KUNZMAN ASSOCIATES, INC.

SIGNAL HILL BUSINESS CENTER

SUPPLEMENTAL TRAFFIC ANALYSIS

March 12, 2018
Revised May 31, 2018

Traffic Engineering | Transportation Planning | Parking | Noise/Vibration | Expert Witness
Air Quality | Global Climate Change | Health Risk Assessment

May 31, 2018

Mr. Steven Christie, Development Manager
XEBEC REALTY PARTNERS
3010 Old Ranch Parkway, Suite 470
Seal Beach, CA 90740

Dear Mr. Christie:

INTRODUCTION

The firm of Kunzman Associates, Inc. is pleased to provide this supplemental traffic analysis for the proposed Signal Hill Business Center project in the City of Signal Hill. The purpose of this supplemental analysis is to assess potential traffic impacts associated with the proposed project during the afternoon school peak hour.

This traffic analysis supplements the Signal Hill Business Center Traffic Impact Analysis prepared by Kunzman Associates, Inc. (Revised May 31, 2018). The project site is generally bounded by Gundry Avenue to the west, Gundry Hill Apartments and American University of Health Sciences to the north, Gaviota Avenue to the east, and the Signal Hill City Limits and Alamitos Avenue to the south. The project site is currently vacant. The project site is proposed to consist of developing the project site with a business park consisting of nine buildings totaling 139,080 square feet plus 12,000 square feet of mezzanine, for a total of 151,080 square feet of gross floor area. Full access driveways are proposed at Gundry Avenue, Walnut Avenue, and Alamitos Avenue. The proposed project is anticipated to be constructed and fully operational by Year 2019.

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 within Appendix A.

PROJECT TRIP GENERATION

Table 1 summarizes the afternoon peak hour project trip generation used in this analysis. As shown in Table 1, the proposed project is forecast to generate approximately 246 trips during the afternoon school peak hour. Figure 1 shows the project-generated afternoon peak hour intersection turning movement volumes based on the project trip distribution patterns identified in the Signal Hill Business Center Traffic Impact Analysis.

The project trip generation forecast is based upon regression equations obtained from the Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017. The Trip Generation Manual does not provide trip generation equations/rates for the afternoon school peak hour beginning at

approximately 2:15 PM to 2:30 PM. Therefore, the evening peak hour project trip generation calculated and used in the Signal Hill Business Center Traffic Impact Analysis was also used for this analysis. This is a conservative estimate since hourly distribution data contained in the Trip Generation Manual suggests that trips generated by light industrial and general office developments between 2:30 PM and 3:30 PM are approximately 10 to 35 percent lower than trips generated during the evening peak hour of adjacent street traffic.

AFTERNOON SCHOOL PEAK HOUR TRAFFIC VOLUMES

The morning school peak hour is estimated to occur between 7:00 AM and 8:00 AM. The morning school peak hour is accounted for in the Signal Hill Business Center Traffic Impact Analysis since the morning peak period was counted from 7:00 AM to 9:00 AM. The evening peak hour (commuter) generally outweighs school afternoon peak hour trips, especially as distance from the school increases. For this analysis, the study area is focused on the following intersections with yellow school crosswalk markings:

Orange Avenue (NS) at:
- Hill Street (EW) - #4
- Pacific Coast Highway (EW) - #5

Gundry Avenue (NS) at:
- Hill Street (EW) - #6

Walnut Avenue (NS) at:
- Hill Street (EW) - #10
- 20th Street/Alamitos Avenue (EW) - #11
- Pacific Coast Highway (EW) - #12

Cherry Avenue (NS) at:
- 21st Street (EW) - #18
- 20th Street (EW) - #19

Existing Traffic Volumes

Existing afternoon school peak hour traffic volumes are based upon afternoon peak period intersection turning movement counts obtained in February 2018 during typical weekday conditions. Based on review of bell schedules for schools in the project vicinity, the afternoon peak period was counted between 1:30 PM and 3:30 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 afternoon peak hour at one intersection may be 2:15 PM to 3:15 PM if those four consecutive 15 minute periods have the highest combined volume. Intersection turning movement count worksheets are provided in Appendix B.

Other Development Traffic Volumes

Similar to the project trip generation, the evening peak hour trip generation for other developments as calculated and used in the Signal Hill Business Center Traffic Impact Analysis was also used for this analysis. Consistent with the Signal Hill Business Center Traffic Impact Analysis, existing afternoon school peak hour traffic volumes were increased by a growth rate of one percent (1%) per year over two years for Opening Year (2020) conditions and over 20 years for General Plan Buildout conditions.

Existing and forecast afternoon school peak hour intersection turning movement volumes are illustrated on Figures 2 through 7.

TRESHOLDS OF SIGNIFICANCE

The significance of project traffic impacts is based on the thresholds identified in the Signal Hill Business Center Traffic Impact Analysis.

City of Signal Hill/City of Long Beach. For signalized study intersections within City of Signal Hill or City of Long jurisdiction, a project traffic impact is considered significant if:

- The addition of project-generated trips is forecast to cause an intersection to deteriorate from acceptable Level of Service (D or better) to unacceptable Level of Service (E or F); or,
- The addition of project-generated trips is forecast to cause an increase in volume-to-capacity of 0.02 or greater when the intersection is operating at unacceptable Level of Service (E or F) in the baseline condition.

California Department of Transportation. Based on the California Department of Transportation established performance standards, a potentially significant traffic impact is defined to occur if the addition of project generated trips is forecast to cause the performance of a State Highway study intersection to change from acceptable operation (Level of Service D or better) to deficient operation (Level of Service E or F).

It should be noted that many jurisdictions, including the Cities of Signal Hill and Long Beach, do not have established significant impact thresholds for unsignalized intersections. For this analysis, a project impact at an unsignalized intersection is considered significant if the addition of project-generated trips is forecast to cause or worsen Level of Service E or F and installation of a traffic signal is warranted.

TRAFFIC IMPACT ASSESSMENT

Existing Plus Project

Tables 2 and 3 show Intersection Capacity Utilization/delay and Levels of Service at the study intersections for Existing and Existing Plus Project traffic conditions. As shown in Tables 2 and 3, the

study intersections operate at acceptable Levels of Service (D or better) for Existing and Existing Plus Project traffic conditions during the afternoon school peak hour.

Table 4 evaluates the project impact at the study intersections for Existing Plus Project traffic conditions. As shown in Table 4, the proposed project is forecast to result in no significant traffic impacts at the study intersections for Existing Plus Project traffic conditions.

Opening Year (2020)

Tables 5 and 6 show Intersection Capacity Utilization/delay and Levels of Service at the study intersections for Opening Year (2020) Without and With Project traffic conditions. As shown in Tables 5 and 6, the study intersections are projected to operate at acceptable Levels of Service (D or better) for Opening Year (2020) Without and With Project traffic conditions during the afternoon school peak hour.

Table 7 evaluates the project impact at the study intersections for Opening Year (2020) With Project traffic conditions. As shown in Table 7, the proposed project is forecast to result in no significant traffic impacts at the study intersections for Opening Year (2020) With Project traffic conditions.

General Plan Buildout (Year 2040)

Tables 8 and 9 show Intersection Capacity Utilization/delay and Levels of Service at the study intersections for General Plan Buildout (Year 2040) Without and With Project traffic conditions. As shown in Tables 8 and 9, the study intersections are projected to operate at acceptable Levels of Service (D or better) for General Plan Buildout (Year 2040) Without and With Project traffic conditions during the afternoon school peak hour, except for the intersection of Walnut Avenue/Hill Street for General Plan Buildout (Year 2040) With Project traffic conditions.

Table 10 evaluates the project impact at the study intersections for General Plan Buildout (Year 2040) With Project traffic conditions. As shown in Table 10, the proposed project is forecast to result in no significant traffic impacts at the study intersections for General Plan Buildout (Year 2040) With Project traffic conditions.

RECOMMENDATIONS

As shown in Table 10, the project impact is forecast to be less than significant at the study intersection of Walnut Avenue/Hill Street because the intersection volumes do not satisfy the peak hour volume traffic signal warrant in accordance with the California Manual on Uniform Traffic Control Devices (2014) ["CA MUTCD"]. However, since the addition of project-generated trips is forecast to cause the Level of Service to degrade from acceptable (D or better) to unacceptable (Level of Service E or F), the following mitigation measure is recommended:

Walnut Avenue/Hill Street - #10

- Extend the no parking restriction on the northbound approach to 100 feet south of the intersection. This will result in the loss of approximately two on-street parking spaces, but will allow for a de facto right turn lane.

With implementation of the proposed mitigation measure at Walnut Avenue/Hill Street, the study intersections are forecast to operate at Level of Service D or better during the afternoon school peak hour.

Appendix D contains the peak hour traffic signal warrant worksheet for the intersection of Walnut Avenue/Hill Street.

CONCLUSIONS

It has been a pleasure to service your needs on this project. Should you have any questions or if we can be of further assistance, please do not hesitate to call at (714) 973-8383.

Sincerely,

KUNZMAN ASSOCIATES, INC.

Giancarlo Ganddini, TE, PTP
Manager of Traffic Engineering

JN 7311

Table 1

Project Trip Generation

Land Use	Source[1]	Setting[2]	Trip Generation Equations[3]	Directional Distribution	
				Inbound	Outbound
Business Park School PM Peak Hour	ITE 770	GU/S	Ln(T) = 0.90 Ln(X) + 0.85	26%	74%

Land Use/Time Period	Quantity	Units[4]	Vehicle Trips Generated		
			Total	Inbound	Outbound
Business Park	151.080	TSF			
School PM Peak Hour			214	56	158
Cars (85%)			182	48	134
Trucks (15%)			32	8	24

Time Period	PCE Factor	PCE Trips Generated[5]		
		Total	Inbound	Outbound
School PM Peak Hour				
Cars	1.0	182	48	134
Trucks	2.0	64	16	48
Total		**246**	**64**	**182**

[1] ITE = Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017; ### = Land Use Code

[2] GU/S = General Urban/Suburban

[3] T = Trips; X = Thousand Square Feet

[4] TSF = Thousand Square Feet

[5] PCE = Passenger Car Equivalent

Table 2

Existing Intersection Capacity Utilization/Delay and Levels of Service

Intersection	Traffic Control[1]	Intersection Approach Lanes[2]												School PM Peak Hour V/C [Delay]-LOS[3]
		Northbound			Southbound			Eastbound			Westbound			
		L	T	R	L	T	R	L	T	R	L	T	R	
Orange Avenue (NS) at:														
Hill Street (EW) - #4	TS	1	0.5	0.5	1	0.5	0.5	0.5	0.5	1	0.5	0.5	d	0.656-B
Pacific Coast Highway (EW) - #5	TS	1	2	1>	1	2	1	1	2.5	0.5	1	2.5	0.5	[20.4]-C
Gundry Avenue (NS) at:														
Hill Street (EW) - #6	CSS	0.5	-	0.5	-	-	-	-	0.5	0.5	0.5	0.5	-	[13.2]-B
Walnut Avenue (NS) at:														
Hill Street (EW) - #10	AWS	-	<1>	-	0.5	0.5	1	-	<1>	-	-	<1>	-	[14.8]-B
20th Street/Alamitos Avenue (EW) - #11	TS	1	0.5	0.5	1	0.5	0.5	-	<1>	-	-	<1>	-	0.564-A
Pacific Coast Highway (EW) - #12	TS	-	<1>	-	-	<1>	-	1	2.5	0.5	1	2.5	0.5	[9.9]-A
Cherry Avenue (NS) at:														
21st Street (EW) - #18	TS	1	2	d	1	2	1	0.5	0.5	d	1	0.5	0.5	0.544-A
20th Street (EW) - #19	TS	1	1.5	0.5	1	1.5	0.5	1	0.5	0.5	-	<1>	-	0.475-A

[1] TS = Traffic Signal; CSS = Cross Street Stop; AWS = All Way Stop

[2] L = Left; T = Through; R = Right; d = De Facto Right Turn Lane; <1> = Shared Left/Through/Right Lane; > = Right Turn Overlap

[3] V/C = Volume/Capacity; Delay shown in [seconds/vehicle]; LOS = Level of Service; [Delay]-LOS is reported for intersections under California Department of Transportation jurisdiction and intersections with stop control. Per the Highway Capacity Manual, overall average intersection delay and LOS are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, Level of Service is based on average delay of the worst individual lane (or movements sharing a lane).

Table 3

Existing Plus Project Intersection Capacity Utilization/Delay and Levels of Service

Intersection	Traffic Control[1]	Intersection Approach Lanes[2]												School PM Peak Hour V/C [Delay]-LOS[3]
		Northbound			Southbound			Eastbound			Westbound			
		L	T	R	L	T	R	L	T	R	L	T	R	
Orange Avenue (NS) at:														
Hill Street (EW) - #4	TS	1	0.5	0.5	1	0.5	0.5	0.5	0.5	1	0.5	0.5	d	0.664-B
Pacific Coast Highway (EW) - #5	TS	1	2	1>	1	2	1	1	2.5	0.5	1	2.5	0.5	[20.5]-C
Gundry Avenue (NS) at:														
Hill Street (EW) - #6	CSS	0.5	-	0.5	-	-	-	-	0.5	0.5	0.5	0.5	-	[14.9]-B
Walnut Avenue (NS) at:														
Hill Street (EW) - #10	AWS	-	<1>	-	0.5	0.5	1	-	<1>	-	-	<1>	-	[19.6]-C
20th Street/Alamitos Avenue (EW) - #11	TS	1	0.5	0.5	1	0.5	0.5	-	<1>	-	-	<1>	-	0.578-A
Pacific Coast Highway (EW) - #12	TS	-	<1>	-	-	<1>	-	1	2.5	0.5	1	2.5	0.5	[11.6]-B
Cherry Avenue (NS) at:														
21st Street (EW) - #18	TS	1	2	d	1	2	1	0.5	0.5	d	1	0.5	0.5	0.552-A
20th Street (EW) - #19	TS	1	1.5	0.5	1	1.5	0.5	1	0.5	0.5	-	<1>	-	0.475-A

[1] TS = Traffic Signal; CSS = Cross Street Stop; AWS = All Way Stop

[2] L = Left; T = Through; R = Right; d = De Facto Right Turn Lane; <1> = Shared Left/Through/Right Lane; > = Right Turn Overlap

[3] V/C = Volume/Capacity; Delay shown in [seconds/vehicle]; LOS = Level of Service; [Delay]-LOS is reported for intersections under California Department of Transportation jurisdiction and intersections with stop control. Per the Highway Capacity Manual, overall average intersection delay and LOS are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, Level of Service is based on average delay of the worst individual lane (or movements sharing a lane).

Table 4

Existing Plus Project Significant Impact Evaluation

Signalized Intersections				
	School PM Peak Hour V/C [Delay]-LOS[1]			
Intersection	Without Project	With Project	Change in V/C or Delay	Significant Impact?
Orange Avenue (NS) at:				
Hill Street (EW) - #4	0.656-B	0.664-B	+0.008	No
Pacific Coast Highway (EW) - #5	[20.4]-C	[20.5]-C	+0.1	No
Walnut Avenue (NS) at:				
20th Street/Alamitos Avenue (EW) - #11	0.564-A	0.578-A	+0.014	No
Pacific Coast Highway (EW) - #12	[9.9]-A	[11.6]-B	+1.7	No
Cherry Avenue (NS) at:				
21st Street (EW) - #18	0.544-A	0.552-A	+0.008	No
20th Street (EW) - #19	0.475-A	0.475-A	0.000	No

Unsignalized Intersections					
	School PM Peak Hour Delay-LOS				
Intersection	Without Project	With Project	Acceptable LOS?	Traffic Signal Warranted?	Significant Impact?
Gundry Avenue (NS) at:					
Hill Street (EW) - #6	13.2-B	14.9-B	Yes	-	No
Walnut Avenue (NS) at:					
Hill Street (EW) - #10	14.8-B	19.6-C	Yes	-	No

[1] V/C = Volume/Capacity; Delay shown in [seconds/vehicle]; LOS = Level of Service; see Tables 1 and 3.

Table 5

Opening Year (2020) Without Project Intersection Capacity Utilization/Delay and Levels of Service

Intersection	Traffic Control[1]	Intersection Approach Lanes[2]												School PM Peak Hour V/C [Delay]-LOS[3]
		Northbound			Southbound			Eastbound			Westbound			
		L	T	R	L	T	R	L	T	R	L	T	R	
Orange Avenue (NS) at:														
Hill Street (EW) - #4	TS	1	0.5	0.5	1	0.5	0.5	0.5	0.5	1	0.5	0.5	d	0.690-B
Pacific Coast Highway (EW) - #5	TS	1	2	1>	1	2	1	1	2.5	0.5	1	2.5	0.5	[21.0]-C
Gundry Avenue (NS) at:														
Hill Street (EW) - #6	CSS	0.5	-	0.5	-	-	-	-	0.5	0.5	0.5	0.5	-	[13.6]-B
Walnut Avenue (NS) at:														
Hill Street (EW) - #10	AWS	-	<1>	-	0.5	0.5	1	-	<1>	-	-	<1>	-	[15.9]-C
20th Street/Alamitos Avenue (EW) - #11	TS	1	0.5	0.5	1	0.5	0.5	-	<1>	-	-	<1>	-	0.576-A
Pacific Coast Highway (EW) - #12	TS	-	<1>	-	-	<1>	-	1	2.5	0.5	1	2.5	0.5	[10.3]-B
Cherry Avenue (NS) at:														
21st Street (EW) - #18	TS	1	2	d	1	2	1	0.5	0.5	d	1	0.5	0.5	0.566-A
20th Street (EW) - #19	TS	1	1.5	0.5	1	1.5	0.5	1	0.5	0.5	-	<1>	-	0.489-A

[1] TS = Traffic Signal; CSS = Cross Street Stop; AWS = All Way Stop

[2] L = Left; T = Through; R = Right; d = De Facto Right Turn Lane; <1> = Shared Left/Through/Right Lane; > = Right Turn Overlap

[3] V/C = Volume/Capacity; Delay shown in [seconds/vehicle]; LOS = Level of Service; [Delay]-LOS is reported for intersections under California Department of Transportation jurisdiction and intersections with stop control. Per the Highway Capacity Manual, overall average intersection delay and LOS are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, Level of Service is based on average delay of the worst individual lane (or movements sharing a lane).

Table 6

Opening Year (2020) With Project Intersection Capacity Utilization/Delay and Levels of Service

Intersection	Traffic Control[1]	Intersection Approach Lanes[2]												School PM Peak Hour V/C [Delay]-LOS[3]
		Northbound			Southbound			Eastbound			Westbound			
		L	T	R	L	T	R	L	T	R	L	T	R	
Orange Avenue (NS) at:														
Hill Street (EW) - #4	TS	1	0.5	0.5	1	0.5	0.5	0.5	0.5	1	0.5	0.5	d	0.703-C
Pacific Coast Highway (EW) - #5	TS	1	2	1>	1	2	1	1	2.5	0.5	1	2.5	0.5	[21.1]-C
Gundry Avenue (NS) at:														
Hill Street (EW) - #6	CSS	0.5	-	0.5	-	-	-	-	0.5	0.5	0.5	0.5	-	[15.5]-C
Walnut Avenue (NS) at:														
Hill Street (EW) - #10	AWS	-	<1>	-	0.5	0.5	1	-	<1>	-	-	<1>	-	[22.2]-C
20th Street/Alamitos Avenue (EW) - #11	TS	1	0.5	0.5	1	0.5	0.5	-	<1>	-	-	<1>	-	0.591-A
Pacific Coast Highway (EW) - #12	TS	-	<1>	-	-	<1>	-	1	2.5	0.5	1	2.5	0.5	[12.1]-B
Cherry Avenue (NS) at:														
21st Street (EW) - #18	TS	1	2	d	1	2	1	0.5	0.5	d	1	0.5	0.5	0.573-A
20th Street (EW) - #19	TS	1	1.5	0.5	1	1.5	0.5	1	0.5	0.5	-	<1>	-	0.489-A

[1] TS = Traffic Signal; CSS = Cross Street Stop; AWS = All Way Stop

[2] L = Left; T = Through; R = Right; d = De Facto Right Turn Lane; <1> = Shared Left/Through/Right Lane; > = Right Turn Overlap

[3] V/C = Volume/Capacity; Delay shown in [seconds/vehicle]; LOS = Level of Service; [Delay]-LOS is reported for intersections under California Department of Transportation jurisdiction and intersections with stop control. Per the Highway Capacity Manual, overall average intersection delay and LOS are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, Level of Service is based on average delay of the worst individual lane (or movements sharing a lane).

Table 7

Opening Year (2020) Significant Impact Evaluation

Signalized Intersections				
	School PM Peak Hour V/C [Delay]-LOS[1]			
Intersection	Without Project	With Project	Change in V/C or Delay	Significant Impact?
Orange Avenue (NS) at:				
Hill Street (EW) - #4	0.690-B	0.703-C	+0.013	No
Pacific Coast Highway (EW) - #5	[21.0]-C	[21.1]-C	+0.1	No
Walnut Avenue (NS) at:				
20th Street/Alamitos Avenue (EW) - #11	0.576-A	0.591-A	+0.015	No
Pacific Coast Highway (EW) - #12	[10.3]-B	[12.1]-B	+1.8	No
Cherry Avenue (NS) at:				
21st Street (EW) - #18	0.566-A	0.573-A	+0.007	No
20th Street (EW) - #19	0.489-A	0.489-A	0.000	No

Unsignalized Intersections					
	School PM Peak Hour Delay-LOS				
Intersection	Without Project	With Project	Acceptable LOS?	Traffic Signal Warranted?	Significant Impact?
Gundry Avenue (NS) at:					
Hill Street (EW) - #6	13.6-B	15.5-C	Yes	-	No
Walnut Avenue (NS) at:					
Hill Street (EW) - #10	15.9-C	22.2-C	Yes	-	No

[1] V/C = Volume/Capacity; Delay shown in [seconds/vehicle]; LOS = Level of Service; see Tables 5 and 6.

Table 8

General Plan Buildout (Year 2040) Without Project
Intersection Capacity Utilization/Delay and Levels of Service

Intersection	Traffic Control[1]	Intersection Approach Lanes[2]												School PM Peak Hour V/C [Delay]-LOS[3]
		Northbound			Southbound			Eastbound			Westbound			
		L	T	R	L	T	R	L	T	R	L	T	R	
Orange Avenue (NS) at:														
Hill Street (EW) - #4	TS	1	0.5	0.5	1	0.5	0.5	0.5	0.5	1	0.5	0.5	d	0.802-D
Pacific Coast Highway (EW) - #5	TS	1	2	1>	1	2	1	1	2.5	0.5	1	2.5	0.5	[24.0]-C
Gundry Avenue (NS) at:														
Hill Street (EW) - #6	CSS	0.5	-	0.5	-	-	-	-	0.5	0.5	0.5	0.5	-	[15.6]-C
Walnut Avenue (NS) at:														
Hill Street (EW) - #10	AWS	-	<1>	-	0.5	0.5	1	-	<1>	-	-	<1>	-	[29.1]-D
20th Street/Alamitos Avenue (EW) - #11	TS	1	0.5	0.5	1	0.5	0.5	-	<1>	-	-	<1>	-	0.648-B
Pacific Coast Highway (EW) - #12	TS	-	<1>	-	-	<1>	-	1	2.5	0.5	1	2.5	0.5	[12.7]-B
Cherry Avenue (NS) at:														
21st Street (EW) - #18	TS	1	2	d	1	2	1	0.5	0.5	d	1	0.5	0.5	0.655-B
20th Street (EW) - #19	TS	1	1.5	0.5	1	1.5	0.5	1	0.5	0.5	-	<1>	-	0.564-A

[1] TS = Traffic Signal; CSS = Cross Street Stop; AWS = All Way Stop

[2] L = Left; T = Through; R = Right; d = De Facto Right Turn Lane; <1> = Shared Left/Through/Right Lane; > = Right Turn Overlap

[3] V/C = Volume/Capacity; Delay shown in [seconds/vehicle]; LOS = Level of Service; [Delay]-LOS is reported for intersections under California Department of Transportation jurisdiction and intersections with stop control. Per the Highway Capacity Manual, overall average intersection delay and LOS are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, Level of Service is based on average delay of the worst individual lane (or movements sharing a lane).

Table 9

General Plan Buildout (Year 2040) With Project
Intersection Capacity Utilization/Delay and Levels of Service

Intersection	Traffic Control[1]	Intersection Approach Lanes[2]												School PM Peak Hour V/C [Delay]-LOS[3]
		Northbound			Southbound			Eastbound			Westbound			
		L	T	R	L	T	R	L	T	R	L	T	R	
Orange Avenue (NS) at:														
Hill Street (EW) - #4	TS	1	0.5	0.5	1	0.5	0.5	0.5	0.5	1	0.5	0.5	d	0.813-D
Pacific Coast Highway (EW) - #5	TS	1	2	1>	1	2	1	1	2.5	0.5	1	2.5	0.5	[24.2]-C
Gundry Avenue (NS) at:														
Hill Street (EW) - #6	CSS	0.5	-	0.5	-	-	-	-	0.5	0.5	0.5	0.5	-	[18.3]-C
Walnut Avenue (NS) at:														
Hill Street (EW) - #10	AWS	-	<1>	-	0.5	0.5	1	-	<1>	-	-	<1>	-	[48.6]-E
20th Street/Alamitos Avenue (EW) - #11	TS	1	0.5	0.5	1	0.5	0.5	-	<1>	-	-	<1>	-	0.663-B
Pacific Coast Highway (EW) - #12	TS	-	<1>	-	-	<1>	-	1	2.5	0.5	1	2.5	0.5	[15.2]-B
Cherry Avenue (NS) at:														
21st Street (EW) - #18	TS	1	2	d	1	2	1	0.5	0.5	d	1	0.5	0.5	0.662-B
20th Street (EW) - #19	TS	1	1.5	0.5	1	1.5	0.5	1	0.5	0.5	-	<1>	-	0.564-A

[1] TS = Traffic Signal; CSS = Cross Street Stop; AWS = All Way Stop

[2] L = Left; T = Through; R = Right; d = De Facto Right Turn Lane; <1> = Shared Left/Through/Right Lane; > = Right Turn Overlap

[3] V/C = Volume/Capacity; Delay shown in [seconds/vehicle]; LOS = Level of Service; [Delay]-LOS is reported for intersections under California Department of Transportation jurisdiction and intersections with stop control. Per the Highway Capacity Manual, overall average intersection delay and LOS are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, Level of Service is based on average delay of the worst individual lane (or movements sharing a lane).

Table 10

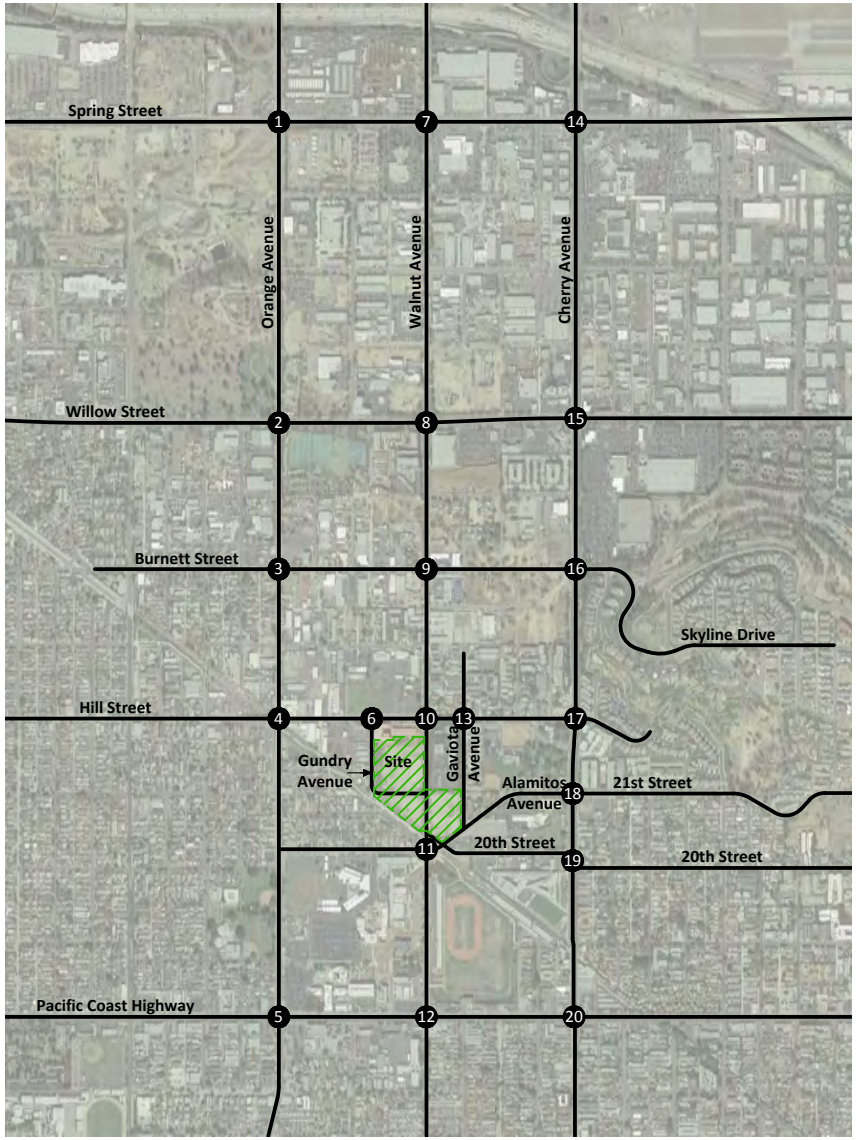
General Plan Buildout (Year 2040) Significant Impact Evaluation

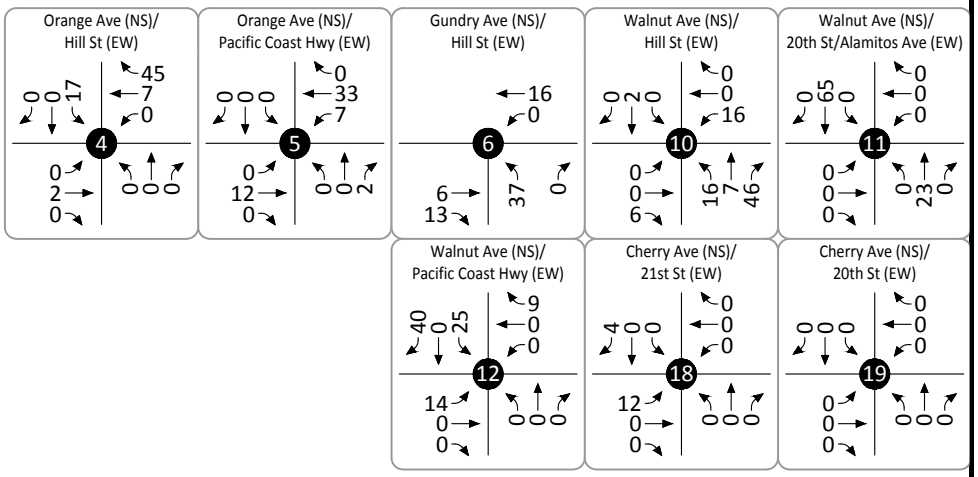
Signalized Intersections				
	School PM Peak Hour V/C [Delay]-LOS[1]			
Intersection	Without Project	With Project	Change in V/C or Delay	Significant Impact?
Orange Avenue (NS) at:				
Hill Street (EW) - #4	0.802-D	0.813-D	+0.011	No
Pacific Coast Highway (EW) - #5	[24.0]-C	[24.2]-C	+0.2	No
Walnut Avenue (NS) at:				
20th Street/Alamitos Avenue (EW) - #11	0.648-B	0.663-B	+0.015	No
Pacific Coast Highway (EW) - #12	[12.7]-B	[15.2]-B	+2.5	No
Cherry Avenue (NS) at:				
21st Street (EW) - #18	0.655-B	0.662-B	+0.007	No
20th Street (EW) - #19	0.564-A	0.564-A	0.000	No

Unsignalized Intersections					
	School PM Peak Hour Delay-LOS				
Intersection	Without Project	With Project	Acceptable LOS?	Traffic Signal Warranted?	Significant Impact?
Gundry Avenue (NS) at:					
Hill Street (EW) - #6	15.6-C	18.3-C	Yes	-	No
Walnut Avenue (NS) at:					
Hill Street (EW) - #10	29.1-D	48.6-E	No	No	No

[1] V/C = Volume/Capacity; Delay shown in [seconds/vehicle]; LOS = Level of Service; see Tables 8 and 9.

Figure 1
Project
Afternoon School Peak Hour Intersection Turning Movement Volumes





Legend

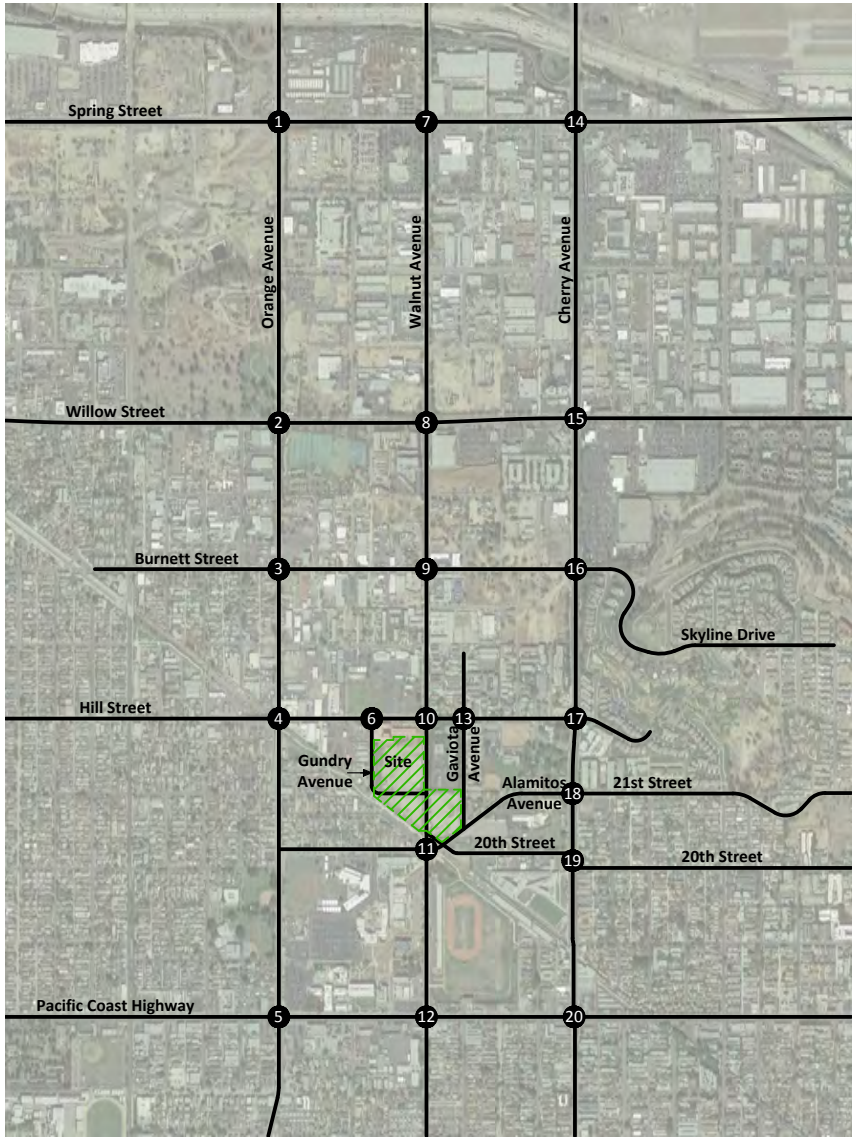
1 = Intersection Reference Number

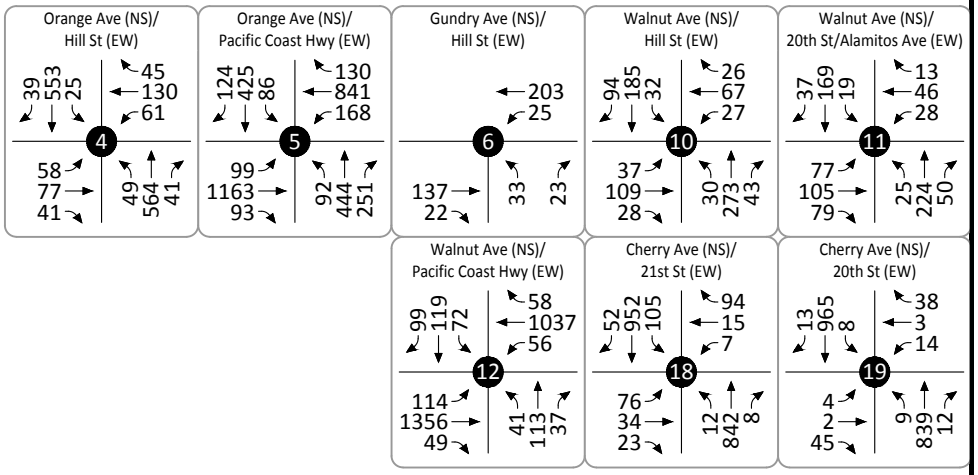
KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 7311

Figure 2
Existing
Afternoon School Peak Hour Intersection Turning Movement Volumes

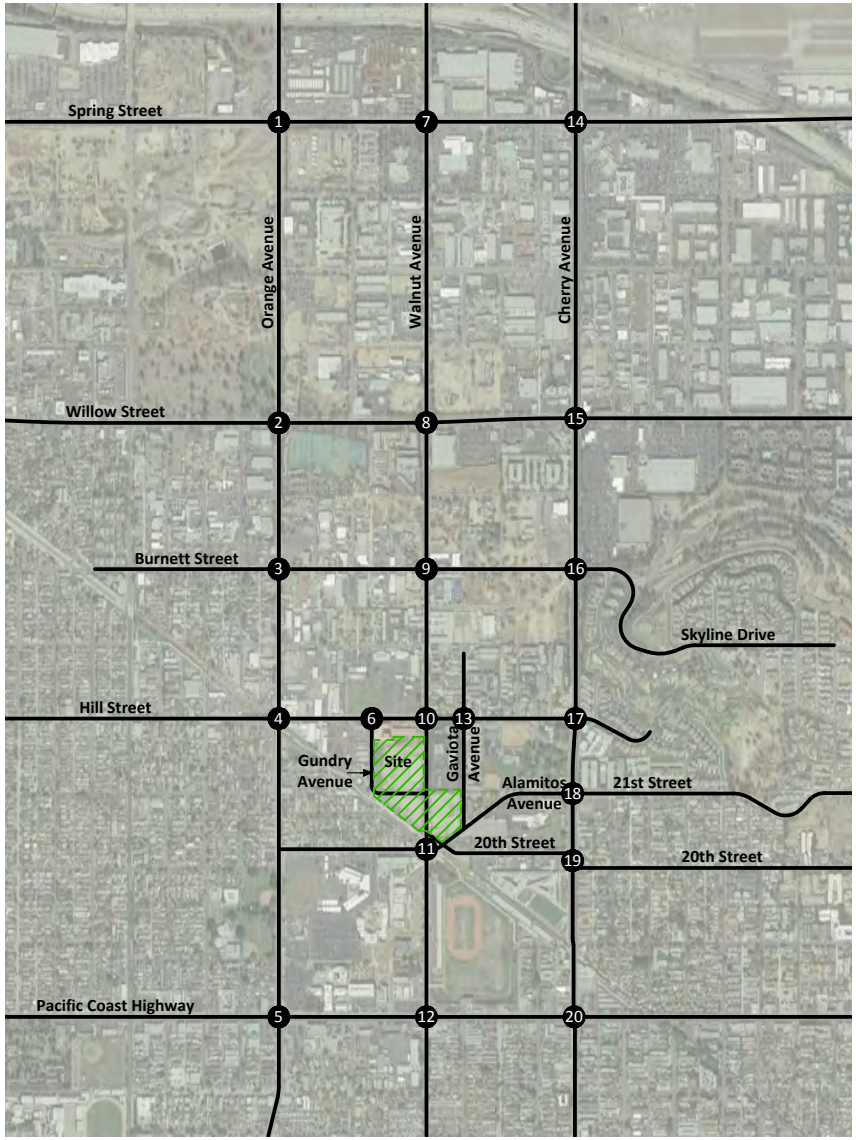


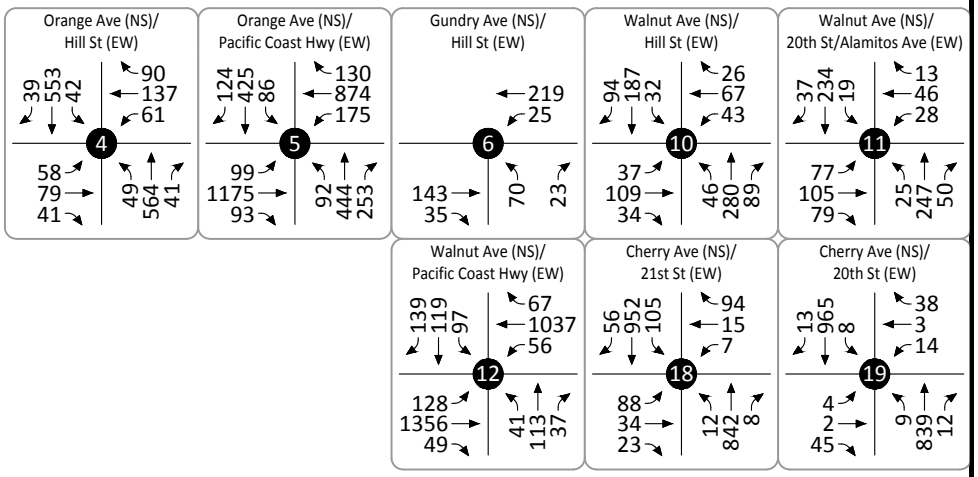


Legend

1 = Intersection Reference Number

Figure 3
Existing Plus Project
Afternoon School Peak Hour Intersection Turning Movement Volumes





Legend

1 = Intersection Reference Number

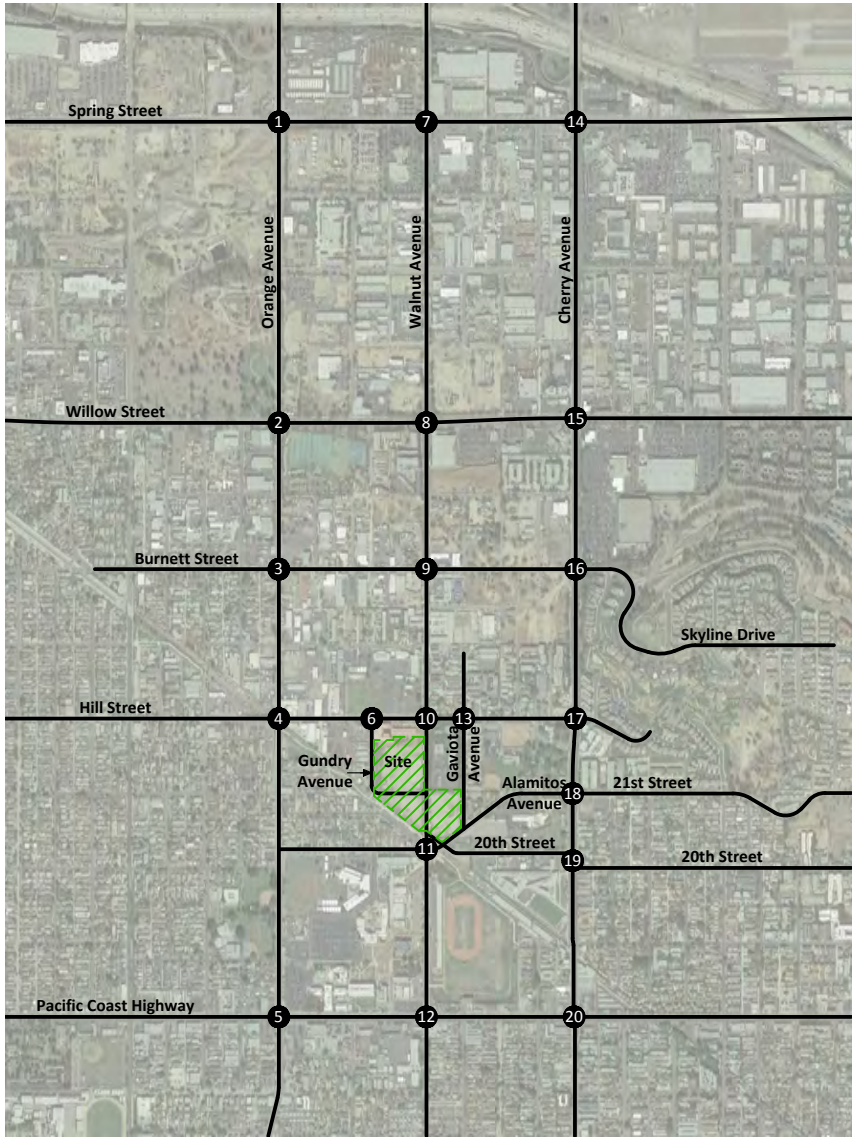
N

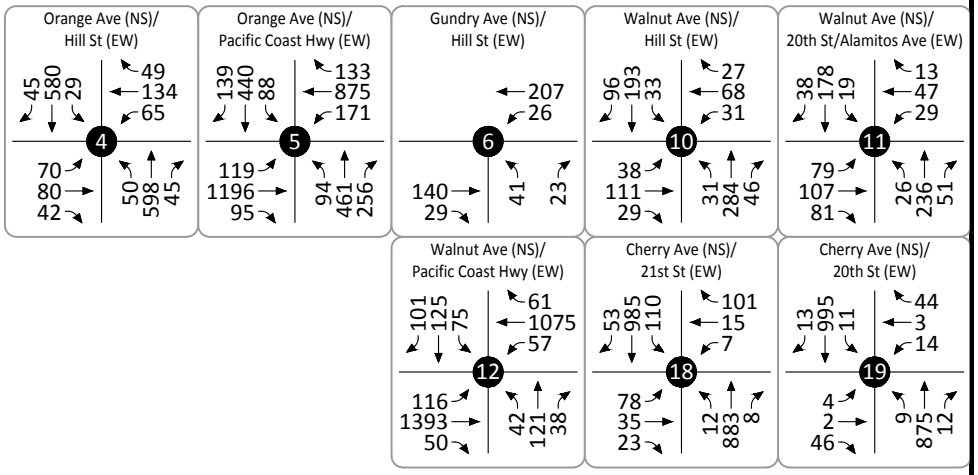
KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 7311

Figure 4
Opening Year (2020) Without Project
Afternoon School Peak Hour Intersection Turning Movement Volumes





Legend

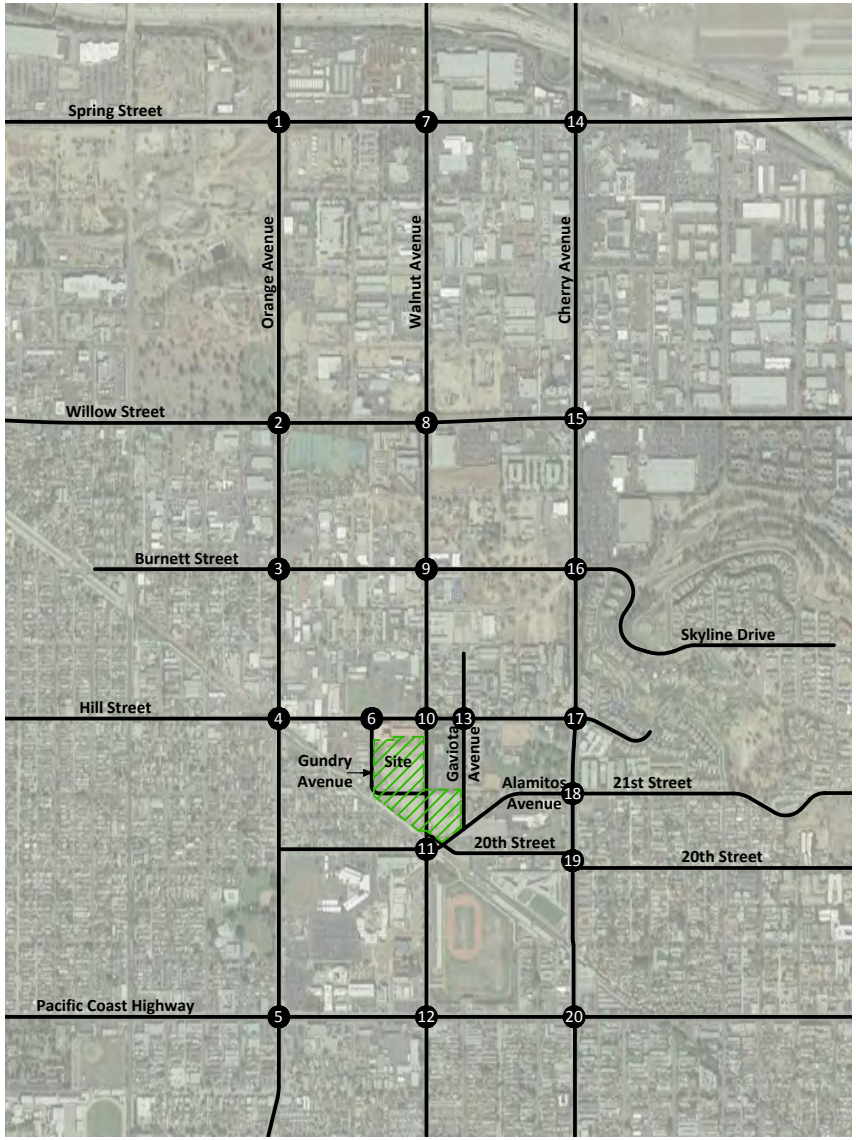
1 = Intersection Reference Number

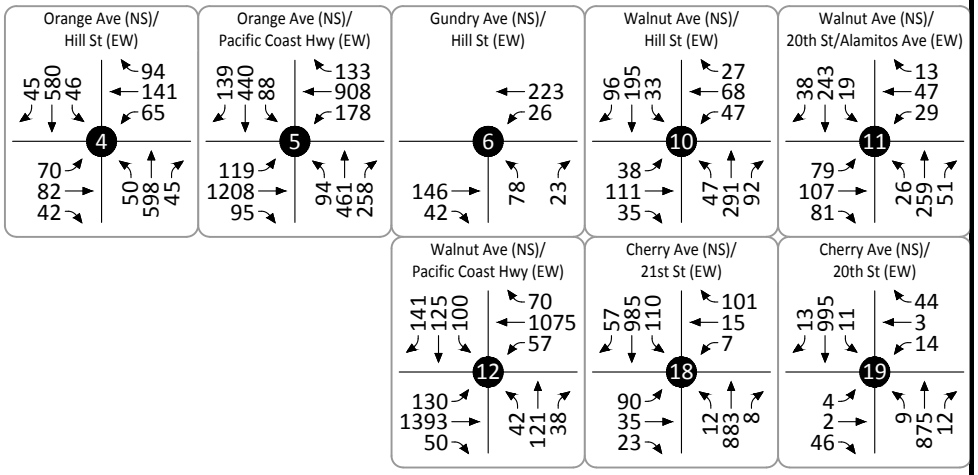
KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 7311

Figure 5
Opening Year (2020) With Project
Afternoon School Peak Hour Intersection Turning Movement Volumes





Legend

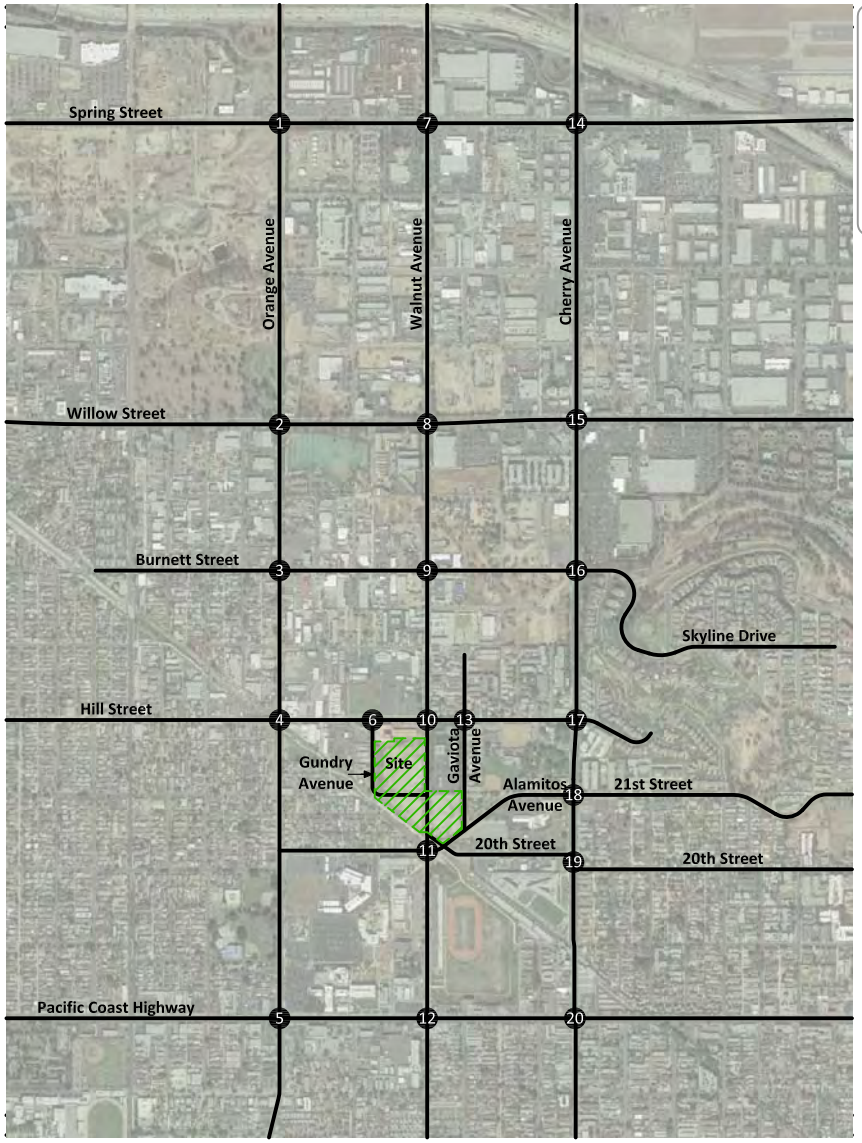
1 = Intersection Reference Number

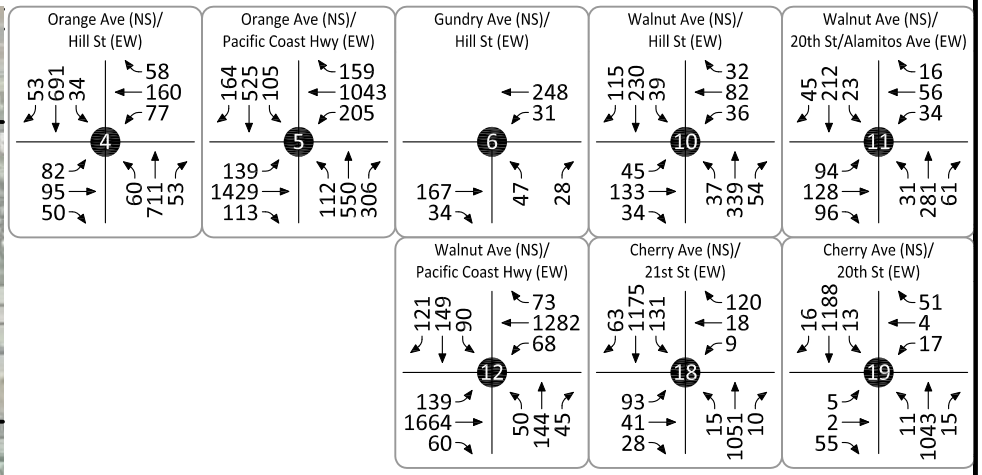
KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 7311

Figure 6
General Plan Buildout (Year 2040) Without Project
Afternoon School Peak Hour Intersection Turning Movement Volumes





Legend

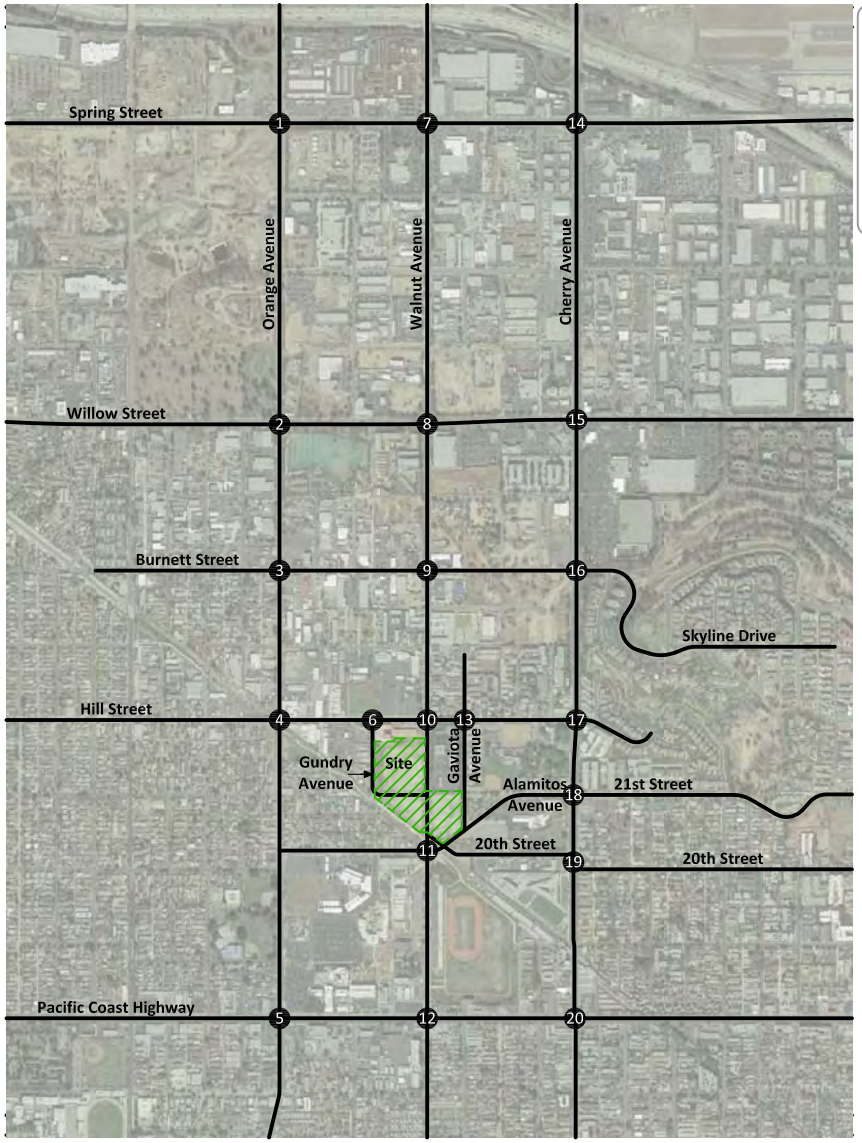
1 = Intersection Reference Number

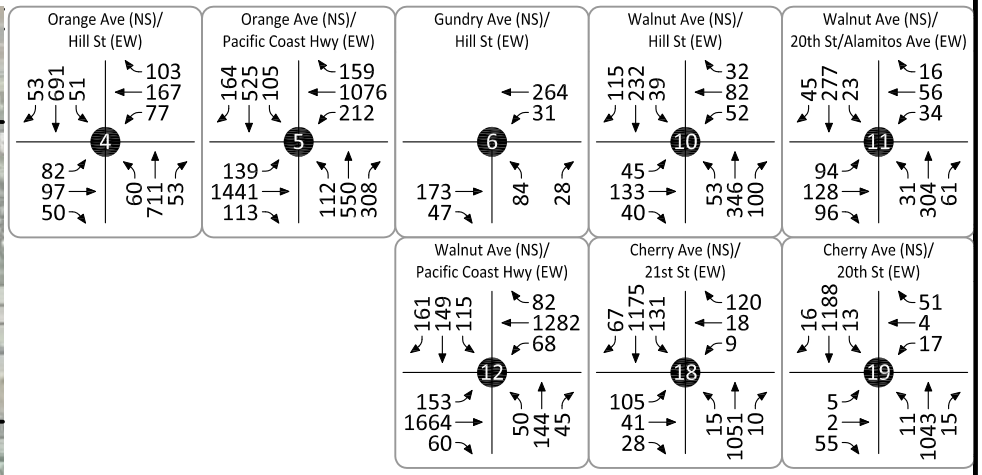
KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 7311

Figure 7
General Plan Buildout (Year 2040) With Project
Afternoon School Peak Hour Intersection Turning Movement Volumes





Legend

1 = Intersection Reference Number

KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 7311

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.

ORIGIN-DESTINATION SURVEY: A survey to determine the point of origin and the point of destination for a given vehicle trip.

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

Intersection Turning Movement Count Worksheets

INTERSECTION TURNING MOVEMENT COUNTS

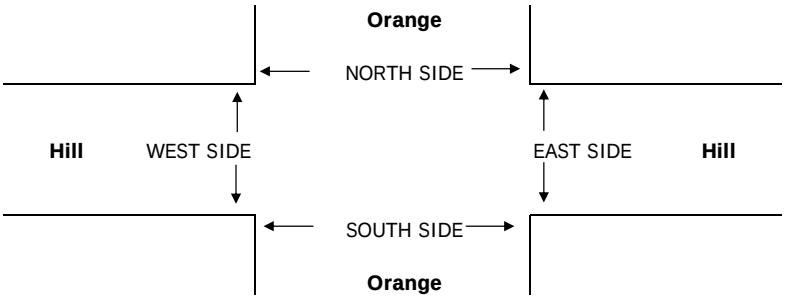
PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Signal Hill	PROJECT #:	SC1634
Wed, Feb 28, 18	NORTH & SOUTH:	Orange	LOCATION #:	4
	EAST & WEST:	Hill	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND Orange			SOUTHBOUND Orange			EASTBOUND Hill			WESTBOUND Hill			
	LANES:	NL 1	NT 1	NR 0	SL 1	ST 1	SR 0	EL 0	ET 1	ER 1	WL 0	WT 1	WR 0	TOTAL
MIDDAY	1:30 PM	10	120	2	5	127	14	15	21	9	5	12	1	341
	1:45 PM	7	113	13	10	117	14	17	28	11	5	17	10	362
	2:00 PM	9	140	7	6	104	13	31	33	9	10	23	16	401
	2:15 PM	8	145	10	10	136	13	21	21	11	27	61	20	483
	2:30 PM	11	134	7	6	144	12	14	13	15	14	31	8	409
	2:45 PM	14	130	8	5	153	7	12	18	8	8	20	6	389
	3:00 PM	16	155	16	4	120	7	11	25	7	12	18	11	402
	3:15 PM	9	118	9	3	126	6	8	29	12	11	16	5	352
	VOLUMES	84	1,055	72	49	1,027	86	129	188	82	92	198	77	3,139
	APPROACH %	7%	87%	6%	4%	88%	7%	32%	47%	21%	25%	54%	21%	
	APP/DEPART	1,211	/	1,261	1,162	/	1,201	399	/	309	367	/	368	0
	BEGIN PEAK HR		2:15 PM											
	VOLUMES	49	564	41	25	553	39	58	77	41	61	130	45	1,683
	APPROACH %	7%	86%	6%	4%	90%	6%	33%	44%	23%	26%	55%	19%	
	PEAK HR FACTOR		0.874			0.935			0.830			0.546		0.871
	APP/DEPART	654	/	667	617	/	655	176	/	143	236	/	218	0



INTERSECTION TURNING MOVEMENT COUNTS

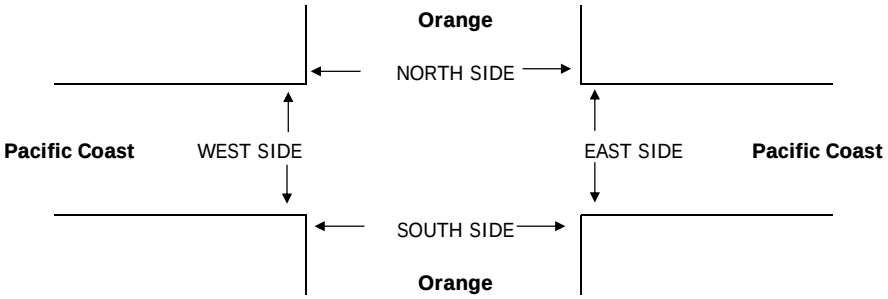
PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Signal Hill	PROJECT #:	SC1634
Wed, Feb 28, 18	NORTH & SOUTH:	Orange	LOCATION #:	5
	EAST & WEST:	Pacific Coast	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND Orange			SOUTHBOUND Orange			EASTBOUND Pacific Coast			WESTBOUND Pacific Coast			
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 3	ER 0	WL 1	WT 3	WR 0	TOTAL
MIDDAY	1:30 PM	19	97	35	19	93	22	20	219	25	41	159	29	778
	1:45 PM	18	102	40	20	104	31	18	210	33	36	178	26	816
	2:00 PM	26	89	55	24	81	33	28	209	22	36	192	33	828
	2:15 PM	24	99	48	25	103	32	21	259	24	46	246	20	947
	2:30 PM	28	113	62	21	92	38	21	251	20	36	210	30	922
	2:45 PM	16	98	64	17	114	31	32	322	29	54	216	32	1,025
	3:00 PM	26	117	62	25	113	32	23	305	24	35	195	34	991
	3:15 PM	22	116	63	23	106	23	23	285	20	43	220	34	978
	VOLUMES	179	831	429	174	806	242	186	2,060	197	327	1,616	238	7,285
	APPROACH %	12%	58%	30%	14%	66%	20%	8%	84%	8%	15%	74%	11%	
	APP/DEPART	1,439	/	1,255	1,222	/	1,330	2,443	/	2,663	2,181	/	2,037	0
	BEGIN PEAK HR		2:30 PM											
	VOLUMES	92	444	251	86	425	124	99	1,163	93	168	841	130	3,916
	APPROACH %	12%	56%	32%	14%	67%	20%	7%	86%	7%	15%	74%	11%	
	PEAK HR FACTOR		0.960			0.934			0.884			0.943		0.955
	APP/DEPART	787	/	673	635	/	686	1,355	/	1,500	1,139	/	1,057	0



INTERSECTION TURNING MOVEMENT COUNTS

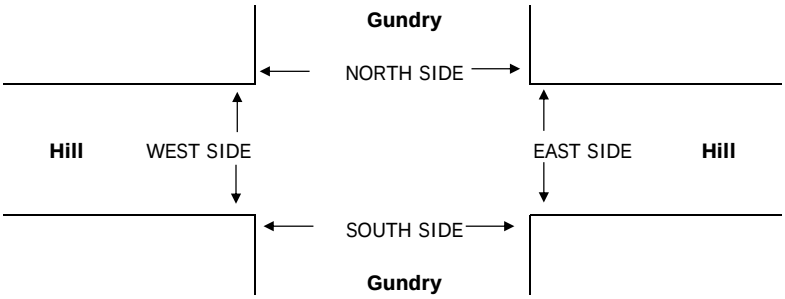
PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:					
Wed, Feb 28, 18	LOCATION:	Signal Hill	PROJECT #:	SC1634
	NORTH & SOUTH:	Gundry	LOCATION #:	6
	EAST & WEST:	Hill	CONTROL:	STOP N

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND Gundry			SOUTHBOUND Gundry			EASTBOUND Hill			WESTBOUND Hill			
	LANES:	NL 0	NT X	NR 0	SL X	ST X	SR X	EL X	ET 1	ER 0	WL 0	WT 1	WR X	TOTAL
MIDDAY	1:30 PM	2	0	1	0	0	0	0	34	1	5	17	0	60
	1:45 PM	3	0	3	0	0	0	1	40	5	5	34	0	91
	2:00 PM	10	0	7	0	0	0	1	35	6	10	50	0	119
	2:15 PM	10	0	3	0	0	0	0	36	6	6	89	0	150
	2:30 PM	10	0	10	0	0	0	0	26	5	4	30	0	85
	2:45 PM	5	0	2	0	0	0	1	28	3	1	24	0	64
	3:00 PM	2	0	1	0	0	0	0	46	1	5	22	0	77
	3:15 PM	3	0	3	0	0	0	1	39	5	5	29	0	85
	VOLUMES	45	0	30	0	0	0	4	284	32	41	295	0	731
	APPROACH %	60%	0%	40%	0%	0%	0%	1%	89%	10%	12%	88%	0%	
	APP/DEPART	75	/	0	0	/	67	320	/	320	336	/	344	0
	BEGIN PEAK HR		1:45 PM											
	VOLUMES	33	0	23	0	0	0	2	137	22	25	203	0	445
	APPROACH %	59%	0%	41%	0%	0%	0%	1%	85%	14%	11%	89%	0%	
	PEAK HR FACTOR		0.700			0.000			0.875			0.600		0.742
	APP/DEPART	56	/	0	0	/	44	161	/	163	228	/	238	0



INTERSECTION TURNING MOVEMENT COUNTS

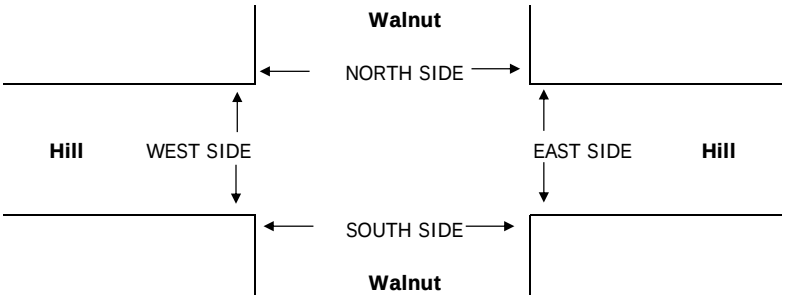
PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Signal Hill	PROJECT #:	SC1634
Wed, Feb 28, 18	NORTH & SOUTH:	Walnut	LOCATION #:	10
	EAST & WEST:	Hill	CONTROL:	STOP ALL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND Walnut			SOUTHBOUND Walnut			EASTBOUND Hill			WESTBOUND Hill			
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 1	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
MIDDAY	1:30 PM	5	36	6	5	34	8	9	13	2	8	15	4	145
	1:45 PM	5	34	5	9	57	18	11	27	8	6	16	8	204
	2:00 PM	7	41	4	13	34	20	11	24	8	6	24	4	196
	2:15 PM	9	46	3	17	54	57	7	29	13	15	24	7	281
	2:30 PM	5	64	15	7	39	17	9	24	7	6	14	4	211
	2:45 PM	8	75	13	6	47	3	4	23	4	2	14	8	207
	3:00 PM	8	88	12	2	45	17	17	33	4	4	15	7	252
	3:15 PM	5	63	3	3	59	12	11	21	7	3	16	3	206
	VOLUMES	52	447	61	62	369	152	79	194	53	50	138	45	1,702
	APPROACH %	9%	80%	11%	11%	63%	26%	24%	60%	16%	21%	59%	19%	
	APP/DEPART	560	/	570	583	/	473	326	/	317	233	/	342	0
	BEGIN PEAK HR		2:15 PM											
	VOLUMES	30	273	43	32	185	94	37	109	28	27	67	26	951
	APPROACH %	9%	79%	12%	10%	59%	30%	21%	63%	16%	23%	56%	22%	
	PEAK HR FACTOR		0.801			0.607			0.806			0.652		0.846
	APP/DEPART	346	/	336	311	/	240	174	/	184	120	/	191	0



INTERSECTION TURNING MOVEMENT COUNTS

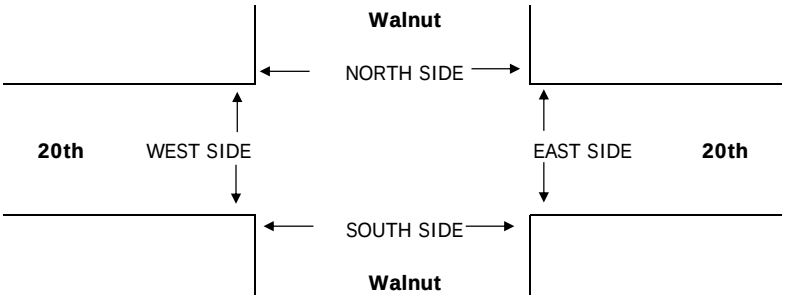
PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Signal Hill	PROJECT #:	SC1634
Wed, Feb 28, 18	NORTH & SOUTH:	Walnut	LOCATION #:	11
	EAST & WEST:	20th	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND Walnut			SOUTHBOUND Walnut			EASTBOUND 20th			WESTBOUND 20th			
	LANES:	NL 1	NT 1	NR 0	SL 1	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
MIDDAY	1:30 PM	3	34	7	2	27	9	13	17	6	12	4	6	140
	1:45 PM	6	39	7	7	48	9	0	13	11	12	9	4	165
	2:00 PM	6	37	22	3	31	6	11	21	14	12	11	8	182
	2:15 PM	6	42	14	7	57	14	5	19	9	12	19	6	210
	2:30 PM	9	51	9	3	38	11	12	17	11	6	19	6	192
	2:45 PM	6	45	5	6	39	8	32	33	34	5	11	1	225
	3:00 PM	6	76	19	0	42	7	20	29	17	5	7	3	231
	3:15 PM	4	52	17	10	50	11	13	26	17	12	9	3	224
	VOLUMES	46	376	100	38	332	75	106	175	119	76	89	37	1,569
	APPROACH %	9%	72%	19%	9%	75%	17%	27%	44%	30%	38%	44%	18%	
	APP/DEPART	522	/	519	445	/	527	400	/	313	202	/	210	0
	BEGIN PEAK HR		2:30 PM											
	VOLUMES	25	224	50	19	169	37	77	105	79	28	46	13	872
	APPROACH %	8%	75%	17%	8%	75%	16%	30%	40%	30%	32%	53%	15%	
	PEAK HR FACTOR		0.740			0.792			0.659			0.702		0.944
	APP/DEPART	299	/	314	225	/	276	261	/	174	87	/	108	0



INTERSECTION TURNING MOVEMENT COUNTS

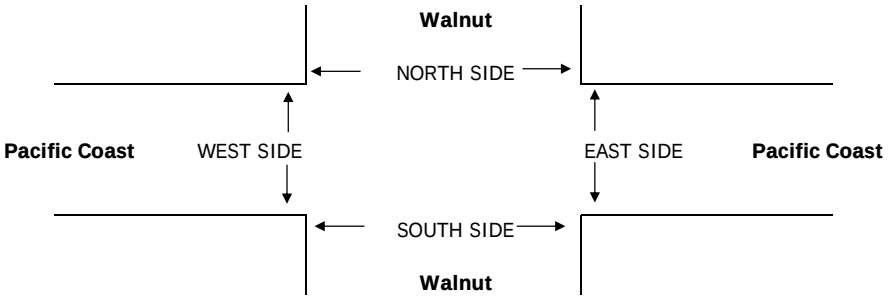
PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Signal Hill	PROJECT #:	SC1634
Wed, Feb 28, 18	NORTH & SOUTH:	Walnut	LOCATION #:	12
	EAST & WEST:	Pacific Coast	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

	NORTHBOUND Walnut			SOUTHBOUND Walnut			EASTBOUND Pacific Coast			WESTBOUND Pacific Coast			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 3	ER 0	WL 1	WT 3	WR 0	TOTAL
MIDDAY													
1:30 PM	10	16	18	13	20	10	15	263	19	9	180	40	613
1:45 PM	8	23	4	13	26	31	25	233	16	6	232	22	639
2:00 PM	12	18	10	18	23	17	29	240	14	8	230	17	636
2:15 PM	8	24	12	19	23	35	23	284	26	12	274	17	757
2:30 PM	13	21	9	12	28	15	29	307	16	11	248	15	724
2:45 PM	11	17	12	22	25	30	31	365	13	18	265	16	825
3:00 PM	9	39	9	16	28	29	21	352	12	11	239	14	779
3:15 PM	8	36	7	22	38	25	33	332	8	16	285	13	823
VOLUMES	79	194	81	135	211	192	206	2,376	124	91	1,953	154	5,796
APPROACH %	22%	55%	23%	25%	39%	36%	8%	88%	5%	4%	89%	7%	
APP/DEPART	354	/	554	538	/	426	2,706	/	2,592	2,198	/	2,224	0
BEGIN PEAK HR		2:30 PM											
VOLUMES	41	113	37	72	119	99	114	1,356	49	56	1,037	58	3,151
APPROACH %	21%	59%	19%	25%	41%	34%	8%	89%	3%	5%	90%	5%	
PEAK HR FACTOR		0.838			0.853			0.928			0.916		0.955
APP/DEPART	191	/	285	290	/	224	1,519	/	1,465	1,151	/	1,177	0



INTERSECTION TURNING MOVEMENT COUNTS

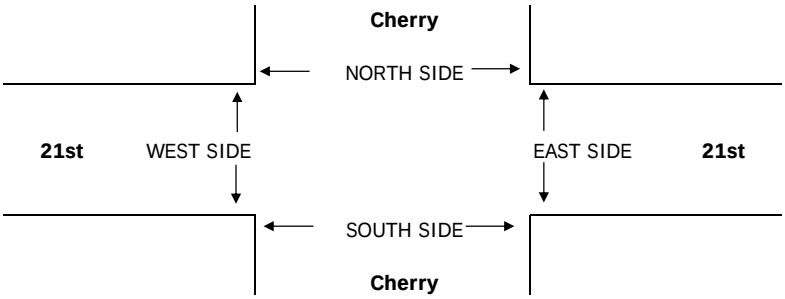
PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Signal Hill	PROJECT #:	SC1634
Wed, Feb 28, 18	NORTH & SOUTH:	Cherry	LOCATION #:	18
	EAST & WEST:	21st	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND Cherry			SOUTHBOUND Cherry			EASTBOUND 21st			WESTBOUND 21st			
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 1	EL 0	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL
MIDDAY	1:30 PM	11	197	2	14	213	14	11	3	2	3	6	25	501
	1:45 PM	7	216	1	27	239	19	10	4	3	1	4	21	552
	2:00 PM	4	200	0	21	208	8	17	12	10	6	8	18	512
	2:15 PM	1	196	1	30	249	13	21	12	6	1	3	21	554
	2:30 PM	4	225	2	22	239	20	15	5	7	2	5	19	565
	2:45 PM	4	204	3	24	251	9	20	8	6	1	4	23	557
	3:00 PM	3	217	2	29	213	10	20	9	4	3	3	31	544
	3:15 PM	3	203	1	26	223	11	17	10	6	1	2	21	524
	VOLUMES	37	1,658	12	193	1,835	104	131	63	44	18	35	179	4,309
	APPROACH %	2%	97%	1%	9%	86%	5%	55%	26%	18%	8%	15%	77%	
	APP/DEPART	1,707	/	1,980	2,132	/	1,900	238	/	256	232	/	173	0
	BEGIN PEAK HR		2:15 PM											
	VOLUMES	12	842	8	105	952	52	76	34	23	7	15	94	2,220
	APPROACH %	1%	98%	1%	9%	86%	5%	57%	26%	17%	6%	13%	81%	
	PEAK HR FACTOR		0.933			0.949			0.853			0.784		0.982
	APP/DEPART	862	/	1,017	1,109	/	985	133	/	142	116	/	76	0



INTERSECTION TURNING MOVEMENT COUNTS

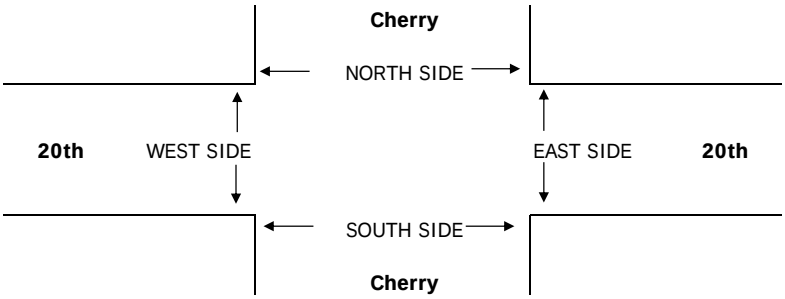
PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Signal Hill	PROJECT #:	SC1634
Wed, Feb 28, 18	NORTH & SOUTH:	Cherry	LOCATION #:	19
	EAST & WEST:	20th	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND Cherry			SOUTHBOUND Cherry			EASTBOUND 20th			WESTBOUND 20th			
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 0	ER 1	WL 0	WT 1	WR 0	TOTAL
MIDDAY	1:30 PM	3	202	2	2	210	7	4	0	6	2	0	6	444
	1:45 PM	4	205	2	0	226	3	4	0	3	1	3	12	463
	2:00 PM	2	195	2	2	219	6	5	4	12	2	7	5	461
	2:15 PM	5	189	3	2	214	10	7	7	21	3	2	3	466
	2:30 PM	2	227	4	2	266	4	1	1	9	4	0	9	529
	2:45 PM	1	190	2	3	255	1	2	1	14	5	1	8	483
	3:00 PM	2	202	4	0	202	2	0	0	10	3	0	14	439
	3:15 PM	4	220	2	3	242	6	1	0	12	2	2	7	501
	VOLUMES	23	1,630	21	14	1,834	39	24	13	87	22	15	64	3,786
	APPROACH %	1%	97%	1%	1%	97%	2%	19%	10%	70%	22%	15%	63%	
	APP/DEPART	1,674	/	1,718	1,887	/	1,944	124	/	47	101	/	77	0
	BEGIN PEAK HR		2:30 PM											
	VOLUMES	9	839	12	8	965	13	4	2	45	14	3	38	1,952
	APPROACH %	1%	98%	1%	1%	98%	1%	8%	4%	88%	25%	5%	69%	
	PEAK HR FACTOR		0.923			0.906			0.750			0.809		0.922
	APP/DEPART	860	/	881	986	/	1,024	51	/	22	55	/	25	0



APPENDIX C

Intersection Capacity Utilization/Delay and Level of Service Worksheets

Existing

Signal Hill Business Park

Vistro File: Z:\...\School PM.vistro
Report File: Z:\...\School PM - E.pdf

Scenario 1 Existing
3/6/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
4	Orange Ave (NS) at Hill St (EW)	Signalized	ICU 1	NB Right	0.656	-	B
5	Orange Ave (NS) at Pacific Coast Hwy (EW)	Signalized	HCM 6th Edition	EB Left	0.559	20.4	C
6	Gundry Ave (NS) at Hill St (EW)	Two-way stop	HCM 6th Edition	NB Left	0.090	13.2	B
10	Walnut Ave (NS) at Hill St (EW)	All-way stop	HCM 6th Edition	NB Thru	0.650	14.8	B
11	Walnut Ave (NS) at 20th St/Alamitos Ave (EW)	Signalized	ICU 1	NB Thru	0.564	-	A
12	Walnut Ave (NS) at Pacific Coast Hwy (EW)	Signalized	HCM 6th Edition	SB Thru	0.505	9.9	A
18	Cherry Ave (NS) at 21st St (EW)	Signalized	ICU 1	SB Thru	0.544	-	A
19	Cherry Ave (NS) at 20th St (EW)	Signalized	ICU 1	SB Thru	0.475	-	A

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 4: Orange Ave (NS) at Hill St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.656

Intersection Setup

Name												
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	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	49	564	41	25	553	39	58	77	41	61	130	45
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
Total Hourly Volume [veh/h]	49	564	41	25	553	39	58	77	41	61	130	45
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]	12	141	10	6	138	10	15	19	10	15	33	11
Total Analysis Volume [veh/h]	49	564	41	25	553	39	58	77	41	61	130	45
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.38	0.38	0.02	0.37	0.37	0.04	0.08	0.03	0.04	0.12	0.03
Intersection LOS	B											
Intersection V/C	0.656											

Intersection Level Of Service Report
Intersection 5: Orange Ave (NS) at Pacific Coast Hwy (EW)

Control Type:	Signalized	Delay (sec / veh):	20.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.559

Intersection Setup

Name												
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	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	145.00	100.00	192.00	100.00	100.00	100.00	150.00	100.00	100.00	300.00	100.00	100.00
Speed [mph]	35.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	92	444	251	86	425	124	99	1163	93	168	841	130
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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]	92	444	251	86	425	124	99	1163	93	168	841	130
Peak Hour Factor	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550
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]	24	116	66	23	111	32	26	304	24	44	220	34
Total Analysis Volume [veh/h]	96	465	263	90	445	130	104	1218	97	176	881	136
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 m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	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	1 - Coordination Group
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Overlap	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	2	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups			2,7									
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	30	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	31	31	0	31	0	11	33	0	16	38	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	7	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	20	20	0	17	0	0	20	0	0	15	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	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	
Maximum Recall		No	No		No		No	No		No	No	
Pedestrian Recall		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]	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	21	21	37	21	21	21	6	36	36	11	40	40
g / C, Green / Cycle	0.27	0.27	0.46	0.27	0.27	0.27	0.08	0.44	0.44	0.14	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.10	0.13	0.16	0.10	0.12	0.08	0.06	0.24	0.24	0.10	0.19	0.19
s, saturation flow rate [veh/h]	960	3618	1615	942	3618	1615	1810	3618	1829	1810	3618	1773
c, Capacity [veh/h]	222	969	737	215	969	433	145	1605	812	251	1818	891
d1, Uniform Delay [s]	33.05	24.63	14.14	33.29	24.48	23.35	35.96	16.33	16.33	32.91	12.22	12.22
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
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
d2, Incremental Delay [s]	1.32	0.37	0.29	1.30	0.34	0.39	6.54	1.33	2.61	3.55	0.59	1.21
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	0.43	0.48	0.36	0.42	0.46	0.30	0.72	0.54	0.54	0.70	0.38	0.38
d, Delay for Lane Group [s/veh]	34.37	25.00	14.43	34.59	24.82	23.73	42.51	17.66	18.95	36.47	12.81	13.44
Lane Group LOS	C	C	B	C	C	C	D	B	B	D	B	B
Critical Lane Group	No	No	Yes	No	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	1.79	3.56	2.88	1.71	3.44	1.94	2.18	5.63	5.98	3.38	3.49	3.59
50th-Percentile Queue Length [ft]	44.81	88.98	72.01	42.69	86.02	48.46	54.46	140.63	149.45	84.46	87.33	89.66
95th-Percentile Queue Length [veh]	3.23	6.41	5.18	3.07	6.19	3.49	3.92	9.52	9.99	6.08	6.29	6.46
95th-Percentile Queue Length [ft]	80.66	160.17	129.62	76.85	154.84	87.22	98.02	237.88	249.70	152.02	157.20	161.38

Movement, Approach, & Intersection Results

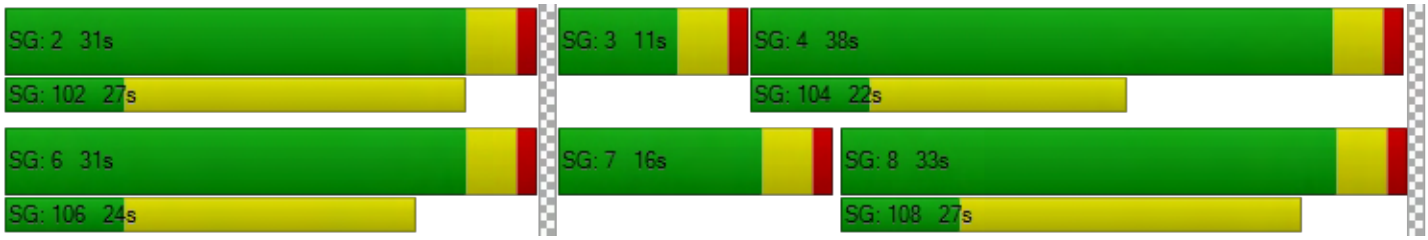
d_M, Delay for Movement [s/veh]	34.37	25.00	14.43	34.59	24.82	23.73	42.51	18.03	18.95	36.47	12.95	13.44
Movement LOS	C	C	B	C	C	C	D	B	B	D	B	B
d_A, Approach Delay [s/veh]	22.72			25.93			19.88			16.48		
Approach LOS	C			C			B			B		
d_I, Intersection Delay [s/veh]	20.44											
Intersection LOS	C											
Intersection V/C	0.559											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.76	29.76	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	2.739	2.669	3.134	3.164
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	675	675	725	850
d_b, Bicycle Delay [s]	17.56	17.56	16.26	13.23
l_b,int, Bicycle LOS Score for Intersection	2.239	2.108	2.340	2.216
Bicycle LOS	B	B	B	B

Sequence

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



Intersection Level Of Service Report
Intersection 6: Gundry Ave (NS) at Hill St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	13.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.090

Intersection Setup

Name						
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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	33	23	137	22	25	203
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
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	0	0	0	0	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]	33	23	137	22	25	203
Peak Hour Factor	0.7420	0.7420	0.7420	0.7420	0.7420	0.7420
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	8	46	7	8	68
Total Analysis Volume [veh/h]	44	31	185	30	34	274
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.09	0.04	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	13.22	10.13	0.00	0.00	7.70	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh]	0.43	0.43	0.00	0.00	0.87	0.87
95th-Percentile Queue Length [ft]	10.78	10.78	0.00	0.00	21.67	21.67
d_A, Approach Delay [s/veh]	11.94		0.00		0.85	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.94					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 10: Walnut Ave (NS) at Hill St (EW)

Control Type:	All-way stop	Delay (sec / veh):	14.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.650

Intersection Setup

Name											
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	0	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	54.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	30	273	43	32	185	94	37	109	28	27	67	26
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
Total Hourly Volume [veh/h]	30	273	43	32	185	94	37	109	28	27	67	26
Peak Hour Factor	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460
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]	9	81	13	9	55	28	11	32	8	8	20	8
Total Analysis Volume [veh/h]	35	323	51	38	219	111	44	129	33	32	79	31
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	629	566	646	570	557
Degree of Utilization, x	0.65	0.45	0.17	0.36	0.26

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	4.75	2.35	0.62	1.64	1.01
95th-Percentile Queue Length [ft]	118.80	58.83	15.43	40.99	25.20
Approach Delay [s/veh]	18.71	12.79		12.85	11.67
Approach LOS	C	B		B	B
Intersection Delay [s/veh]	14.82				
Intersection LOS	B				

Intersection Level Of Service Report

Intersection 11: Walnut Ave (NS) at 20th St/Alamitos Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.564

Intersection Setup

Name												
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	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	25	224	50	19	169	37	77	105	79	28	46	13
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
Total Hourly Volume [veh/h]	25	224	50	19	169	37	77	105	79	28	46	13
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]	6	56	13	5	42	9	19	26	20	7	12	3
Total Analysis Volume [veh/h]	25	224	50	19	169	37	77	105	79	28	46	13
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	20.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.17	0.17	0.01	0.13	0.13	0.05	0.16	0.16	0.02	0.05	0.05
Intersection LOS	A											
Intersection V/C	0.564											

Intersection Level Of Service Report
Intersection 12: Walnut Ave (NS) at Pacific Coast Hwy (EW)

Control Type:	Signalized	Delay (sec / veh):	9.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.505

Intersection Setup

Name												
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	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	130.00	100.00	100.00	177.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	41	113	37	72	119	99	114	1356	49	56	1037	58
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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]	41	113	37	72	119	99	114	1356	49	56	1037	58
Peak Hour Factor	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550
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]	11	30	10	19	31	26	30	355	13	15	271	15
Total Analysis Volume [veh/h]	43	118	39	75	125	104	119	1420	51	59	1086	61
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 m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	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	1 - Coordination Group
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	37.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	32	0	0	32	0	0	48	0	0	48	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	18	0	0	6	0	0	6	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		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	C	C	L	C	C	L	C	C
C, Cycle Length [s]	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
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	17	55	55	55	55	55	55
g / C, Green / Cycle	0.21	0.21	0.69	0.69	0.69	0.69	0.69	0.69
(v / s)_i Volume / Saturation Flow Rate	0.13	0.19	0.24	0.27	0.27	0.16	0.21	0.21
s, saturation flow rate [veh/h]	1593	1630	498	3618	1866	366	3618	1849
c, Capacity [veh/h]	389	398	380	2496	1288	291	2496	1276
d1, Uniform Delay [s]	28.09	30.52	9.18	5.25	5.25	9.62	4.86	4.86
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.05	3.06	2.15	0.46	0.89	1.56	0.31	0.62
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.51	0.76	0.31	0.39	0.39	0.20	0.30	0.30
d, Delay for Lane Group [s/veh]	29.15	33.58	11.32	5.70	6.13	11.18	5.17	5.48
Lane Group LOS	C	C	B	A	A	B	A	A
Critical Lane Group	No	Yes	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh]	3.42	5.80	1.23	2.83	3.07	0.63	2.04	2.19
50th-Percentile Queue Length [ft]	85.48	145.06	30.77	70.65	76.74	15.67	51.02	54.86
95th-Percentile Queue Length [veh]	6.15	9.75	2.22	5.09	5.53	1.13	3.67	3.95
95th-Percentile Queue Length [ft]	153.87	243.82	55.39	127.16	138.14	28.21	91.83	98.76

Movement, Approach, & Intersection Results

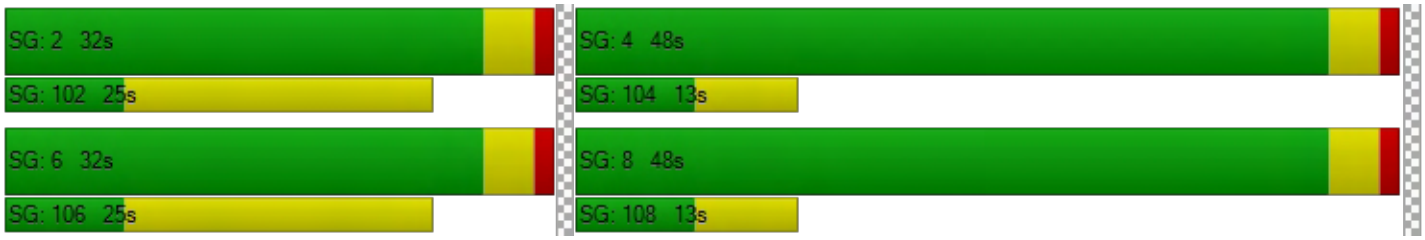
d_M, Delay for Movement [s/veh]	29.15	29.15	29.15	33.58	33.58	33.58	11.32	5.84	6.13	11.18	5.26	5.48
Movement LOS	C	C	C	C	C	C	B	A	A	B	A	A
d_A, Approach Delay [s/veh]	29.15			33.58			6.26			5.56		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	9.91											
Intersection LOS	A											
Intersection V/C	0.505											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.76	29.76	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	2.004	2.298	3.042	3.076
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	700	1100	1100
d_b, Bicycle Delay [s]	16.90	16.90	8.10	8.10
l_b,int, Bicycle LOS Score for Intersection	1.890	2.061	2.434	2.223
Bicycle LOS	A	B	B	B

Sequence

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



Intersection Level Of Service Report
Intersection 18: Cherry Ave (NS) at 21st St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.544

Intersection Setup

Name												
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	1	0	0	0	1	0	0
Pocket Length [ft]	110.00	100.00	100.00	198.00	100.00	100.00	100.00	100.00	100.00	96.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	12	842	8	105	952	52	76	34	23	7	15	94
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
Total Hourly Volume [veh/h]	12	842	8	105	952	52	76	34	23	7	15	94
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]	3	211	2	26	238	13	19	9	6	2	4	24
Total Analysis Volume [veh/h]	12	842	8	105	952	52	76	34	23	7	15	94
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.26	0.01	0.07	0.30	0.03	0.05	0.07	0.01	0.00	0.07	0.07
Intersection LOS	A											
Intersection V/C	0.544											

Intersection Level Of Service Report
Intersection 19: Cherry Ave (NS) at 20th St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.475

Intersection Setup

Name												
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	0	0	0	0	0	0
Pocket Length [ft]	80.00	100.00	100.00	80.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	9	839	12	8	965	13	4	2	45	14	3	38
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
Total Hourly Volume [veh/h]	9	839	12	8	965	13	4	2	45	14	3	38
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]	2	210	3	2	241	3	1	1	11	4	1	10
Total Analysis Volume [veh/h]	9	839	12	8	965	13	4	2	45	14	3	38
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.27	0.27	0.01	0.31	0.31	0.00	0.03	0.03	0.01	0.03	0.03
Intersection LOS	A											
Intersection V/C	0.475											

Existing Plus Project

Signal Hill Business Park

Vistro File: Z:\...\School PM.vistro
Report File: Z:\...\School PM - EP.pdf

Scenario 2 Existing Plus Project
3/6/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
4	Orange Ave (NS) at Hill St (EW)	Signalized	ICU 1	NB Right	0.664	-	B
5	Orange Ave (NS) at Pacific Coast Hwy (EW)	Signalized	HCM 6th Edition	EB Left	0.567	20.5	C
6	Gundry Ave (NS) at Hill St (EW)	Two-way stop	HCM 6th Edition	NB Left	0.202	14.9	B
10	Walnut Ave (NS) at Hill St (EW)	All-way stop	HCM 6th Edition	NB Thru	0.803	19.6	C
11	Walnut Ave (NS) at 20th St/Alamitos Ave (EW)	Signalized	ICU 1	NB Thru	0.578	-	A
12	Walnut Ave (NS) at Pacific Coast Hwy (EW)	Signalized	HCM 6th Edition	SB Right	0.559	11.6	B
18	Cherry Ave (NS) at 21st St (EW)	Signalized	ICU 1	SB Thru	0.552	-	A
19	Cherry Ave (NS) at 20th St (EW)	Signalized	ICU 1	SB Thru	0.475	-	A

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 4: Orange Ave (NS) at Hill St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.664

Intersection Setup

Name												
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	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	49	564	41	25	553	39	58	77	41	61	130	45
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	17	0	0	0	2	0	0	7	45
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
Total Hourly Volume [veh/h]	49	564	41	42	553	39	58	79	41	61	137	90
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]	12	141	10	11	138	10	15	20	10	15	34	23
Total Analysis Volume [veh/h]	49	564	41	42	553	39	58	79	41	61	137	90
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.38	0.38	0.03	0.37	0.37	0.04	0.09	0.03	0.04	0.12	0.06
Intersection LOS	B											
Intersection V/C	0.664											

Intersection Level Of Service Report
Intersection 5: Orange Ave (NS) at Pacific Coast Hwy (EW)

Control Type:	Signalized	Delay (sec / veh):	20.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.567

Intersection Setup

Name												
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	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	145.00	100.00	192.00	100.00	100.00	100.00	150.00	100.00	100.00	300.00	100.00	100.00
Speed [mph]	35.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	92	444	251	86	425	124	99	1163	93	168	841	130
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	2	0	0	0	0	12	0	7	33	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]	92	444	253	86	425	124	99	1175	93	175	874	130
Peak Hour Factor	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550
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]	24	116	66	23	111	32	26	308	24	46	229	34
Total Analysis Volume [veh/h]	96	465	265	90	445	130	104	1230	97	183	915	136
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 m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	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	1 - Coordination Group
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Overlap	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	2	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups			2,7									
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	30	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	31	31	0	31	0	11	33	0	16	38	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	7	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	20	20	0	17	0	0	20	0	0	15	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	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	
Maximum Recall		No	No		No		No	No		No	No	
Pedestrian Recall		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]	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	21	21	37	21	21	21	6	35	35	11	40	40
g / C, Green / Cycle	0.27	0.27	0.46	0.27	0.27	0.27	0.08	0.44	0.44	0.14	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.10	0.13	0.16	0.10	0.12	0.08	0.06	0.24	0.24	0.10	0.19	0.20
s, saturation flow rate [veh/h]	960	3618	1615	942	3618	1615	1810	3618	1830	1810	3618	1777
c, Capacity [veh/h]	223	969	739	215	969	433	145	1601	810	253	1817	893
d1, Uniform Delay [s]	33.05	24.63	14.09	33.29	24.48	23.34	35.96	16.46	16.46	32.96	12.31	12.32
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
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
d2, Incremental Delay [s]	1.32	0.37	0.29	1.29	0.34	0.39	6.54	1.37	2.69	3.89	0.63	1.27
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	0.43	0.48	0.36	0.42	0.46	0.30	0.72	0.55	0.55	0.72	0.39	0.39
d, Delay for Lane Group [s/veh]	34.36	25.00	14.38	34.58	24.82	23.73	42.51	17.83	19.15	36.85	12.94	13.59
Lane Group LOS	C	C	B	C	C	C	D	B	B	D	B	B
Critical Lane Group	No	No	Yes	No	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	1.79	3.56	2.90	1.71	3.44	1.94	2.18	5.71	6.08	3.54	3.64	3.74
50th-Percentile Queue Length [ft]	44.81	88.98	72.43	42.69	86.01	48.45	54.46	142.84	151.92	88.42	90.96	93.54
95th-Percentile Queue Length [veh]	3.23	6.41	5.22	3.07	6.19	3.49	3.92	9.63	10.12	6.37	6.55	6.73
95th-Percentile Queue Length [ft]	80.65	160.16	130.38	76.84	154.82	87.21	98.02	240.84	252.98	159.16	163.72	168.37

Movement, Approach, & Intersection Results

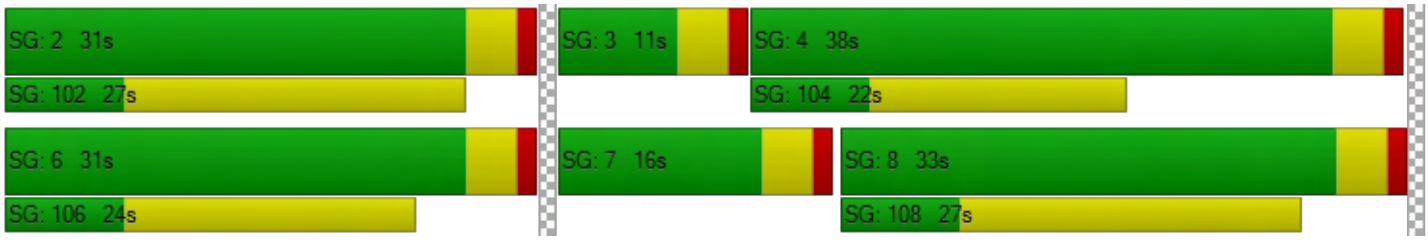
d_M, Delay for Movement [s/veh]	34.36	25.00	14.38	34.58	24.82	23.73	42.51	18.20	19.15	36.85	13.09	13.59
Movement LOS	C	C	B	C	C	C	D	B	B	D	B	B
d_A, Approach Delay [s/veh]	22.68			25.93			20.03			16.67		
Approach LOS	C			C			C			B		
d_I, Intersection Delay [s/veh]	20.50											
Intersection LOS	C											
Intersection V/C	0.567											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.76	29.76	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	2.740	2.669	3.142	3.173
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	675	675	725	850
d_b, Bicycle Delay [s]	17.56	17.56	16.26	13.23
l_b,int, Bicycle LOS Score for Intersection	2.241	2.108	2.347	2.238
Bicycle LOS	B	B	B	B

Sequence

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



Intersection Level Of Service Report
Intersection 6: Gundry Ave (NS) at Hill St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	14.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.202

Intersection Setup

Name						
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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	33	23	137	22	25	203
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
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]	37	0	6	13	0	16
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]	70	23	143	35	25	219
Peak Hour Factor	0.7420	0.7420	0.7420	0.7420	0.7420	0.7420
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	8	48	12	8	74
Total Analysis Volume [veh/h]	94	31	193	47	34	295
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.20	0.04	0.00	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	14.89	11.50	0.00	0.00	7.76	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh]	0.93	0.93	0.00	0.00	0.97	0.97
95th-Percentile Queue Length [ft]	23.16	23.16	0.00	0.00	24.26	24.26
d_A, Approach Delay [s/veh]	14.05		0.00		0.80	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	2.91					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 10: Walnut Ave (NS) at Hill St (EW)

Control Type:	All-way stop	Delay (sec / veh):	19.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.803

Intersection Setup

Name												
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	0	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	54.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	30	273	43	32	185	94	37	109	28	27	67	26
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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]	16	7	46	0	2	0	0	0	6	16	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
Total Hourly Volume [veh/h]	46	280	89	32	187	94	37	109	34	43	67	26
Peak Hour Factor	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460
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]	14	83	26	9	55	28	11	32	10	13	20	8
Total Analysis Volume [veh/h]	54	331	105	38	221	111	44	129	40	51	79	31
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	610	536	607	536	521
Degree of Utilization, x	0.80	0.48	0.18	0.40	0.31

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	7.97	2.61	0.66	1.89	1.30
95th-Percentile Queue Length [ft]	199.33	65.29	16.61	47.29	32.58
Approach Delay [s/veh]	28.52	13.87		14.09	12.97
Approach LOS	D	B		B	B
Intersection Delay [s/veh]	19.61				
Intersection LOS	C				

Intersection Level Of Service Report

Intersection 11: Walnut Ave (NS) at 20th St/Alamitos Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.578

Intersection Setup

Name												
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	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	25	224	50	19	169	37	77	105	79	28	46	13
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	23	0	0	65	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
Total Hourly Volume [veh/h]	25	247	50	19	234	37	77	105	79	28	46	13
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]	6	62	13	5	59	9	19	26	20	7	12	3
Total Analysis Volume [veh/h]	25	247	50	19	234	37	77	105	79	28	46	13
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	20.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.19	0.19	0.01	0.17	0.17	0.05	0.16	0.16	0.02	0.05	0.05
Intersection LOS	A											
Intersection V/C	0.578											

Intersection Level Of Service Report
Intersection 12: Walnut Ave (NS) at Pacific Coast Hwy (EW)

Control Type:	Signalized	Delay (sec / veh):	11.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.559

Intersection Setup

Name												
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	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	130.00	100.00	100.00	177.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	41	113	37	72	119	99	114	1356	49	56	1037	58
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	25	0	40	14	0	0	0	0	9
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]	41	113	37	97	119	139	128	1356	49	56	1037	67
Peak Hour Factor	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550
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]	11	30	10	25	31	36	34	355	13	15	271	18
Total Analysis Volume [veh/h]	43	118	39	102	125	146	134	1420	51	59	1086	70
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 m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	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	1 - Coordination Group
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	36.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	36	0	0	36	0	0	44	0	0	44	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	18	0	0	6	0	0	6	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		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	C	C	L	C	C	L	C	C
C, Cycle Length [s]	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
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	21	21	51	51	51	51	51	51
g / C, Green / Cycle	0.26	0.26	0.64	0.64	0.64	0.64	0.64	0.64
(v / s)_i Volume / Saturation Flow Rate	0.13	0.23	0.27	0.27	0.27	0.16	0.21	0.21
s, saturation flow rate [veh/h]	1572	1609	494	3618	1866	366	3618	1842
c, Capacity [veh/h]	457	469	348	2329	1202	268	2329	1186
d1, Uniform Delay [s]	24.83	28.59	12.50	6.93	6.93	12.49	6.43	6.43
k, delay calibration	0.11	0.14	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.66	4.08	3.20	0.55	1.07	1.88	0.38	0.74
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.44	0.79	0.38	0.42	0.42	0.22	0.33	0.33
d, Delay for Lane Group [s/veh]	25.49	32.67	15.69	7.48	8.00	14.37	6.81	7.18
Lane Group LOS	C	C	B	A	A	B	A	A
Critical Lane Group	No	Yes	Yes	No	No	No	No	No
50th-Percentile Queue Length [veh]	3.14	7.13	1.73	3.52	3.81	0.74	2.57	2.74
50th-Percentile Queue Length [ft]	78.56	178.22	43.28	88.02	95.14	18.45	64.28	68.52
95th-Percentile Queue Length [veh]	5.66	11.51	3.12	6.34	6.85	1.33	4.63	4.93
95th-Percentile Queue Length [ft]	141.40	287.69	77.90	158.44	171.26	33.22	115.71	123.34

Movement, Approach, & Intersection Results

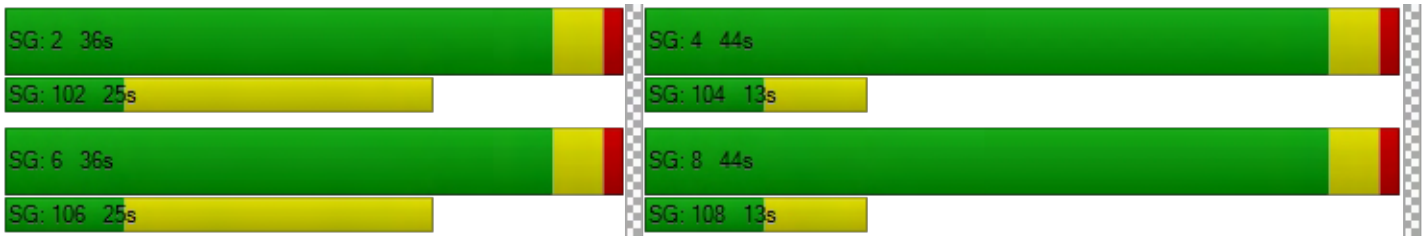
d_M, Delay for Movement [s/veh]	25.49	25.49	25.49	32.67	32.67	32.67	15.69	7.64	8.00	14.37	6.92	7.18
Movement LOS	C	C	C	C	C	C	B	A	A	B	A	A
d_A, Approach Delay [s/veh]	25.49			32.67			8.33			7.30		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	11.65											
Intersection LOS	B											
Intersection V/C	0.559											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.76	29.76	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	2.004	2.350	3.050	3.119
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	800	1000	1000
d_b, Bicycle Delay [s]	14.40	14.40	10.00	10.00
l_b,int, Bicycle LOS Score for Intersection	1.890	2.175	2.442	2.228
Bicycle LOS	A	B	B	B

Sequence

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



Intersection Level Of Service Report
Intersection 18: Cherry Ave (NS) at 21st St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.552

Intersection Setup

Name												
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	1	0	0	0	1	0	0
Pocket Length [ft]	110.00	100.00	100.00	198.00	100.00	100.00	100.00	100.00	100.00	96.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	12	842	8	105	952	52	76	34	23	7	15	94
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	4	12	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
Total Hourly Volume [veh/h]	12	842	8	105	952	56	88	34	23	7	15	94
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]	3	211	2	26	238	14	22	9	6	2	4	24
Total Analysis Volume [veh/h]	12	842	8	105	952	56	88	34	23	7	15	94
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.26	0.01	0.07	0.30	0.04	0.06	0.08	0.01	0.00	0.07	0.07
Intersection LOS	A											
Intersection V/C	0.552											

Intersection Level Of Service Report
Intersection 19: Cherry Ave (NS) at 20th St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.475

Intersection Setup

Name												
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	0	0	0	0	0	0
Pocket Length [ft]	80.00	100.00	100.00	80.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	9	839	12	8	965	13	4	2	45	14	3	38
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
Total Hourly Volume [veh/h]	9	839	12	8	965	13	4	2	45	14	3	38
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]	2	210	3	2	241	3	1	1	11	4	1	10
Total Analysis Volume [veh/h]	9	839	12	8	965	13	4	2	45	14	3	38
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.27	0.27	0.01	0.31	0.31	0.00	0.03	0.03	0.01	0.03	0.03
Intersection LOS	A											
Intersection V/C	0.475											

Opening Year (2020) Without Project

Signal Hill Business Park

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Report File: Z:\...\School PM - OY.pdf

Scenario 3 Opening Year Without Project
3/6/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
4	Orange Ave (NS) at Hill St (EW)	Signalized	ICU 1	NB Thru	0.690	-	B
5	Orange Ave (NS) at Pacific Coast Hwy (EW)	Signalized	HCM 6th Edition	EB Left	0.571	21.0	C
6	Gundry Ave (NS) at Hill St (EW)	Two-way stop	HCM 6th Edition	NB Left	0.115	13.6	B
10	Walnut Ave (NS) at Hill St (EW)	All-way stop	HCM 6th Edition	NB Thru	0.691	15.9	C
11	Walnut Ave (NS) at 20th St/Alamitos Ave (EW)	Signalized	ICU 1	NB Thru	0.576	-	A
12	Walnut Ave (NS) at Pacific Coast Hwy (EW)	Signalized	HCM 6th Edition	SB Thru	0.524	10.3	B
18	Cherry Ave (NS) at 21st St (EW)	Signalized	ICU 1	SB Thru	0.566	-	A
19	Cherry Ave (NS) at 20th St (EW)	Signalized	ICU 1	SB Right	0.489	-	A

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 4: Orange Ave (NS) at Hill St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.690

Intersection Setup

Name												
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	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	49	564	41	25	553	39	58	77	41	61	130	45
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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]	0	23	3	3	16	5	11	1	0	3	1	3
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
Total Hourly Volume [veh/h]	50	598	45	29	580	45	70	80	42	65	134	49
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]	13	150	11	7	145	11	18	20	11	16	34	12
Total Analysis Volume [veh/h]	50	598	45	29	580	45	70	80	42	65	134	49
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.40	0.40	0.02	0.39	0.39	0.04	0.09	0.03	0.04	0.12	0.03
Intersection LOS	B											
Intersection V/C	0.690											

Intersection Level Of Service Report
Intersection 5: Orange Ave (NS) at Pacific Coast Hwy (EW)

Control Type:	Signalized	Delay (sec / veh):	21.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.571

Intersection Setup

Name												
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	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	145.00	100.00	192.00	100.00	100.00	100.00	150.00	100.00	100.00	300.00	100.00	100.00
Speed [mph]	35.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	92	444	251	86	425	124	99	1163	93	168	841	130
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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]	0	8	0	0	6	13	18	10	0	0	17	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]	94	461	256	88	440	139	119	1196	95	171	875	133
Peak Hour Factor	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550
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]	25	121	67	23	115	36	31	313	25	45	229	35
Total Analysis Volume [veh/h]	98	483	268	92	461	146	125	1252	99	179	916	139
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 m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	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	1 - Coordination Group
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Overlap	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	2	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups			2,7									
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	30	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	31	31	0	31	0	13	33	0	16	36	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	7	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	20	20	0	17	0	0	20	0	0	15	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	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	
Maximum Recall		No	No		No		No	No		No	No	
Pedestrian Recall		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]	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	22	22	37	22	22	22	7	35	35	11	39	39
g / C, Green / Cycle	0.27	0.27	0.46	0.27	0.27	0.27	0.09	0.44	0.44	0.14	0.49	0.49
(v / s)_i Volume / Saturation Flow Rate	0.10	0.13	0.17	0.10	0.13	0.09	0.07	0.25	0.25	0.10	0.20	0.20
s, saturation flow rate [veh/h]	946	3618	1615	927	3618	1615	1810	3618	1830	1810	3618	1775
c, Capacity [veh/h]	223	988	748	215	988	441	164	1581	799	254	1761	864
d1, Uniform Delay [s]	33.03	24.45	13.85	33.33	24.28	23.29	35.63	16.90	16.90	32.88	13.12	13.12
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
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
d2, Incremental Delay [s]	1.36	0.38	0.29	1.35	0.34	0.44	7.21	1.48	2.91	3.56	0.68	1.39
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	0.44	0.49	0.36	0.43	0.47	0.33	0.76	0.57	0.57	0.70	0.40	0.40
d, Delay for Lane Group [s/veh]	34.40	24.83	14.14	34.68	24.62	23.73	42.84	18.38	19.81	36.44	13.80	14.52
Lane Group LOS	C	C	B	C	C	C	D	B	B	D	B	B
Critical Lane Group	No	No	Yes	No	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	1.83	3.68	2.90	1.75	3.55	2.18	2.63	5.95	6.33	3.44	3.82	3.93
50th-Percentile Queue Length [ft]	45.80	92.11	72.39	43.75	88.75	54.54	65.75	148.69	158.32	85.92	95.55	98.19
95th-Percentile Queue Length [veh]	3.30	6.63	5.21	3.15	6.39	3.93	4.73	9.95	10.46	6.19	6.88	7.07
95th-Percentile Queue Length [ft]	82.43	165.79	130.29	78.74	159.75	98.18	118.35	248.67	261.50	154.66	172.00	176.75

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.40	24.83	14.14	34.68	24.62	23.73	42.84	18.79	19.81	36.44	13.97	14.52
Movement LOS	C	C	B	C	C	C	D	B	B	D	B	B
d_A, Approach Delay [s/veh]	22.56			25.76			20.89			17.29		
Approach LOS	C			C			C			B		
d_I, Intersection Delay [s/veh]	20.98											
Intersection LOS	C											
Intersection V/C	0.571											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.76	29.76	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	2.747	2.681	3.155	3.181
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	675	675	725	800
d_b, Bicycle Delay [s]	17.56	17.56	16.26	14.40
l_b,int, Bicycle LOS Score for Intersection	2.260	2.136	2.371	2.238
Bicycle LOS	B	B	B	B

Sequence

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

Intersection Level Of Service Report
Intersection 6: Gundry Ave (NS) at Hill St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	13.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.115

Intersection Setup

Name						
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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	33	23	137	22	25	203
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
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]	7	0	0	7	0	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]	41	23	140	29	26	207
Peak Hour Factor	0.7420	0.7420	0.7420	0.7420	0.7420	0.7420
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	8	47	10	9	70
Total Analysis Volume [veh/h]	55	31	189	39	35	279
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.04	0.00	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	13.64	10.43	0.00	0.00	7.73	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh]	0.53	0.53	0.00	0.00	0.90	0.90
95th-Percentile Queue Length [ft]	13.30	13.30	0.00	0.00	22.53	22.53
d_A, Approach Delay [s/veh]	12.49		0.00		0.86	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	2.14					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 10: Walnut Ave (NS) at Hill St (EW)

Control Type:	All-way stop	Delay (sec / veh):	15.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.691

Intersection Setup

Name												
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	0	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	54.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	30	273	43	32	185	94	37	109	28	27	67	26
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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]	0	6	2	0	4	0	0	0	0	3	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
Total Hourly Volume [veh/h]	31	284	46	33	193	96	38	111	29	31	68	27
Peak Hour Factor	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460
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]	9	84	14	10	57	28	11	33	9	9	20	8
Total Analysis Volume [veh/h]	37	336	54	39	228	113	45	131	34	37	80	32
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	618	555	633	557	543
Degree of Utilization, x	0.69	0.48	0.18	0.38	0.27

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	5.46	2.59	0.65	1.75	1.11
95th-Percentile Queue Length [ft]	136.40	64.75	16.16	43.67	27.71
Approach Delay [s/veh]	20.80	13.42		13.33	12.11
Approach LOS	C	B		B	B
Intersection Delay [s/veh]	15.94				
Intersection LOS	C				

Intersection Level Of Service Report

Intersection 11: Walnut Ave (NS) at 20th St/Alamitos Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.576

Intersection Setup

Name												
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	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	25	224	50	19	169	37	77	105	79	28	46	13
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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]	0	8	0	0	6	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
Total Hourly Volume [veh/h]	26	236	51	19	178	38	79	107	81	29	47	13
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]	7	59	13	5	45	10	20	27	20	7	12	3
Total Analysis Volume [veh/h]	26	236	51	19	178	38	79	107	81	29	47	13
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	20.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.18	0.18	0.01	0.14	0.14	0.05	0.17	0.17	0.02	0.06	0.06
Intersection LOS	A											
Intersection V/C	0.576											

Intersection Level Of Service Report
Intersection 12: Walnut Ave (NS) at Pacific Coast Hwy (EW)

Control Type:	Signalized	Delay (sec / veh):	10.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.524

Intersection Setup

Name												
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	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	130.00	100.00	100.00	177.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	41	113	37	72	119	99	114	1356	49	56	1037	58
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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]	0	6	0	2	4	0	0	10	0	0	17	2
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]	42	121	38	75	125	101	116	1393	50	57	1075	61
Peak Hour Factor	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550
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]	11	32	10	20	33	26	30	365	13	15	281	16
Total Analysis Volume [veh/h]	44	127	40	79	131	106	121	1459	52	60	1126	64
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 m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	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	1 - Coordination Group
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	35.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	32	0	0	32	0	0	48	0	0	48	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	18	0	0	6	0	0	6	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		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	C	C	L	C	C	L	C	C
C, Cycle Length [s]	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
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	18	18	54	54	54	54	54	54
g / C, Green / Cycle	0.22	0.22	0.68	0.68	0.68	0.68	0.68	0.68
(v / s)_i Volume / Saturation Flow Rate	0.13	0.20	0.25	0.28	0.28	0.17	0.22	0.22
s, saturation flow rate [veh/h]	1590	1612	478	3618	1867	352	3618	1848
c, Capacity [veh/h]	403	410	361	2462	1270	278	2462	1258
d1, Uniform Delay [s]	27.60	30.13	10.06	5.64	5.64	10.46	5.22	5.22
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.05	3.09	2.49	0.50	0.96	1.77	0.34	0.67
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.77	0.34	0.40	0.40	0.22	0.32	0.32
d, Delay for Lane Group [s/veh]	28.65	33.22	12.55	6.13	6.60	12.23	5.56	5.89
Lane Group LOS	C	C	B	A	A	B	A	A
Critical Lane Group	No	Yes	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh]	3.58	6.02	1.35	3.08	3.35	0.68	2.25	2.42
50th-Percentile Queue Length [ft]	89.47	150.45	33.66	77.10	83.69	16.96	56.25	60.38
95th-Percentile Queue Length [veh]	6.44	10.04	2.42	5.55	6.03	1.22	4.05	4.35
95th-Percentile Queue Length [ft]	161.05	251.03	60.59	138.78	150.64	30.53	101.25	108.69

Movement, Approach, & Intersection Results

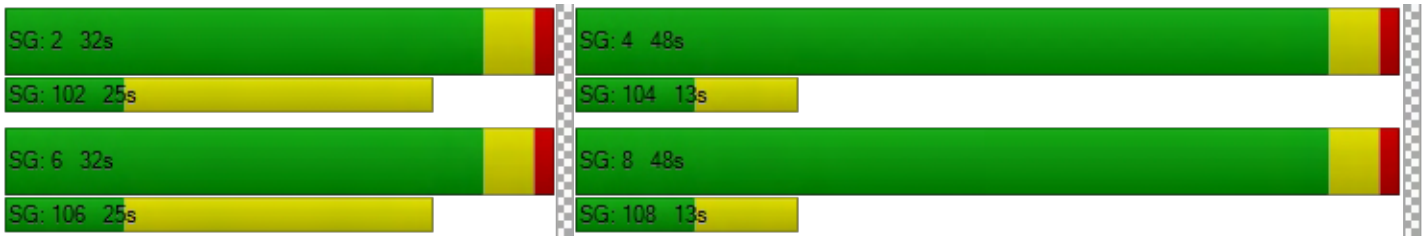
d_M, Delay for Movement [s/veh]	28.65	28.65	28.65	33.22	33.22	33.22	12.55	6.28	6.60	12.23	5.66	5.89
Movement LOS	C	C	C	C	C	C	B	A	A	B	A	A
d_A, Approach Delay [s/veh]	28.65			33.22			6.75			5.99		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	10.28											
Intersection LOS	B											
Intersection V/C	0.524											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.76	29.76	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	2.015	2.310	3.055	3.094
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	700	1100	1100
d_b, Bicycle Delay [s]	16.90	16.90	8.10	8.10
l_b,int, Bicycle LOS Score for Intersection	1.908	2.081	2.457	2.247
Bicycle LOS	A	B	B	B

Sequence

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



Intersection Level Of Service Report
Intersection 18: Cherry Ave (NS) at 21st St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.566

Intersection Setup

Name												
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	1	0	0	0	1	0	0
Pocket Length [ft]	110.00	100.00	100.00	198.00	100.00	100.00	100.00	100.00	100.00	96.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	12	842	8	105	952	52	76	34	23	7	15	94
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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]	0	24	0	3	14	0	0	0	0	0	0	5
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
Total Hourly Volume [veh/h]	12	883	8	110	985	53	78	35	23	7	15	101
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]	3	221	2	28	246	13	20	9	6	2	4	25
Total Analysis Volume [veh/h]	12	883	8	110	985	53	78	35	23	7	15	101
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.28	0.01	0.07	0.31	0.03	0.05	0.07	0.01	0.00	0.07	0.07
Intersection LOS	A											
Intersection V/C	0.566											

Intersection Level Of Service Report
Intersection 19: Cherry Ave (NS) at 20th St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.489

Intersection Setup

Name												
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	0	0	0	0	0	0
Pocket Length [ft]	80.00	100.00	100.00	80.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	9	839	12	8	965	13	4	2	45	14	3	38
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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]	0	19	0	3	11	0	0	0	0	0	0	5
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
Total Hourly Volume [veh/h]	9	875	12	11	995	13	4	2	46	14	3	44
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]	2	219	3	3	249	3	1	1	12	4	1	11
Total Analysis Volume [veh/h]	9	875	12	11	995	13	4	2	46	14	3	44
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.28	0.28	0.01	0.32	0.32	0.00	0.03	0.03	0.01	0.04	0.04
Intersection LOS	A											
Intersection V/C	0.489											

Opening Year (2020) With Project

Signal Hill Business Park

Vistro File: Z:\...\School PM.vistro
Report File: Z:\...\School PM - OYP.pdf

Scenario 4 Opening Year With Project
3/6/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
4	Orange Ave (NS) at Hill St (EW)	Signalized	ICU 1	NB Thru	0.703	-	C
5	Orange Ave (NS) at Pacific Coast Hwy (EW)	Signalized	HCM 6th Edition	EB Left	0.580	21.1	C
6	Gundry Ave (NS) at Hill St (EW)	Two-way stop	HCM 6th Edition	NB Left	0.231	15.5	C
10	Walnut Ave (NS) at Hill St (EW)	All-way stop	HCM 6th Edition	NB Thru	0.850	22.2	C
11	Walnut Ave (NS) at 20th St/Alamitos Ave (EW)	Signalized	ICU 1	NB Thru	0.591	-	A
12	Walnut Ave (NS) at Pacific Coast Hwy (EW)	Signalized	HCM 6th Edition	SB Right	0.586	12.1	B
18	Cherry Ave (NS) at 21st St (EW)	Signalized	ICU 1	SB Thru	0.573	-	A
19	Cherry Ave (NS) at 20th St (EW)	Signalized	ICU 1	SB Right	0.489	-	A

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 4: Orange Ave (NS) at Hill St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.703

Intersection Setup

Name												
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	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	49	564	41	25	553	39	58	77	41	61	130	45
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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]	0	23	3	20	16	5	11	3	0	3	8	48
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
Total Hourly Volume [veh/h]	50	598	45	46	580	45	70	82	42	65	141	94
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]	13	150	11	12	145	11	18	21	11	16	35	24
Total Analysis Volume [veh/h]	50	598	45	46	580	45	70	82	42	65	141	94
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.40	0.40	0.03	0.39	0.39	0.04	0.10	0.03	0.04	0.13	0.06
Intersection LOS	C											
Intersection V/C	0.703											

Intersection Level Of Service Report
Intersection 5: Orange Ave (NS) at Pacific Coast Hwy (EW)

Control Type:	Signalized	Delay (sec / veh):	21.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.580

Intersection Setup

Name												
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	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	145.00	100.00	192.00	100.00	100.00	100.00	150.00	100.00	100.00	300.00	100.00	100.00
Speed [mph]	35.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	92	444	251	86	425	124	99	1163	93	168	841	130
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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]	0	8	2	0	6	13	18	22	0	7	50	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]	94	461	258	88	440	139	119	1208	95	178	908	133
Peak Hour Factor	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550
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]	25	121	68	23	115	36	31	316	25	47	238	35
Total Analysis Volume [veh/h]	98	483	270	92	461	146	125	1265	99	186	951	139
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 m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	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	1 - Coordination Group
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Overlap	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	2	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups			2,7									
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	30	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	31	31	0	31	0	13	33	0	16	36	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	7	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	20	20	0	17	0	0	20	0	0	15	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	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	
Maximum Recall		No	No		No		No	No		No	No	
Pedestrian Recall		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]	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	22	22	37	22	22	22	7	35	35	11	39	39
g / C, Green / Cycle	0.27	0.27	0.46	0.27	0.27	0.27	0.09	0.44	0.44	0.14	0.49	0.49
(v / s)_i Volume / Saturation Flow Rate	0.10	0.13	0.17	0.10	0.13	0.09	0.07	0.25	0.25	0.10	0.20	0.20
s, saturation flow rate [veh/h]	946	3618	1615	927	3618	1615	1810	3618	1830	1810	3618	1779
c, Capacity [veh/h]	223	988	750	215	988	441	164	1576	797	256	1761	866
d1, Uniform Delay [s]	33.03	24.45	13.80	33.32	24.28	23.29	35.63	17.03	17.03	32.92	13.23	13.23
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
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
d2, Incremental Delay [s]	1.36	0.38	0.29	1.35	0.34	0.44	7.21	1.53	3.00	3.90	0.72	1.47
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	0.44	0.49	0.36	0.43	0.47	0.33	0.76	0.57	0.57	0.73	0.41	0.42
d, Delay for Lane Group [s/veh]	34.39	24.82	14.09	34.68	24.62	23.72	42.84	18.56	20.03	36.83	13.95	14.70
Lane Group LOS	C	C	B	C	C	C	D	B	C	D	B	B
Critical Lane Group	No	No	Yes	No	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	1.83	3.68	2.91	1.75	3.55	2.18	2.63	6.05	6.44	3.60	3.98	4.10
50th-Percentile Queue Length [ft]	45.79	92.10	72.80	43.74	88.74	54.54	65.75	151.13	161.07	89.91	99.53	102.47
95th-Percentile Queue Length [veh]	3.30	6.63	5.24	3.15	6.39	3.93	4.73	10.08	10.61	6.47	7.17	7.38
95th-Percentile Queue Length [ft]	82.43	165.78	131.05	78.74	159.74	98.17	118.35	251.93	265.14	161.84	179.16	184.45

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.39	24.82	14.09	34.68	24.62	23.72	42.84	18.98	20.03	36.83	14.12	14.70
Movement LOS	C	C	B	C	C	C	D	B	C	D	B	B
d_A, Approach Delay [s/veh]	22.52			25.76			21.05			17.49		
Approach LOS	C			C			C			B		
d_I, Intersection Delay [s/veh]	21.05											
Intersection LOS	C											
Intersection V/C	0.580											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.76	29.76	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	2.749	2.681	3.163	3.190
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	675	675	725	800
d_b, Bicycle Delay [s]	17.56	17.56	16.26	14.40
l_b,int, Bicycle LOS Score for Intersection	2.262	2.136	2.379	2.261
Bicycle LOS	B	B	B	B

Sequence

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

Intersection Level Of Service Report
Intersection 6: Gundry Ave (NS) at Hill St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	15.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.231

Intersection Setup

Name						
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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	33	23	137	22	25	203
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
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]	44	0	6	20	0	16
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]	78	23	146	42	26	223
Peak Hour Factor	0.7420	0.7420	0.7420	0.7420	0.7420	0.7420
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	8	49	14	9	75
Total Analysis Volume [veh/h]	105	31	197	57	35	301
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.23	0.04	0.00	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	15.52	11.99	0.00	0.00	7.80	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh]	1.08	1.08	0.00	0.00	1.01	1.01
95th-Percentile Queue Length [ft]	26.95	26.95	0.00	0.00	25.33	25.33
d_A, Approach Delay [s/veh]	14.71		0.00		0.81	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	3.13					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 10: Walnut Ave (NS) at Hill St (EW)

Control Type:	All-way stop	Delay (sec / veh):	22.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.850

Intersection Setup

Name												
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	0	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	54.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	30	273	43	32	185	94	37	109	28	27	67	26
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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]	16	13	48	0	6	0	0	0	6	19	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
Total Hourly Volume [veh/h]	47	291	92	33	195	96	38	111	35	47	68	27
Peak Hour Factor	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460
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]	14	86	27	10	58	28	11	33	10	14	20	8
Total Analysis Volume [veh/h]	56	344	109	39	230	113	45	131	41	56	80	32
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	599	525	593	522	508
Degree of Utilization, x	0.85	0.51	0.19	0.42	0.33

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	9.31	2.90	0.70	2.03	1.43
95th-Percentile Queue Length [ft]	232.68	72.38	17.46	50.66	35.86
Approach Delay [s/veh]	33.95	14.68		14.71	13.55
Approach LOS	D	B		B	B
Intersection Delay [s/veh]	22.22				
Intersection LOS	C				

Intersection Level Of Service Report

Intersection 11: Walnut Ave (NS) at 20th St/Alamitos Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.591

Intersection Setup

Name												
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	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	25	224	50	19	169	37	77	105	79	28	46	13
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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]	0	31	0	0	71	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
Total Hourly Volume [veh/h]	26	259	51	19	243	38	79	107	81	29	47	13
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]	7	65	13	5	61	10	20	27	20	7	12	3
Total Analysis Volume [veh/h]	26	259	51	19	243	38	79	107	81	29	47	13
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	20.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.19	0.19	0.01	0.18	0.18	0.05	0.17	0.17	0.02	0.06	0.06
Intersection LOS	A											
Intersection V/C	0.591											

Intersection Level Of Service Report
Intersection 12: Walnut Ave (NS) at Pacific Coast Hwy (EW)

Control Type:	Signalized	Delay (sec / veh):	12.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.586

Intersection Setup

Name												
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	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	130.00	100.00	100.00	177.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	41	113	37	72	119	99	114	1356	49	56	1037	58
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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]	0	6	0	27	4	40	14	10	0	0	17	11
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]	42	121	38	100	125	141	130	1393	50	57	1075	70
Peak Hour Factor	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550
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]	11	32	10	26	33	37	34	365	13	15	281	18
Total Analysis Volume [veh/h]	44	127	40	105	131	148	136	1459	52	60	1126	73
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 m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	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	1 - Coordination Group
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	35.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	36	0	0	36	0	0	44	0	0	44	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	18	0	0	6	0	0	6	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		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	C	C	L	C	C	L	C	C
C, Cycle Length [s]	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
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	21	21	51	51	51	51	51	51
g / C, Green / Cycle	0.27	0.27	0.63	0.63	0.63	0.63	0.63	0.63
(v / s)_i Volume / Saturation Flow Rate	0.13	0.24	0.29	0.28	0.28	0.17	0.22	0.22
s, saturation flow rate [veh/h]	1573	1597	474	3618	1867	352	3618	1841
c, Capacity [veh/h]	471	480	331	2297	1186	256	2297	1169
d1, Uniform Delay [s]	24.41	28.26	13.60	7.35	7.35	13.45	6.82	6.82
k, delay calibration	0.11	0.16	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.67	4.54	3.75	0.60	1.16	2.14	0.41	0.81
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.45	0.80	0.41	0.43	0.43	0.23	0.35	0.35
d, Delay for Lane Group [s/veh]	25.08	32.79	17.35	7.95	8.51	15.59	7.23	7.63
Lane Group LOS	C	C	B	A	A	B	A	A
Critical Lane Group	No	Yes	Yes	No	No	No	No	No
50th-Percentile Queue Length [veh]	3.29	7.38	1.88	3.79	4.10	0.79	2.80	2.98
50th-Percentile Queue Length [ft]	82.24	184.51	47.08	94.78	102.46	19.83	69.90	74.45
95th-Percentile Queue Length [veh]	5.92	11.84	3.39	6.82	7.38	1.43	5.03	5.36
95th-Percentile Queue Length [ft]	148.04	295.90	84.74	170.60	184.42	35.70	125.82	134.01

Movement, Approach, & Intersection Results

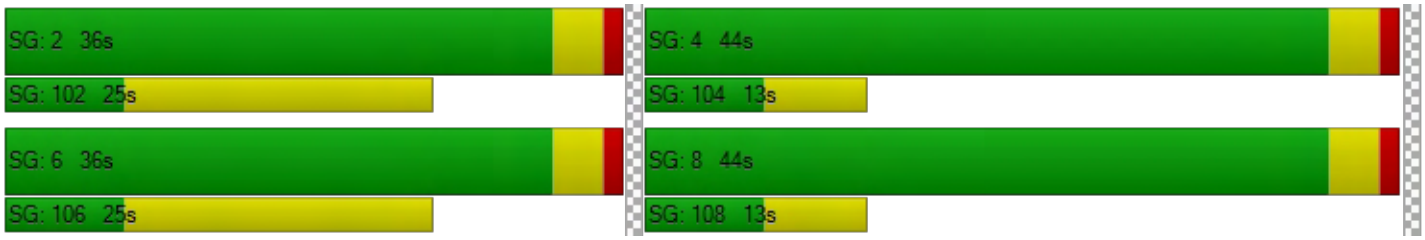
d_M, Delay for Movement [s/veh]	25.08	25.08	25.08	32.79	32.79	32.79	17.35	8.12	8.51	15.59	7.35	7.63
Movement LOS	C	C	C	C	C	C	B	A	A	B	A	A
d_A, Approach Delay [s/veh]	25.08			32.79			8.90			7.76		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	12.09											
Intersection LOS	B											
Intersection V/C	0.586											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.76	29.76	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	2.015	2.361	3.063	3.135
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	800	1000	1000
d_b, Bicycle Delay [s]	14.40	14.40	10.00	10.00
l_b,int, Bicycle LOS Score for Intersection	1.908	2.193	2.465	2.252
Bicycle LOS	A	B	B	B

Sequence

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



Intersection Level Of Service Report
Intersection 18: Cherry Ave (NS) at 21st St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.573

Intersection Setup

Name												
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	1	0	0	0	1	0	0
Pocket Length [ft]	110.00	100.00	100.00	198.00	100.00	100.00	100.00	100.00	100.00	96.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	12	842	8	105	952	52	76	34	23	7	15	94
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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]	0	24	0	3	14	4	12	0	0	0	0	5
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
Total Hourly Volume [veh/h]	12	883	8	110	985	57	90	35	23	7	15	101
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]	3	221	2	28	246	14	23	9	6	2	4	25
Total Analysis Volume [veh/h]	12	883	8	110	985	57	90	35	23	7	15	101
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.28	0.01	0.07	0.31	0.04	0.06	0.08	0.01	0.00	0.07	0.07
Intersection LOS	A											
Intersection V/C	0.573											

Intersection Level Of Service Report
Intersection 19: Cherry Ave (NS) at 20th St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.489

Intersection Setup

Name												
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	0	0	0	0	0	0
Pocket Length [ft]	80.00	100.00	100.00	80.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	9	839	12	8	965	13	4	2	45	14	3	38
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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]	0	19	0	3	11	0	0	0	0	0	0	5
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
Total Hourly Volume [veh/h]	9	875	12	11	995	13	4	2	46	14	3	44
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]	2	219	3	3	249	3	1	1	12	4	1	11
Total Analysis Volume [veh/h]	9	875	12	11	995	13	4	2	46	14	3	44
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.28	0.28	0.01	0.32	0.32	0.00	0.03	0.03	0.01	0.04	0.04
Intersection LOS	A											
Intersection V/C	0.489											

General Plan Buildout Without Project

Signal Hill Business Park

Vistro File: Z:\...\School PM.vistro
Report File: Z:\...\School PM - GP.pdf

Scenario 5 General Plan Buildout Without Project
3/6/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
4	Orange Ave (NS) at Hill St (EW)	Signalized	ICU 1	NB Thru	0.802	-	D
5	Orange Ave (NS) at Pacific Coast Hwy (EW)	Signalized	HCM 6th Edition	EB Left	0.681	24.0	C
6	Gundry Ave (NS) at Hill St (EW)	Two-way stop	HCM 6th Edition	NB Left	0.153	15.6	C
10	Walnut Ave (NS) at Hill St (EW)	All-way stop	HCM 6th Edition	NB Thru	0.929	29.1	D
11	Walnut Ave (NS) at 20th St/Alamitos Ave (EW)	Signalized	ICU 1	NB Right	0.648	-	B
12	Walnut Ave (NS) at Pacific Coast Hwy (EW)	Signalized	HCM 6th Edition	SB Thru	0.689	12.7	B
18	Cherry Ave (NS) at 21st St (EW)	Signalized	ICU 1	SB Thru	0.655	-	B
19	Cherry Ave (NS) at 20th St (EW)	Signalized	ICU 1	SB Thru	0.564	-	A

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 4: Orange Ave (NS) at Hill St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.802

Intersection Setup

Name												
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	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	49	564	41	25	553	39	58	77	41	61	130	45
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	23	3	3	16	5	11	1	0	3	1	3
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
Total Hourly Volume [veh/h]	60	711	53	34	691	53	82	95	50	77	160	58
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]	15	178	13	9	173	13	21	24	13	19	40	15
Total Analysis Volume [veh/h]	60	711	53	34	691	53	82	95	50	77	160	58
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.48	0.48	0.02	0.47	0.47	0.05	0.11	0.03	0.05	0.15	0.04
Intersection LOS	D											
Intersection V/C	0.802											

Intersection Level Of Service Report
Intersection 5: Orange Ave (NS) at Pacific Coast Hwy (EW)

Control Type:	Signalized	Delay (sec / veh):	24.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.681

Intersection Setup

Name												
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	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	145.00	100.00	192.00	100.00	100.00	100.00	150.00	100.00	100.00	300.00	100.00	100.00
Speed [mph]	35.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	92	444	251	86	425	124	99	1163	93	168	841	130
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	8	0	0	6	13	18	10	0	0	17	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]	112	550	306	105	525	164	139	1429	113	205	1043	159
Peak Hour Factor	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550
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]	29	144	80	27	137	43	36	374	30	54	273	42
Total Analysis Volume [veh/h]	117	576	320	110	550	172	146	1496	118	215	1092	166
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 m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	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	1 - Coordination Group
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Overlap	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	2	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups			2,7									
Lead / Lag	-	-	-	-	-	-	Lag	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	30	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	31	31	0	31	0	13	33	0	16	36	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	7	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	20	20	0	17	0	0	20	0	0	15	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	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	
Maximum Recall		No	No		No		No	No		No	No	
Pedestrian Recall		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]	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	25	25	41	25	25	25	8	31	31	12	35	35
g / C, Green / Cycle	0.31	0.31	0.51	0.31	0.31	0.31	0.10	0.39	0.39	0.15	0.43	0.43
(v / s)_i Volume / Saturation Flow Rate	0.13	0.16	0.20	0.13	0.15	0.11	0.08	0.30	0.30	0.12	0.23	0.23
s, saturation flow rate [veh/h]	871	3618	1615	850	3618	1615	1810	3618	1830	1810	3618	1774
c, Capacity [veh/h]	237	1141	831	228	1141	509	185	1396	706	270	1565	768
d1, Uniform Delay [s]	31.95	22.34	11.79	32.30	22.15	21.02	35.15	21.48	21.49	32.95	16.83	16.83
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
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
d2, Incremental Delay [s]	1.58	0.35	0.29	1.58	0.32	0.39	7.32	4.09	7.87	5.37	1.34	2.71
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	0.49	0.50	0.39	0.48	0.48	0.34	0.79	0.77	0.77	0.80	0.54	0.54
d, Delay for Lane Group [s/veh]	33.53	22.69	12.08	33.88	22.47	21.41	42.46	25.57	29.37	38.31	18.17	19.54
Lane Group LOS	C	C	B	C	C	C	D	C	C	D	B	B
Critical Lane Group	No	No	Yes	No	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	2.18	4.21	3.15	2.09	4.06	2.43	3.06	8.81	9.67	4.26	5.50	5.69
50th-Percentile Queue Length [ft]	54.60	105.30	78.64	52.31	101.49	60.87	76.43	220.25	241.78	106.57	137.62	142.32
95th-Percentile Queue Length [veh]	3.93	7.58	5.66	3.77	7.31	4.38	5.50	13.68	14.77	7.65	9.35	9.61
95th-Percentile Queue Length [ft]	98.29	189.45	141.56	94.16	182.68	109.57	137.58	341.94	369.29	191.22	233.82	240.14

Movement, Approach, & Intersection Results

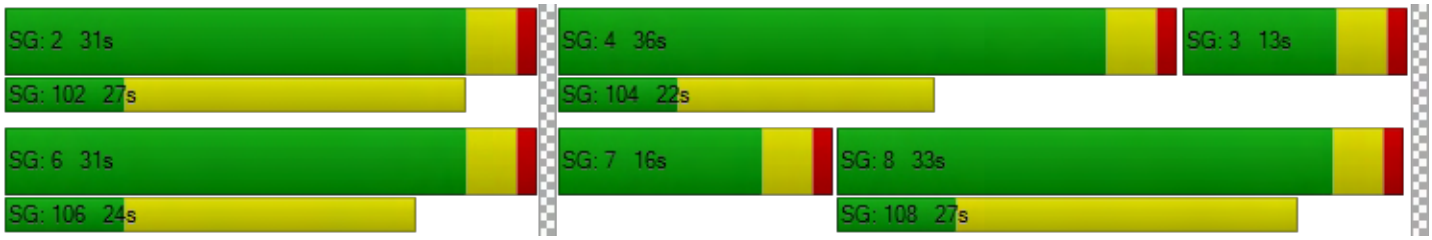
d_M, Delay for Movement [s/veh]	33.53	22.69	12.08	33.88	22.47	21.41	42.46	26.65	29.37	38.31	18.48	19.54
Movement LOS	C	C	B	C	C	C	D	C	C	D	B	B
d_A, Approach Delay [s/veh]	20.59			23.76			28.14			21.49		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	23.99											
Intersection LOS	C											
Intersection V/C	0.681											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.76	29.76	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	2.806	2.726	3.264	3.296
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	675	675	725	800
d_b, Bicycle Delay [s]	17.56	17.56	16.26	14.40
l_b,int, Bicycle LOS Score for Intersection	2.395	2.246	2.528	2.370
Bicycle LOS	B	B	B	B

Sequence

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



Intersection Level Of Service Report
Intersection 6: Gundry Ave (NS) at Hill St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	15.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.153

Intersection Setup

Name						
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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	33	23	137	22	25	203
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.22	1.22	1.22	1.22	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	7	0	0	7	0	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]	47	28	167	34	31	248
Peak Hour Factor	0.7420	0.7420	0.7420	0.7420	0.7420	0.7420
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	9	56	11	10	84
Total Analysis Volume [veh/h]	63	38	225	46	42	334
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.15	0.05	0.00	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	15.56	11.32	0.00	0.00	7.85	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh]	0.74	0.74	0.00	0.00	1.20	1.20
95th-Percentile Queue Length [ft]	18.61	18.61	0.00	0.00	30.07	30.07
d_A, Approach Delay [s/veh]	13.97		0.00		0.88	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	2.33					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 10: Walnut Ave (NS) at Hill St (EW)

Control Type:	All-way stop	Delay (sec / veh):	29.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.929

Intersection Setup

Name												
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	0	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	54.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	30	273	43	32	185	94	37	109	28	27	67	26
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	6	2	0	4	0	0	0	0	3	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
Total Hourly Volume [veh/h]	37	339	54	39	230	115	45	133	34	36	82	32
Peak Hour Factor	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460
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]	11	100	16	12	68	34	13	39	10	11	24	9
Total Analysis Volume [veh/h]	44	401	64	46	272	136	53	157	40	43	97	38
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	548	492	552	486	468
Degree of Utilization, x	0.93	0.65	0.25	0.51	0.38

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	11.60	4.54	0.96	2.89	1.75
95th-Percentile Queue Length [ft]	289.89	113.38	24.07	72.30	43.78
Approach Delay [s/veh]	48.38	19.10		17.98	15.30
Approach LOS	E	C		C	C
Intersection Delay [s/veh]	29.12				
Intersection LOS	D				

Intersection Level Of Service Report

Intersection 11: Walnut Ave (NS) at 20th St/Alamitos Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.648

Intersection Setup

Name												
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	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	25	224	50	19	169	37	77	105	79	28	46	13
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	8	0	0	6	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
Total Hourly Volume [veh/h]	31	281	61	23	212	45	94	128	96	34	56	16
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]	8	70	15	6	53	11	24	32	24	9	14	4
Total Analysis Volume [veh/h]	31	281	61	23	212	45	94	128	96	34	56	16
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	20.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.21	0.21	0.01	0.16	0.16	0.06	0.20	0.20	0.02	0.07	0.07
Intersection LOS	B											
Intersection V/C	0.648											

Intersection Level Of Service Report
Intersection 12: Walnut Ave (NS) at Pacific Coast Hwy (EW)

Control Type:	Signalized	Delay (sec / veh):	12.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.689

Intersection Setup

Name												
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	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	130.00	100.00	100.00	177.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	41	113	37	72	119	99	114	1356	49	56	1037	58
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	6	0	2	4	0	0	10	0	0	17	2
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]	50	144	45	90	149	121	139	1664	60	68	1282	73
Peak Hour Factor	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550
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]	13	38	12	24	39	32	36	436	16	18	336	19
Total Analysis Volume [veh/h]	52	151	47	94	156	127	146	1742	63	71	1342	76
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 m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	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	1 - Coordination Group
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	42.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	31	0	0	31	0	0	49	0	0	49	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	18	0	0	6	0	0	6	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		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	C	C	L	C	C	L	C	C
C, Cycle Length [s]	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
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	21	21	51	51	51	51	51	51
g / C, Green / Cycle	0.26	0.26	0.64	0.64	0.64	0.64	0.64	0.64
(v / s)_i Volume / Saturation Flow Rate	0.16	0.24	0.38	0.33	0.33	0.27	0.26	0.26
s, saturation flow rate [veh/h]	1530	1567	385	3618	1866	265	3618	1848
c, Capacity [veh/h]	458	470	277	2301	1187	205	2301	1176
d1, Uniform Delay [s]	25.21	28.39	17.06	7.89	7.90	17.46	7.15	7.15
k, delay calibration	0.11	0.19	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.01	5.49	7.03	0.83	1.62	4.58	0.54	1.05
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.80	0.53	0.52	0.52	0.35	0.41	0.41
d, Delay for Lane Group [s/veh]	26.22	33.88	24.09	8.73	9.52	22.04	7.69	8.20
Lane Group LOS	C	C	C	A	A	C	A	A
Critical Lane Group	No	Yes	Yes	No	No	No	No	No
50th-Percentile Queue Length [veh]	4.06	7.40	2.55	4.89	5.32	1.20	3.47	3.72
50th-Percentile Queue Length [ft]	101.50	185.06	63.85	122.20	132.91	30.01	86.87	92.96
95th-Percentile Queue Length [veh]	7.31	11.86	4.60	8.51	9.10	2.16	6.25	6.69
95th-Percentile Queue Length [ft]	182.71	296.61	114.93	212.85	227.44	54.02	156.37	167.32

Movement, Approach, & Intersection Results

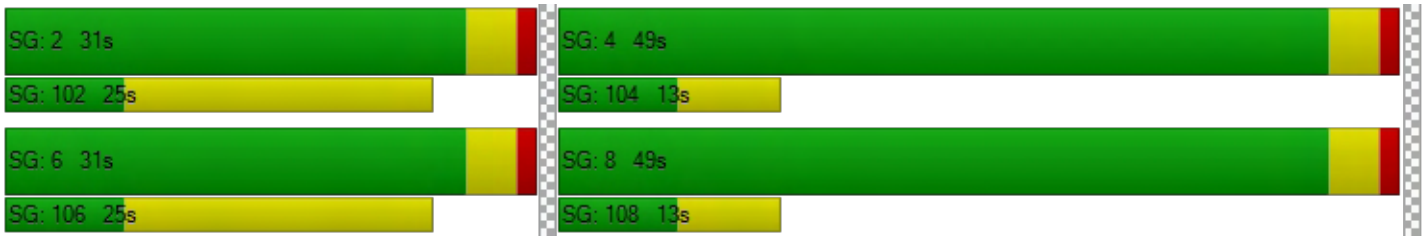
d_M, Delay for Movement [s/veh]	26.22	26.22	26.22	33.88	33.88	33.88	24.09	8.98	9.52	22.04	7.84	8.20
Movement LOS	C	C	C	C	C	C	C	A	A	C	A	A
d_A, Approach Delay [s/veh]	26.22			33.88			10.13			8.54		
Approach LOS	C			C			B			A		
d_I, Intersection Delay [s/veh]	12.74											
Intersection LOS	B											
Intersection V/C	0.689											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.76	29.76	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	2.072	2.385	3.145	3.191
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	675	675	1125	1125
d_b, Bicycle Delay [s]	17.56	17.56	7.66	7.66
l_b,int, Bicycle LOS Score for Intersection	1.972	2.182	2.633	2.379
Bicycle LOS	A	B	B	B

Sequence

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



Intersection Level Of Service Report
Intersection 18: Cherry Ave (NS) at 21st St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.655

Intersection Setup

Name												
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	1	0	0	0	1	0	0
Pocket Length [ft]	110.00	100.00	100.00	198.00	100.00	100.00	100.00	100.00	100.00	96.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	12	842	8	105	952	52	76	34	23	7	15	94
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	24	0	3	14	0	0	0	0	0	0	5
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
Total Hourly Volume [veh/h]	15	1051	10	131	1175	63	93	41	28	9	18	120
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]	4	263	3	33	294	16	23	10	7	2	5	30
Total Analysis Volume [veh/h]	15	1051	10	131	1175	63	93	41	28	9	18	120
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.33	0.01	0.08	0.37	0.04	0.06	0.08	0.02	0.01	0.09	0.09
Intersection LOS	B											
Intersection V/C	0.655											

Intersection Level Of Service Report
Intersection 19: Cherry Ave (NS) at 20th St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.564

Intersection Setup

Name												
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	0	0	0	0	0	0
Pocket Length [ft]	80.00	100.00	100.00	80.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	9	839	12	8	965	13	4	2	45	14	3	38
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	19	0	3	11	0	0	0	0	0	0	5
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
Total Hourly Volume [veh/h]	11	1043	15	13	1188	16	5	2	55	17	4	51
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]	3	261	4	3	297	4	1	1	14	4	1	13
Total Analysis Volume [veh/h]	11	1043	15	13	1188	16	5	2	55	17	4	51
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.33	0.33	0.01	0.38	0.38	0.00	0.04	0.04	0.01	0.05	0.05
Intersection LOS	A											
Intersection V/C	0.564											

General Plan Buildout With Project

Signal Hill Business Park

Vistro File: Z:\...\School PM.vistro
Report File: Z:\...\School PM - GPP.pdf

Scenario 6 General Plan Buildout With Project
3/6/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
4	Orange Ave (NS) at Hill St (EW)	Signalized	ICU 1	NB Thru	0.813	-	D
5	Orange Ave (NS) at Pacific Coast Hwy (EW)	Signalized	HCM 6th Edition	EB Left	0.690	24.2	C
6	Gundry Ave (NS) at Hill St (EW)	Two-way stop	HCM 6th Edition	NB Left	0.290	18.3	C
10	Walnut Ave (NS) at Hill St (EW)	All-way stop	HCM 6th Edition	NB Thru	1.101	48.6	E
11	Walnut Ave (NS) at 20th St/Alamitos Ave (EW)	Signalized	ICU 1	NB Thru	0.663	-	B
12	Walnut Ave (NS) at Pacific Coast Hwy (EW)	Signalized	HCM 6th Edition	SB Right	0.784	15.2	B
18	Cherry Ave (NS) at 21st St (EW)	Signalized	ICU 1	SB Thru	0.662	-	B
19	Cherry Ave (NS) at 20th St (EW)	Signalized	ICU 1	SB Thru	0.564	-	A

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 4: Orange Ave (NS) at Hill St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.813

Intersection Setup

Name												
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	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	49	564	41	25	553	39	58	77	41	61	130	45
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	23	3	20	16	5	11	3	0	3	8	48
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
Total Hourly Volume [veh/h]	60	711	53	51	691	53	82	97	50	77	167	103
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]	15	178	13	13	173	13	21	24	13	19	42	26
Total Analysis Volume [veh/h]	60	711	53	51	691	53	82	97	50	77	167	103
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.48	0.48	0.03	0.47	0.47	0.05	0.11	0.03	0.05	0.15	0.06
Intersection LOS	D											
Intersection V/C	0.813											

Intersection Level Of Service Report
Intersection 5: Orange Ave (NS) at Pacific Coast Hwy (EW)

Control Type:	Signalized	Delay (sec / veh):	24.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.690

Intersection Setup

Name												
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	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	145.00	100.00	192.00	100.00	100.00	100.00	150.00	100.00	100.00	300.00	100.00	100.00
Speed [mph]	35.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	92	444	251	86	425	124	99	1163	93	168	841	130
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	8	2	0	6	13	18	22	0	7	50	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]	112	550	308	105	525	164	139	1441	113	212	1076	159
Peak Hour Factor	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550
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]	29	144	81	27	137	43	36	377	30	55	282	42
Total Analysis Volume [veh/h]	117	576	323	110	550	172	146	1509	118	222	1127	166
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 m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	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	1 - Coordination Group
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Overlap	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	2	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups			2,7									
Lead / Lag	-	-	-	-	-	-	Lag	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	30	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	31	31	0	31	0	13	33	0	16	36	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	7	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	20	20	0	17	0	0	20	0	0	15	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	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	
Maximum Recall		No	No		No		No	No		No	No	
Pedestrian Recall		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]	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	25	25	41	25	25	25	8	31	31	12	35	35
g / C, Green / Cycle	0.31	0.31	0.51	0.31	0.31	0.31	0.10	0.39	0.39	0.15	0.43	0.43
(v / s)_i Volume / Saturation Flow Rate	0.13	0.16	0.20	0.13	0.15	0.11	0.08	0.30	0.30	0.12	0.24	0.24
s, saturation flow rate [veh/h]	871	3618	1615	850	3618	1615	1810	3618	1830	1810	3618	1778
c, Capacity [veh/h]	237	1141	833	228	1141	510	185	1392	704	272	1565	769
d1, Uniform Delay [s]	31.94	22.34	11.76	32.30	22.15	21.02	35.15	21.63	21.65	33.00	16.97	16.97
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
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
d2, Incremental Delay [s]	1.58	0.35	0.30	1.58	0.32	0.39	7.32	4.30	8.24	5.96	1.42	2.87
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	0.49	0.50	0.39	0.48	0.48	0.34	0.79	0.78	0.78	0.82	0.55	0.55
d, Delay for Lane Group [s/veh]	33.52	22.69	12.06	33.88	22.47	21.41	42.46	25.93	29.89	38.96	18.39	19.84
Lane Group LOS	C	C	B	C	C	C	D	C	C	D	B	B
Critical Lane Group	No	No	Yes	No	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	2.18	4.21	3.17	2.09	4.06	2.43	3.06	8.96	9.86	4.45	5.71	5.92
50th-Percentile Queue Length [ft]	54.60	105.29	79.30	52.31	101.48	60.87	76.43	223.94	246.40	111.18	142.73	148.03
95th-Percentile Queue Length [veh]	3.93	7.58	5.71	3.77	7.31	4.38	5.50	13.87	15.00	7.91	9.63	9.91
95th-Percentile Queue Length [ft]	98.28	189.44	142.75	94.16	182.66	109.56	137.58	346.65	375.12	197.65	240.69	247.79

Movement, Approach, & Intersection Results

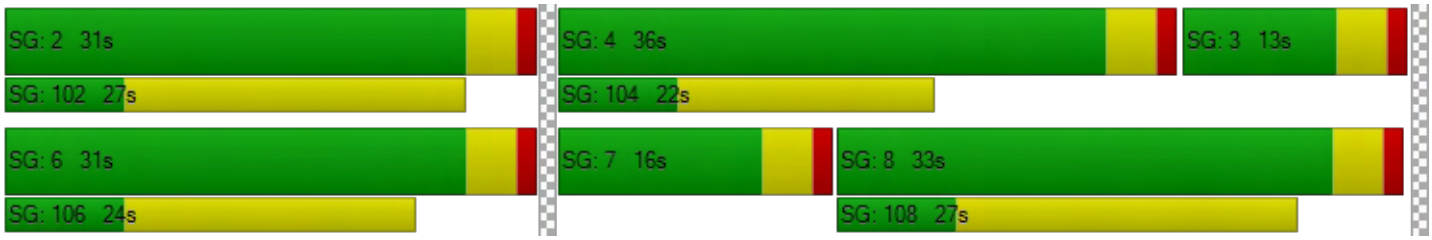
d_M, Delay for Movement [s/veh]	33.52	22.69	12.06	33.88	22.47	21.41	42.46	27.06	29.89	38.96	18.72	19.84
Movement LOS	C	C	B	C	C	C	D	C	C	D	B	B
d_A, Approach Delay [s/veh]	20.56			23.76			28.51			21.81		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	24.19											
Intersection LOS	C											
Intersection V/C	0.690											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.76	29.76	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	2.808	2.726	3.272	3.306
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	675	675	725	800
d_b, Bicycle Delay [s]	17.56	17.56	16.26	14.40
l_b,int, Bicycle LOS Score for Intersection	2.398	2.246	2.535	2.393
Bicycle LOS	B	B	B	B

Sequence

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



Intersection Level Of Service Report
Intersection 6: Gundry Ave (NS) at Hill St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	18.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.290

Intersection Setup

Name						
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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	33	23	137	22	25	203
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.22	1.22	1.22	1.22	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	44	0	6	20	0	16
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]	84	28	173	47	31	264
Peak Hour Factor	0.7420	0.7420	0.7420	0.7420	0.7420	0.7420
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	9	58	16	10	89
Total Analysis Volume [veh/h]	113	38	233	63	42	356
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.29	0.05	0.00	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	18.33	13.71	0.00	0.00	7.92	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh]	1.48	1.48	0.00	0.00	1.34	1.34
95th-Percentile Queue Length [ft]	36.97	36.97	0.00	0.00	33.55	33.55
d_A, Approach Delay [s/veh]	17.17		0.00		0.84	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	3.46					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 10: Walnut Ave (NS) at Hill St (EW)

Control Type:	All-way stop	Delay (sec / veh):	48.6
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.101

Intersection Setup

Name												
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	0	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	54.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	30	273	43	32	185	94	37	109	28	27	67	26
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	13	48	0	6	0	0	0	6	19	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
Total Hourly Volume [veh/h]	53	346	100	39	232	115	45	133	40	52	82	32
Peak Hour Factor	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460
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]	16	102	30	12	69	34	13	39	12	15	24	9
Total Analysis Volume [veh/h]	63	409	118	46	274	136	53	157	47	61	97	38
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	590	484	540	478	463
Degree of Utilization, x	1.10	0.66	0.25	0.54	0.42

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	18.62	4.77	0.99	3.12	2.08
95th-Percentile Queue Length [ft]	465.60	119.16	24.81	78.10	51.92
Approach Delay [s/veh]	94.32	20.00		18.89	16.39
Approach LOS	F	C		C	C
Intersection Delay [s/veh]	48.59				
Intersection LOS	E				

Intersection Level Of Service Report

Intersection 11: Walnut Ave (NS) at 20th St/Alamitos Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.663

Intersection Setup

Name												
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	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	25	224	50	19	169	37	77	105	79	28	46	13
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	31	0	0	71	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
Total Hourly Volume [veh/h]	31	304	61	23	277	45	94	128	96	34	56	16
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]	8	76	15	6	69	11	24	32	24	9	14	4
Total Analysis Volume [veh/h]	31	304	61	23	277	45	94	128	96	34	56	16
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	20.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.23	0.23	0.01	0.20	0.20	0.06	0.20	0.20	0.02	0.07	0.07
Intersection LOS	B											
Intersection V/C	0.663											

Intersection Level Of Service Report
Intersection 12: Walnut Ave (NS) at Pacific Coast Hwy (EW)

Control Type:	Signalized	Delay (sec / veh):	15.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.784

Intersection Setup

Name												
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	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	130.00	100.00	100.00	177.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	41	113	37	72	119	99	114	1356	49	56	1037	58
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	6	0	27	4	40	14	10	0	0	17	11
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]	50	144	45	115	149	161	153	1664	60	68	1282	82
Peak Hour Factor	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550
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]	13	38	12	30	39	42	40	436	16	18	336	21
Total Analysis Volume [veh/h]	52	151	47	120	156	169	160	1742	63	71	1342	86
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 m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	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	1 - Coordination Group
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	44.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	7	0	0	7	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	33	0	0	33	0	0	47	0	0	47	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	18	0	0	6	0	0	6	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		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	C	C	L	C	C	L	C	C
C, Cycle Length [s]	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
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	25	25	47	47	47	47	47	47
g / C, Green / Cycle	0.31	0.31	0.59	0.59	0.59	0.59	0.59	0.59
(v / s)_i Volume / Saturation Flow Rate	0.17	0.29	0.42	0.33	0.33	0.27	0.26	0.26
s, saturation flow rate [veh/h]	1511	1557	381	3618	1866	265	3618	1842
c, Capacity [veh/h]	519	536	252	2144	1106	188	2144	1092
d1, Uniform Delay [s]	22.23	26.73	22.76	9.88	9.89	21.67	8.98	8.98
k, delay calibration	0.11	0.28	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.70	8.22	11.59	1.04	2.02	5.69	0.66	1.30
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.48	0.83	0.63	0.55	0.56	0.38	0.44	0.44
d, Delay for Lane Group [s/veh]	22.93	34.95	34.35	10.92	11.91	27.37	9.64	10.27
Lane Group LOS	C	C	C	B	B	C	A	B
Critical Lane Group	No	Yes	Yes	No	No	No	No	No
50th-Percentile Queue Length [veh]	3.71	9.00	3.54	5.79	6.29	1.38	4.16	4.43
50th-Percentile Queue Length [ft]	92.80	224.97	88.55	144.72	157.28	34.42	103.91	110.63
95th-Percentile Queue Length [veh]	6.68	13.92	6.38	9.73	10.40	2.48	7.48	7.88
95th-Percentile Queue Length [ft]	167.04	347.96	159.38	243.37	260.12	61.95	187.04	196.88

Movement, Approach, & Intersection Results

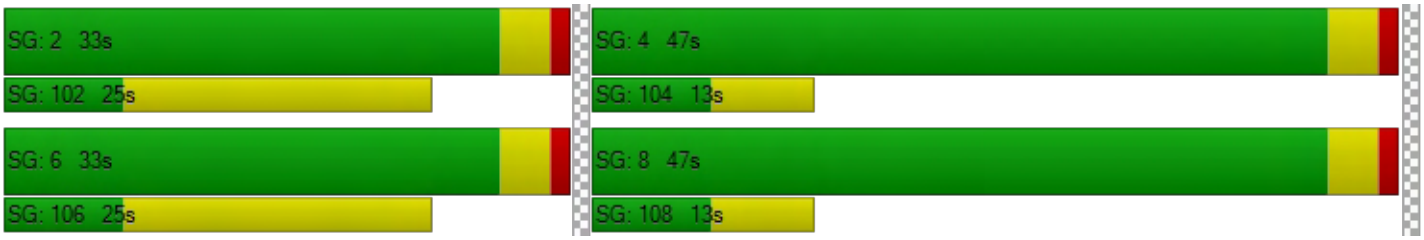
d_M, Delay for Movement [s/veh]	22.93	22.93	22.93	34.95	34.95	34.95	34.35	11.23	11.91	27.37	9.83	10.27
Movement LOS	C	C	C	C	C	C	C	B	B	C	A	B
d_A, Approach Delay [s/veh]	22.93			34.95			13.14			10.68		
Approach LOS	C			C			B			B		
d_I, Intersection Delay [s/veh]	15.18											
Intersection LOS	B											
Intersection V/C	0.784											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.76	29.76	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	2.072	2.435	3.153	3.233
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	725	725	1075	1075
d_b, Bicycle Delay [s]	16.26	16.26	8.56	8.56
l_b,int, Bicycle LOS Score for Intersection	1.972	2.294	2.640	2.384
Bicycle LOS	A	B	B	B

Sequence

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



Intersection Level Of Service Report
Intersection 18: Cherry Ave (NS) at 21st St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.662

Intersection Setup

Name												
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	1	0	0	0	1	0	0
Pocket Length [ft]	110.00	100.00	100.00	198.00	100.00	100.00	100.00	100.00	100.00	96.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	12	842	8	105	952	52	76	34	23	7	15	94
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	24	0	3	14	4	12	0	0	0	0	5
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
Total Hourly Volume [veh/h]	15	1051	10	131	1175	67	105	41	28	9	18	120
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]	4	263	3	33	294	17	26	10	7	2	5	30
Total Analysis Volume [veh/h]	15	1051	10	131	1175	67	105	41	28	9	18	120
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.33	0.01	0.08	0.37	0.04	0.07	0.09	0.02	0.01	0.09	0.09
Intersection LOS	B											
Intersection V/C	0.662											

Intersection Level Of Service Report
Intersection 19: Cherry Ave (NS) at 20th St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.564

Intersection Setup

Name												
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	0	0	0	0	0	0
Pocket Length [ft]	80.00	100.00	100.00	80.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	9	839	12	8	965	13	4	2	45	14	3	38
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 [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	19	0	3	11	0	0	0	0	0	0	5
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
Total Hourly Volume [veh/h]	11	1043	15	13	1188	16	5	2	55	17	4	51
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]	3	261	4	3	297	4	1	1	14	4	1	13
Total Analysis Volume [veh/h]	11	1043	15	13	1188	16	5	2	55	17	4	51
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.33	0.33	0.01	0.38	0.38	0.00	0.04	0.04	0.01	0.05	0.05
Intersection LOS	A											
Intersection V/C	0.564											

APPENDIX D

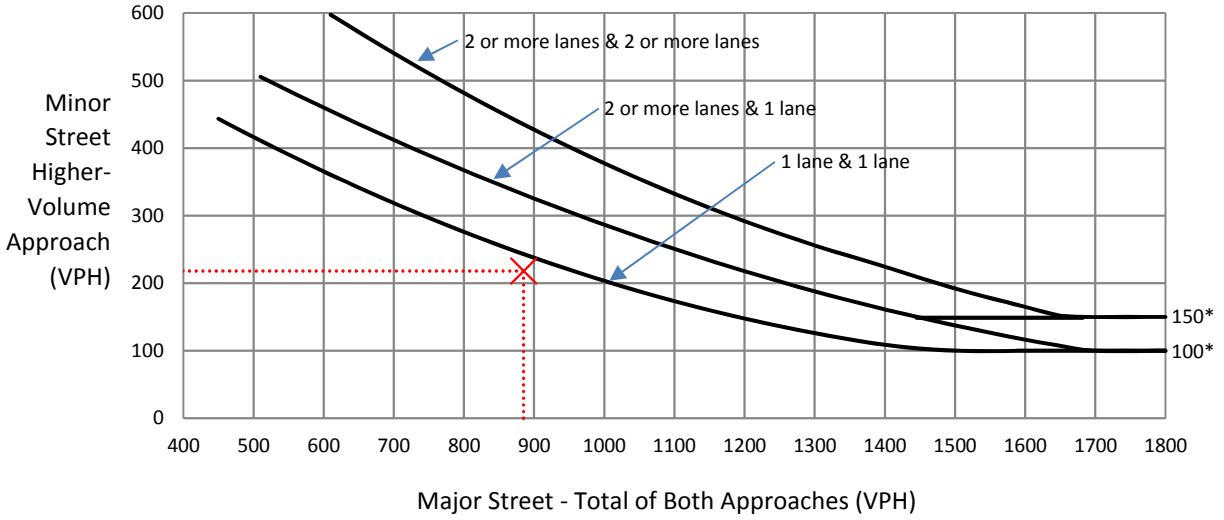
Peak Hour Traffic Signal Warrant Worksheet

Figure C-1

Walnut Ave (NS) / Hill St (EW) - #10
General Plan Buildout With Project
School PM Peak Hour

Major Street:	Walnut Ave	Volume:	885
Minor Street:	Hill St	Volume:	218

Warrant 3, Peak Hour Vehicular Volume (100% Factor)



Traffic Signal Warrant Is NOT Satisfied

*Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.

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