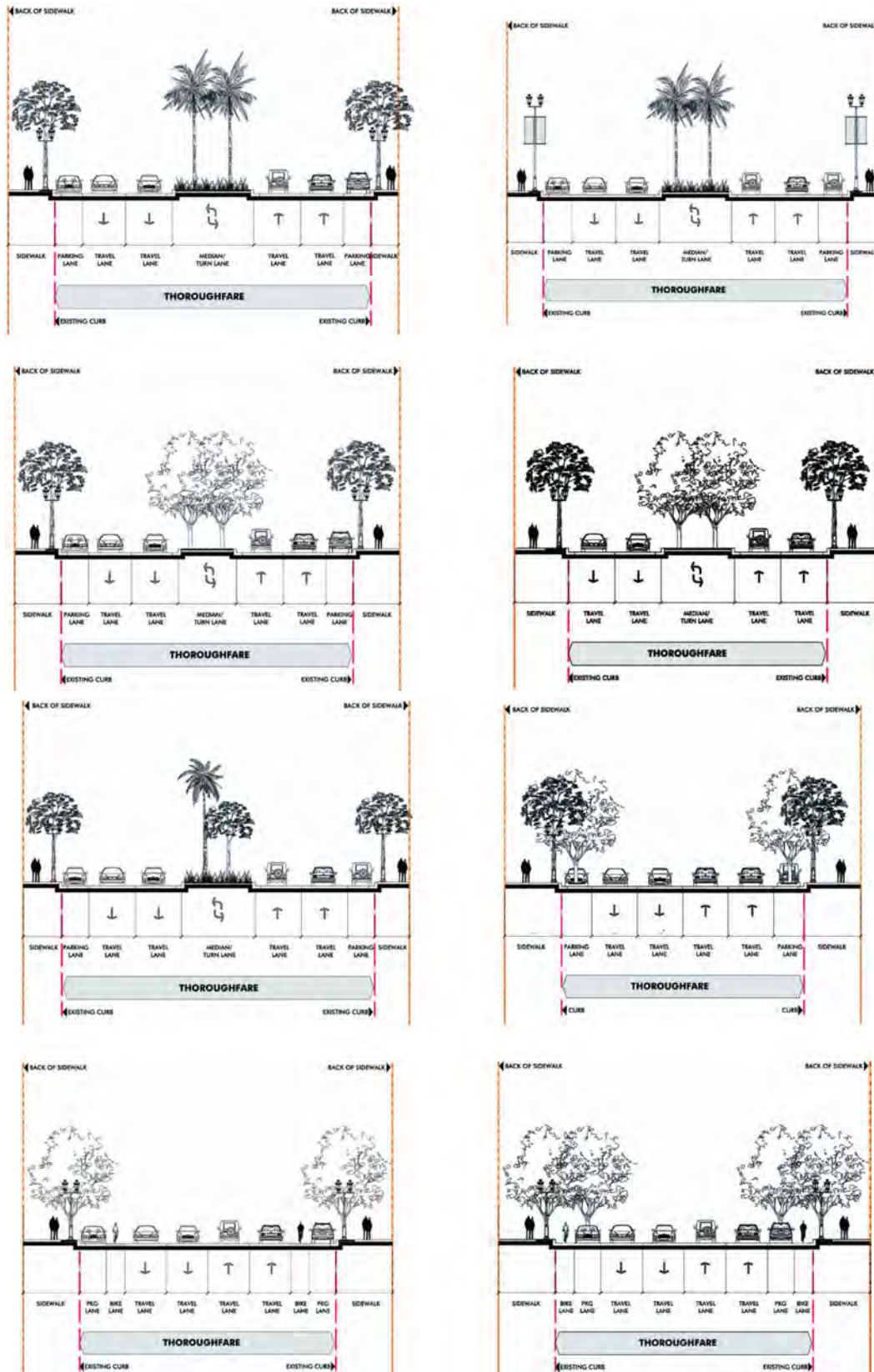


Figure 9
City of Pomona Truck Routes

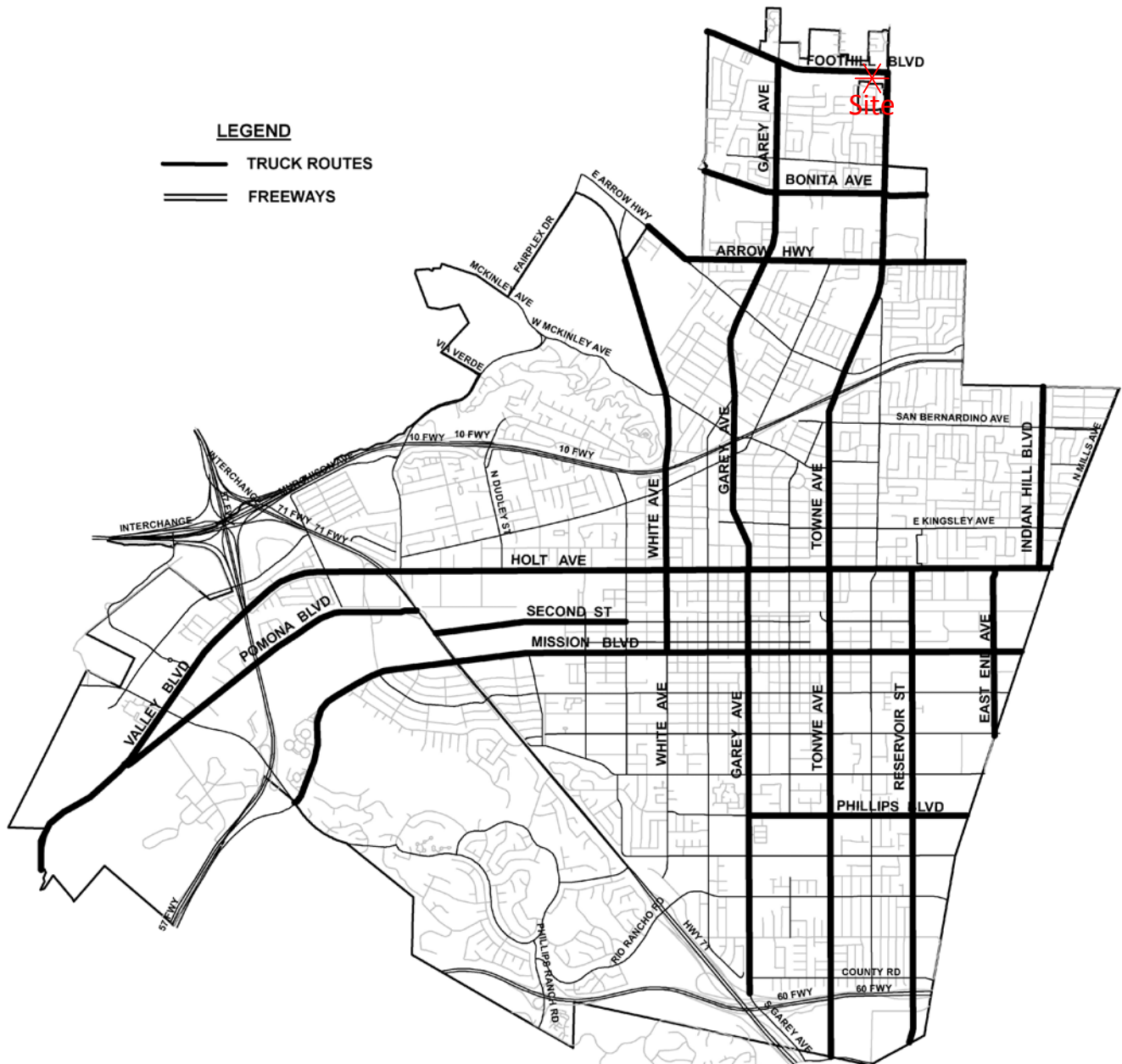
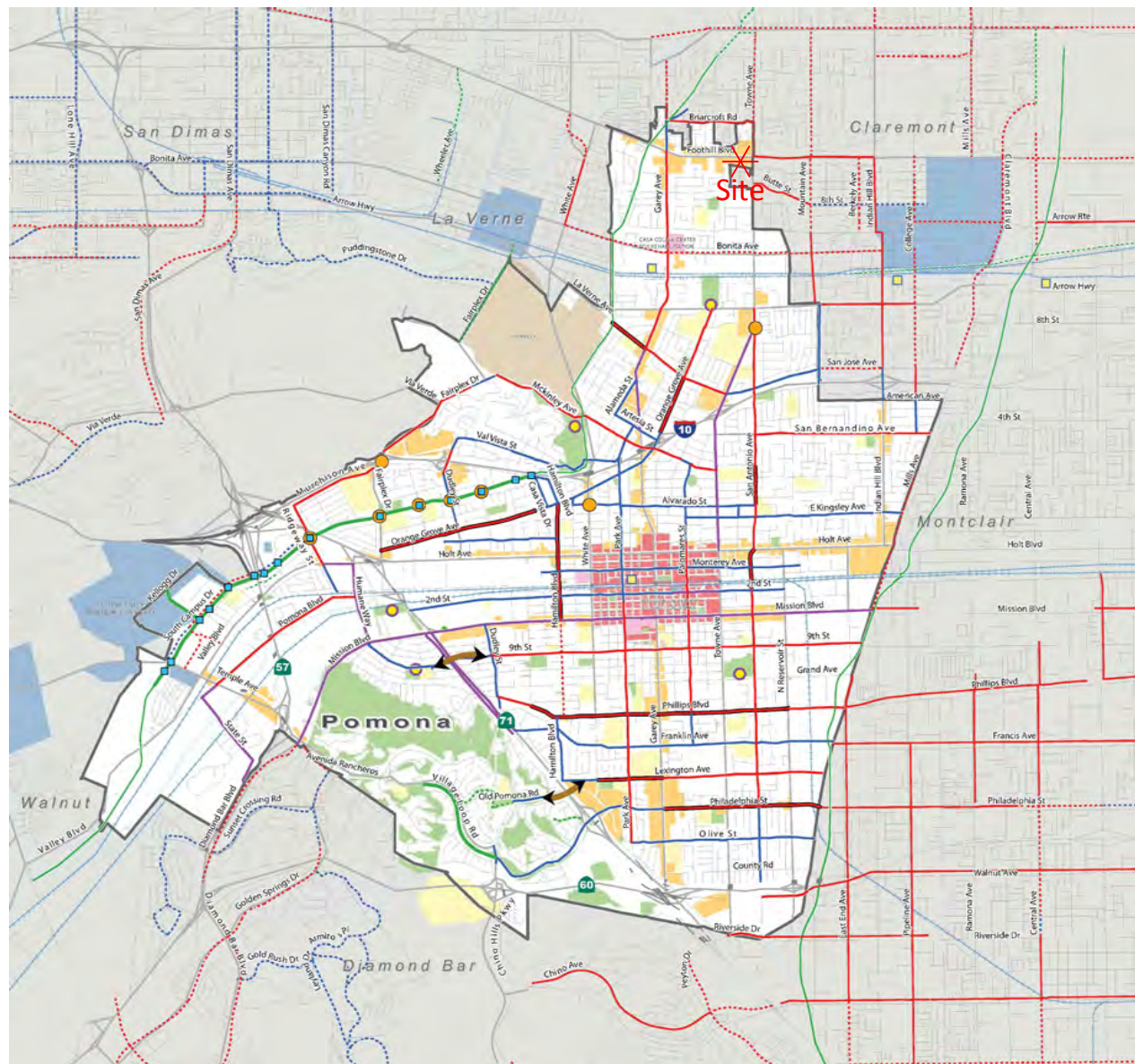


Figure 10
City of Pomona Bicycle Routes



-  Potential Future Connection
-  Bike Path Access Points
-  Intersection / Crossing Improvements
- Proposed Bike Facilities**
 -  Bike Path
 -  Bike Path (Long Term)
 -  Bike Lane
 -  Bike Route
 -  Bike Lane After Road Diet
 -  Bike Lane After Removal of Parking
 -  Potential Future Bike Facilities
-  Transit Centers
-  Day Labor Center
-  Bridges
-  Community Centers
- Existing Bike Facilities**
 -  Bike Path
 -  Bike Lane
 -  Bike Route
-  City Boundary
- Zoning / Land Use**
 -  Commercial
 -  Parks, Open Spaces, Vacant
 -  Civic Center / Public Buildings
 -  Fairplex
 -  Schools
 -  Universities
 -  Downtown Specific Plan Area

KUNZMAN ASSOCIATES, INC.

Source: City of Pomona

OVER 40 YEARS OF EXCELLENT SERVICE



JN 7353

Figure 11
Existing Pedestrian Facilities



Figure 12
Existing Transit Routes



ROUTE DESIGNATIONS

- Foothill Transit lines are shown with solid route lines
- Other transit lines are shown with dashed route lines
- M-78 Metro routes have an "M" in the route symbol
- O-62 Omitrans routes have an "O" in the route symbol
- P-10 Pasadena routes have a "P" in the route symbol

INFORMATION ABOUT OTHER TRANSIT AGENCIES IS LOCATED ON PG. 48 OF THE BUS BOOK



IV. PROJECT TRIPS

The approximately 2.7 acre project site is located at 700-704 East Foothill Boulevard in the City of Pomona. The project proposes to convert a vacant lot into a 136 room hotel. The project site is proposed to provide two driveways onto East Foothill Boulevard. For purposes of this analysis, the project is planned to be fully operational by Year 2019.

A. Trip Generation

The trips generated by the project are determined by multiplying an appropriate trip generation rate by the quantity of land use. Trip generation rates are predicated on the assumption that energy costs, the availability of roadway capacity, the availability of vehicles to drive, and life styles remain similar to what are known today. A major change in these variables may affect trip generation rates.

Trip generation rates were determined for daily trips, morning peak hour inbound and outbound trips, and evening peak hour inbound and outbound trips for the proposed land use. By multiplying the trip generation rates by the land use quantity, the project trips are determined. Table 2 shows the project trip generation based upon rates obtained from the Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017.

As shown in Table 2, the proposed project is forecast to generate approximately 1,104 daily trips, 62 trips of which will occur during the morning peak hour and 79 trips of which will occur during the evening peak hour.

B. Trip Distribution and Assignment

Figure 13 and Figure 14 show the outbound and inbound project trip distribution patterns, respectively. The forecast project trip distributions are based on review of existing traffic volume data, surrounding land uses, and the local and regional roadway facilities in the project vicinity.

Based on the identified trip generation and distributions, project average daily traffic volumes have been calculated and shown on Figure 15. Morning and evening peak hour intersection turning movement volumes expected from the project are shown on Figure 16 and Figure 17, respectively.

Table 2

Project Trip Generation¹

Land Use	Quantity	Units ²	Peak Hour						Daily
			Morning			Evening			
			Inbound	Outbound	Total	Inbound	Outbound	Total	
<u>Trip Generation Rates</u>									
Hotel		RM	0.28	0.19	0.47	0.31	0.29	0.60	8.36
<u>Trips Generated</u>									
Hotel	132	RM	37	25	62	41	38	79	1,104

¹ Source: Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017, Land Use Code 310.

² RM = Rooms

Figure 13
Project Outbound Trip Distribution

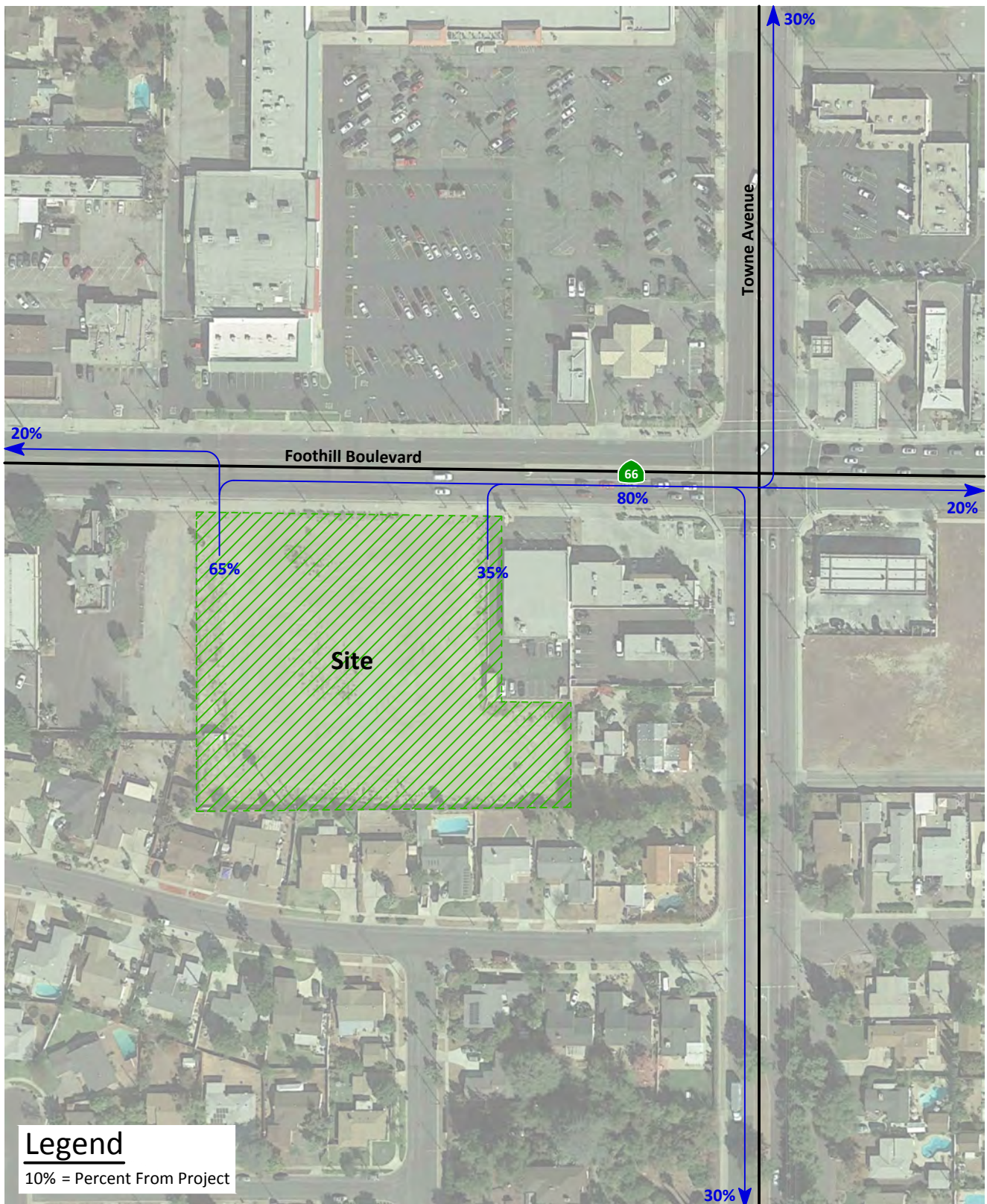


Figure 14
Project Inbound Trip Distribution

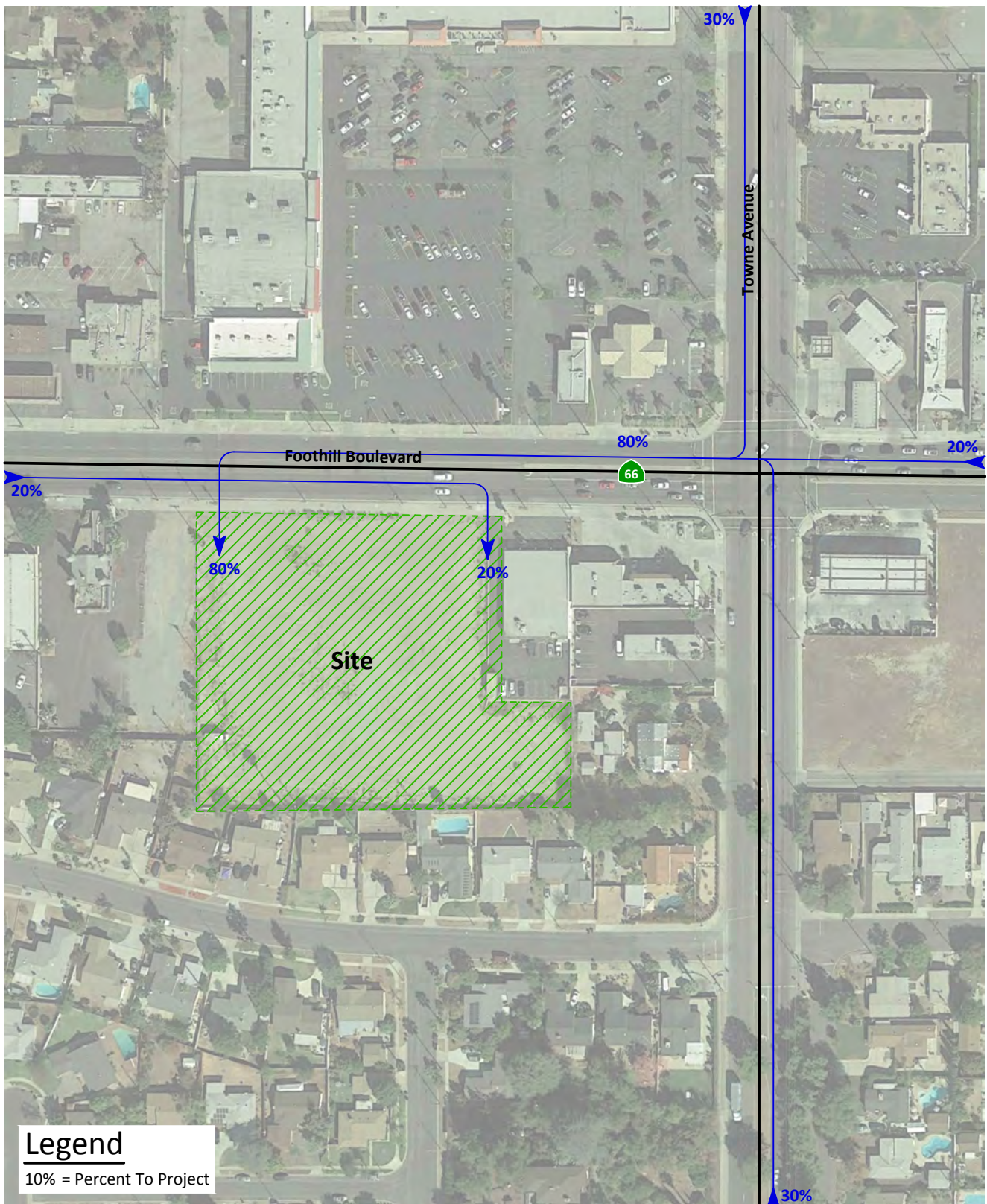


Figure 15
Project Average Daily Traffic Volumes

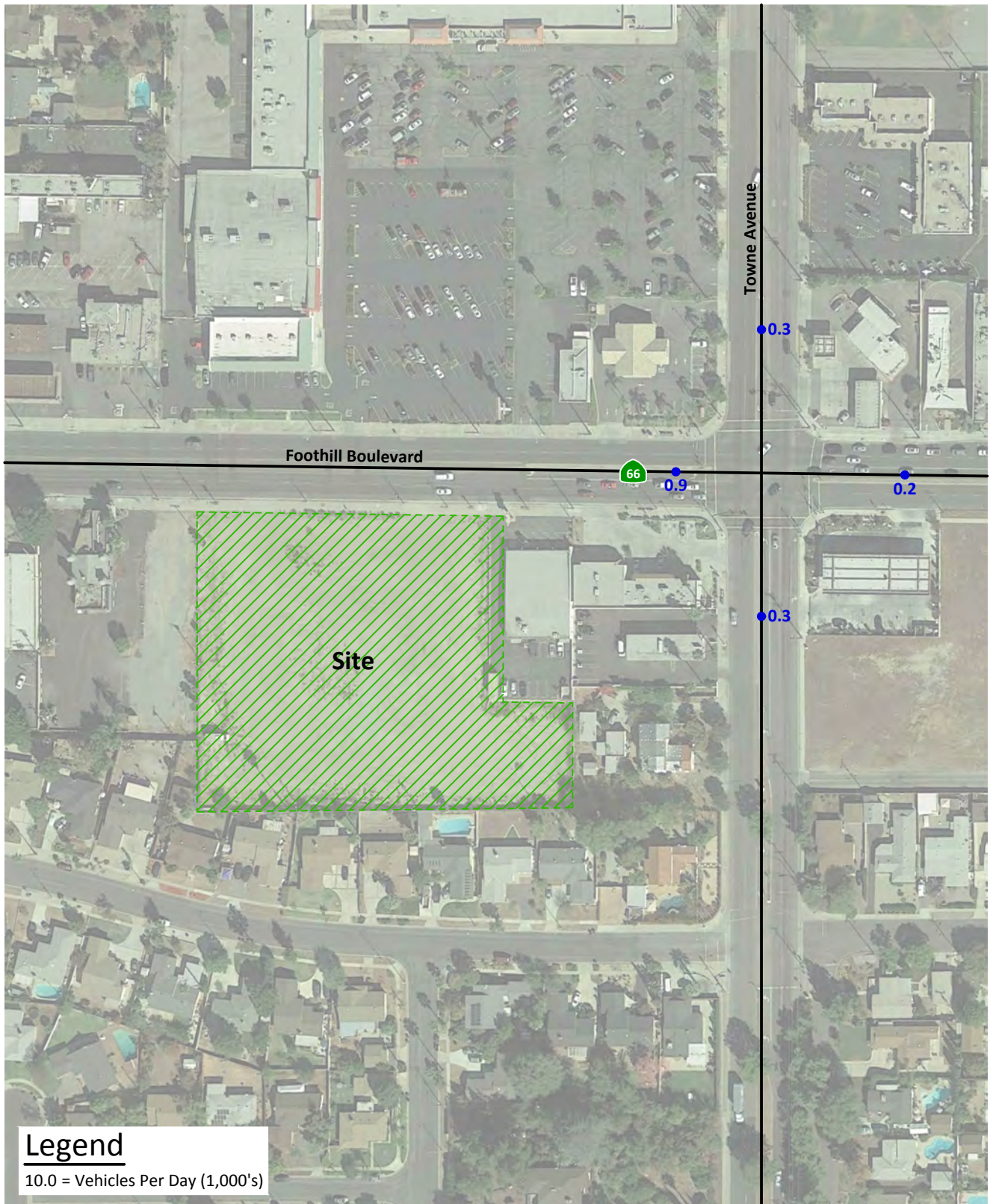


Figure 16
Project Morning Peak Hour Intersection Turning Movement Volumes



Figure 17



V. FUTURE TRAFFIC VOLUMES

A. Method of Projection

To assess future traffic conditions, existing traffic volumes are combined with project trips, ambient growth, and other development trips. The opening year for analysis purposes in this report is 2019.

1. Ambient Growth

To account for ambient growth on roadways, Opening Year (2019) traffic volumes have been calculated based on an annual growth rate of existing traffic volumes over a two year period. The 2 percent annual growth rate has been obtained from the City of Pomona.

2. Other Development

A list of other pending or approved development projects were obtained from the Cities of Pomona, Claremont, and La Verne. Table 3 shows the forecast trip generation for other developments forecast to add future traffic volumes to the study area. Figure 18 shows the average daily traffic volumes that can be expected for the other development. Other development morning and evening peak hour intersection turning movement volumes are shown on Figure 19 and Figure 20, respectively.

B. Future Traffic Volumes

1. Existing Plus Project Traffic Volumes

The traffic volumes for Existing Plus Project conditions have been derived by adding the project generated trips to existing traffic volumes. Existing Plus Project average daily traffic volumes are shown on Figure 21. Existing Plus Project morning and evening peak hour intersection turning movement volumes are shown on Figure 22 and Figure 23, respectively.

2. Opening Year (2019) Without Project Traffic Volumes

To assess traffic conditions at Opening Year (2019) Without Project, ambient growth and trips generated by other development are added to existing traffic volumes. Opening Year (2019) Without Project average daily traffic volumes are shown on Figure 24. Opening Year (2019) Without Project morning and evening peak hour intersection turning movement volumes are shown on Figure 25 and Figure 26, respectively.

3. Opening Year (2019) With Project Conditions Traffic Volumes

To assess Opening Year (2019) With Project traffic conditions, project generated trips, are added to Opening Year (2019) Without Project traffic volumes. Opening Year

(2019) With Project Conditions average daily traffic volumes are shown on Figure 27. Opening Year (2019) With Project Conditions morning and evening peak hour intersection turning movement volumes are shown on Figure 28 and Figure 29, respectively.

Table 3

Other Development Trip Generation¹

Project	Land Use	Quantity	Units ²	Peak Hour						Daily
				Morning			Evening			
				Inbound	Outbound	Total	Inbound	Outbound	Total	
City of Pomona										
775 Foothill Boulevard ³	<u>Proposed</u>									
	Discount Supermarket	40.260	TSF	59	43	102	169	169	337	3,658
	Pharmacy w Drive thru	18.511	TSF	38	33	71	95	95	190	2,021
	<u>Existing</u>									
	Pharmacy w/o Drive thru	55.249	TSF	106	57	162	230	240	470	5,017
	Subtotal			9	-19	-11	-34	-24	-58	-662
2771 Garey Ave	Multi-Family Housing (Mid-Rise)	650	DU	61	173	234	174	112	286	3,536
City of Claremont										
Serrano	Single-Family Detached Housing	94	DU	17	52	70	59	34	93	887
Meadow Park	Single-Family Detached Housing	95	DU	18	53	70	59	35	94	897
Village Lofts	Multi-Family Housing (Low-Rise)	74	DU	8	26	34	26	15	41	542
Gable Crossing	Multi-Family Housing (Low-Rise)	60	DU	6	21	28	21	12	34	439
San Jose & Indian Hill	Multi-Family Housing (Low-Rise)	13	DU	1	5	6	5	3	7	95
Old School House	Multi-Family Housing (Low-Rise)	126	DU	13	45	58	44	26	71	922
Clara Oaks	Single-Family Detached Housing	47	DU	5	17	22	17	10	26	344
City of La Verne										
Emerald Collection	Single-family Detached Housing	22	DU	4	12	16	14	8	22	208
Fit Body Bootcamp	Health/Fitness Club	18.500	TSF	12	12	24	36	27	64	609
Chase	Walk-In Bank	3.000	TSF	21	16	36	36	36	73	444
Grandma Pucci's	Fast-Food Restaurant w/o Drive Thru	1.500	TSF	23	15	38	21	21	43	519
The Landing Development	Multi-Family Housing (Low-Rise)	38	DU	4	13	17	13	8	21	278
Subtotal				202	440	642	493	324	817	9,059

¹ Source: Institute of Transportation Engineers, Trip Generation, 10th Edition, 2017, Land Use Codes 210, 220, 221, 854, 880, 881, and 933.

Source: Institute of Transportation Engineers, Trip Generation, 9th Edition, 2012, Land Use Codes 492 and 911.

² TSF = Thousand Square Feet; DU = Dwelling Units.

³ The 775 Foothill Boulevard project was not added because of the negative trip generation in order to remain conservative.

Figure 18
Other Development Average Daily Traffic Volumes

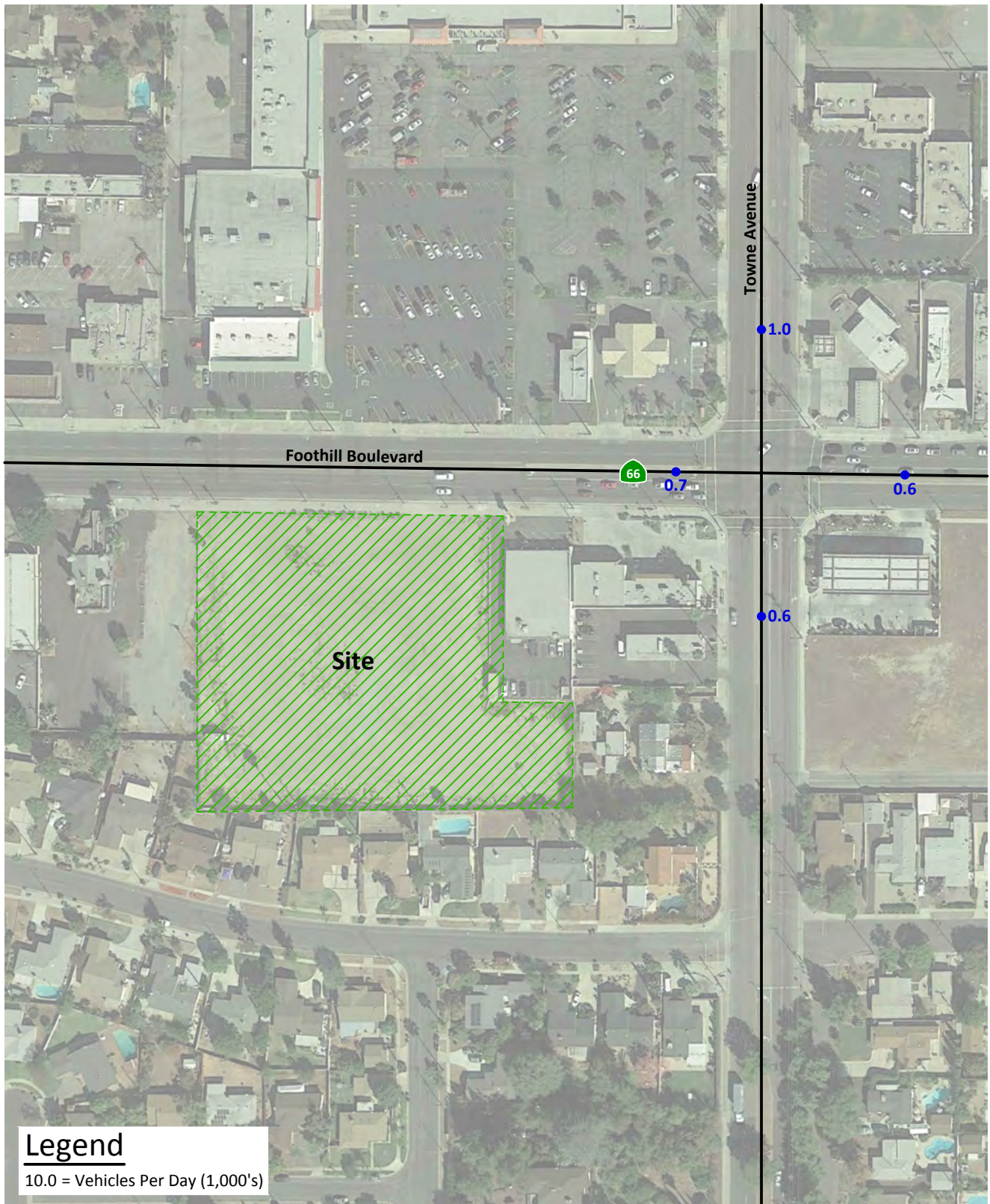


Figure 19
Other Development
Morning Peak Hour Intersection Turning Movement Volumes



Figure 20
Other Development
Evening Peak Hour Intersection Turning Movement Volumes



Figure 21
Existing Plus Project Average Daily Traffic Volumes

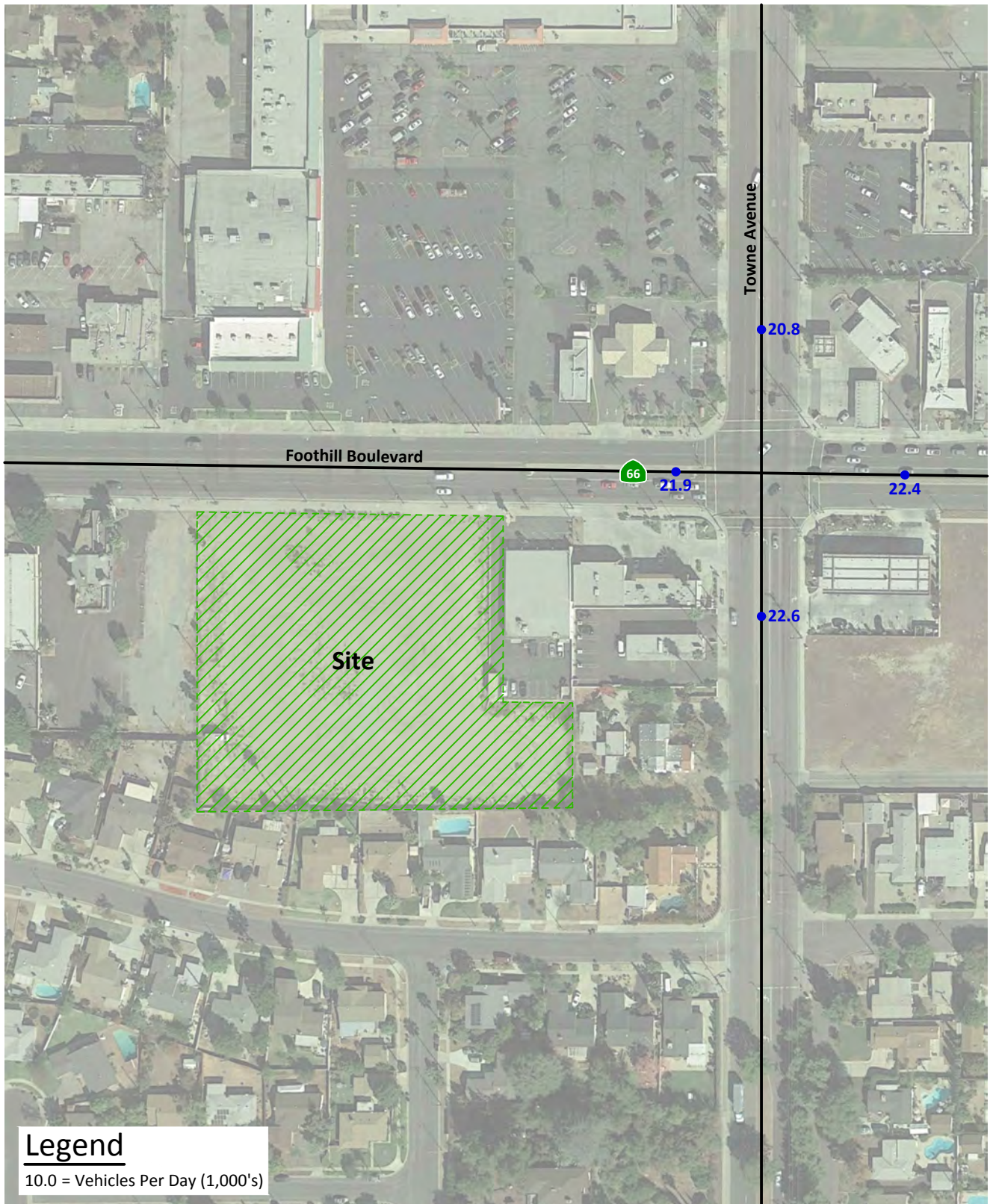


Figure 22
Existing Plus Project
Morning Peak Hour Intersection Turning Movement Volumes



Figure 23
Existing Plus Project
Evening Peak Hour Intersection Turning Movement Volumes



Figure 24
Opening Year (2019) Without Project Average Daily Traffic Volumes



Figure 25
Opening Year (2019) Without Project
Morning Peak Hour Intersection Turning Movement Volumes



Figure 26
Opening Year (2019) Without Project
Evening Peak Hour Intersection Turning Movement Volumes



Figure 27
Opening Year (2019) With Project Average Daily Traffic Volumes



Figure 28
Opening Year (2019) With Project
Morning Peak Hour Intersection Turning Movement Volumes



Figure 29
Opening Year (2019) With Project
Evening Peak Hour Intersection Turning Movement Volumes



VI. FUTURE LEVELS OF SERVICE

Detailed intersection Level of Service calculation worksheets for each of the following analysis scenarios are provided in Appendix D.

A. Existing Plus Project Intersection Level of Service

Table 4 shows intersection Levels of Service for Existing Plus Project traffic conditions based on intersection lane geometry without and with improvements. As shown in Table 4, the study intersections are projected to operate within acceptable Levels of Service during the peak hours for Existing Plus Project traffic conditions.

B. Opening Year (2019) Without Project Intersection Levels of Service

Table 5 shows intersection Levels of Service for Opening Year (2019) Without Project traffic conditions based on intersection lane geometry without and with improvements. As shown in Table 5, the following study intersection is projected to operate at an unacceptable Level of Service during the morning peak hour:

North Towne Avenue (NS) at:
East Foothill Boulevard (EW) - #3

A northbound right turn overlap traffic signal phasing is recommended at the North Towne Avenue/East Foothill Boulevard intersection for Opening Year (2019) Without Project traffic conditions.

C. Opening Year (2019) With Project Conditions Intersection Levels of Service

Table 6 shows intersection Levels of Service for Opening Year (2019) With Project traffic conditions based on intersection lane geometry without and with improvements. As shown in Table 6, the study intersections are projected to operate within acceptable Levels of Service during the peak hours for Opening Year (2019) With Project traffic conditions, except for the following study intersection that is projected to operate at an unacceptable Level of Service during the morning peak hour:

North Towne Avenue (NS) at:
East Foothill Boulevard (EW) - #3

A northbound right turn overlap traffic signal phasing is recommended at the North Towne Avenue/East Foothill Boulevard intersection for Opening Year (2019) With Project traffic conditions.

Table 4

Existing Plus Project Intersection Levels of Service

Intersection	Traffic Control ³	Intersection Approach Lanes ¹												Peak Hour Delay-LOS ²	
		Northbound			Southbound			Eastbound			Westbound			Morning	Evening
		L	T	R	L	T	R	L	T	R	L	T	R		
Project West Driveway (NS) at: East Foothill Boulevard (EW) - #1	CSS	0.5	0	0.5	0	0	0	0	1.5	0.5	1	2	0	20.8-C	23.8-C
Project East Driveway (NS) at: East Foothill Boulevard (EW) - #2	CSS	0	0	1	0	0	0	0	1.5	0.5	0	2	0	12.6-B	13.7-B
North Towne Avenue (NS) at: East Foothill Boulevard (EW) - #3	TS	1	2	1	1	2	d	1	1.5	0.5	1	1.5	0.5	51.4-D	45.8-D

¹ When a right turn lane 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; d = De Facto Right Turn; **BOLD** = Improvement

² Delay and Level of Service have been calculated using the following analysis software: Vistro, Version 5.00-02. Per the 2010 Highway Capacity Manual, overall average intersection delay and Level of Service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and Level of Service for the worst individual movement (or movements sharing a single lane) are shown.

³ CSS = Cross Street Stop; TS = Traffic Signal

Table 5

Opening Year (2019) Without Project Intersection Levels of Service

Intersection	Traffic Control ³	Intersection Approach Lanes ¹												Peak Hour Delay-LOS ²	
		Northbound			Southbound			Eastbound			Westbound			Morning	Evening
		L	T	R	L	T	R	L	T	R	L	T	R		
North Towne Avenue (NS) at:															
East Foothill Boulevard (EW) - #3															
- Without Improvements	TS	1	2	1	1	2	d	1	1.5	0.5	1	1.5	0.5	58.8-E	49.8-D
- With Improvements	TS ⁴	1	2	1	1	2	d	1	1.5	0.5	1	1.5	0.5	54.4-D	38.4-D

¹ When a right turn lane 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; d = De Facto Right Turn; **BOLD** = Improvement

² Delay and Level of Service have been calculated using the following analysis software: Vistro, Version 5.00-02. Per the 2010 Highway Capacity Manual, overall average intersection delay and Level of Service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and Level of Service for the worst individual movement (or movements sharing a single lane) are shown.

³ CSS = Cross Street Stop; TS = Traffic Signal

⁴ A northbound right turn overlap traffic signal phasing is recommended.

Table 6

Opening Year (2019) With Project Intersection Levels of Service

Intersection	Traffic Control ³	Intersection Approach Lanes ¹												Peak Hour Delay-LOS ²	
		Northbound			Southbound			Eastbound			Westbound			Morning	Evening
		L	T	R	L	T	R	L	T	R	L	T	R		
Project West Driveway (NS) at: East Foothill Boulevard (EW) - #1	CSS	0.5	0	0.5	0	0	0	0	1.5	0.5	1	2	0	21.9-C	25.1-D
Project East Driveway (NS) at: East Foothill Boulevard (EW) - #2	CSS	0	0	1	0	0	0	0	1.5	0.5	0	2	0	12.9-B	14.0-B
North Towne Avenue (NS) at: East Foothill Boulevard (EW) - #3															
- Without Improvements	TS	1	2	1	1	2	d	1	1.5	0.5	1	1.5	0.5	60.9-E	52.0-D
- With Improvements	TS⁴	1	2	1	1	2	d	1	1.5	0.5	1	1.5	0.5	57.0-E	38.9-D

¹ When a right turn lane 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; d = De Facto Right Turn; **BOLD** = Improvement

² Delay and Level of Service have been calculated using the following analysis software: Vistro, Version 5.00-02. Per the 2010 Highway Capacity Manual, overall average intersection delay and Level of Service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and Level of Service for the worst individual movement (or movements sharing a single lane) are shown.

³ CSS = Cross Street Stop; TS = Traffic Signal

⁴ A northbound right turn overlap traffic signal phasing is recommended.

VII. CONCLUSIONS

A. Sight Distance Evaluation

Sight distance at the project driveways shall comply with standard California Department of Transportation and City of Pomona sight distance standards. No obstacle higher than 18 inches shall be placed in the sight triangle. Placement of trees and monument signing will adhere to these requirements

Figure 30 shows the summary for the sight distance analysis at the proposed project driveways to East Foothill Boulevard. The posted speed limit along East Foothill Boulevard near the project site is 45 miles per hour. The sight distance requirements have been obtained from Table 201.1 in the Highway Design Manual.

The corner sight distance minimum requirement per Table 405.1A in the Highway Design Manual for the 45 miles per hour prevailing speed is 495 feet. The driver's eye for a vehicle located at the project driveway exiting the property is situated 42 inches above the pavement and 15 feet back from the edge of the travelway. The driver must have a generally unobstructed sight line of 495 feet looking at an object 51 inches above the pavement situated in the center of the travel lane in either direction. Corner sight distance accounts the distance needed to detect an approaching vehicle and maneuver from a stopped position into the local roadway for vehicles exiting the project.

The area between the line of sight and the centerline of the nearest approaching lane is defined as the restricted use area. No objects within the restricted use areas should exceed the maximum height of eighteen (18) inches to insure a clear line of sight. The restricted use area should be kept clear of obstructions, including landscaping over 18 inches to allow better visibility.

The proposed project driveways to East Foothill Boulevard meet the sight distance requirements for through traffic volumes at the posted 45 miles per hour speed limit.

B. Proposed Driveway Locations

The existing and proposed driveway locations along East Foothill Boulevard in the study area are illustrated on Figure 31.

C. Recommendations

Site-specific circulation and access recommendations are depicted on Figure 30.

The proposed project driveways shall be constructed in conformance with City of Pomona standards, including provisions for sight distance and truck turning path requirements.

On-site traffic signing and striping shall be submitted for City of Pomona approval in conjunction with detailed construction plans for the project.

Off-street parking shall be provided to meet City of Pomona parking code requirements. Restrict on-street parking along East Foothill Boulevard adjacent to the project site.

As is the case for any roadway design, the City of Pomona should periodically review traffic operations in the vicinity of the project once the project is constructed to assure that the traffic operations are satisfactory

Figure 30
Sight Distance Analysis

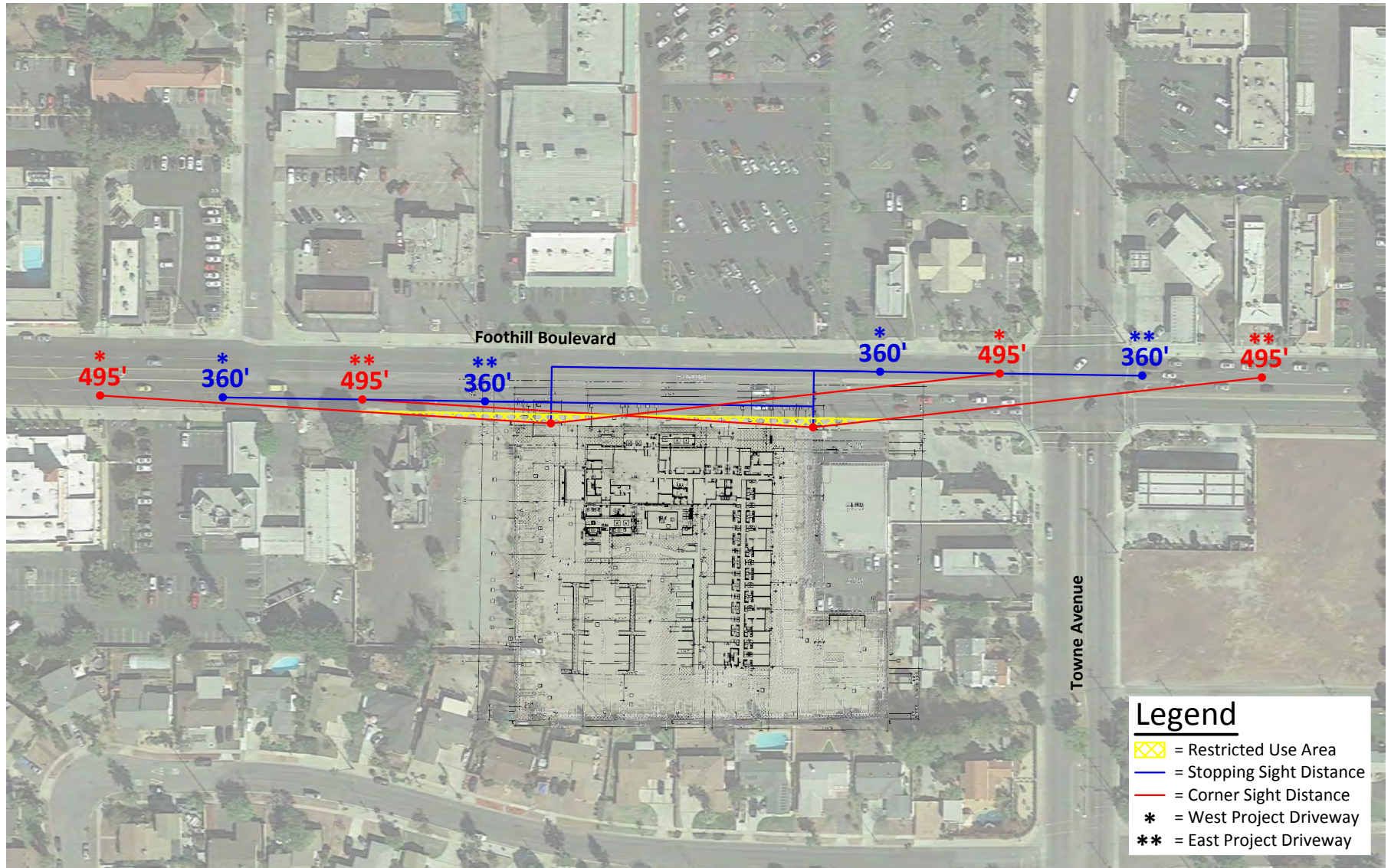


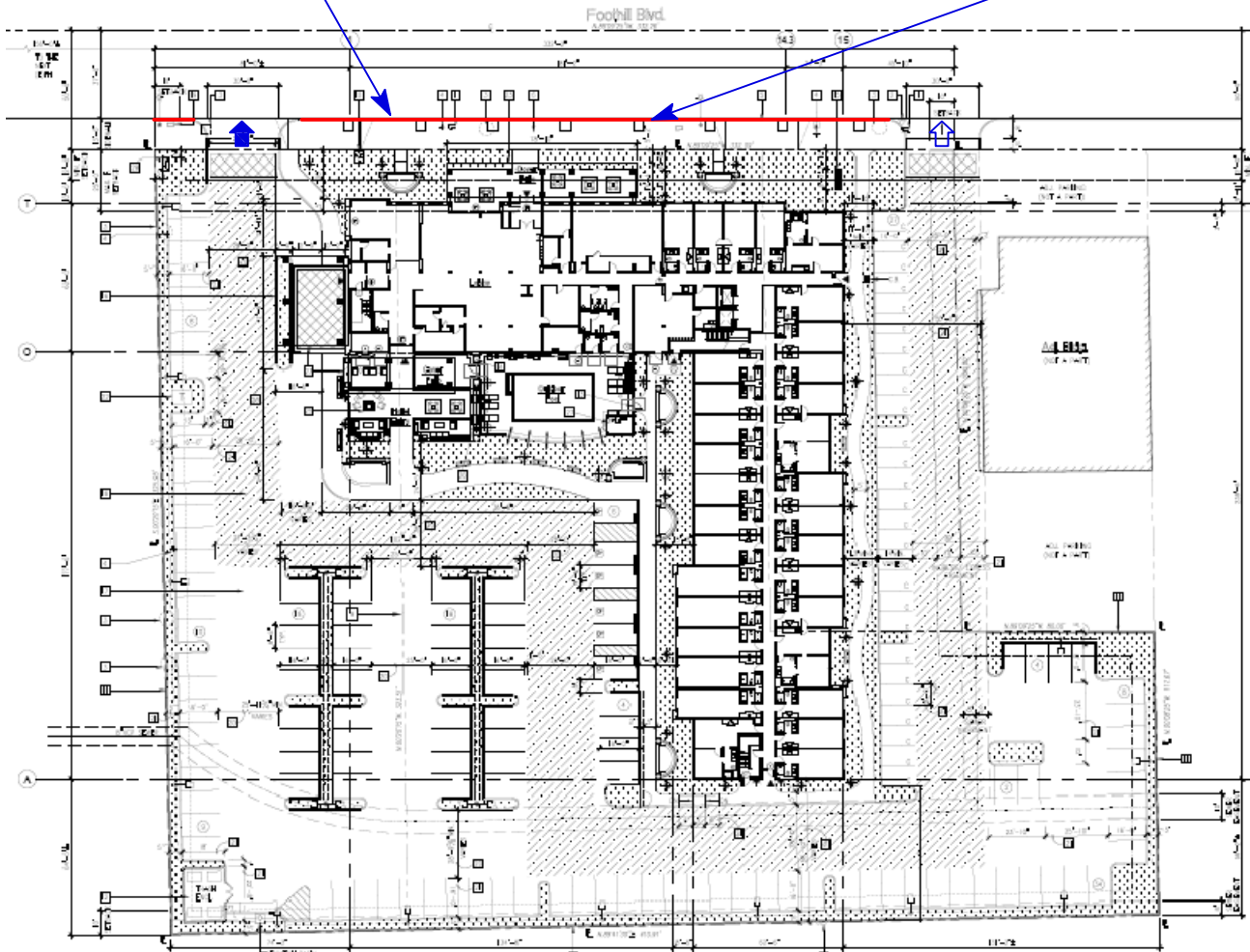
Figure 31
East Foothill Boulevard Driveway Locations



Figure 32
Circulation Recommendations

Construct Foothill Boulevard from the project west boundary to the project east boundary at its ultimate half-section width in conjunction with parkway improvements, as necessary.

Restrict on-street parking adjacent to the project site.



Sufficient on-site parking shall be provided to meet City of Pomona parking code requirements.

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

Sight distance at project accesses shall comply with standard California Department of Transportation and City of Pomona sight distance standards. Such plans must be reviewed by City and approved as consistent with this measure prior to issue of grading permits.

Legend

-  = Full Access Driveway
-  = Right Turns In/Out
-  = Only Access Driveway

APPENDICES

Appendix A – Glossary of Transportation Terms

Appendix B – Scoping Agreement

Appendix C – Intersection Turning Movement Count Worksheets

Appendix D – Explanation and Calculation of Intersection Delay

APPENDIX A

Glossary of Transportation Terms

GLOSSARY OF TRANSPORTATION TERMS

COMMON ABBREVIATIONS

AC:	Acres
ADT:	Average Daily Traffic
Caltrans:	California Department of Transportation
DU:	Dwelling Unit
ICU:	Intersection Capacity Utilization
LOS:	Level of Service
TSF:	Thousand Square Feet
V/C:	Volume/Capacity
VMT:	Vehicle Miles Traveled

TERMS

AVERAGE DAILY TRAFFIC: The total volume during a year divided by the number of days in a year. Usually only weekdays are included.

BANDWIDTH: The number of seconds of green time available for through traffic in a signal progression.

BOTTLENECK: A constriction along a travelway that limits the amount of traffic that can proceed downstream from its location.

CAPACITY: The maximum number of vehicles that can be reasonably expected to pass over a given section of a lane or a roadway in a given time period.

CHANNELIZATION: The separation or regulation of conflicting traffic movements into definite paths of travel by the use of pavement markings, raised islands, or other suitable means to facilitate the safe and orderly movements of both vehicles and pedestrians.

CLEARANCE INTERVAL: Nearly same as yellow time. If there is an all red interval after the end of a yellow, then that is also added into the clearance interval.

CORDON: An imaginary line around an area across which vehicles, persons, or other items are counted (in and out).

CYCLE LENGTH: The time period in seconds required for one complete signal cycle.

CUL-DE-SAC STREET: A local street open at one end only, and with special provisions for turning around.

DAILY CAPACITY: The daily volume of traffic that will result in a volume during the peak hour equal to the capacity of the roadway.

DELAY: The time consumed while traffic is impeded in its movement by some element over which it has no control, usually expressed in seconds per vehicle.

DEMAND RESPONSIVE SIGNAL: Same as traffic-actuated signal.

DENSITY: The number of vehicles occupying in a unit length of the through traffic lanes of a roadway at any given instant. Usually expressed in vehicles per mile.

DETECTOR: A device that responds to a physical stimulus and transmits a resulting impulse to the signal controller.

DESIGN SPEED: A speed selected for purposes of design. Features of a highway, such as curvature, superelevation, and sight distance (upon which the safe operation of vehicles is dependent) are correlated to design speed.

DIRECTIONAL SPLIT: The percent of traffic in the peak direction at any point in time.

DIVERSION: The rerouting of peak hour traffic to avoid congestion.

FORCED FLOW: Opposite of free flow.

FREE FLOW: Volumes are well below capacity. Vehicles can maneuver freely and travel is unimpeded by other traffic.

GAP: Time or distance between successive vehicles in a traffic stream, rear bumper to front bumper.

HEADWAY: Time or distance spacing between successive vehicles in a traffic stream, front bumper to front bumper.

INTERCONNECTED SIGNAL SYSTEM: A number of intersections that are connected to achieve signal progression.

LEVEL OF SERVICE: A qualitative measure of a number of factors, which include speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs.

LOOP DETECTOR: A vehicle detector consisting of a loop of wire embedded in the roadway, energized by alternating current and producing an output circuit closure when passed over by a vehicle.

MINIMUM ACCEPTABLE GAP: Smallest time headway between successive vehicles in a traffic stream into which another vehicle is willing and able to cross or merge.

MULTI-MODAL: More than one mode; such as automobile, bus transit, rail rapid transit, and bicycle transportation modes.

OFFSET: The time interval in seconds between the beginning of green at one intersection and the beginning of green at an adjacent intersection.

PLATOON: A closely grouped component of traffic that is composed of several vehicles moving, or standing ready to move, with clear spaces ahead and behind.

PASSENGER CAR EQUIVALENTS (PCE): One car is one Passenger Car Equivalent. A truck is equal to 2 or 3 Passenger Car Equivalents in that a truck requires longer to start, goes slower, and accelerates slower. Loaded trucks have a higher Passenger Car Equivalent than empty trucks.

PEAK HOUR: The 60 consecutive minutes with the highest number of vehicles.

PRETIMED SIGNAL: A type of traffic signal that directs traffic to stop and go on a predetermined time schedule without regard to traffic conditions. Also, fixed time signal.

PROGRESSION: A term used to describe the progressive movement of traffic through several signalized intersections.

SCREEN-LINE: An imaginary line or physical feature across which all trips are counted, normally to verify the validity of mathematical traffic models.

SIGNAL CYCLE: The time period in seconds required for one complete sequence of signal indications.

SIGNAL PHASE: The part of the signal cycle allocated to one or more traffic movements.

STARTING DELAY: The delay experienced in initiating the movement of queued traffic from a stop to an average running speed through a signalized intersection.

TRAFFIC-ACTUATED SIGNAL: A type of traffic signal that directs traffic to stop and go in accordance with the demands of traffic, as registered by the actuation of detectors.

TRIP: The movement of a person or vehicle from one location (origin) to another (destination). For example, from home to store to home is two trips, not one.

TRIP-END: One end of a trip at either the origin or destination (i.e., each trip has two trip-ends). A trip-end occurs when a person, object, or message is transferred to or from a vehicle.

TRIP GENERATION RATE: The quantity of trips produced and/or attracted by a specific land use stated in terms of units such as per dwelling, per acre, and per 1,000 square feet of floor space.

TRUCK: A vehicle having dual tires on one or more axles, or having more than two axles.

UNBALANCED FLOW: Heavier traffic flow in one direction than the other. On a daily basis, most facilities have balanced flow. During the peak hours, flow is seldom balanced in an urban area.

VEHICLE MILES OF TRAVEL: A measure of the amount of usage of a section of highway, obtained by multiplying the average daily traffic by length of facility in miles.

APPENDIX B

Scoping Agreement

Exhibit B**TRAFFIC IMPACT STUDY SCOPE**
CITY OF POMONA

Project Name:	700-704 East Foothill Boulevard Hotel Development
Project Address:	700-704 East Foothill Boulevard, Pomona, CA 91767
Project Description:	132 Room Hotel

	Consultant	Developer
Name:	Kunzman Associates, Inc. Carl Ballard, Principal	K U & Associates, Inc. Paulina Ying, Project Manager
Address:	1111 Town & Country Rd., Ste. 34 Orange, CA 92868	650 Camino De Gloria Walnut, CA 91789
Telephone:	(714) 973-8383 x 202	(909) 869-5828 X 101
E-mail:	carl@traffic-engineer.com	paulina_ying@kuassociates.com

A. Trip Generation

Existing Land Use	Vacant	Proposed Land Use	Hotel
Existing Zoning	SP-CSP	Proposed Zoning	SP-CSP

	In	Out	Total
AM Peak Hour	37	25	62
PM Peak Hour	41	38	79

B. Trip Distribution

Attach graphical representation

C. Background Traffic

Project Opening Year:	2019	Growth Rate:	2% per year
-----------------------	------	--------------	-------------

D. Study Intersections

Project West Driveway (NS)/Foothill Boulevard (EW)	
Project East Driveway (NS)/Foothill Boulevard (EW)	
Towne Avenue (NS)/Foothill Boulevard (EW)	

E. Specific Issues to be Addressed in the Study

Please provide cumulative projects	Analyze turning movements at project driveways
Circulation Analysis	Complete sight distance analysis at project driveways

F. Approved By:

City of Pomona Traffic Engineering:	
Date:	

Contact Planning Department for list of cumulative projects.

Table 1

Project Trip Generation¹

Land Use	Quantity	Units ²	Peak Hour						Daily
			Morning			Evening			
			Inbound	Outbound	Total	Inbound	Outbound	Total	
<u>Trip Generation Rates</u>									
Hotel		RM	0.28	0.19	0.47	0.31	0.29	0.60	8.36
<u>Trips Generated</u>									
Hotel	132	RM	37	25	62	41	38	79	1,104

¹ Source: Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017, Land Use Code 310.

² RM = Rooms

Figure 1
Project Location Map



Figure 2
Site Plan

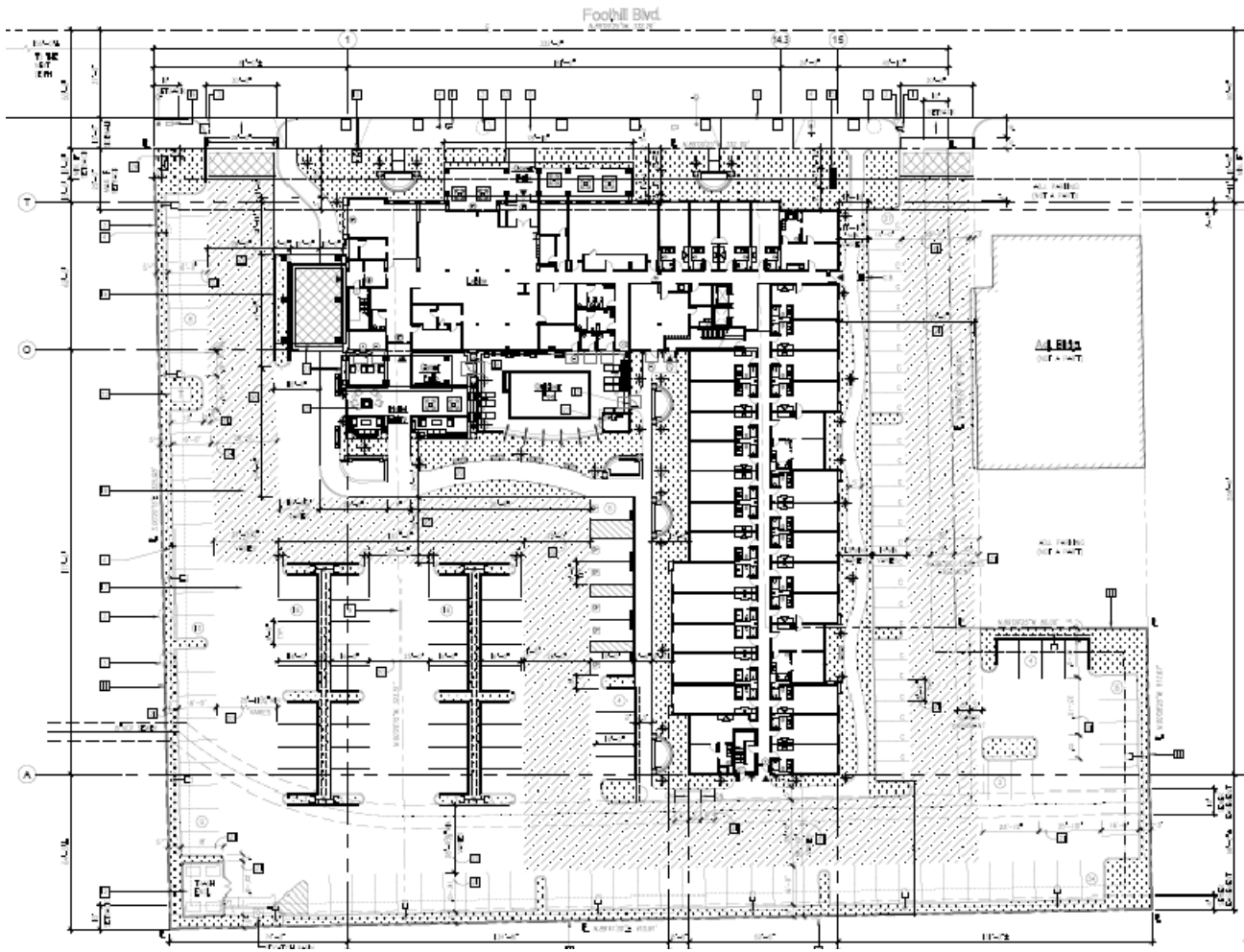


Figure 3
Project Trip Distribution



APPENDIX C

Intersection Turning Movement Count Worksheets

City of Pomona
N/S: Towne Avenue
E/W: Foothill Boulevard
Weather: Clear

File Name : POMTOFOAM
Site Code : 07518999
Start Date : 2/16/2018
Page No : 1

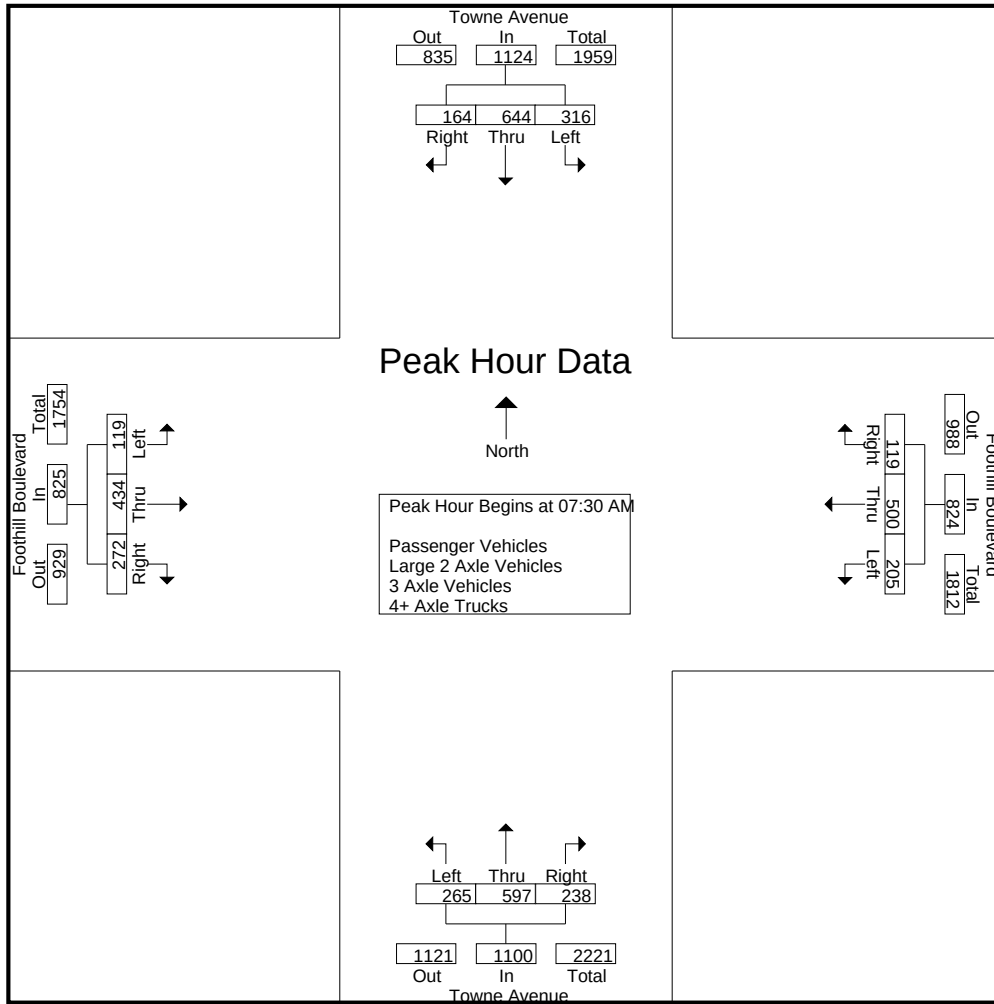
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Towne Avenue Southbound				Foothill Boulevard Westbound				Towne Avenue Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	19	95	20	134	26	69	7	102	19	59	33	111	16	45	22	83	430
06:45 AM	31	125	45	201	29	86	8	123	29	56	23	108	14	49	29	92	524
Total	50	220	65	335	55	155	15	225	48	115	56	219	30	94	51	175	954
07:00 AM	23	112	31	166	28	82	11	121	33	107	18	158	12	39	26	77	522
07:15 AM	41	155	33	229	32	64	13	109	53	100	31	184	15	50	32	97	619
07:30 AM	55	148	29	232	35	80	27	142	46	170	78	294	27	99	58	184	852
07:45 AM	115	203	56	374	62	165	43	270	90	198	69	357	28	139	76	243	1244
Total	234	618	149	1001	157	391	94	642	222	575	196	993	82	327	192	601	3237
08:00 AM	76	150	54	280	54	135	25	214	79	137	63	279	37	119	87	243	1016
08:15 AM	70	143	25	238	54	120	24	198	50	92	28	170	27	77	51	155	761
08:30 AM	87	147	27	261	40	95	20	155	42	98	14	154	40	100	66	206	776
08:45 AM	108	147	30	285	37	84	24	145	83	116	34	233	34	87	46	167	830
Total	341	587	136	1064	185	434	93	712	254	443	139	836	138	383	250	771	3383
Grand Total	625	1425	350	2400	397	980	202	1579	524	1133	391	2048	250	804	493	1547	7574
Apprch %	26	59.4	14.6		25.1	62.1	12.8		25.6	55.3	19.1		16.2	52	31.9		
Total %	8.3	18.8	4.6	31.7	5.2	12.9	2.7	20.8	6.9	15	5.2	27	3.3	10.6	6.5	20.4	
Passenger Vehicles	613	1372	343	2328	382	937	195	1514	506	1084	374	1964	236	782	479	1497	7303
% Passenger Vehicles	98.1	96.3	98	97	96.2	95.6	96.5	95.9	96.6	95.7	95.7	95.9	94.4	97.3	97.2	96.8	96.4
Large 2 Axle Vehicles	8	19	3	30	12	39	7	58	13	20	16	49	12	18	7	37	174
% Large 2 Axle Vehicles	1.3	1.3	0.9	1.2	3	4	3.5	3.7	2.5	1.8	4.1	2.4	4.8	2.2	1.4	2.4	2.3
3 Axle Vehicles	1	33	1	35	2	1	0	3	4	28	1	33	1	0	4	5	76
% 3 Axle Vehicles	0.2	2.3	0.3	1.5	0.5	0.1	0	0.2	0.8	2.5	0.3	1.6	0.4	0	0.8	0.3	1
4+ Axle Trucks	3	1	3	7	1	3	0	4	1	1	0	2	1	4	3	8	21
% 4+ Axle Trucks	0.5	0.1	0.9	0.3	0.3	0.3	0	0.3	0.2	0.1	0	0.1	0.4	0.5	0.6	0.5	0.3

	Towne Avenue Southbound				Foothill Boulevard Westbound				Towne Avenue Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	55	148	29	232	35	80	27	142	46	170	78	294	27	99	58	184	852
07:45 AM	115	203	56	374	62	165	43	270	90	198	69	357	28	139	76	243	1244
08:00 AM	76	150	54	280	54	135	25	214	79	137	63	279	37	119	87	243	1016
08:15 AM	70	143	25	238	54	120	24	198	50	92	28	170	27	77	51	155	761
Total Volume	316	644	164	1124	205	500	119	824	265	597	238	1100	119	434	272	825	3873
% App. Total	28.1	57.3	14.6		24.9	60.7	14.4		24.1	54.3	21.6		14.4	52.6	33		
PHF	.687	.793	.732	.751	.827	.758	.692	.763	.736	.754	.763	.770	.804	.781	.782	.849	.778

City of Pomona
N/S: Towne Avenue
E/W: Foothill Boulevard
Weather: Clear

File Name : POMTOFOAM
Site Code : 07518999
Start Date : 2/16/2018
Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	55	148	29	232	35	80	27	142	46	170	78	294	27	99	58	184
+15 mins.	115	203	56	374	62	165	43	270	90	198	69	357	28	139	76	243
+30 mins.	76	150	54	280	54	135	25	214	79	137	63	279	37	119	87	243
+45 mins.	70	143	25	238	54	120	24	198	50	92	28	170	27	77	51	155
Total Volume	316	644	164	1124	205	500	119	824	265	597	238	1100	119	434	272	825
% App. Total	28.1	57.3	14.6		24.9	60.7	14.4		24.1	54.3	21.6		14.4	52.6	33	
PHF	.687	.793	.732	.751	.827	.758	.692	.763	.736	.754	.763	.770	.804	.781	.782	.849

City of Pomona
N/S: Towne Avenue
E/W: Foothill Boulevard
Weather: Clear

File Name : POMTOFOAM
Site Code : 07518999
Start Date : 2/16/2018
Page No : 1

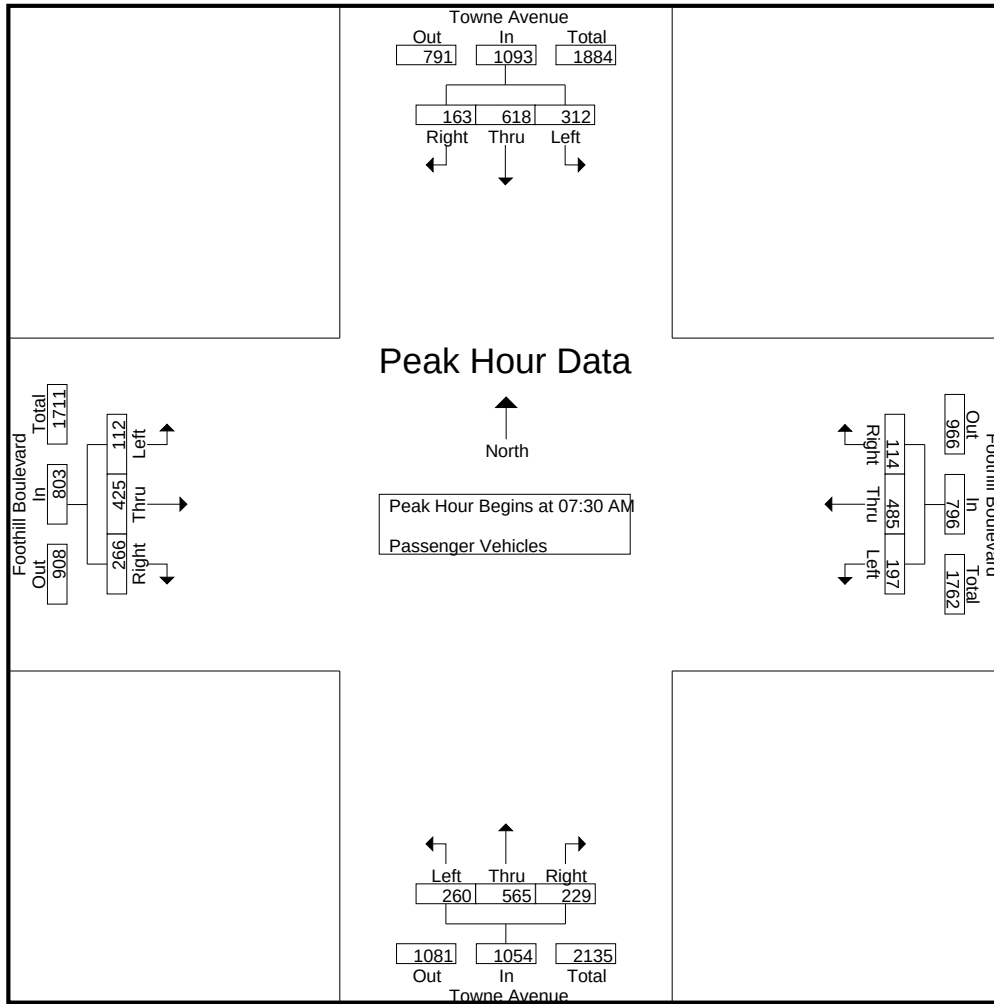
Groups Printed- Passenger Vehicles

	Towne Avenue Southbound				Foothill Boulevard Westbound				Towne Avenue Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	17	93	20	130	24	66	7	97	19	58	31	108	15	44	21	80	415
06:45 AM	30	122	45	197	28	82	8	118	27	55	22	104	13	46	29	88	507
Total	47	215	65	327	52	148	15	215	46	113	53	212	28	90	50	168	922
07:00 AM	22	110	31	163	27	76	11	114	32	105	17	154	11	37	23	71	502
07:15 AM	40	150	31	221	30	61	13	104	49	98	30	177	13	49	32	94	596
07:30 AM	54	142	29	225	35	77	25	137	45	158	76	279	25	96	57	178	819
07:45 AM	114	196	56	366	61	162	41	264	87	192	67	346	27	137	74	238	1214
Total	230	598	147	975	153	376	90	619	213	553	190	956	76	319	186	581	3131
08:00 AM	76	144	54	274	49	133	25	207	79	131	59	269	35	116	87	238	988
08:15 AM	68	136	24	228	52	113	23	188	49	84	27	160	25	76	48	149	725
08:30 AM	85	141	24	250	39	91	19	149	40	94	14	148	39	98	65	202	749
08:45 AM	107	138	29	274	37	76	23	136	79	109	31	219	33	83	43	159	788
Total	336	559	131	1026	177	413	90	680	247	418	131	796	132	373	243	748	3250
Grand Total	613	1372	343	2328	382	937	195	1514	506	1084	374	1964	236	782	479	1497	7303
Apprch %	26.3	58.9	14.7		25.2	61.9	12.9		25.8	55.2	19		15.8	52.2	32		
Total %	8.4	18.8	4.7	31.9	5.2	12.8	2.7	20.7	6.9	14.8	5.1	26.9	3.2	10.7	6.6	20.5	

	Towne Avenue Southbound				Foothill Boulevard Westbound				Towne Avenue Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	54	142	29	225	35	77	25	137	45	158	76	279	25	96	57	178	819
07:45 AM	114	196	56	366	61	162	41	264	87	192	67	346	27	137	74	238	1214
08:00 AM	76	144	54	274	49	133	25	207	79	131	59	269	35	116	87	238	988
08:15 AM	68	136	24	228	52	113	23	188	49	84	27	160	25	76	48	149	725
Total Volume	312	618	163	1093	197	485	114	796	260	565	229	1054	112	425	266	803	3746
% App. Total	28.5	56.5	14.9		24.7	60.9	14.3		24.7	53.6	21.7		13.9	52.9	33.1		
PHF	.684	.788	.728	.747	.807	.748	.695	.754	.747	.736	.753	.762	.800	.776	.764	.843	.771

City of Pomona
N/S: Towne Avenue
E/W: Foothill Boulevard
Weather: Clear

File Name : POMTOFOAM
Site Code : 07518999
Start Date : 2/16/2018
Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	54	142	29	225	35	77	25	137	45	158	76	279	25	96	57	178
+15 mins.	114	196	56	366	61	162	41	264	87	192	67	346	27	137	74	238
+30 mins.	76	144	54	274	49	133	25	207	79	131	59	269	35	116	87	238
+45 mins.	68	136	24	228	52	113	23	188	49	84	27	160	25	76	48	149
Total Volume	312	618	163	1093	197	485	114	796	260	565	229	1054	112	425	266	803
% App. Total	28.5	56.5	14.9		24.7	60.9	14.3		24.7	53.6	21.7		13.9	52.9	33.1	
PHF	.684	.788	.728	.747	.807	.748	.695	.754	.747	.736	.753	.762	.800	.776	.764	.843

City of Pomona
N/S: Towne Avenue
E/W: Foothill Boulevard
Weather: Clear

File Name : POMTOFOAM
Site Code : 07518999
Start Date : 2/16/2018
Page No : 1

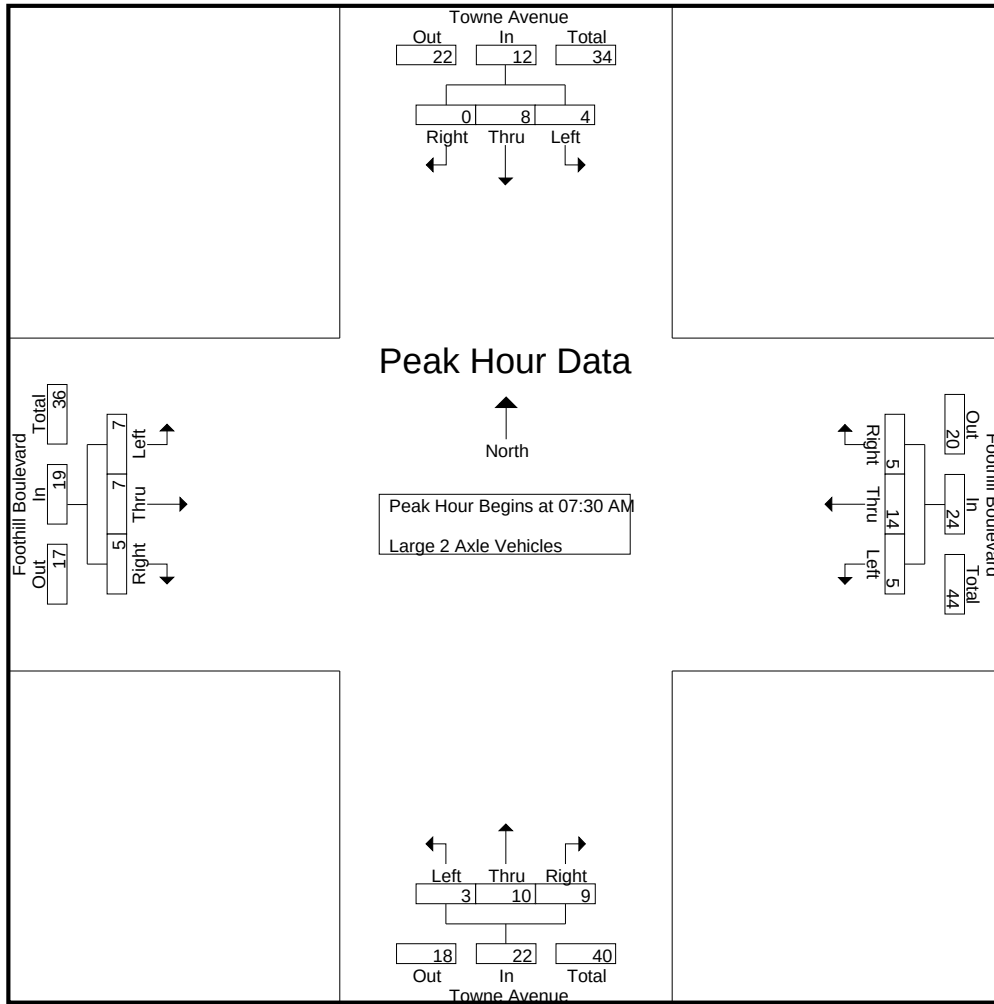
Groups Printed- Large 2 Axle Vehicles

	Towne Avenue Southbound				Foothill Boulevard Westbound				Towne Avenue Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	1	1	0	2	2	3	0	5	0	1	2	3	1	1	0	2	12
06:45 AM	1	3	0	4	1	4	0	5	1	1	1	3	0	2	0	2	14
Total	2	4	0	6	3	7	0	10	1	2	3	6	1	3	0	4	26
07:00 AM	0	1	0	1	1	5	0	6	1	2	0	3	0	2	0	2	12
07:15 AM	0	2	1	3	2	3	0	5	4	2	1	7	2	1	0	3	18
07:30 AM	1	0	0	1	0	3	2	5	0	7	2	9	2	3	0	5	20
07:45 AM	1	2	0	3	0	3	2	5	2	0	2	4	1	2	2	5	17
Total	2	5	1	8	3	14	4	21	7	11	5	23	5	8	2	15	67
08:00 AM	0	1	0	1	4	2	0	6	0	2	4	6	2	2	0	4	17
08:15 AM	2	5	0	7	1	6	1	8	1	1	1	3	2	0	3	5	23
08:30 AM	1	1	1	3	1	3	1	5	2	2	0	4	1	2	0	3	15
08:45 AM	1	3	1	5	0	7	1	8	2	2	3	7	1	3	2	6	26
Total	4	10	2	16	6	18	3	27	5	7	8	20	6	7	5	18	81
Grand Total	8	19	3	30	12	39	7	58	13	20	16	49	12	18	7	37	174
Apprch %	26.7	63.3	10		20.7	67.2	12.1		26.5	40.8	32.7		32.4	48.6	18.9		
Total %	4.6	10.9	1.7	17.2	6.9	22.4	4	33.3	7.5	11.5	9.2	28.2	6.9	10.3	4	21.3	

	Towne Avenue Southbound				Foothill Boulevard Westbound				Towne Avenue Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	1	0	0	1	0	3	2	5	0	7	2	9	2	3	0	5	20
07:45 AM	1	2	0	3	0	3	2	5	2	0	2	4	1	2	2	5	17
08:00 AM	0	1	0	1	4	2	0	6	0	2	4	6	2	2	0	4	17
08:15 AM	2	5	0	7	1	6	1	8	1	1	1	3	2	0	3	5	23
Total Volume	4	8	0	12	5	14	5	24	3	10	9	22	7	7	5	19	77
% App. Total	33.3	66.7	0		20.8	58.3	20.8		13.6	45.5	40.9		36.8	36.8	26.3		
PHF	.500	.400	.000	.429	.313	.583	.625	.750	.375	.357	.563	.611	.875	.583	.417	.950	.837

City of Pomona
N/S: Towne Avenue
E/W: Foothill Boulevard
Weather: Clear

File Name : POMTOFOAM
Site Code : 07518999
Start Date : 2/16/2018
Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	1	0	0	1	0	3	2	5	0	7	2	9	2	3	0	5
+15 mins.	1	2	0	3	0	3	2	5	2	0	2	4	1	2	2	5
+30 mins.	0	1	0	1	4	2	0	6	0	2	4	6	2	2	0	4
+45 mins.	2	5	0	7	1	6	1	8	1	1	1	3	2	0	3	5
Total Volume	4	8	0	12	5	14	5	24	3	10	9	22	7	7	5	19
% App. Total	33.3	66.7	0		20.8	58.3	20.8		13.6	45.5	40.9		36.8	36.8	26.3	
PHF	.500	.400	.000	.429	.313	.583	.625	.750	.375	.357	.563	.611	.875	.583	.417	.950

City of Pomona
N/S: Towne Avenue
E/W: Foothill Boulevard
Weather: Clear

File Name : POMTOFOAM
Site Code : 07518999
Start Date : 2/16/2018
Page No : 1

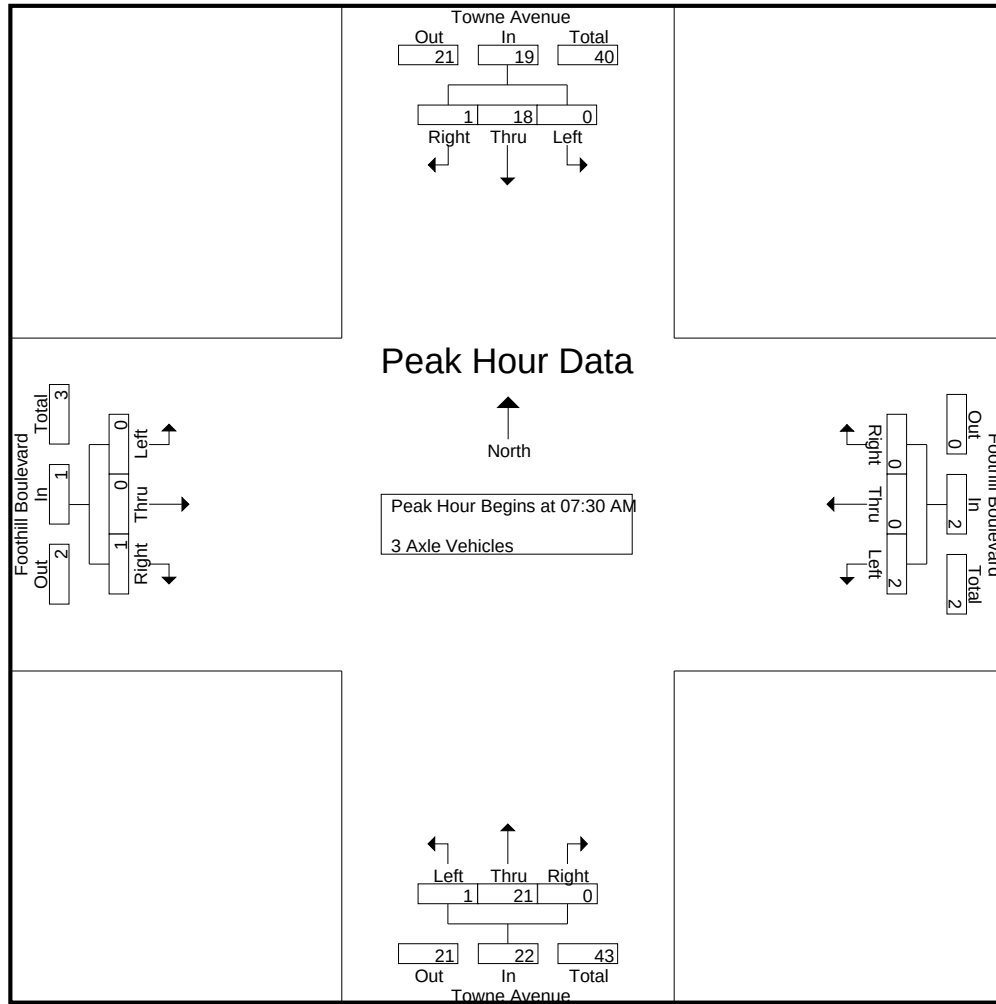
Groups Printed- 3 Axle Vehicles

	Towne Avenue Southbound				Foothill Boulevard Westbound				Towne Avenue Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
06:45 AM	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1	2
Total	0	0	0	0	0	0	0	0	1	0	0	1	1	0	1	2	3
07:00 AM	0	1	0	1	0	1	0	1	0	0	1	1	0	0	1	1	4
07:15 AM	1	3	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
07:30 AM	0	6	0	6	0	0	0	0	1	5	0	6	0	0	1	1	13
07:45 AM	0	5	0	5	0	0	0	0	0	5	0	5	0	0	0	0	10
Total	1	15	0	16	0	1	0	1	1	10	1	12	0	0	2	2	31
08:00 AM	0	5	0	5	1	0	0	1	0	4	0	4	0	0	0	0	10
08:15 AM	0	2	1	3	1	0	0	1	0	7	0	7	0	0	0	0	11
08:30 AM	0	5	0	5	0	0	0	0	0	2	0	2	0	0	0	0	7
08:45 AM	0	6	0	6	0	0	0	0	2	5	0	7	0	0	1	1	14
Total	0	18	1	19	2	0	0	2	2	18	0	20	0	0	1	1	42
Grand Total	1	33	1	35	2	1	0	3	4	28	1	33	1	0	4	5	76
Apprch %	2.9	94.3	2.9		66.7	33.3	0		12.1	84.8	3		20	0	80		
Total %	1.3	43.4	1.3	46.1	2.6	1.3	0	3.9	5.3	36.8	1.3	43.4	1.3	0	5.3	6.6	

	Towne Avenue Southbound				Foothill Boulevard Westbound				Towne Avenue Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	6	0	6	0	0	0	0	1	5	0	6	0	0	1	1	13
07:45 AM	0	5	0	5	0	0	0	0	0	5	0	5	0	0	0	0	10
08:00 AM	0	5	0	5	1	0	0	1	0	4	0	4	0	0	0	0	10
08:15 AM	0	2	1	3	1	0	0	1	0	7	0	7	0	0	0	0	11
Total Volume	0	18	1	19	2	0	0	2	1	21	0	22	0	0	1	1	44
% App. Total	0	94.7	5.3		100	0	0		4.5	95.5	0		0	0	100		
PHF	.000	.750	.250	.792	.500	.000	.000	.500	.250	.750	.000	.786	.000	.000	.250	.250	.846

City of Pomona
N/S: Towne Avenue
E/W: Foothill Boulevard
Weather: Clear

File Name : POMTOFOAM
Site Code : 07518999
Start Date : 2/16/2018
Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	6	0	6	0	0	0	0	1	5	0	6	0	0	1	1
+15 mins.	0	5	0	5	0	0	0	0	0	5	0	5	0	0	0	0
+30 mins.	0	5	0	5	1	0	0	1	0	4	0	4	0	0	0	0
+45 mins.	0	2	1	3	1	0	0	1	0	7	0	7	0	0	0	0
Total Volume	0	18	1	19	2	0	0	2	1	21	0	22	0	0	1	1
% App. Total	0	94.7	5.3		100	0	0		4.5	95.5	0		0	0	100	
PHF	.000	.750	.250	.792	.500	.000	.000	.500	.250	.750	.000	.786	.000	.000	.250	.250

City of Pomona
N/S: Towne Avenue
E/W: Foothill Boulevard
Weather: Clear

File Name : POMTOFOAM
Site Code : 07518999
Start Date : 2/16/2018
Page No : 1

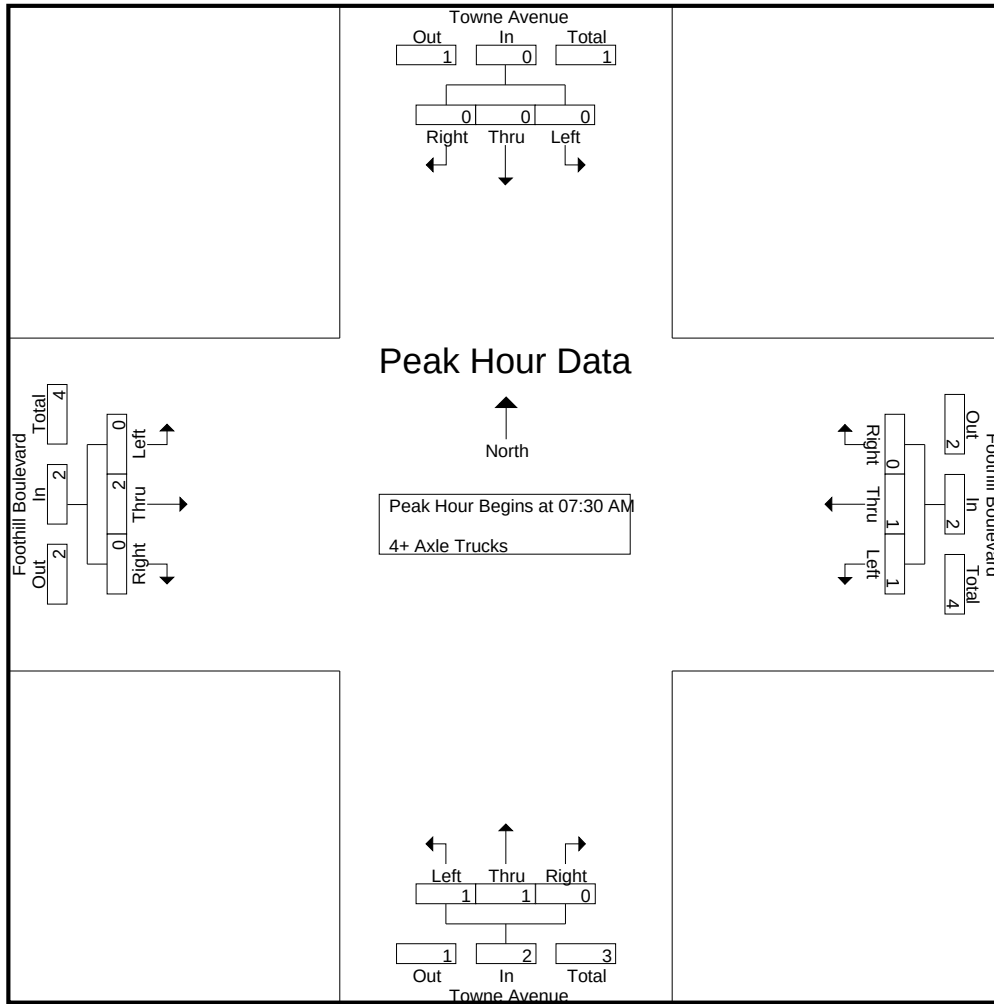
Groups Printed- 4+ Axle Trucks

	Towne Avenue Southbound				Foothill Boulevard Westbound				Towne Avenue Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Total	1	1	0	2	0	0	0	0	0	0	0	0	0	1	0	1	3
07:00 AM	1	0	0	1	0	0	0	0	0	0	0	0	1	0	2	3	4
07:15 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	1	0	0	1	1	1	0	2	0	0	0	0	3
Total	1	0	1	2	1	0	0	1	1	1	0	2	1	0	2	3	8
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
08:15 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
08:30 AM	1	0	2	3	0	1	0	1	0	0	0	0	0	0	1	1	5
08:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
Total	1	0	2	3	0	3	0	3	0	0	0	0	0	3	1	4	10
Grand Total	3	1	3	7	1	3	0	4	1	1	0	2	1	4	3	8	21
Apprch %	42.9	14.3	42.9		25	75	0		50	50	0		12.5	50	37.5		
Total %	14.3	4.8	14.3	33.3	4.8	14.3	0	19	4.8	4.8	0	9.5	4.8	19	14.3	38.1	

	Towne Avenue Southbound				Foothill Boulevard Westbound				Towne Avenue Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	1	0	0	1	1	1	0	2	0	0	0	0	3
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
08:15 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
Total Volume	0	0	0	0	1	1	0	2	1	1	0	2	0	2	0	2	6
% App. Total	0	0	0		50	50	0		50	50	0		0	100	0		
PHF	.000	.000	.000	.000	.250	.250	.000	.500	.250	.250	.000	.250	.000	.500	.000	.500	.500

City of Pomona
N/S: Towne Avenue
E/W: Foothill Boulevard
Weather: Clear

File Name : POMTOFOAM
Site Code : 07518999
Start Date : 2/16/2018
Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	1	0	0	1	1	1	0	2	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
+45 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1
Total Volume	0	0	0	0	1	1	0	2	1	1	0	2	0	2	0	2
% App. Total	0	0	0	0	50	50	0	0	50	50	0	0	0	100	0	0
PHF	.000	.000	.000	.000	.250	.250	.000	.500	.250	.250	.000	.250	.000	.500	.000	.500

City of Pomona
N/S: Towne Avenue
E/W: Foothill Boulevard
Weather: Clear

File Name : POMTOFOPM
Site Code : 07518999
Start Date : 2/15/2018
Page No : 1

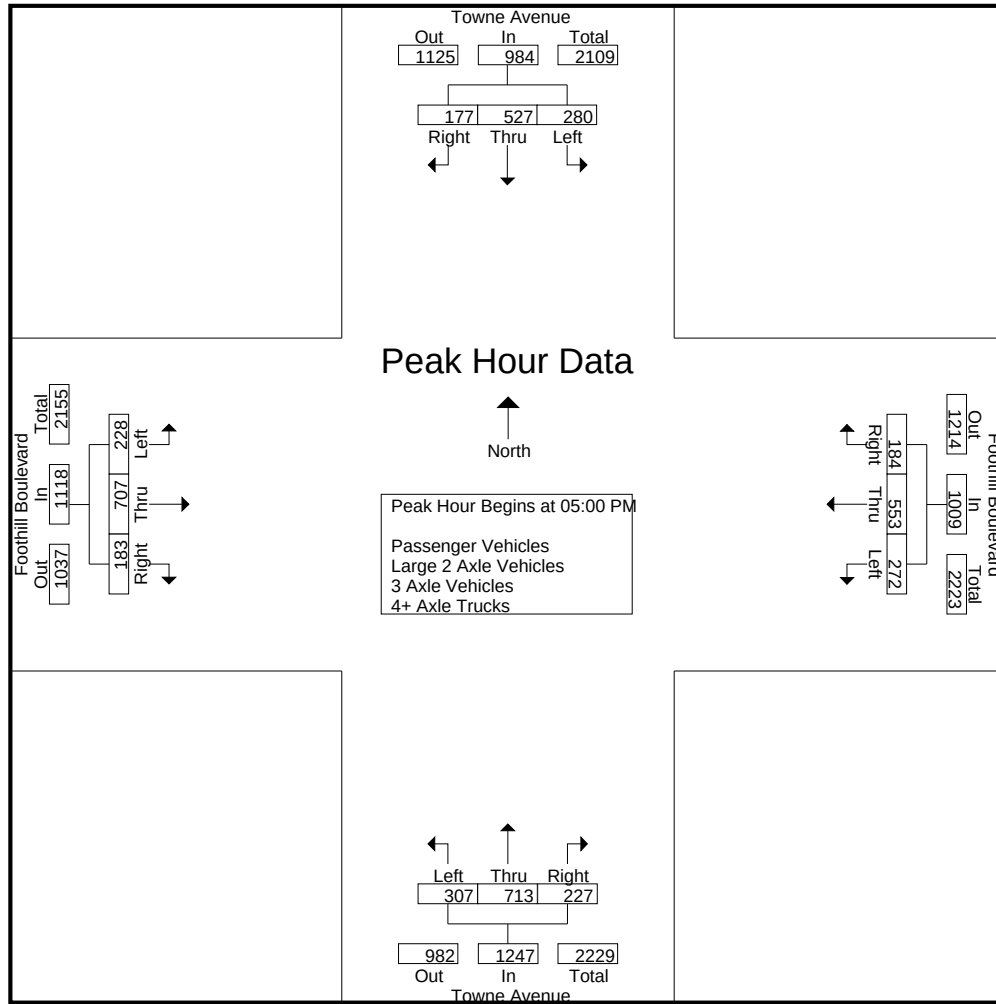
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Towne Avenue Southbound				Foothill Boulevard Westbound				Towne Avenue Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	35	109	23	167	67	127	67	261	54	157	61	272	64	166	48	278	978
04:15 PM	57	111	39	207	66	117	35	218	84	176	42	302	47	137	41	225	952
04:30 PM	47	121	28	196	53	127	38	218	64	201	51	316	36	179	37	252	982
04:45 PM	47	124	24	195	53	144	40	237	69	156	60	285	56	146	42	244	961
Total	186	465	114	765	239	515	180	934	271	690	214	1175	203	628	168	999	3873
05:00 PM	52	125	43	220	58	126	53	237	71	168	54	293	60	170	49	279	1029
05:15 PM	54	134	55	243	74	141	55	270	81	214	74	369	56	203	37	296	1178
05:30 PM	90	107	43	240	81	150	51	282	85	168	55	308	46	158	47	251	1081
05:45 PM	84	161	36	281	59	136	25	220	70	163	44	277	66	176	50	292	1070
Total	280	527	177	984	272	553	184	1009	307	713	227	1247	228	707	183	1118	4358
Grand Total	466	992	291	1749	511	1068	364	1943	578	1403	441	2422	431	1335	351	2117	8231
Apprch %	26.6	56.7	16.6		26.3	55	18.7		23.9	57.9	18.2		20.4	63.1	16.6		
Total %	5.7	12.1	3.5	21.2	6.2	13	4.4	23.6	7	17	5.4	29.4	5.2	16.2	4.3	25.7	
Passenger Vehicles	464	979	288	1731	508	1059	356	1923	574	1387	439	2400	425	1318	343	2086	8140
% Passenger Vehicles	99.6	98.7	99	99	99.4	99.2	97.8	99	99.3	98.9	99.5	99.1	98.6	98.7	97.7	98.5	98.9
Large 2 Axle Vehicles	1	12	2	15	2	9	8	19	3	16	2	21	6	13	8	27	82
% Large 2 Axle Vehicles	0.2	1.2	0.7	0.9	0.4	0.8	2.2	1	0.5	1.1	0.5	0.9	1.4	1	2.3	1.3	1
3 Axle Vehicles	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	2
% 3 Axle Vehicles	0	0	0	0	0.2	0	0	0.1	0.2	0	0	0	0	0	0	0	0
4+ Axle Trucks	1	1	1	3	0	0	0	0	0	0	0	0	0	4	0	4	7
% 4+ Axle Trucks	0.2	0.1	0.3	0.2	0	0	0	0	0	0	0	0	0	0.3	0	0.2	0.1

	Towne Avenue Southbound				Foothill Boulevard Westbound				Towne Avenue Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	52	125	43	220	58	126	53	237	71	168	54	293	60	170	49	279	1029
05:15 PM	54	134	55	243	74	141	55	270	81	214	74	369	56	203	37	296	1178
05:30 PM	90	107	43	240	81	150	51	282	85	168	55	308	46	158	47	251	1081
05:45 PM	84	161	36	281	59	136	25	220	70	163	44	277	66	176	50	292	1070
Total Volume	280	527	177	984	272	553	184	1009	307	713	227	1247	228	707	183	1118	4358
% App. Total	28.5	53.6	18		27	54.8	18.2		24.6	57.2	18.2		20.4	63.2	16.4		
PHF	.778	.818	.805	.875	.840	.922	.836	.895	.903	.833	.767	.845	.864	.871	.915	.944	.925

City of Pomona
N/S: Towne Avenue
E/W: Foothill Boulevard
Weather: Clear

File Name : POMTOFOPM
Site Code : 07518999
Start Date : 2/15/2018
Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	52	125	43	220	58	126	53	237	71	168	54	293	60	170	49	279
+15 mins.	54	134	55	243	74	141	55	270	81	214	74	369	56	203	37	296
+30 mins.	90	107	43	240	81	150	51	282	85	168	55	308	46	158	47	251
+45 mins.	84	161	36	281	59	136	25	220	70	163	44	277	66	176	50	292
Total Volume	280	527	177	984	272	553	184	1009	307	713	227	1247	228	707	183	1118
% App. Total	28.5	53.6	18		27	54.8	18.2		24.6	57.2	18.2		20.4	63.2	16.4	
PHF	.778	.818	.805	.875	.840	.922	.836	.895	.903	.833	.767	.845	.864	.871	.915	.944

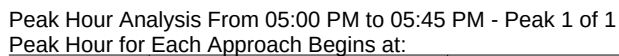
City of Pomona
N/S: Towne Avenue
E/W: Foothill Boulevard
Weather: Clear

File Name : POMTOFOPM
Site Code : 07518999
Start Date : 2/15/2018
Page No : 1

Groups Printed- Passenger Vehicles

	Towne Avenue Southbound				Foothill Boulevard Westbound				Towne Avenue Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	35	106	23	164	65	126	66	257	54	155	61	270	63	166	47	276	967
04:15 PM	57	111	38	206	66	116	35	217	82	171	41	294	46	136	39	221	938
04:30 PM	47	116	27	190	52	126	34	212	64	199	50	313	35	177	36	248	963
04:45 PM	47	121	24	192	53	143	39	235	69	155	60	284	55	143	42	240	951
Total	186	454	112	752	236	511	174	921	269	680	212	1161	199	622	164	985	3819
05:00 PM	52	124	42	218	58	124	53	235	71	165	54	290	60	167	48	275	1018
05:15 PM	54	134	55	243	74	140	55	269	79	213	74	366	55	201	36	292	1170
05:30 PM	88	106	43	237	81	149	49	279	85	168	55	308	45	154	45	244	1068
05:45 PM	84	161	36	281	59	135	25	219	70	161	44	275	66	174	50	290	1065
Total	278	525	176	979	272	548	182	1002	305	707	227	1239	226	696	179	1101	4321
Grand Total	464	979	288	1731	508	1059	356	1923	574	1387	439	2400	425	1318	343	2086	8140
Apprch %	26.8	56.6	16.6		26.4	55.1	18.5		23.9	57.8	18.3		20.4	63.2	16.4		
Total %	5.7	12	3.5	21.3	6.2	13	4.4	23.6	7.1	17	5.4	29.5	5.2	16.2	4.2	25.6	

	Towne Avenue Southbound				Foothill Boulevard Westbound				Towne Avenue Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	52	124	42	218	58	124	53	235	71	165	54	290	60	167	48	275	1018
05:15 PM	54	134	55	243	74	140	55	269	79	213	74	366	55	201	36	292	1170
05:30 PM	88	106	43	237	81	149	49	279	85	168	55	308	45	154	45	244	1068
05:45 PM	84	161	36	281	59	135	25	219	70	161	44	275	66	174	50	290	1065
Total Volume	278	525	176	979	272	548	182	1002	305	707	227	1239	226	696	179	1101	4321
% App. Total	28.4	53.6	18		27.1	54.7	18.2		24.6	57.1	18.3		20.5	63.2	16.3		
PHF	.790	.815	.800	.871	.840	.919	.827	.898	.897	.830	.767	.846	.856	.866	.895	.943	.923



	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	52	124	42	218	58	124	53	235	71	165	54	290	60	167	48	275
+15 mins.	54	134	55	243	74	140	55	269	79	213	74	366	55	201	36	292
+30 mins.	88	106	43	237	81	149	49	279	85	168	55	308	45	154	45	244
+45 mins.	84	161	36	281	59	135	25	219	70	161	44	275	66	174	50	290
Total Volume	278	525	176	979	272	548	182	1002	305	707	227	1239	226	696	179	1101
% App. Total	28.4	53.6	18		27.1	54.7	18.2		24.6	57.1	18.3		20.5	63.2	16.3	
PHF	.790	.815	.800	.871	.840	.919	.827	.898	.897	.830	.767	.846	.856	.866	.895	.943

City of Pomona
N/S: Towne Avenue
E/W: Foothill Boulevard
Weather: Clear

File Name : POMTOFOPM
Site Code : 07518999
Start Date : 2/15/2018
Page No : 1

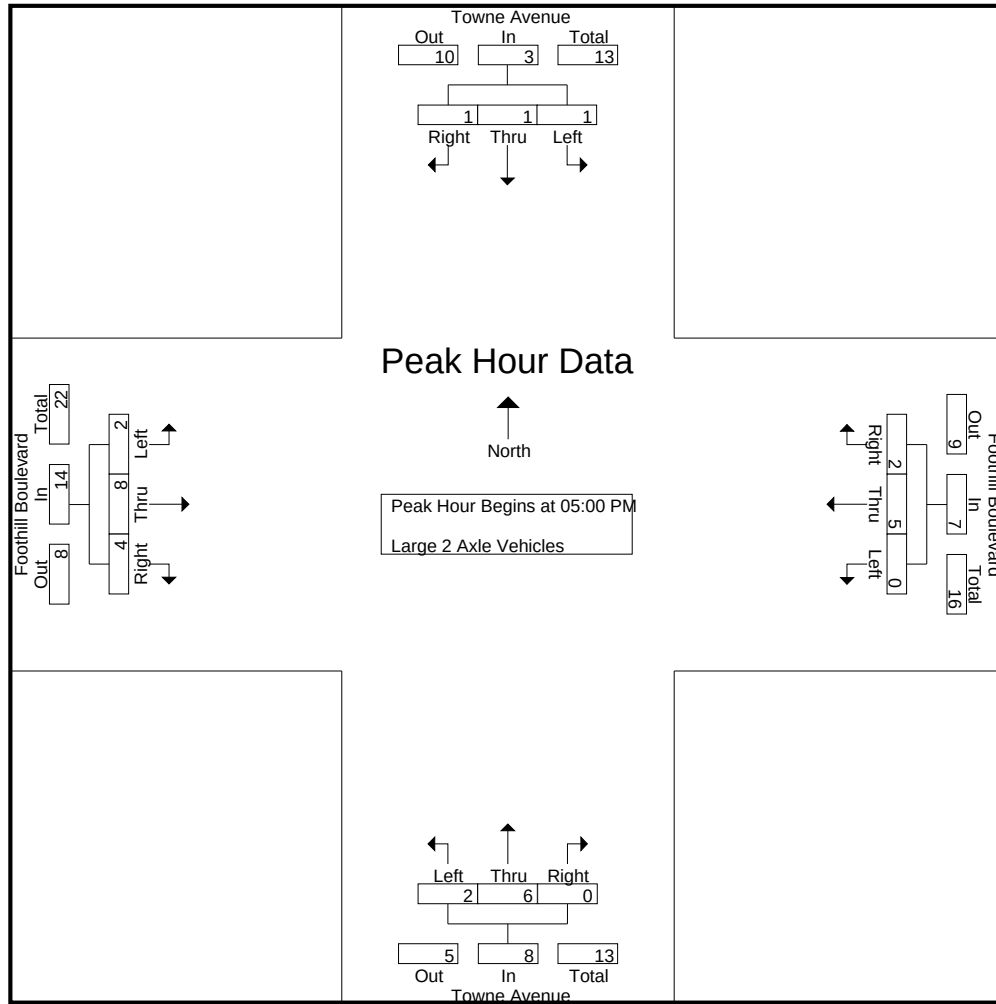
Groups Printed- Large 2 Axle Vehicles

	Towne Avenue Southbound				Foothill Boulevard Westbound				Towne Avenue Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	3	0	3	1	1	1	3	0	2	0	2	1	0	1	2	10
04:15 PM	0	0	1	1	0	1	0	1	1	5	1	7	1	1	2	4	13
04:30 PM	0	5	0	5	1	1	4	6	0	2	1	3	1	1	1	3	17
04:45 PM	0	3	0	3	0	1	1	2	0	1	0	1	1	3	0	4	10
Total	0	11	1	12	2	4	6	12	1	10	2	13	4	5	4	13	50
05:00 PM	0	1	1	2	0	2	0	2	0	3	0	3	0	2	1	3	10
05:15 PM	0	0	0	0	0	1	0	1	2	1	0	3	1	2	1	4	8
05:30 PM	1	0	0	1	0	1	2	3	0	0	0	0	1	2	2	5	9
05:45 PM	0	0	0	0	0	1	0	1	0	2	0	2	0	2	0	2	5
Total	1	1	1	3	0	5	2	7	2	6	0	8	2	8	4	14	32
Grand Total	1	12	2	15	2	9	8	19	3	16	2	21	6	13	8	27	82
Apprch %	6.7	80	13.3		10.5	47.4	42.1		14.3	76.2	9.5		22.2	48.1	29.6		
Total %	1.2	14.6	2.4	18.3	2.4	11	9.8	23.2	3.7	19.5	2.4	25.6	7.3	15.9	9.8	32.9	

	Towne Avenue Southbound				Foothill Boulevard Westbound				Towne Avenue Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	1	1	2	0	2	0	2	0	3	0	3	0	2	1	3	10
05:15 PM	0	0	0	0	0	1	0	1	2	1	0	3	1	2	1	4	8
05:30 PM	1	0	0	1	0	1	2	3	0	0	0	0	1	2	2	5	9
05:45 PM	0	0	0	0	0	1	0	1	0	2	0	2	0	2	0	2	5
Total Volume	1	1	1	3	0	5	2	7	2	6	0	8	2	8	4	14	32
% App. Total	33.3	33.3	33.3		0	71.4	28.6		25	75	0		14.3	57.1	28.6		
PHF	.250	.250	.250	.375	.000	.625	.250	.583	.250	.500	.000	.667	.500	1.00	.500	.700	.800

City of Pomona
N/S: Towne Avenue
E/W: Foothill Boulevard
Weather: Clear

File Name : POMTOFOPM
Site Code : 07518999
Start Date : 2/15/2018
Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	0	1	1	2	0	2	0	2	0	3	0	3	0	2	1	3
+15 mins.	0	0	0	0	0	1	0	1	2	1	0	3	1	2	1	4
+30 mins.	1	0	0	1	0	1	2	3	0	0	0	0	1	2	2	5
+45 mins.	0	0	0	0	0	1	0	1	0	2	0	2	0	2	0	2
Total Volume	1	1	1	3	0	5	2	7	2	6	0	8	2	8	4	14
% App. Total	33.3	33.3	33.3		0	71.4	28.6		25	75	0		14.3	57.1	28.6	
PHF	.250	.250	.250	.375	.000	.625	.250	.583	.250	.500	.000	.667	.500	1.000	.500	.700

City of Pomona
N/S: Towne Avenue
E/W: Foothill Boulevard
Weather: Clear

File Name : POMTOFOPM
Site Code : 07518999
Start Date : 2/15/2018
Page No : 1

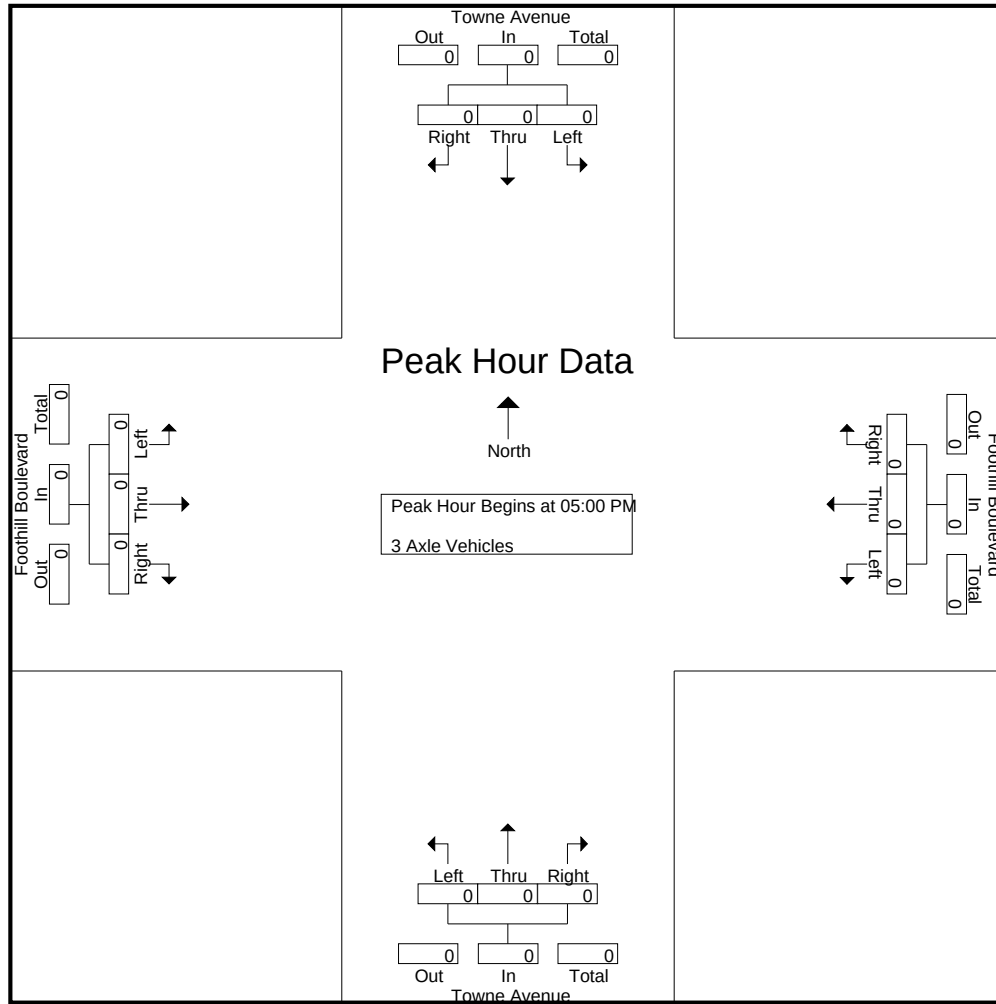
Groups Printed- 3 Axle Vehicles

	Towne Avenue Southbound				Foothill Boulevard Westbound				Towne Avenue Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	2
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	2
Apprch %	0	0	0		100	0	0		100	0	0		0	0	0		
Total %	0	0	0	0	50	0	0	50	50	0	0	50	0	0	0	0	

	Towne Avenue Southbound				Foothill Boulevard Westbound				Towne Avenue Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

City of Pomona
 N/S: Towne Avenue
 E/W: Foothill Boulevard
 Weather: Clear

File Name : POMTOFOPM
 Site Code : 07518999
 Start Date : 2/15/2018
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

City of Pomona
N/S: Towne Avenue
E/W: Foothill Boulevard
Weather: Clear

File Name : POMTOFOPM
Site Code : 07518999
Start Date : 2/15/2018
Page No : 1

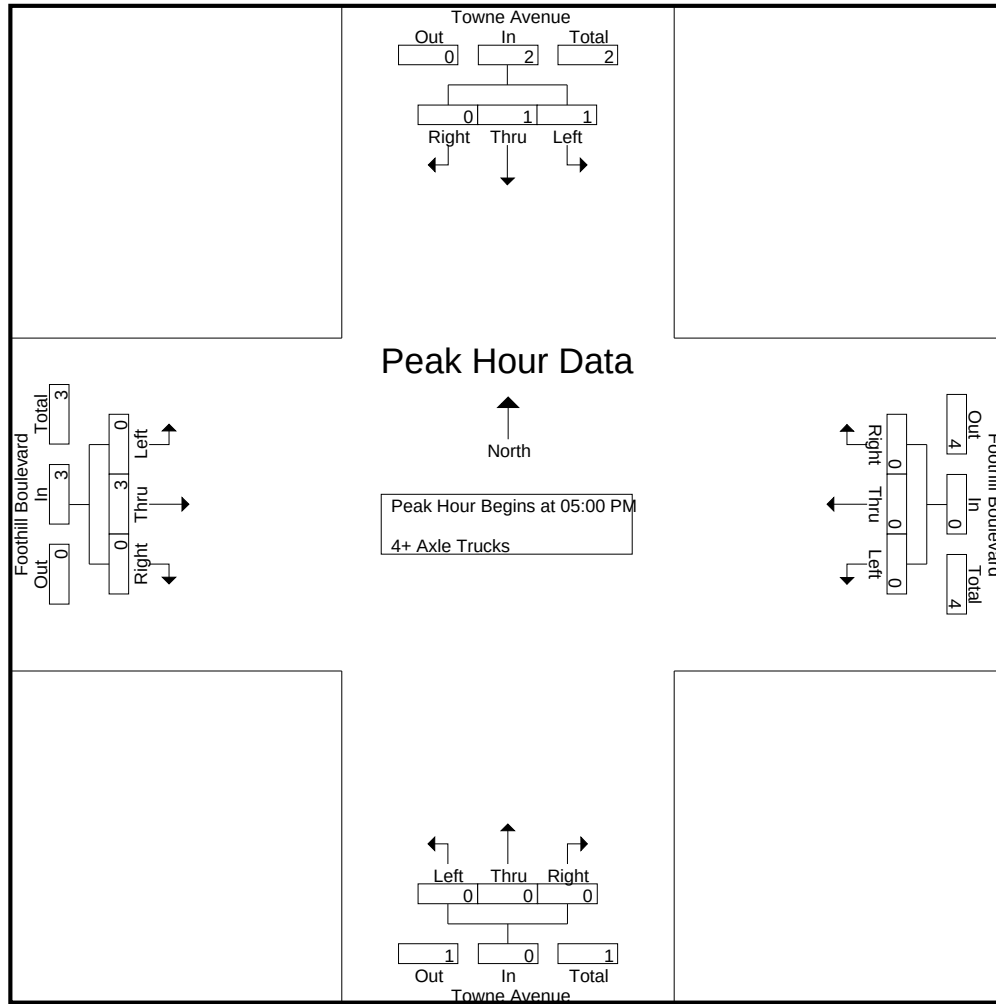
Groups Printed- 4+ Axle Trucks

	Towne Avenue Southbound				Foothill Boulevard Westbound				Towne Avenue Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	1	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	1	2
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	1	1	0	2	0	0	0	0	0	0	0	0	0	2	0	2	4
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	1	0	2	0	0	0	0	0	0	0	0	0	3	0	3	5
Grand Total	1	1	1	3	0	0	0	0	0	0	0	0	0	4	0	4	7
Apprch %	33.3	33.3	33.3		0	0	0		0	0	0		0	100	0		
Total %	14.3	14.3	14.3	42.9	0	0	0	0	0	0	0	0	0	57.1	0	57.1	

	Towne Avenue Southbound				Foothill Boulevard Westbound				Towne Avenue Northbound				Foothill Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	1	1	0	2	0	0	0	0	0	0	0	0	0	2	0	2	4
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	1	0	2	0	0	0	0	0	0	0	0	0	3	0	3	5
% App. Total	50	50	0		0	0	0		0	0	0		0	100	0		
PHF	.250	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.375	.000	.375	.313

City of Pomona
N/S: Towne Avenue
E/W: Foothill Boulevard
Weather: Clear

File Name : POMTOFOPM
Site Code : 07518999
Start Date : 2/15/2018
Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	1	1	0	2	0	0	0	0	0	0	0	0	0	2	0	2
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	1	0	2	0	0	0	0	0	0	0	0	0	3	0	3
% App. Total	50	50	0		0	0	0		0	0	0		0	100	0	
PHF	.250	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.375	.000	.375

APPENDIX D

Explanation and Calculation of Intersection Delay

EXPLANATION AND CALCULATION OF INTERSECTION LEVEL OF SERVICE USING DELAY METHODOLOGY

The levels of service at the unsignalized and signalized intersections are calculated using the delay methodology in the Highway Capacity Manual. This methodology views an intersection as consisting of several lane groups. A lane group is a set of lanes serving a movement. If there are two northbound left turn lanes, then the lane group serving the northbound left turn movement has two lanes. Similarly, there may be three lanes in the lane group serving the northbound through movement, one lane in the lane group serving the northbound right turn movement, and so forth. It is also possible for one lane to serve two lane groups. A shared lane might result in there being 1.5 lanes in the northbound left turn lane group and 2.5 lanes in the northbound through lane group.

For each lane group, there is a capacity. That capacity is calculated by multiplying the number of lanes in the lane group times a theoretical maximum lane capacity per lane time's 12 adjustment factors.

Each of the 12 adjustment factors has a value of approximately 1.00. A value less than 1.00 is generally assigned when a less than desirable condition occurs.

The 12 adjustment factors are as follows:

1. Peak hour factor (to account for peaking within the peak hour)
2. Lane utilization factor (to account for not all lanes loading equally)
3. Lane width
4. Percent of heavy trucks
5. Approach grade
6. Parking
7. Bus stops at intersections
8. Area type (CBD or other)
9. Right turns
10. Left turns
11. Pedestrian activity
12. Signal progression

The maximum theoretical lane capacity and the 12 adjustment factors for it are all unknowns for which approximate estimates have been recommended in the Highway Capacity Manual. For the most part, the recommended values are not based on statistical analysis but rather on educated estimates. However, it is possible to use the delay method and get reasonable results as will be discussed below.

Once the lane group volume is known and the lane group capacity is known, a volume to capacity ratio can be calculated for the lane group.

With a volume to capacity ratio calculated, average delay per vehicle in a lane group can be estimated. The average delay per vehicle in a lane group is calculated using a complex formula provided by the Highway Capacity Manual, which can be simplified and described as follows:

Delay per vehicle in a lane group is a function of the following:

1. Cycle length
2. Amount of red time faced by a lane group
3. Amount of yellow time for that lane group
4. The volume to capacity ratio of the lane group

The average delay per vehicle for each lane group is calculated, and eventually an overall average delay for all vehicles entering the intersection is calculated. This average delay per vehicle is then used to judge Level of Service. The Level of Services are defined in the table that follows this discussion.

Experience has shown that when a maximum lane capacity of 1,900 vehicles per hour is used (as recommended in the Highway Capacity Manual), little or no yellow time penalty is used, and none of the 12 penalty factors are applied, calculated delay is realistic. The delay calculation for instance assumes that yellow time is totally unused. Yet experience shows that most of the yellow time is used.

An idiosyncrasy of the delay methodology is that it is possible to add traffic to an intersection and reduce the average total delay per vehicle. If the average total delay is 30 seconds per vehicle for all vehicles traveling through an intersection, and traffic is added to a movement that has an average total delay of 15 seconds per vehicle, then the overall average total delay is reduced.

The delay calculation for a lane group is based on a concept that the delay is a function of the amount of unused capacity available. As the volume approaches capacity and there is no more unused capacity available, then the delay rapidly increases. Delay is not proportional to volume, but rather increases rapidly as the unused capacity approaches zero.

Because delay is not linearly related to volumes, the delay does not reflect how close an intersection is to overloading. If an intersection is operating at Level of Service C and has an average total delay of 18 seconds per vehicle, you know very little as to what percent the traffic can increase before Level of Service E is reached.

LEVEL OF SERVICE DESCRIPTION¹

Level of Service	Description	Average Total Delay per Vehicle (Seconds)	
		Signalized	Unsignalized
A	Level of Service A occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	0 to 10.00	0 to 10.00
B	Level of Service B generally occurs with good progression and/or short cycle lengths. More vehicles stop than for Level of Service A, causing higher levels of average total delay.	10.01 to 20.00	10.01 to 15.00
C	Level of Service C generally results when there is fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.	20.01 to 35.00	15.01 to 25.00
D	Level of Service D generally results in noticeable congestion. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	35.01 to 55.00	25.01 to 35.00
E	Level of Service E is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume to capacity ratios. Individual cycle failures are frequent occurrences.	55.01 to 80.00	35.01 to 50.00
F	Level of Service F is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high volume to capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.	80.01 and up	50.01 and up

¹ Source: Highway Capacity Manual Special Report 209, Transportation Research Board, National Research Council, Washington, D.C., 2010.

Existing

Foothill Boulevard Hotel Development

Vistro File: J:\...\AM E.vistro
Report File: J:\...\AM E.pdf

Scenario 1 Existing
2/19/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
3	Towne Avenue (NS) at Foothill Boulevard (EW)	Signalized	HCM 6th Edition	SB Left	0.948	49.6	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report**Intersection 3: Towne Avenue (NS) at Foothill Boulevard (EW)**

Control Type:	Signalized	Delay (sec / veh):	49.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.948

Intersection Setup

Name	Towne Avenue			Towne Avenue			Foothill Boulevard			Foothill Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	227.00	100.00	100.00	140.00	100.00	100.00	195.00	100.00	100.00	235.00	100.00	100.00
Speed [mph]	40.00			40.00			45.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Towne Avenue			Towne Avenue			Foothill Boulevard			Foothill Boulevard		
Base Volume Input [veh/h]	265	597	238	316	644	164	119	434	272	205	500	119
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	265	597	238	316	644	164	119	434	272	205	500	119
Peak Hour Factor	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	85	192	76	102	207	53	38	139	87	66	161	38
Total Analysis Volume [veh/h]	341	767	306	406	828	211	153	558	350	263	643	153
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	21	0	11	21	0	17	23	0	15	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	28	17	17	28	17	17	8	19	19	11	22	22
g / C, Green / Cycle	0.40	0.24	0.24	0.40	0.24	0.24	0.12	0.27	0.27	0.16	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.36	0.23	0.20	0.41	0.25	0.14	0.10	0.27	0.27	0.17	0.23	0.23
s, saturation flow rate [veh/h]	960	3373	1506	987	3373	1506	1593	1772	1546	1593	1772	1655
c, Capacity [veh/h]	374	825	368	392	825	368	188	478	417	250	547	512
d1, Uniform Delay [s]	23.22	25.87	25.09	30.60	26.46	23.25	30.14	25.57	25.57	29.51	21.78	21.78
k, delay calibration	0.50	0.50	0.50	0.42	0.50	0.50	0.11	0.19	0.19	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	28.62	18.37	19.23	51.25	32.37	6.36	8.24	28.60	30.68	40.55	2.23	2.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.91	0.93	0.83	1.04	1.00	0.57	0.81	1.01	1.02	1.05	0.75	0.75
d, Delay for Lane Group [s/veh]	51.84	44.24	44.32	81.85	58.83	29.60	38.38	54.17	56.25	70.06	24.01	24.17
Lane Group LOS	D	D	D	F	F	C	D	F	F	F	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	6.58	7.75	6.33	9.90	9.91	3.44	2.73	10.75	9.62	6.70	5.74	5.39
50th-Percentile Queue Length [ft]	164.60	193.69	158.33	247.61	247.80	86.01	68.27	268.72	240.54	167.54	143.56	134.81
95th-Percentile Queue Length [veh]	10.79	12.31	10.46	15.41	15.11	6.19	4.92	16.26	14.83	11.18	9.67	9.20
95th-Percentile Queue Length [ft]	269.81	307.81	261.51	385.14	377.76	154.82	122.89	406.41	370.85	279.52	241.82	230.02

Movement, Approach, & Intersection Results

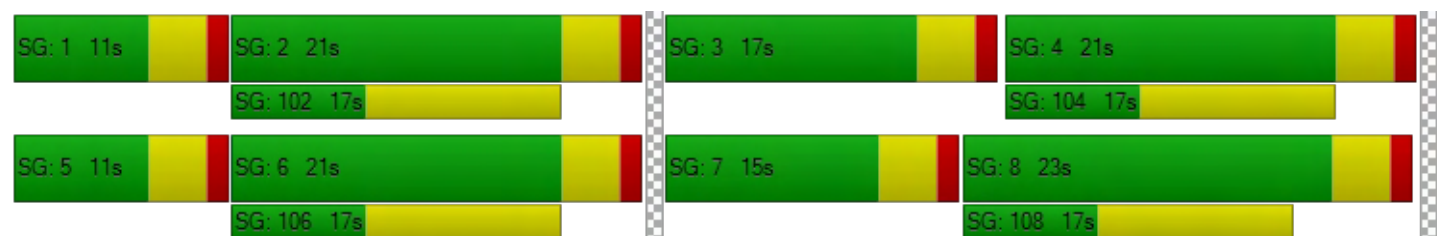
d_M, Delay for Movement [s/veh]	51.84	44.24	44.32	81.85	58.83	29.60	38.38	54.44	56.25	70.06	24.07	24.17
Movement LOS	D	D	D	F	F	C	D	D	E	F	C	C
d_A, Approach Delay [s/veh]	46.09			61.03			52.72			35.51		
Approach LOS	D			E			D			D		
d_I, Intersection Delay [s/veh]	49.59											
Intersection LOS	D											
Intersection V/C	0.948											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	24.86			24.86			24.86			24.86		
I_p,int, Pedestrian LOS Score for Intersection	3.058			2.985			3.121			3.113		
Crosswalk LOS	C			C			C			C		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	486			486			543			486		
d_b, Bicycle Delay [s]	20.06			20.06			18.58			20.06		
I_b,int, Bicycle LOS Score for Intersection	2.726			2.752			2.435			2.433		
Bicycle LOS	B			C			B			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Foothill Boulevard Hotel Development

Vistro File: J:\...\PM E.vistro
Report File: J:\...\PM E.pdf

Scenario 1 Existing
2/19/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
3	Towne Avenue (NS) at Foothill Boulevard (EW)	Signalized	HCM 6th Edition	NB Thru	0.937	44.5	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report**Intersection 3: Towne Avenue (NS) at Foothill Boulevard (EW)**

Control Type:	Signalized	Delay (sec / veh):	44.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.937

Intersection Setup

Name	Towne Avenue			Towne Avenue			Foothill Boulevard			Foothill Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	227.00	100.00	100.00	140.00	100.00	100.00	195.00	100.00	100.00	235.00	100.00	100.00
Speed [mph]	40.00			40.00			45.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Towne Avenue			Towne Avenue			Foothill Boulevard			Foothill Boulevard		
Base Volume Input [veh/h]	307	713	227	280	527	177	228	707	183	272	553	184
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	307	713	227	280	527	177	228	707	183	272	553	184
Peak Hour Factor	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	83	193	61	76	142	48	62	191	49	74	149	50
Total Analysis Volume [veh/h]	332	771	245	303	570	191	246	764	198	294	598	199
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	21	0	11	21	0	17	25	0	18	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	28	17	17	28	17	17	13	21	21	14	22	22
g / C, Green / Cycle	0.37	0.23	0.23	0.37	0.23	0.23	0.17	0.28	0.28	0.19	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.31	0.23	0.16	0.31	0.17	0.13	0.15	0.28	0.28	0.18	0.23	0.24
s, saturation flow rate [veh/h]	1082	3373	1506	985	3373	1506	1593	1772	1648	1593	1772	1622
c, Capacity [veh/h]	417	772	345	353	772	345	276	492	457	298	515	472
d1, Uniform Delay [s]	22.83	28.93	26.65	22.46	26.85	25.56	30.32	27.11	27.11	30.44	24.65	24.66
k, delay calibration	0.50	0.50	0.50	0.28	0.50	0.50	0.11	0.23	0.23	0.11	0.15	0.15
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.47	32.04	11.77	14.31	6.24	6.29	9.56	30.50	32.74	21.58	4.11	4.51
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	1.00	0.71	0.86	0.74	0.55	0.89	1.01	1.02	0.99	0.81	0.81
d, Delay for Lane Group [s/veh]	37.30	60.97	38.42	36.77	33.10	31.85	39.89	57.61	59.85	52.02	28.76	29.18
Lane Group LOS	D	E	D	D	C	C	D	F	F	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	5.74	9.81	4.86	5.03	5.04	3.39	4.71	11.98	11.42	6.69	6.79	6.28
50th-Percentile Queue Length [ft]	143.61	245.24	121.47	125.74	126.09	84.81	117.72	299.38	285.56	167.28	169.79	157.02
95th-Percentile Queue Length [veh]	9.67	14.95	8.47	8.71	8.73	6.11	8.27	17.77	17.12	10.93	11.07	10.39
95th-Percentile Queue Length [ft]	241.87	373.66	211.85	217.69	218.17	152.66	206.69	444.24	427.99	273.33	276.64	259.77

Movement, Approach, & Intersection Results

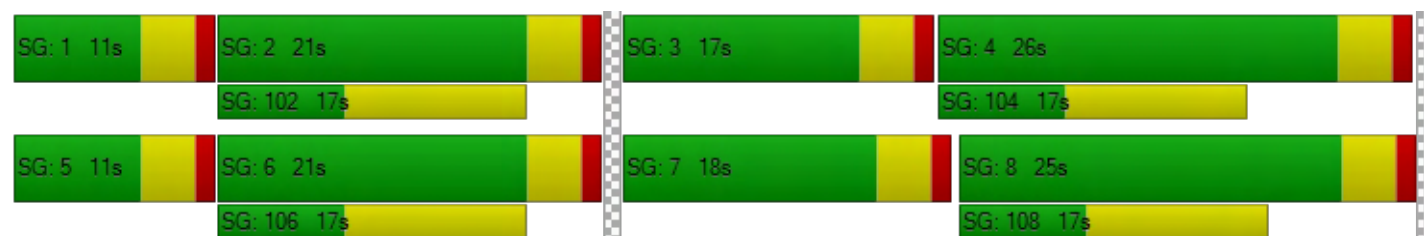
d_M, Delay for Movement [s/veh]	37.30	60.97	38.42	36.77	33.10	31.85	39.89	58.39	59.85	52.02	28.89	29.18
Movement LOS	D	E	D	D	C	C	D	E	E	D	C	C
d_A, Approach Delay [s/veh]	51.04			33.92			54.86			35.17		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	44.48											
Intersection LOS	D											
Intersection V/C	0.937											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	27.31			27.31			27.31			27.31		
I_p,int, Pedestrian LOS Score for Intersection	2.965			2.937			3.150			3.024		
Crosswalk LOS	C			C			C			C		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	453			453			560			587		
d_b, Bicycle Delay [s]	22.43			22.43			19.44			18.73		
I_b,int, Bicycle LOS Score for Intersection	2.672			2.437			2.556			2.460		
Bicycle LOS	B			B			B			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Existing Plus Project

Foothill Boulevard Hotel Development

Vistro File: J:\...\AM E.vistro

Scenario 2 Existing Plus Project

Report File: J:\...\AM EP.pdf

2/19/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Project West Driveway (NS) at Foothill Boulevard (EW)	Two-way stop	HCM 6th Edition	NB Left	0.021	20.8	C
2	Project East Driveway (NS) at Foothill Boulevard (EW)	Two-way stop	HCM 6th Edition	NB Right	0.025	12.6	B
3	Towne Avenue (NS) at Foothill Boulevard (EW)	Signalized	HCM 6th Edition	SB Left	0.956	51.4	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report**Intersection 1: Project West Driveway (NS) at Foothill Boulevard (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	20.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.021

Intersection Setup

Name	Project West Driveway		Foothill Boulevard		Foothill Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	15.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project West Driveway		Foothill Boulevard		Foothill Boulevard	
Base Volume Input [veh/h]	0	0	825	0	0	929
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	8	7	0	29	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	8	832	0	29	929
Peak Hour Factor	1.0000	1.0000	0.7780	1.0000	1.0000	0.7780
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	2	267	0	7	299
Total Analysis Volume [veh/h]	5	8	1069	0	29	1194
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No	No	No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes	No	No
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.02	0.01	0.00	0.04	0.01
d_M, Delay for Movement [s/veh]	20.78	12.75	0.00	0.00	10.82	0.00
Movement LOS	C	B	A	A	B	A
95th-Percentile Queue Length [veh]	0.12	0.12	0.00	0.00	0.14	0.00
95th-Percentile Queue Length [ft]	2.93	2.93	0.00	0.00	3.51	0.00
d_A, Approach Delay [s/veh]	15.84		0.00		0.26	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.23					
Intersection LOS	C					

Intersection Level Of Service Report**Intersection 2: Project East Driveway (NS) at Foothill Boulevard (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	12.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.025

Intersection Setup

Name	Project East Driveway		Foothill Boulevard		Foothill Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	15.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project East Driveway		Foothill Boulevard		Foothill Boulevard	
Base Volume Input [veh/h]	0	0	825	0	0	929
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	8	7	0	29
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	12	833	7	0	958
Peak Hour Factor	1.0000	1.0000	0.7780	1.0000	1.0000	0.7780
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	3	268	2	0	308
Total Analysis Volume [veh/h]	0	12	1071	7	0	1231
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No	No	No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No	No	No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.02	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	12.58	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh]	0.00	0.08	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	1.89	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.58		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.07					
Intersection LOS	B					

Intersection Level Of Service Report**Intersection 3: Towne Avenue (NS) at Foothill Boulevard (EW)**

Control Type:
Analysis Method:
Analysis Period:

Signalized
HCM 6th Edition
15 minutes

Delay (sec / veh):
Level Of Service:
Volume to Capacity (v/c):

51.4
D
0.956

Intersection Setup

Name	Towne Avenue			Towne Avenue			Foothill Boulevard			Foothill Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	227.00	100.00	100.00	140.00	100.00	100.00	195.00	100.00	100.00	235.00	100.00	100.00
Speed [mph]	40.00			40.00			45.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Towne Avenue			Towne Avenue			Foothill Boulevard			Foothill Boulevard		
Base Volume Input [veh/h]	265	597	238	316	644	164	119	434	272	205	500	119
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	11	0	0	0	0	11	8	5	7	0	7	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	276	597	238	316	644	175	127	439	279	205	507	119
Peak Hour Factor	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	89	192	76	102	207	56	41	141	90	66	163	38
Total Analysis Volume [veh/h]	355	767	306	406	828	225	163	564	359	263	652	153
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	21	0	11	21	0	17	23	0	15	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	28	17	17	28	17	17	9	19	19	11	21	21
g / C, Green / Cycle	0.40	0.24	0.24	0.40	0.24	0.24	0.12	0.27	0.27	0.16	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.37	0.23	0.20	0.41	0.25	0.15	0.10	0.28	0.28	0.17	0.23	0.23
s, saturation flow rate [veh/h]	960	3373	1506	987	3373	1506	1593	1772	1544	1593	1772	1657
c, Capacity [veh/h]	374	824	368	392	824	368	199	478	417	250	535	500
d1, Uniform Delay [s]	26.47	25.87	25.09	30.60	26.46	23.50	29.87	25.57	25.57	29.51	22.29	22.29
k, delay calibration	0.50	0.50	0.50	0.42	0.50	0.50	0.11	0.19	0.19	0.11	0.12	0.12
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	35.14	18.38	19.24	51.33	32.40	7.38	8.05	33.86	36.23	40.55	2.71	2.91
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.95	0.93	0.83	1.04	1.00	0.61	0.82	1.03	1.03	1.05	0.78	0.78
d, Delay for Lane Group [s/veh]	61.61	44.26	44.33	81.93	58.86	30.88	37.92	59.43	61.80	70.06	25.00	25.20
Lane Group LOS	E	D	D	F	F	C	D	F	F	F	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	7.45	7.75	6.33	9.91	9.91	3.76	2.89	11.45	10.25	6.70	5.96	5.60
50th-Percentile Queue Length [ft]	186.29	193.73	158.35	247.77	247.85	94.07	72.22	286.21	256.34	167.54	148.90	140.03
95th-Percentile Queue Length [veh]	11.93	12.31	10.46	15.42	15.11	6.77	5.20	17.30	15.79	11.18	9.96	9.48
95th-Percentile Queue Length [ft]	298.21	307.86	261.54	385.41	377.85	169.32	129.99	432.47	394.75	279.52	248.96	237.06

Movement, Approach, & Intersection Results

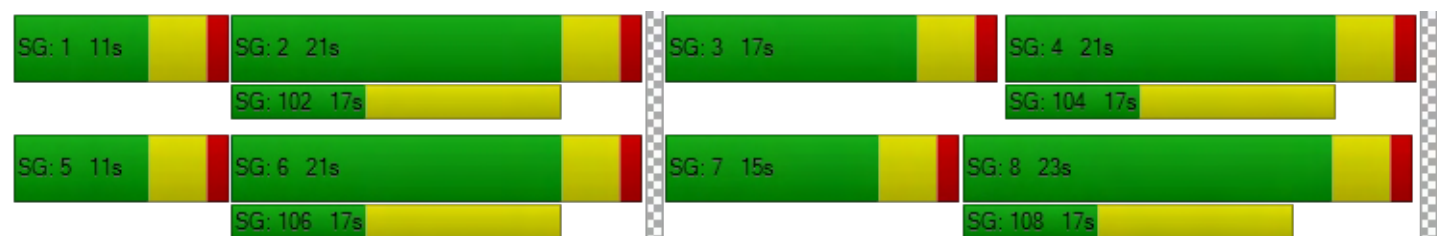
d_M, Delay for Movement [s/veh]	61.61	44.26	44.33	81.93	58.86	30.88	37.92	59.73	61.80	70.06	25.07	25.20
Movement LOS	E	D	D	F	F	C	D	E	E	F	C	C
d_A, Approach Delay [s/veh]	48.59			60.97			57.14			36.17		
Approach LOS	D			E			E			D		
d_I, Intersection Delay [s/veh]	51.38											
Intersection LOS	D											
Intersection V/C	0.956											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	24.86			24.86			24.86			24.86		
I_p,int, Pedestrian LOS Score for Intersection	3.063			2.990			3.153			3.117		
Crosswalk LOS	C			C			C			C		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	486			486			543			486		
d_b, Bicycle Delay [s]	20.06			20.06			18.58			20.06		
I_b,int, Bicycle LOS Score for Intersection	2.738			2.763			2.456			2.441		
Bicycle LOS	B			C			B			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Foothill Boulevard Hotel Development

Vistro File: J:\...\PM E.vistro

Scenario 2 Existing Plus Project

Report File: J:\...\PM EP.pdf

2/19/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Project West Driveway (NS) at Foothill Boulevard (EW)	Two-way stop	HCM 6th Edition	NB Left	0.040	23.8	C
2	Project East Driveway (NS) at Foothill Boulevard (EW)	Two-way stop	HCM 6th Edition	NB Right	0.044	13.7	B
3	Towne Avenue (NS) at Foothill Boulevard (EW)	Signalized	HCM 6th Edition	WB Left	0.933	45.8	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report**Intersection 1: Project West Driveway (NS) at Foothill Boulevard (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	23.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.040

Intersection Setup

Name	Project West Driveway		Foothill Boulevard		Foothill Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	15.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project West Driveway		Foothill Boulevard		Foothill Boulevard	
Base Volume Input [veh/h]	0	0	1118	0	0	1037
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	11	8	0	32	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	11	1126	0	32	1037
Peak Hour Factor	1.0000	1.0000	0.9250	1.0000	1.0000	0.9250
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	3	304	0	8	280
Total Analysis Volume [veh/h]	8	11	1217	0	32	1121
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No	No	No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes	No	No
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.03	0.01	0.00	0.06	0.01
d_M, Delay for Movement [s/veh]	23.79	14.06	0.00	0.00	11.71	0.00
Movement LOS	C	B	A	A	B	A
95th-Percentile Queue Length [veh]	0.21	0.21	0.00	0.00	0.18	0.00
95th-Percentile Queue Length [ft]	5.18	5.18	0.00	0.00	4.46	0.00
d_A, Approach Delay [s/veh]	18.16		0.00		0.32	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.30					
Intersection LOS	C					

Intersection Level Of Service Report**Intersection 2: Project East Driveway (NS) at Foothill Boulevard (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	13.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.044

Intersection Setup

Name	Project East Driveway		Foothill Boulevard		Foothill Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	15.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project East Driveway		Foothill Boulevard		Foothill Boulevard	
Base Volume Input [veh/h]	0	0	1118	0	0	1037
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	19	11	8	0	32
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	19	1129	8	0	1069
Peak Hour Factor	1.0000	1.0000	0.9250	1.0000	1.0000	0.9250
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	5	305	2	0	289
Total Analysis Volume [veh/h]	0	19	1221	8	0	1156
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No	No	No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No	No	No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.04	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	13.66	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh]	0.00	0.14	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	3.42	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.66		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.11					
Intersection LOS	B					

Intersection Level Of Service Report**Intersection 3: Towne Avenue (NS) at Foothill Boulevard (EW)**

Control Type:	Signalized	Delay (sec / veh):	45.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.933

Intersection Setup

Name	Towne Avenue			Towne Avenue			Foothill Boulevard			Foothill Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	227.00	100.00	100.00	140.00	100.00	100.00	195.00	100.00	100.00	235.00	100.00	100.00
Speed [mph]	40.00			40.00			45.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Towne Avenue			Towne Avenue			Foothill Boulevard			Foothill Boulevard		
Base Volume Input [veh/h]	307	713	227	280	527	177	228	707	183	272	553	184
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	0	0	0	0	12	11	8	11	0	8	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	319	713	227	280	527	189	239	715	194	272	561	184
Peak Hour Factor	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	86	193	61	76	142	51	65	193	52	74	152	50
Total Analysis Volume [veh/h]	345	771	245	303	570	204	258	773	210	294	606	199
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	21	0	11	21	0	18	30	0	18	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	29	18	18	29	18	18	14	25	25	14	25	25
g / C, Green / Cycle	0.36	0.23	0.23	0.36	0.23	0.23	0.18	0.31	0.31	0.18	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.32	0.23	0.16	0.31	0.17	0.14	0.16	0.29	0.29	0.18	0.24	0.24
s, saturation flow rate [veh/h]	1075	3373	1506	976	3373	1506	1593	1772	1643	1593	1772	1624
c, Capacity [veh/h]	398	765	342	333	765	342	279	549	509	279	549	503
d1, Uniform Delay [s]	26.10	31.01	28.64	27.88	28.85	27.73	32.55	26.78	26.84	33.08	25.02	25.03
k, delay calibration	0.50	0.50	0.50	0.33	0.50	0.50	0.11	0.28	0.28	0.11	0.18	0.18
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	21.69	34.44	12.20	22.85	6.50	7.50	12.38	15.65	17.36	40.07	3.73	4.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	1.01	0.72	0.91	0.74	0.60	0.92	0.93	0.93	1.05	0.76	0.77
d, Delay for Lane Group [s/veh]	47.78	65.45	40.84	50.73	35.36	35.24	44.93	42.43	44.21	73.15	28.75	29.13
Lane Group LOS	D	F	D	D	D	D	D	D	D	F	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	7.16	10.53	5.22	6.16	5.45	3.99	5.51	10.78	10.30	8.20	7.16	6.63
50th-Percentile Queue Length [ft]	179.02	263.28	130.53	154.02	136.35	99.72	137.83	269.46	257.51	204.90	179.10	165.69
95th-Percentile Queue Length [veh]	11.55	15.92	8.97	10.23	9.28	7.18	9.36	16.16	15.56	13.20	11.55	10.85
95th-Percentile Queue Length [ft]	288.73	398.00	224.21	255.78	232.10	179.50	234.11	404.07	389.10	330.05	288.84	271.25

Movement, Approach, & Intersection Results

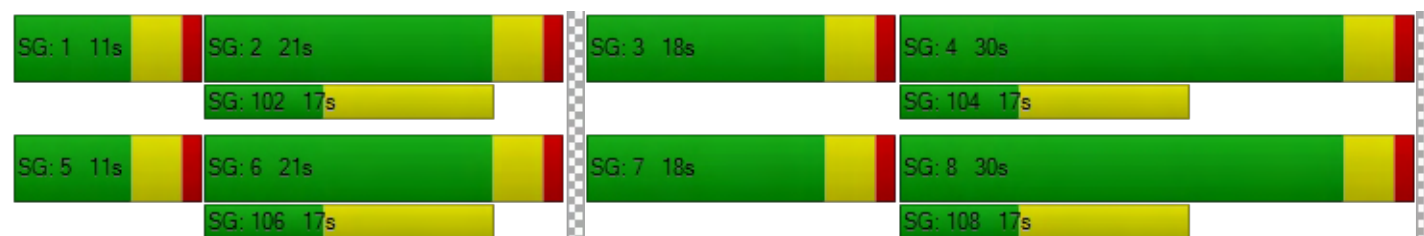
d_M, Delay for Movement [s/veh]	47.78	65.45	40.84	50.73	35.36	35.24	44.93	43.04	44.21	73.15	28.87	29.13
Movement LOS	D	F	D	D	D	D	D	D	D	F	C	C
d_A, Approach Delay [s/veh]	56.54			39.66			43.63			40.76		
Approach LOS	E			D			D			D		
d_I, Intersection Delay [s/veh]	45.75											
Intersection LOS	D											
Intersection V/C	0.933											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	29.76			29.76			29.76			29.76		
I_p,int, Pedestrian LOS Score for Intersection	2.974			2.946			3.208			3.040		
Crosswalk LOS	C			C			C			C		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	425			425			650			650		
d_b, Bicycle Delay [s]	24.81			24.81			18.23			18.23		
I_b,int, Bicycle LOS Score for Intersection	2.682			2.448			2.583			2.466		
Bicycle LOS	B			B			B			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Opening Year (2019) Without Project

Vistro File: J:\...\AM E.vistro
Report File: J:\...\AM OY.pdf

Foothill Boulevard Hotel Development

Scenario 3 Opening Year (2019) Without Project
2/19/2018**Intersection Analysis Summary**

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
3	Towne Avenue (NS) at Foothill Boulevard (EW)	Signalized	HCM 6th Edition	SB Left	0.981	58.8	E

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report**Intersection 3: Towne Avenue (NS) at Foothill Boulevard (EW)**

Control Type:
Analysis Method:
Analysis Period:

Signalized
HCM 6th Edition
15 minutes

Delay (sec / veh):
Level Of Service:
Volume to Capacity (v/c):

58.8
E
0.981

Intersection Setup

Name	Towne Avenue			Towne Avenue			Foothill Boulevard			Foothill Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	227.00	100.00	100.00	140.00	100.00	100.00	195.00	100.00	100.00	235.00	100.00	100.00
Speed [mph]	40.00			40.00			45.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Towne Avenue			Towne Avenue			Foothill Boulevard			Foothill Boulevard		
Base Volume Input [veh/h]	265	597	238	316	644	164	119	434	272	205	500	119
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	23	2	2	8	6	18	11	1	7	10	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	272	632	245	324	665	173	139	454	278	216	520	128
Peak Hour Factor	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	87	203	79	104	214	56	45	146	89	69	167	41
Total Analysis Volume [veh/h]	350	812	315	416	855	222	179	584	357	278	668	165
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	21	0	11	21	0	17	23	0	15	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	28	17	17	28	17	17	9	19	19	11	20	20
g / C, Green / Cycle	0.40	0.24	0.24	0.40	0.24	0.24	0.14	0.27	0.27	0.16	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.37	0.24	0.21	0.43	0.25	0.15	0.11	0.28	0.28	0.17	0.24	0.24
s, saturation flow rate [veh/h]	949	3373	1506	967	3373	1506	1593	1772	1550	1593	1772	1652
c, Capacity [veh/h]	372	824	368	379	824	368	216	478	418	250	516	481
d1, Uniform Delay [s]	25.92	26.33	25.28	30.55	26.46	23.45	29.47	25.57	25.57	29.51	23.23	23.24
k, delay calibration	0.50	0.50	0.50	0.45	0.50	0.50	0.11	0.20	0.20	0.11	0.13	0.13
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	34.10	27.94	21.77	73.40	41.39	7.15	7.85	39.85	42.63	61.93	4.43	4.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.94	0.99	0.86	1.10	1.04	0.60	0.83	1.05	1.05	1.11	0.83	0.84
d, Delay for Lane Group [s/veh]	60.02	54.27	47.05	103.95	67.85	30.60	37.32	65.42	68.19	91.44	27.66	28.03
Lane Group LOS	E	D	D	F	F	C	D	F	F	F	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	7.25	9.28	6.75	11.85	10.94	3.69	3.14	12.25	11.03	8.19	6.57	6.18
50th-Percentile Queue Length [ft]	181.22	231.99	168.87	296.28	273.53	92.30	78.58	306.13	275.84	204.73	164.24	154.59
95th-Percentile Queue Length [veh]	11.66	14.28	11.02	18.56	16.70	6.65	5.66	18.48	16.96	13.47	10.77	10.26
95th-Percentile Queue Length [ft]	291.61	356.88	275.43	463.90	417.48	166.15	141.45	462.06	423.90	336.86	269.33	256.55

Movement, Approach, & Intersection Results

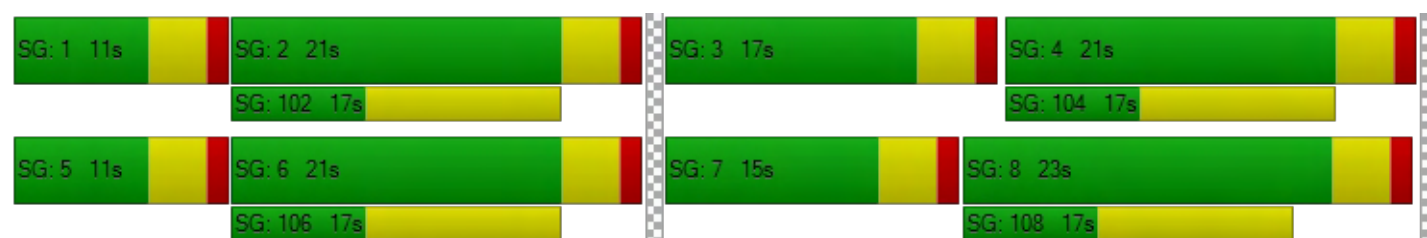
d_M, Delay for Movement [s/veh]	60.02	54.27	47.05	103.95	67.85	30.60	37.32	65.81	68.19	91.44	27.79	28.03
Movement LOS	E	D	D	F	F	C	D	E	E	F	C	C
d_A, Approach Delay [s/veh]	54.09			72.37			62.02			43.75		
Approach LOS	D			E			E			D		
d_I, Intersection Delay [s/veh]	58.84											
Intersection LOS	E											
Intersection V/C	0.981											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	24.86			24.86			24.86			24.86		
I_p,int, Pedestrian LOS Score for Intersection	3.082			3.013			3.156			3.152		
Crosswalk LOS	C			C			C			C		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	486			486			543			486		
d_b, Bicycle Delay [s]	20.06			20.06			18.58			20.06		
I_b,int, Bicycle LOS Score for Intersection	2.778			2.791			2.484			2.476		
Bicycle LOS	C			C			B			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Vistro File: J:\...\PM E.vistro
Report File: J:\...\PM OY.pdf

Foothill Boulevard Hotel Development

Scenario 3 Opening Year (2019) Without Project
2/19/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
3	Towne Avenue (NS) at Foothill Boulevard (EW)	Signalized	HCM 6th Edition	EB Right	0.953	49.8	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report**Intersection 3: Towne Avenue (NS) at Foothill Boulevard (EW)**

Control Type:	Signalized	Delay (sec / veh):	49.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.953

Intersection Setup

Name	Towne Avenue			Towne Avenue			Foothill Boulevard			Foothill Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	227.00	100.00	100.00	140.00	100.00	100.00	195.00	100.00	100.00	235.00	100.00	100.00
Speed [mph]	40.00			40.00			45.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Towne Avenue			Towne Avenue			Foothill Boulevard			Foothill Boulevard		
Base Volume Input [veh/h]	307	713	227	280	527	177	228	707	183	272	553	184
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	14	7	7	23	18	11	12	2	4	13	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	314	741	239	293	561	199	244	733	189	281	577	192
Peak Hour Factor	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	85	200	65	79	152	54	66	198	51	76	156	52
Total Analysis Volume [veh/h]	339	801	258	317	606	215	264	792	204	304	624	208
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	23	0	11	23	0	18	27	0	19	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	30	19	19	30	19	19	14	23	23	15	24	24
g / C, Green / Cycle	0.38	0.24	0.24	0.38	0.24	0.24	0.18	0.29	0.29	0.19	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.32	0.24	0.17	0.33	0.18	0.14	0.17	0.29	0.29	0.19	0.24	0.25
s, saturation flow rate [veh/h]	1047	3373	1506	952	3373	1506	1593	1772	1648	1593	1772	1622
c, Capacity [veh/h]	393	808	361	331	808	361	279	506	470	299	528	483
d1, Uniform Delay [s]	25.42	30.37	27.94	31.83	28.23	27.01	32.65	28.60	28.60	32.52	26.13	26.15
k, delay calibration	0.50	0.50	0.50	0.37	0.50	0.50	0.11	0.29	0.29	0.11	0.20	0.20
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	21.45	29.75	11.52	32.94	6.34	7.10	15.12	34.66	37.65	28.58	5.77	6.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.99	0.72	0.96	0.75	0.60	0.95	1.02	1.02	1.02	0.82	0.82
d, Delay for Lane Group [s/veh]	46.86	60.12	39.47	64.77	34.57	34.11	47.76	63.26	66.25	61.10	31.90	32.52
Lane Group LOS	D	E	D	E	C	C	D	F	F	F	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	6.87	10.47	5.38	7.20	5.73	4.12	5.85	13.57	13.02	7.79	7.88	7.32
50th-Percentile Queue Length [ft]	171.86	261.86	134.62	179.98	143.26	102.98	146.15	339.29	325.46	194.71	197.08	182.98
95th-Percentile Queue Length [veh]	11.17	15.78	9.19	11.60	9.66	7.41	9.81	19.82	19.20	12.47	12.49	11.76
95th-Percentile Queue Length [ft]	279.36	394.56	229.77	289.98	241.41	185.36	245.28	495.51	480.09	311.70	312.19	293.90

Movement, Approach, & Intersection Results

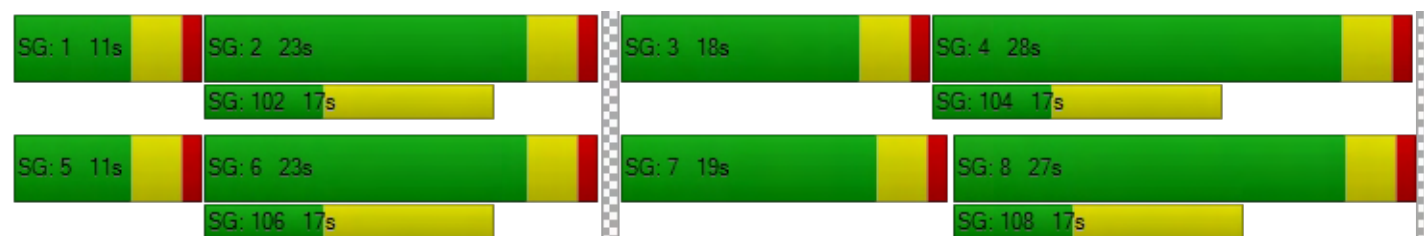
d_M, Delay for Movement [s/veh]	46.86	60.12	39.47	64.77	34.57	34.11	47.76	64.31	66.25	61.10	32.09	32.52
Movement LOS	D	E	D	E	C	C	D	E	E	F	C	C
d_A, Approach Delay [s/veh]	53.09			42.89			61.16			39.93		
Approach LOS	D			D			E			D		
d_I, Intersection Delay [s/veh]	49.77											
Intersection LOS	D											
Intersection V/C	0.953											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	29.76			29.76			29.76			29.76		
I_p,int, Pedestrian LOS Score for Intersection	2.991			2.969			3.211			3.083		
Crosswalk LOS	C			C			C			C		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	475			475			575			600		
d_b, Bicycle Delay [s]	23.26			23.26			20.31			19.60		
I_b,int, Bicycle LOS Score for Intersection	2.713			2.498			2.599			2.497		
Bicycle LOS	B			B			B			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Opening Year (2019) Without Project With Improvements

Foothill Boulevard Hotel Development

Vistro File: \...\AM E MIT 2.vistro

Scenario 3 Opening Year (2019) Without Project

Report File: \...\AM OY MIT 2.pdf

3/7/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
3	Towne Avenue (NS) at Foothill Boulevard (EW)	Signalized	HCM 6th Edition	EB Right	0.980	54.4	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report**Intersection 3: Towne Avenue (NS) at Foothill Boulevard (EW)**

Control Type:	Signalized	Delay (sec / veh):	54.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.980

Intersection Setup

Name	Towne Avenue			Towne Avenue			Foothill Boulevard			Foothill Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	227.00	100.00	100.00	140.00	100.00	100.00	195.00	100.00	100.00	235.00	100.00	100.00
Speed [mph]	40.00			40.00			45.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Towne Avenue			Towne Avenue			Foothill Boulevard			Foothill Boulevard		
Base Volume Input [veh/h]	265	597	238	316	644	164	119	434	272	205	500	119
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	23	2	2	8	6	18	11	1	7	10	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	272	632	245	324	665	173	139	454	278	216	520	128
Peak Hour Factor	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	87	203	79	104	214	56	45	146	89	69	167	41
Total Analysis Volume [veh/h]	350	812	315	416	855	222	179	584	357	278	668	165
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	7	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups			2,7									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	7	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	22	15	11	22	0	13	22	0	15	24	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	29	18	51	29	18	18	9	18	18	11	20	20
g / C, Green / Cycle	0.42	0.26	0.73	0.42	0.26	0.26	0.13	0.26	0.26	0.16	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.37	0.24	0.21	0.43	0.25	0.15	0.11	0.28	0.28	0.17	0.24	0.24
s, saturation flow rate [veh/h]	938	3373	1506	956	3373	1506	1593	1772	1550	1593	1772	1652
c, Capacity [veh/h]	382	877	1097	394	877	391	205	450	394	251	501	467
d1, Uniform Delay [s]	23.08	25.27	2.18	30.03	25.70	22.50	29.96	26.13	26.13	29.52	23.82	23.83
k, delay calibration	0.50	0.50	0.50	0.46	0.50	0.50	0.11	0.20	0.20	0.11	0.13	0.13
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	29.04	17.00	0.66	58.74	24.91	5.85	10.90	63.66	66.44	61.76	5.43	5.86
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.93	0.29	1.05	0.98	0.57	0.87	1.11	1.12	1.11	0.86	0.86
d, Delay for Lane Group [s/veh]	52.12	42.27	2.84	88.77	50.61	28.35	40.86	89.78	92.57	91.28	29.25	29.69
Lane Group LOS	D	D	A	F	D	C	D	F	F	F	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	6.68	8.00	0.53	10.64	9.38	3.52	3.32	14.55	13.03	8.18	6.78	6.39
50th-Percentile Queue Length [ft]	167.03	199.93	13.31	266.06	234.53	88.05	83.01	363.83	325.85	204.54	169.56	159.78
95th-Percentile Queue Length [veh]	10.92	12.64	0.96	16.55	14.40	6.34	5.98	22.08	20.12	13.46	11.05	10.54
95th-Percentile Queue Length [ft]	273.01	315.88	23.96	413.76	360.11	158.48	149.42	552.00	503.03	336.56	276.34	263.43

Movement, Approach, & Intersection Results

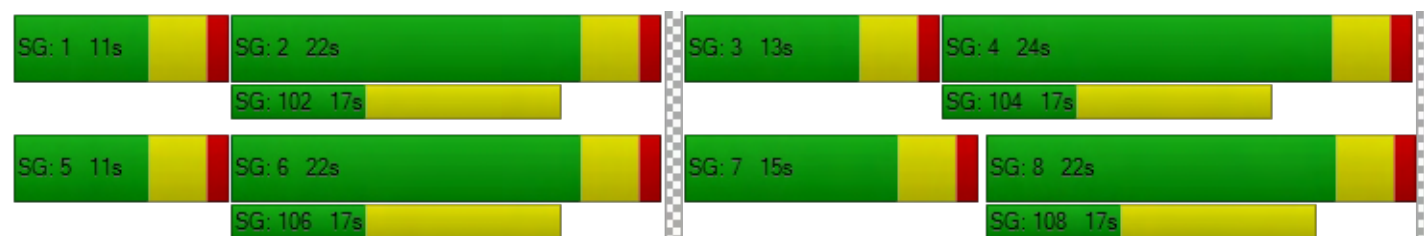
d_M, Delay for Movement [s/veh]	52.12	42.27	2.84	88.77	50.61	28.35	40.86	90.18	92.57	91.28	29.40	29.69
Movement LOS	D	D	A	F	D	C	D	F	F	F	C	C
d_A, Approach Delay [s/veh]	36.20			57.93			83.06			44.93		
Approach LOS	D			E			F			D		
d_I, Intersection Delay [s/veh]	54.39											
Intersection LOS	D											
Intersection V/C	0.980											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	24.86			24.86			24.86			24.86		
I_p,int, Pedestrian LOS Score for Intersection	3.082			3.013			3.157			3.152		
Crosswalk LOS	C			C			C			C		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	514			514			514			571		
d_b, Bicycle Delay [s]	19.31			19.31			19.31			17.86		
I_b,int, Bicycle LOS Score for Intersection	2.778			2.791			2.484			2.476		
Bicycle LOS	C			C			B			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Foothill Boulevard Hotel Development

Vistro File: \\...\\PM E MIT 2.vistro

Scenario 3 Opening Year (2019) Without Project

Report File: \\...\\PM OY MIT 2.pdf

3/7/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
3	Towne Avenue (NS) at Foothill Boulevard (EW)	Signalized	HCM 6th Edition	NB Thru	0.930	38.4	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report**Intersection 3: Towne Avenue (NS) at Foothill Boulevard (EW)**

Control Type:
Analysis Method:
Analysis Period:

Signalized
HCM 6th Edition
15 minutes

Delay (sec / veh):
Level Of Service:
Volume to Capacity (v/c):

38.4
D
0.930

Intersection Setup

Name	Towne Avenue			Towne Avenue			Foothill Boulevard			Foothill Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	227.00	100.00	100.00	140.00	100.00	100.00	195.00	100.00	100.00	235.00	100.00	100.00
Speed [mph]	40.00			40.00			45.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Towne Avenue			Towne Avenue			Foothill Boulevard			Foothill Boulevard		
Base Volume Input [veh/h]	307	713	227	280	527	177	228	707	183	272	553	184
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	14	7	7	23	18	11	12	2	4	13	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	314	741	239	293	561	199	244	733	189	281	577	192
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	79	185	60	73	140	50	61	183	47	70	144	48
Total Analysis Volume [veh/h]	314	741	239	293	561	199	244	733	189	281	577	192
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	7	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups			2,7									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	7	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	23	19	11	23	0	18	27	0	19	28	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	30	19	80	30	19	19	14	23	23	15	24	24
g / C, Green / Cycle	0.38	0.24	1.00	0.38	0.24	0.24	0.17	0.29	0.29	0.19	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.29	0.22	0.16	0.30	0.17	0.13	0.15	0.27	0.27	0.18	0.23	0.23
s, saturation flow rate [veh/h]	1071	3373	1506	980	3373	1506	1593	1772	1648	1593	1772	1622
c, Capacity [veh/h]	409	808	1506	349	808	361	277	506	470	299	530	485
d1, Uniform Delay [s]	23.85	29.67	23.84	23.99	27.77	26.68	32.24	27.97	28.00	32.08	25.44	25.44
k, delay calibration	0.50	0.50	0.50	0.30	0.50	0.50	0.11	0.24	0.25	0.11	0.16	0.16
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.96	17.00	0.23	13.75	4.89	5.97	8.82	17.27	18.64	13.60	3.31	3.62
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.92	0.16	0.84	0.69	0.55	0.88	0.94	0.95	0.94	0.76	0.76
d, Delay for Lane Group [s/veh]	36.82	46.67	24.07	37.74	32.67	32.65	41.06	45.24	46.63	45.67	28.75	29.06
Lane Group LOS	D	D	C	D	C	C	D	D	D	D	C	C
Critical Lane Group	No	Yes	Yes	Yes	No	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh]	5.59	8.36	2.45	5.11	5.12	3.71	4.94	10.45	9.93	6.15	6.83	6.30
50th-Percentile Queue Length [ft]	139.76	208.97	61.37	127.82	128.03	92.85	123.59	261.35	248.30	153.80	170.74	157.47
95th-Percentile Queue Length [veh]	9.47	13.10	4.42	8.82	8.83	6.69	8.59	15.76	15.10	10.22	11.12	10.41
95th-Percentile Queue Length [ft]	236.70	327.51	110.47	220.53	220.81	167.14	214.75	393.91	377.51	255.49	277.88	260.36

Movement, Approach, & Intersection Results

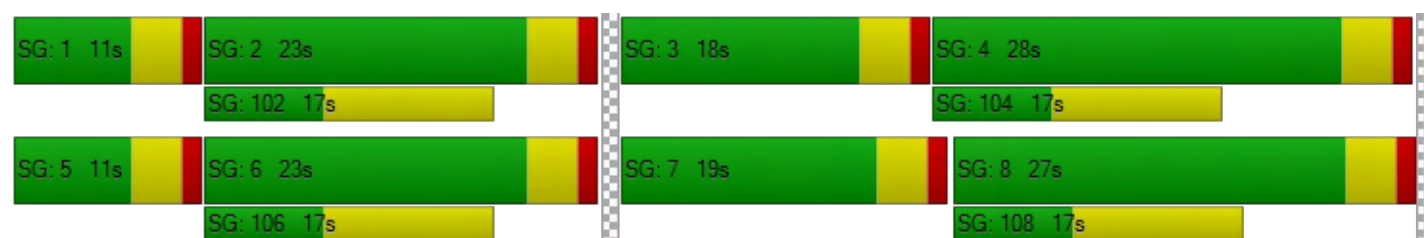
d_M, Delay for Movement [s/veh]	36.82	46.67	24.07	37.74	32.67	32.65	41.06	45.73	46.63	45.67	28.84	29.06
Movement LOS	D	D	C	D	C	C	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	40.10			34.08			44.90			33.39		
Approach LOS	D			C			D			C		
d_I, Intersection Delay [s/veh]	38.39											
Intersection LOS	D											
Intersection V/C	0.930											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	29.76			29.76			29.76			29.76		
I_p,int, Pedestrian LOS Score for Intersection	2.950			2.929			3.131			3.005		
Crosswalk LOS	C			C			C			C		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	475			475			575			600		
d_b, Bicycle Delay [s]	23.26			23.26			20.31			19.60		
I_b,int, Bicycle LOS Score for Intersection	2.627			2.428			2.522			2.426		
Bicycle LOS	B			B			B			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Opening Year (2019) With Project

Vistro File: J:\...\AM E.vistro

Scenario 4 Opening Year (2019) With Project

Report File: J:\...\AM OYP.pdf

2/19/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Project West Driveway (NS) at Foothill Boulevard (EW)	Two-way stop	HCM 6th Edition	NB Left	0.023	21.9	C
2	Project East Driveway (NS) at Foothill Boulevard (EW)	Two-way stop	HCM 6th Edition	NB Right	0.026	12.9	B
3	Towne Avenue (NS) at Foothill Boulevard (EW)	Signalized	HCM 6th Edition	SB Left	0.987	60.9	E

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report**Intersection 1: Project West Driveway (NS) at Foothill Boulevard (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	21.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.023

Intersection Setup

Name	Project West Driveway		Foothill Boulevard		Foothill Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	15.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project West Driveway		Foothill Boulevard		Foothill Boulevard	
Base Volume Input [veh/h]	0	0	825	0	0	929
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	8	36	0	29	17
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	8	878	0	29	965
Peak Hour Factor	1.0000	1.0000	0.7780	1.0000	1.0000	0.7780
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	2	282	0	7	310
Total Analysis Volume [veh/h]	5	8	1129	0	29	1240
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No	No	No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes	No	No
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.02	0.01	0.00	0.05	0.01
d_M, Delay for Movement [s/veh]	21.95	13.14	0.00	0.00	11.15	0.00
Movement LOS	C	B	A	A	B	A
95th-Percentile Queue Length [veh]	0.12	0.12	0.00	0.00	0.15	0.00
95th-Percentile Queue Length [ft]	3.11	3.11	0.00	0.00	3.71	0.00
d_A, Approach Delay [s/veh]	16.53		0.00		0.25	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.22					
Intersection LOS	C					

Intersection Level Of Service Report**Intersection 2: Project East Driveway (NS) at Foothill Boulevard (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	12.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.026

Intersection Setup

Name	Project East Driveway		Foothill Boulevard		Foothill Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	15.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project East Driveway		Foothill Boulevard		Foothill Boulevard	
Base Volume Input [veh/h]	0	0	825	0	0	929
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	37	7	0	46
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	12	879	7	0	994
Peak Hour Factor	1.0000	1.0000	0.7780	1.0000	1.0000	0.7780
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	3	282	2	0	319
Total Analysis Volume [veh/h]	0	12	1130	7	0	1278
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No	No	No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No	No	No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.03	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	12.94	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh]	0.00	0.08	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	1.98	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.94		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.06					
Intersection LOS	B					

Intersection Level Of Service Report**Intersection 3: Towne Avenue (NS) at Foothill Boulevard (EW)**

Control Type:
Analysis Method:
Analysis Period:

Signalized
HCM 6th Edition
15 minutes

Delay (sec / veh):
Level Of Service:
Volume to Capacity (v/c):

60.9
E
0.987

Intersection Setup

Name	Towne Avenue			Towne Avenue			Foothill Boulevard			Foothill Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	227.00	100.00	100.00	140.00	100.00	100.00	195.00	100.00	100.00	235.00	100.00	100.00
Speed [mph]	40.00			40.00			45.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Towne Avenue			Towne Avenue			Foothill Boulevard			Foothill Boulevard		
Base Volume Input [veh/h]	265	597	238	316	644	164	119	434	272	205	500	119
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	13	23	2	2	8	17	26	16	8	7	17	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	283	632	245	324	665	184	147	459	285	216	527	128
Peak Hour Factor	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	91	203	79	104	214	59	47	147	92	69	169	41
Total Analysis Volume [veh/h]	364	812	315	416	855	237	189	590	366	278	677	165
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	21	0	11	21	0	17	23	0	15	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	28	17	17	28	17	17	10	19	19	11	20	20
g / C, Green / Cycle	0.40	0.24	0.24	0.40	0.24	0.24	0.14	0.27	0.27	0.16	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.38	0.24	0.21	0.43	0.25	0.16	0.12	0.29	0.29	0.17	0.25	0.25
s, saturation flow rate [veh/h]	949	3373	1506	967	3373	1506	1593	1772	1548	1593	1772	1653
c, Capacity [veh/h]	372	824	368	379	824	368	227	478	418	250	504	471
d1, Uniform Delay [s]	28.97	26.33	25.28	30.56	26.46	23.73	29.23	25.57	25.57	29.51	23.75	23.76
k, delay calibration	0.50	0.50	0.50	0.45	0.50	0.50	0.11	0.21	0.21	0.11	0.14	0.14
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	41.87	27.96	21.78	73.46	41.41	8.41	7.78	45.86	49.12	61.93	5.65	6.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.98	0.99	0.86	1.10	1.04	0.64	0.83	1.07	1.07	1.11	0.86	0.86
d, Delay for Lane Group [s/veh]	70.84	54.29	47.06	104.02	67.87	32.14	37.01	71.42	74.69	91.44	29.40	29.86
Lane Group LOS	E	D	D	F	F	C	D	F	F	F	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	8.24	9.28	6.76	11.86	10.94	4.06	3.30	13.04	11.77	8.19	6.88	6.49
50th-Percentile Queue Length [ft]	206.10	232.03	168.89	296.40	273.58	101.46	82.59	326.10	294.37	204.73	172.06	162.34
95th-Percentile Queue Length [veh]	12.95	14.28	11.02	18.56	16.70	7.30	5.95	19.67	18.07	13.47	11.18	10.67
95th-Percentile Queue Length [ft]	323.82	356.93	275.45	464.11	417.55	182.62	148.66	491.70	451.83	336.86	279.62	266.82

Movement, Approach, & Intersection Results

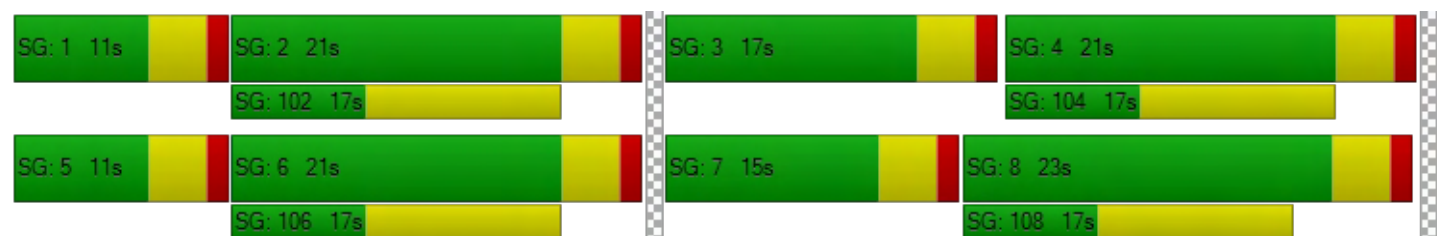
d_M, Delay for Movement [s/veh]	70.84	54.29	47.06	104.02	67.87	32.14	37.01	71.87	74.69	91.44	29.56	29.86
Movement LOS	E	D	D	F	F	C	D	E	E	F	C	C
d_A, Approach Delay [s/veh]	56.80			72.23			67.02			44.97		
Approach LOS	E			E			E			D		
d_I, Intersection Delay [s/veh]	60.92											
Intersection LOS	E											
Intersection V/C	0.987											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	24.86			24.86			24.86			24.86		
I_p,int, Pedestrian LOS Score for Intersection	3.087			3.018			3.191			3.156		
Crosswalk LOS	C			C			C			C		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	486			486			543			486		
d_b, Bicycle Delay [s]	20.06			20.06			18.58			20.06		
I_b,int, Bicycle LOS Score for Intersection	2.790			2.804			2.504			2.484		
Bicycle LOS	C			C			B			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Vistro File: J:\...\PM E.vistro
Report File: J:\...\PM OYP.pdfFoothill Boulevard Hotel Development
Scenario 4 Opening Year (2019) With Project
2/19/2018**Intersection Analysis Summary**

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Project West Driveway (NS) at Foothill Boulevard (EW)	Two-way stop	HCM 6th Edition	NB Left	0.042	25.1	D
2	Project East Driveway (NS) at Foothill Boulevard (EW)	Two-way stop	HCM 6th Edition	NB Right	0.045	14.0	B
3	Towne Avenue (NS) at Foothill Boulevard (EW)	Signalized	HCM 6th Edition	EB Right	0.961	52.0	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report**Intersection 1: Project West Driveway (NS) at Foothill Boulevard (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	25.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.042

Intersection Setup

Name	Project West Driveway		Foothill Boulevard		Foothill Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	15.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project West Driveway		Foothill Boulevard		Foothill Boulevard	
Base Volume Input [veh/h]	0	0	1118	0	0	1037
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	11	32	0	32	32
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	11	1172	0	32	1090
Peak Hour Factor	1.0000	1.0000	0.9250	1.0000	1.0000	0.9250
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	3	317	0	8	295
Total Analysis Volume [veh/h]	8	11	1267	0	32	1178
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No	No	No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes	No	No
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.03	0.01	0.00	0.06	0.01
d_M, Delay for Movement [s/veh]	25.06	14.48	0.00	0.00	12.03	0.00
Movement LOS	D	B	A	A	B	A
95th-Percentile Queue Length [veh]	0.22	0.22	0.00	0.00	0.19	0.00
95th-Percentile Queue Length [ft]	5.48	5.48	0.00	0.00	4.67	0.00
d_A, Approach Delay [s/veh]	18.94		0.00		0.32	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.30					
Intersection LOS	D					

Intersection Level Of Service Report**Intersection 2: Project East Driveway (NS) at Foothill Boulevard (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	14.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.045

Intersection Setup

Name	Project East Driveway		Foothill Boulevard		Foothill Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	15.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project East Driveway		Foothill Boulevard		Foothill Boulevard	
Base Volume Input [veh/h]	0	0	1118	0	0	1037
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	19	35	8	0	64
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	19	1175	8	0	1122
Peak Hour Factor	1.0000	1.0000	0.9250	1.0000	1.0000	0.9250
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	5	318	2	0	303
Total Analysis Volume [veh/h]	0	19	1270	8	0	1213
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No	No	No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No	No	No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.05	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	14.01	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh]	0.00	0.14	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	3.56	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	14.01		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.11					
Intersection LOS	B					

Intersection Level Of Service Report**Intersection 3: Towne Avenue (NS) at Foothill Boulevard (EW)**

Control Type:
Analysis Method:
Analysis Period:

Signalized
HCM 6th Edition
15 minutes

Delay (sec / veh):
Level Of Service:
Volume to Capacity (v/c):

52.0
D
0.961

Intersection Setup

Name	Towne Avenue			Towne Avenue			Foothill Boulevard			Foothill Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	227.00	100.00	100.00	140.00	100.00	100.00	195.00	100.00	100.00	235.00	100.00	100.00
Speed [mph]	40.00			40.00			45.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Towne Avenue			Towne Avenue			Foothill Boulevard			Foothill Boulevard		
Base Volume Input [veh/h]	307	713	227	280	527	177	228	707	183	272	553	184
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	13	14	7	7	23	30	22	20	13	4	21	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	326	741	239	293	561	211	255	741	200	281	585	192
Peak Hour Factor	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	88	200	65	79	152	57	69	200	54	76	158	52
Total Analysis Volume [veh/h]	352	801	258	317	606	228	276	801	216	304	632	208
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	23	0	11	23	0	19	27	0	19	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	30	19	19	30	19	19	15	23	23	15	23	23
g / C, Green / Cycle	0.38	0.24	0.24	0.38	0.24	0.24	0.19	0.29	0.29	0.19	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.34	0.24	0.17	0.33	0.18	0.15	0.17	0.30	0.30	0.19	0.25	0.25
s, saturation flow rate [veh/h]	1047	3373	1506	952	3373	1506	1593	1772	1644	1593	1772	1623
c, Capacity [veh/h]	393	808	361	331	808	361	299	506	469	299	506	463
d1, Uniform Delay [s]	25.96	30.37	27.94	31.83	28.23	27.29	31.96	28.60	28.60	32.52	27.15	27.17
k, delay calibration	0.50	0.50	0.50	0.37	0.50	0.50	0.11	0.30	0.30	0.11	0.20	0.20
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	25.59	29.75	11.52	32.95	6.34	8.18	11.72	41.53	45.40	28.58	8.12	8.97
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.99	0.72	0.96	0.75	0.63	0.92	1.04	1.05	1.02	0.87	0.87
d, Delay for Lane Group [s/veh]	51.55	60.12	39.47	64.78	34.57	35.47	43.68	70.13	74.00	61.10	35.27	36.14
Lane Group LOS	D	E	D	E	C	D	D	F	F	F	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	7.55	10.47	5.39	7.20	5.73	4.47	5.81	14.54	14.00	7.79	8.42	7.85
50th-Percentile Queue Length [ft]	188.73	261.87	134.63	179.99	143.26	111.77	145.30	363.40	349.88	194.71	210.62	196.29
95th-Percentile Queue Length [veh]	12.06	15.78	9.19	11.60	9.66	7.94	9.77	21.28	20.70	12.47	13.18	12.45
95th-Percentile Queue Length [ft]	301.38	394.56	229.77	290.00	241.41	198.46	244.14	531.99	517.40	311.70	329.62	311.17

Movement, Approach, & Intersection Results

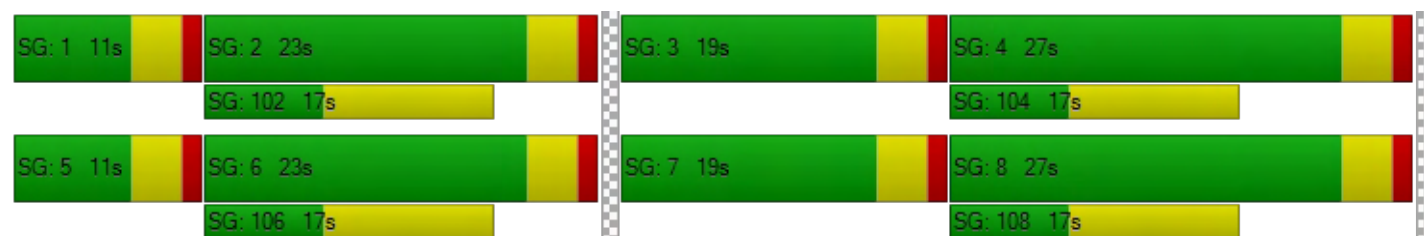
d_M, Delay for Movement [s/veh]	51.55	60.12	39.47	64.78	34.57	35.47	43.68	71.46	74.00	61.10	35.54	36.14
Movement LOS	D	E	D	E	C	D	D	E	E	F	D	D
d_A, Approach Delay [s/veh]	54.20			43.07			65.96			42.44		
Approach LOS	D			D			E			D		
d_I, Intersection Delay [s/veh]	51.99											
Intersection LOS	D											
Intersection V/C	0.961											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	29.76			29.76			29.76			29.76		
I_p,int, Pedestrian LOS Score for Intersection	2.996			2.974			3.245			3.087		
Crosswalk LOS	C			C			C			C		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	475			475			575			575		
d_b, Bicycle Delay [s]	23.26			23.26			20.31			20.31		
I_b,int, Bicycle LOS Score for Intersection	2.724			2.509			2.626			2.503		
Bicycle LOS	B			B			B			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Opening Year (2019) With Project With Improvements

Foothill Boulevard Hotel Development

Vistro File: \\...\\AM E MIT 2.vistro

Scenario 4 Opening Year (2019) With Project

Report File: \\...\\AM OYP MIT 2.pdf

3/7/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Project West Driveway (NS) at Foothill Boulevard (EW)	Two-way stop	HCM 6th Edition	NB Left	0.023	21.9	C
2	Project East Driveway (NS) at Foothill Boulevard (EW)	Two-way stop	HCM 6th Edition	NB Right	0.026	12.9	B
3	Towne Avenue (NS) at Foothill Boulevard (EW)	Signalized	HCM 6th Edition	WB Left	1.001	57.0	E

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report**Intersection 1: Project West Driveway (NS) at Foothill Boulevard (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	21.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.023

Intersection Setup

Name	Project West Driveway		Foothill Boulevard		Foothill Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	15.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project West Driveway		Foothill Boulevard		Foothill Boulevard	
Base Volume Input [veh/h]	0	0	825	0	0	929
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	8	36	0	29	17
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	8	878	0	29	965
Peak Hour Factor	1.0000	1.0000	0.7780	1.0000	1.0000	0.7780
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	2	282	0	7	310
Total Analysis Volume [veh/h]	5	8	1129	0	29	1240
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No	No	No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes	No	No
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.02	0.01	0.00	0.05	0.01
d_M, Delay for Movement [s/veh]	21.95	13.14	0.00	0.00	11.15	0.00
Movement LOS	C	B	A	A	B	A
95th-Percentile Queue Length [veh]	0.12	0.12	0.00	0.00	0.15	0.00
95th-Percentile Queue Length [ft]	3.11	3.11	0.00	0.00	3.71	0.00
d_A, Approach Delay [s/veh]	16.53		0.00		0.25	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.22					
Intersection LOS	C					

Intersection Level Of Service Report**Intersection 2: Project East Driveway (NS) at Foothill Boulevard (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	12.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.026

Intersection Setup

Name	Project East Driveway		Foothill Boulevard		Foothill Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	15.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project East Driveway		Foothill Boulevard		Foothill Boulevard	
Base Volume Input [veh/h]	0	0	825	0	0	929
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	37	7	0	46
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	12	879	7	0	994
Peak Hour Factor	1.0000	1.0000	0.7780	1.0000	1.0000	0.7780
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	3	282	2	0	319
Total Analysis Volume [veh/h]	0	12	1130	7	0	1278
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No	No	No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No	No	No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.03	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	12.94	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh]	0.00	0.08	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	1.98	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.94		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.06					
Intersection LOS	B					

Intersection Level Of Service Report**Intersection 3: Towne Avenue (NS) at Foothill Boulevard (EW)**

Control Type:
Analysis Method:
Analysis Period:

Signalized
HCM 6th Edition
15 minutes

Delay (sec / veh): 57.0
Level Of Service: E
Volume to Capacity (v/c): 1.001

Intersection Setup

Name	Towne Avenue			Towne Avenue			Foothill Boulevard			Foothill Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	227.00	100.00	100.00	140.00	100.00	100.00	195.00	100.00	100.00	235.00	100.00	100.00
Speed [mph]	40.00			40.00			45.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Towne Avenue			Towne Avenue			Foothill Boulevard			Foothill Boulevard		
Base Volume Input [veh/h]	265	597	238	316	644	164	119	434	272	205	500	119
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	13	23	2	2	8	17	26	16	8	7	17	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	283	632	245	324	665	184	147	459	285	216	527	128
Peak Hour Factor	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780	0.7780
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	91	203	79	104	214	59	47	147	92	69	169	41
Total Analysis Volume [veh/h]	364	812	315	416	855	237	189	590	366	278	677	165
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	65
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	7	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups			2,7									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	7	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	21	12	11	21	0	12	21	0	12	21	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	65	65	65	65	65	65	65	65	65	65	65	65
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	28	17	46	28	17	17	8	17	17	8	17	17
g / C, Green / Cycle	0.43	0.26	0.71	0.43	0.26	0.26	0.12	0.26	0.26	0.12	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.38	0.24	0.21	0.43	0.25	0.16	0.12	0.29	0.29	0.17	0.25	0.25
s, saturation flow rate [veh/h]	949	3373	1506	967	3373	1506	1593	1772	1548	1593	1772	1653
c, Capacity [veh/h]	413	889	1066	425	889	397	196	460	402	196	460	429
d1, Uniform Delay [s]	18.09	23.23	2.35	25.98	23.63	20.93	28.36	24.08	24.08	28.51	23.64	23.65
k, delay calibration	0.50	0.50	0.50	0.40	0.50	0.50	0.11	0.17	0.18	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	22.81	15.36	0.71	34.18	22.28	6.50	22.12	59.84	62.99	193.88	10.46	11.20
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.91	0.30	0.98	0.96	0.60	0.96	1.11	1.11	1.42	0.95	0.95
d, Delay for Lane Group [s/veh]	40.89	38.59	3.05	60.16	45.91	27.43	50.49	83.92	87.07	222.39	34.09	34.85
Lane Group LOS	D	D	A	E	D	C	D	F	F	F	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	5.88	7.23	0.54	7.93	8.47	3.52	3.84	13.72	12.34	13.37	7.12	6.74
50th-Percentile Queue Length [ft]	147.01	180.82	13.50	198.34	211.63	88.08	95.94	343.04	308.48	334.21	177.90	168.50
95th-Percentile Queue Length [veh]	9.86	11.64	0.97	12.55	13.24	6.34	6.91	20.95	19.17	21.92	11.49	11.00
95th-Percentile Queue Length [ft]	246.44	291.08	24.31	313.82	330.92	158.54	172.69	523.73	479.36	548.05	287.28	274.94

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	40.89	38.59	3.05	60.16	45.91	27.43	50.49	84.35	87.07	222.39	34.36	34.85
Movement LOS	D	D	A	E	D	C	D	F	F	F	C	C
d_A, Approach Delay [s/veh]	31.65			46.94			79.63			81.10		
Approach LOS	C			D			E			F		
d_I, Intersection Delay [s/veh]	56.99											
Intersection LOS	E											
Intersection V/C	1.001											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	22.43			22.43			22.43			22.43		
I_p,int, Pedestrian LOS Score for Intersection	3.083			3.014			3.177			3.125		
Crosswalk LOS	C			C			C			C		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	523			523			523			523		
d_b, Bicycle Delay [s]	17.72			17.72			17.72			17.72		
I_b,int, Bicycle LOS Score for Intersection	2.790			2.804			2.504			2.484		
Bicycle LOS	C			C			B			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Foothill Boulevard Hotel Development

Vistro File: \\...\\PM E MIT 2.vistro

Scenario 4 Opening Year (2019) With Project

Report File: \\...\\PM OYP MIT 2.pdf

3/7/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Project West Driveway (NS) at Foothill Boulevard (EW)	Two-way stop	HCM 6th Edition	NB Left	0.038	22.8	C
2	Project East Driveway (NS) at Foothill Boulevard (EW)	Two-way stop	HCM 6th Edition	NB Right	0.042	13.4	B
3	Towne Avenue (NS) at Foothill Boulevard (EW)	Signalized	HCM 6th Edition	EB Right	0.885	38.9	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report**Intersection 1: Project West Driveway (NS) at Foothill Boulevard (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	22.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.038

Intersection Setup

Name	Project West Driveway		Foothill Boulevard		Foothill Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	15.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project West Driveway		Foothill Boulevard		Foothill Boulevard	
Base Volume Input [veh/h]	0	0	1118	0	0	1037
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	11	32	0	32	32
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	11	1172	0	32	1090
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	3	293	0	8	273
Total Analysis Volume [veh/h]	8	11	1172	0	32	1090
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No	No	No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes	No	No
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.02	0.01	0.00	0.05	0.01
d_M, Delay for Movement [s/veh]	22.76	13.71	0.00	0.00	11.43	0.00
Movement LOS	C	B	A	A	B	A
95th-Percentile Queue Length [veh]	0.20	0.20	0.00	0.00	0.17	0.00
95th-Percentile Queue Length [ft]	4.93	4.93	0.00	0.00	4.28	0.00
d_A, Approach Delay [s/veh]	17.52		0.00		0.33	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.30					
Intersection LOS	C					

Intersection Level Of Service Report**Intersection 2: Project East Driveway (NS) at Foothill Boulevard (EW)**

Control Type:	Two-way stop	Delay (sec / veh):	13.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.042

Intersection Setup

Name	Project East Driveway		Foothill Boulevard		Foothill Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	15.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Project East Driveway		Foothill Boulevard		Foothill Boulevard	
Base Volume Input [veh/h]	0	0	1118	0	0	1037
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	19	35	8	0	64
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	19	1175	8	0	1122
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	5	294	2	0	281
Total Analysis Volume [veh/h]	0	19	1175	8	0	1122
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No	No	No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No	No	No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.04	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	13.36	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh]	0.00	0.13	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	3.30	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.36		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.11					
Intersection LOS	B					

Intersection Level Of Service Report**Intersection 3: Towne Avenue (NS) at Foothill Boulevard (EW)**

Control Type:
Analysis Method:
Analysis Period:

Signalized
HCM 6th Edition
15 minutes

Delay (sec / veh):
Level Of Service:
Volume to Capacity (v/c):

38.9
D
0.885

Intersection Setup

Name	Towne Avenue			Towne Avenue			Foothill Boulevard			Foothill Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	227.00	100.00	100.00	140.00	100.00	100.00	195.00	100.00	100.00	235.00	100.00	100.00
Speed [mph]	40.00			40.00			45.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Towne Avenue			Towne Avenue			Foothill Boulevard			Foothill Boulevard		
Base Volume Input [veh/h]	307	713	227	280	527	177	228	707	183	272	553	184
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	13	14	7	7	23	30	22	20	13	4	21	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	326	741	239	293	561	211	255	741	200	281	585	192
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	82	185	60	73	140	53	64	185	50	70	146	48
Total Analysis Volume [veh/h]	326	741	239	293	561	211	255	741	200	281	585	192
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	7	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups			2,7									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	7	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	25	20	11	25	0	20	29	0	20	29	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	85	85	85	85	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	32	21	86	32	21	21	15	25	25	16	26	26
g / C, Green / Cycle	0.38	0.25	1.01	0.38	0.25	0.25	0.18	0.29	0.29	0.19	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.31	0.22	0.16	0.30	0.17	0.14	0.16	0.28	0.28	0.18	0.23	0.23
s, saturation flow rate [veh/h]	1058	3373	1506	964	3373	1506	1593	1772	1644	1593	1772	1624
c, Capacity [veh/h]	398	839	1523	338	839	374	287	518	481	300	532	488
d1, Uniform Delay [s]	26.42	30.76	0.00	26.13	28.79	27.92	34.02	29.37	29.42	34.02	26.99	27.00
k, delay calibration	0.50	0.50	0.50	0.35	0.50	0.50	0.11	0.29	0.29	0.11	0.19	0.19
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	16.92	13.03	0.22	18.67	4.21	6.02	9.06	18.74	20.40	13.12	4.02	4.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.88	0.16	0.87	0.67	0.56	0.89	0.94	0.94	0.94	0.76	0.76
d, Delay for Lane Group [s/veh]	43.35	43.79	0.22	44.81	33.01	33.94	43.08	48.11	49.82	47.13	31.01	31.39
Lane Group LOS	D	D	A	D	C	C	D	D	D	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	6.53	8.36	0.09	5.83	5.34	4.16	5.52	11.52	10.95	6.50	7.51	6.94
50th-Percentile Queue Length [ft]	163.22	209.12	2.32	145.75	133.58	104.12	137.99	288.03	273.87	162.38	187.85	173.54
95th-Percentile Queue Length [veh]	10.72	13.11	0.17	9.79	9.13	7.50	9.37	17.09	16.38	10.67	12.01	11.26
95th-Percentile Queue Length [ft]	267.97	327.70	4.18	244.75	228.35	187.42	234.32	427.19	409.57	266.87	300.24	281.57

Movement, Approach, & Intersection Results

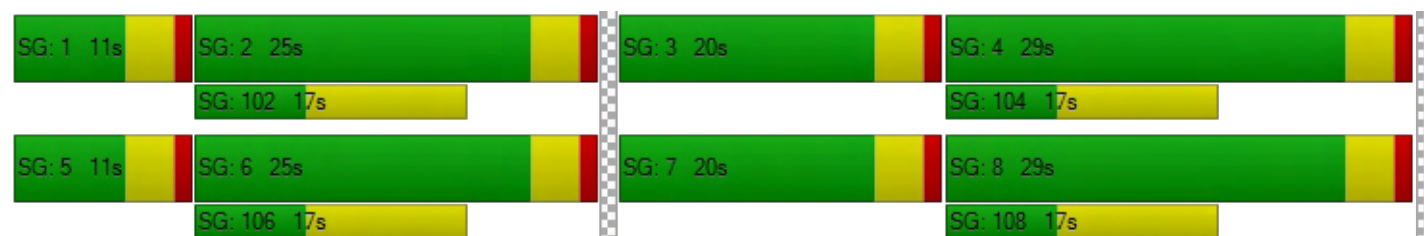
d_M, Delay for Movement [s/veh]	43.35	43.79	0.22	44.81	33.01	33.94	43.08	48.70	49.82	47.13	31.13	31.39
Movement LOS	D	D	A	D	C	C	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	35.71			36.44			47.69			35.43		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	38.91											
Intersection LOS	D											
Intersection V/C	0.885											

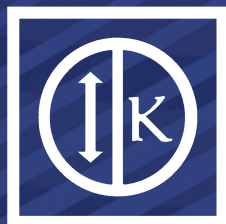
Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	32.21			32.21			32.21			32.21		
I_p,int, Pedestrian LOS Score for Intersection	2.958			2.938			3.184			3.025		
Crosswalk LOS	C			C			C			C		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	494			494			588			588		
d_b, Bicycle Delay [s]	24.09			24.09			21.18			21.18		
I_b,int, Bicycle LOS Score for Intersection	2.637			2.438			2.546			2.432		
Bicycle LOS	B			B			B			B		

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-





KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

1111 Town & Country Road, Suite 34
Orange, California 92868
(714) 973-8383

www.traffic-engineer.com