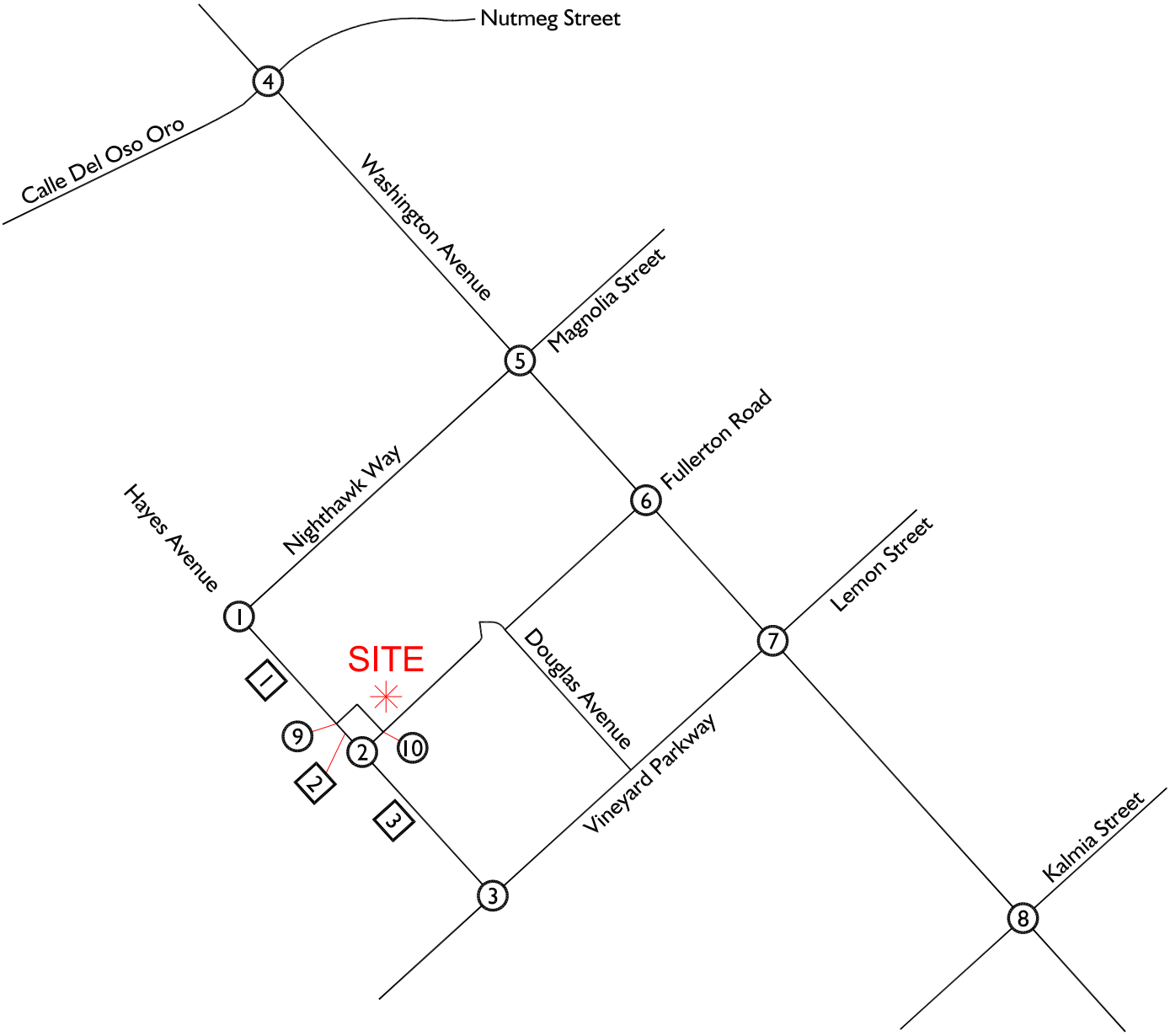
Appendix K: Murrieta Canyon Academy Traffic Impact Study

MURRIETA CANYON ACADEMY EXPANSION
TRAFFIC IMPACT STUDY
City of Murrieta, California



MURRIETA VALLEY UNIFIED SCHOOL DISTRICT
MURRIETA CANYON ACADEMY EXPANSION
TRAFFIC IMPACT STUDY
City of Murrieta, California

Prepared for:

MURRIETA VALLEY UNIFIED SCHOOL DISTRICT
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Murrieta, CA 92562

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August 21, 2019

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1.0 Introduction

A. Purpose of Report and Study Objectives

The purpose of this traffic impact study is to evaluate the expansion of the Murrieta Canyon Academy (MCA) from a traffic circulation standpoint. The existing development is located within the City of Murrieta.

Study objectives include: (1) documentation of existing traffic conditions in the vicinity of the site; (2) evaluation of Existing Plus Project traffic conditions; (3) evaluation of traffic conditions in the Project Buildout Year With Ambient Growth Plus Project; (4) evaluation of traffic conditions in the Project Buildout Year With Ambient Growth With Cumulative Projects With and Without Project; and (5) determination of on-site and off-site improvements and system management actions needed to achieve City of Murrieta level of service requirements.

B. Site Location and Study Area

The project is located at 24150 Hayes Avenue, in the City of Murrieta. The project site is currently zoned for Civic/Institutional and would not require a zone change.

The study analysis area was determined based on requirements for City of Murrieta, and follows the City of Murrieta Traffic Impact Analysis Preparation Guide criteria. Exhibit 1-1 illustrates the site location and traffic analysis study area.

C. Expansion Project Description

The project would consist of expanding the currently existing Murrieta Canyon Academy to increase its capacity from 200 students to 500 students (increase in capacity by 300 students). The Murrieta Canyon Academy is an alternative high school which provides independent study and alternative high school and adult education. The traffic impact study has analyzed the project in one (1) complete phase and the expansion is expected to be completed in the year 2023. Vehicular access to the site will continue to be served by Hayes Avenue and Fullerton Road.

D. Level of Service

The current technical guide to the evaluation of traffic operations is the *Highway Capacity Manual 2010*. The HCM defines level of service as a qualitative measure which describes operational conditions within a traffic stream, generally in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. The criteria used to evaluate LOS (Level of Service) conditions vary based on the type of roadway and whether the traffic flow is considered interrupted or uninterrupted.

HCM level of service definitions are provided in Appendix A.

1. Intersections

The level of service is typically dependent on the quality of traffic flow at the intersections along a roadway. The HCM methodology expresses the level of service at an intersection in terms of delay time for the various intersection approaches. The HCM uses different procedures depending on the type of intersection control. The levels of service determined in this study are determined using the HCM methodology.

For signalized intersections, average control delay per vehicle is used to determine level of service. Levels of service at signalized study intersections have been evaluated using the HCM intersection analysis program.

Study area intersections which are stop sign controlled with stop control on the minor street only have been analyzed using the unsignalized intersection methodology of the HCM. For these intersections, the calculation of level of service is dependent on the occurrence of gaps occurring in the traffic flow of the main street. Using data collected describing the intersection configuration and traffic volumes at these locations; the level of service has been calculated. The level of service is determined based on worst individual movement or movements sharing a single lane. The relationship between level of service and delay is different than for signalized intersections.

The level of services are defined for the various analysis methodologies as follows:

LOS	Average Control Delay Per Vehicle (Seconds)	
	Signalized	Unsignalized
A	0.00 - 10.00	0.00 - 10.00
B	10.01 - 20.00	10.01 - 15.00
C	20.01 - 35.00	15.01 - 25.00
D	35.01 - 55.00	25.01 - 35.00
E	55.01 - 80.00	35.01 - 50.00
F	>80.01	>50.01

The City of Murrieta has adopted a Level of Service (LOS) D as the performance standards for its street and highway system. Therefore, per the City of Murrieta General Plan, all study intersections will be required to perform at LOS D or better.

For intersections not meeting the required LOS, mitigation measures are recommended, and the LOS is recalculated, to verify that the required LOS will be achieved.

2. Roadway Segments

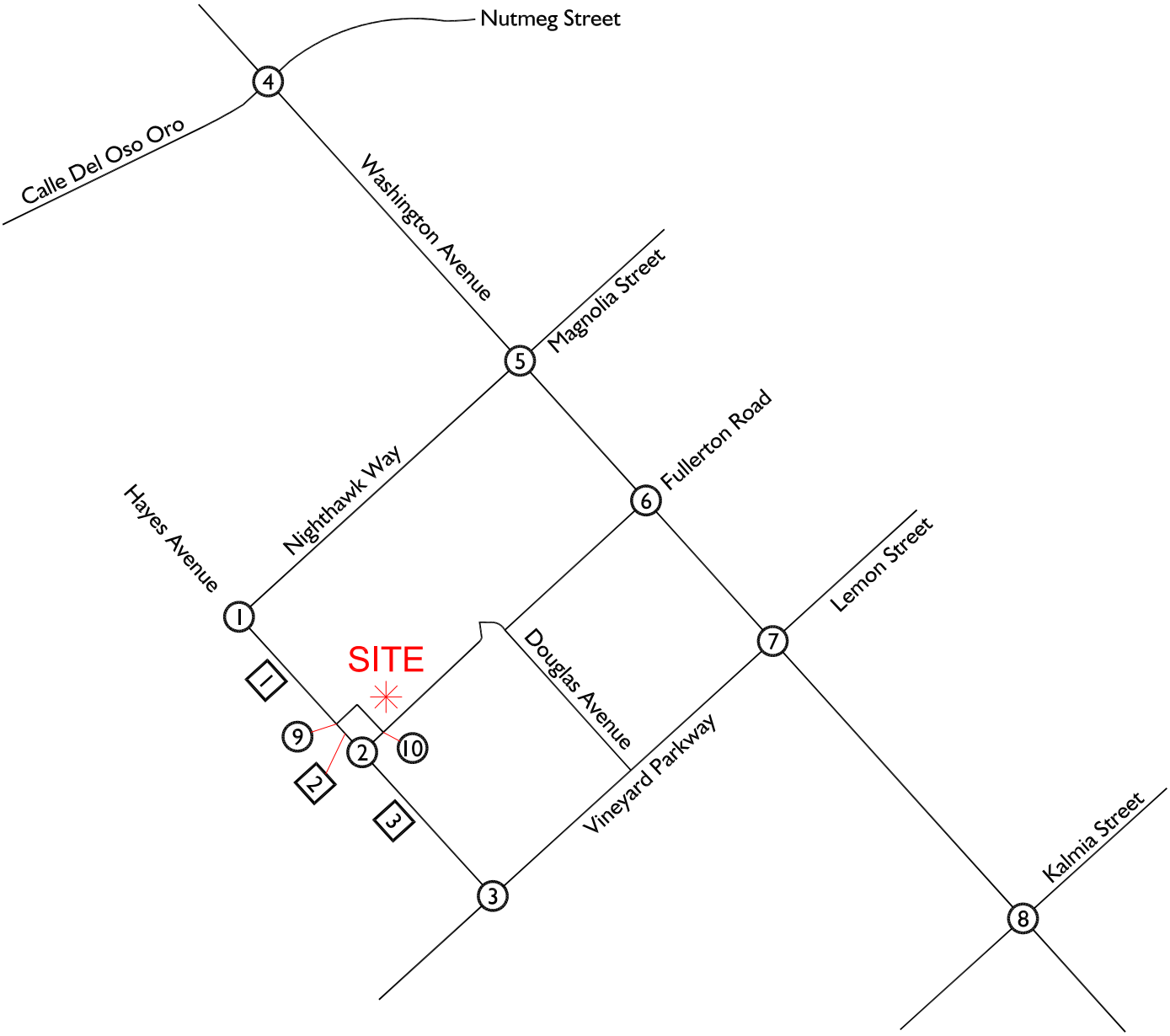
The parameters for the roadway segment analysis have been referenced from the City of Murrieta's General Plan. The roadway segment analysis compares existing and future traffic volumes to the maximum two-way daily traffic volumes identified in the City of Murrieta General Plan Circulation Element. In accordance with the City's General Plan Circulation Element, LOS C or better shall be maintained along City roads and state highways. Therefore, for the purposes of this evaluation, LOS C is the minimum acceptable LOS for roadway segments. The following is the City of Murrieta's daily roadway capacity values for the study area roadway segments:

ROADWAY SEGMENT THRESHOLDS				
Roadway Classification	**Number of Lanes**	**Maximum Two-Way Traffic Volume (ADT)**		
		LOS C	**LOS D**	**LOS E**
Collector	2	10,400	11,700	13,000

Source: City of Murrieta General Plan

For roadway segments not meeting the required LOS, mitigation measures are recommended, and the LOS is recalculated, to verify that the required LOS will be achieved.

Exhibit 1-1
Location Map



Legend:

(1) = Study Area Intersection

[1] = Study Roadway Segment

N

2.0 Area Conditions

A. Study Area Intersections

The study area includes the following intersections:

	North-South Street	East-West Street
1.	Hayes Avenue	Nighthawk Way
2.	Hayes Avenue	Fullerton Road
3.	Hayes Avenue	Vineyard Parkway
4.	Washington Avenue	Nutmeg Street
5.	Washington Avenue	Nighthawk Way
6.	Washington Avenue	Fullerton Road
7.	Washington Avenue	Lemon Street
8.	Washington Avenue	Kalmia Street
9.	Hayes Avenue	Project Driveway 1
10.	Project Driveway 2	Fullerton Road

B. Study Area Roadway Segments

The study area includes the following roadway segments:

	Roadway	Segment
1.	Hayes Avenue	Nighthawk Way to Sherry Lane
2.	Hayes Avenue	Sherry Lane to Fullerton Road
3.	Hayes Avenue	Fullerton Road to Vineyard Parkway

C. Existing Traffic Controls and Intersection Geometrics

Exhibit 2-1 identifies the existing roadway conditions for the study area roadways. The number of through traffic lanes for existing roadways and the existing intersection controls are identified.

D. Existing Traffic Volumes

Existing AM and PM peak hour traffic volumes for study area intersections are shown on Exhibit 2-2. These volumes are based upon manual AM and PM peak hour turning movement counts compiled for RK in May 2019. Per industry standard, AM peak period counts are collected from 7:00 AM to 9:00 AM. PM peak period counts are collected from 4:00 PM to 6:00 PM.

The traffic counts were taken when school was in session. The traffic count worksheets are provided in Appendix B.

24-Hour Two-Way average daily traffic (ADT) volume counts were compiled for RK in May 2019. The ADT count worksheets are also provided in Appendix B.

E. Intersection Level of Service for Existing Conditions

Existing intersection level of service calculations are shown in Table 2-1 and are based upon manual AM and PM peak hour turning movement counts compiled for RK. The City of Murrieta requires Level of Service D or better.

As shown in Table 2-1, for Existing Conditions, all study area intersections are currently operating at Level of Service D or better during the peak hours.

HCM calculation worksheets for Existing Conditions are provided in Appendix C.

F. Roadway Segment Level of Service for Existing Conditions

The Roadway Segment Analysis for Existing Conditions is shown in Table 2-2 and is based upon measured ADT counts compiled for RK in May 2019. As previously noted, school was in session when the counts were taken. The minimum allowable Level of Service is C or better for all study area roadway segments.

As shown in Table 2-2, for Existing Conditions, the study area roadway segments are currently operating at an acceptable level of service based on the General Plan Classification of the roadway.

G. General Plan Circulation Element

Exhibit 2-3 shows the City of Murrieta General Plan 2035 Circulation Plan.

Exhibit 2-4 shows the City of Murrieta General Plan 2035 Typical Street Cross-Sections.

Exhibit 2-5 shows the City of Murrieta General Plan 2035 Trails and Bikeways Map. As can be seen from Exhibit 2-5, Hayes Avenue and Vineyard Parkway have Class II Bike Lanes.

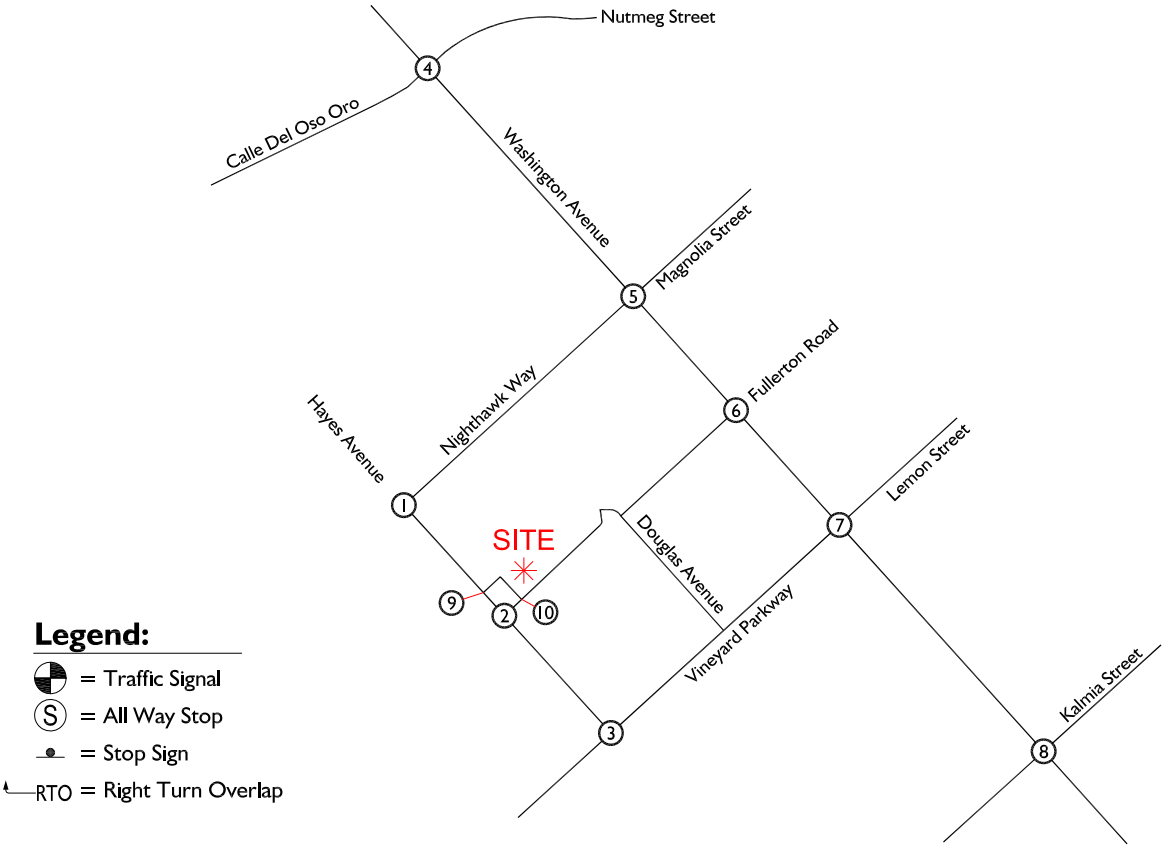
H. Public Transit Service

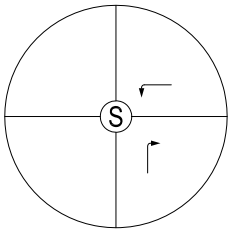
Public transit services in the study area are provided by the Riverside Transit Agency (RTA). Exhibit 2-6 provides the existing transit routes in the City of Murrieta, provided by the RTA. The following bus routes are currently operating in the vicinity of the project site:

- Route 23: Temecula – Murrieta – Wildomar

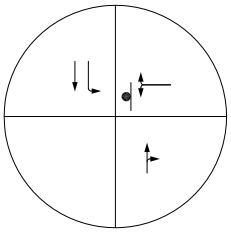
Exhibit 2-1

Existing Lane Geometry and Traffic Controls

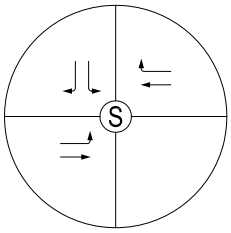




1. Hayes Ave. (NS) & Nighthawk Way (EW)



2. Hayes Ave. (NS) & Fullerton Rd. (EW)



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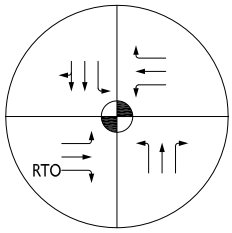
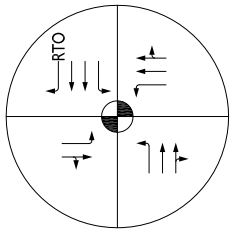


4. Washington Ave. (NS) & Nutmeg St. (EW)



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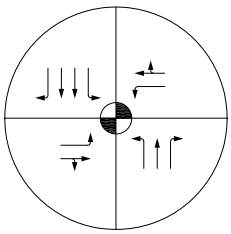
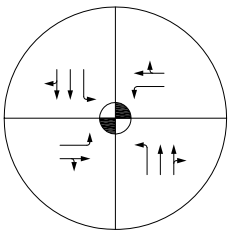


6. Washington Ave. (NS) & Fullerton Rd. (EW)



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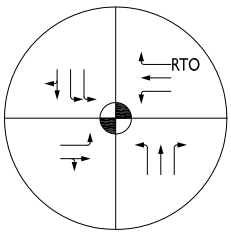
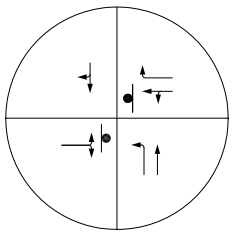


8. Washington Ave. (NS) & Kalmia St. (EW)



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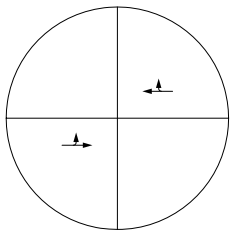

10. Project Dwy. 2 (NS) & Fullerton Rd. (EW)

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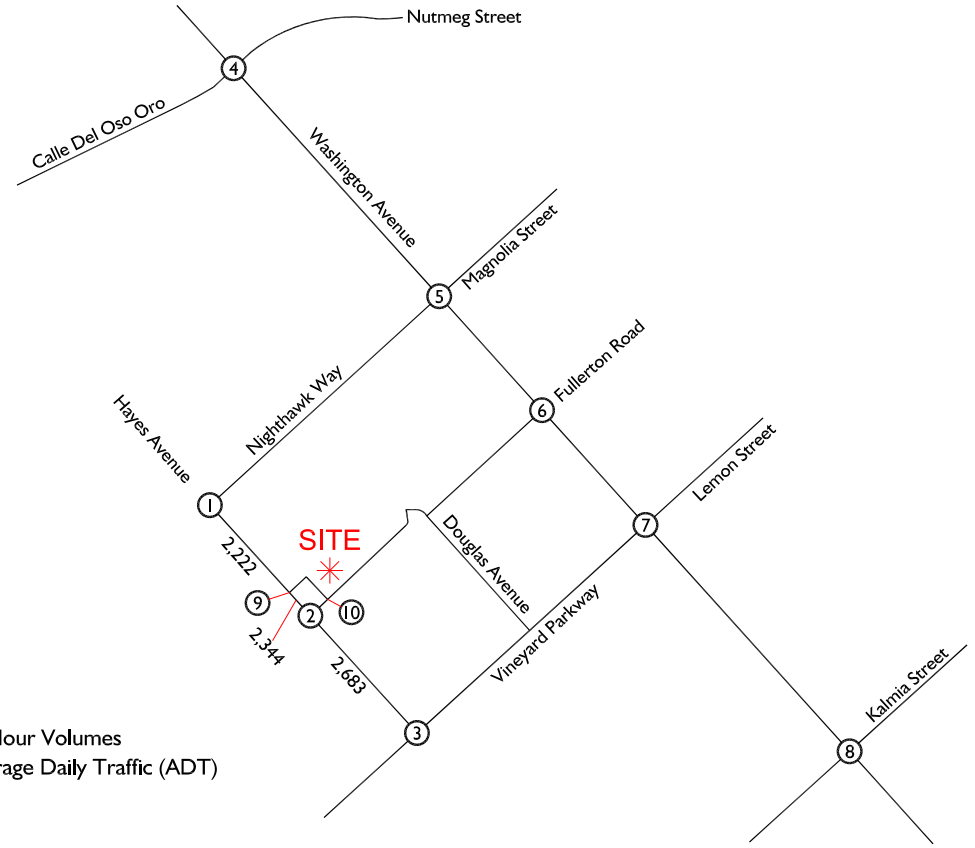
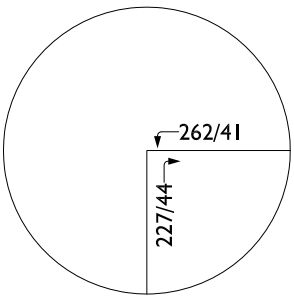
Exhibit 2-2

Existing Traffic Volumes



Legend:

10/20 = AM/PM Peak Hour Volumes
2,222 = Two-Way Average Daily Traffic (ADT)



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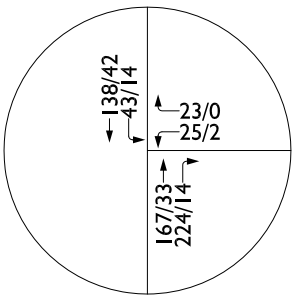
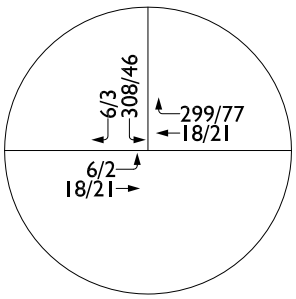
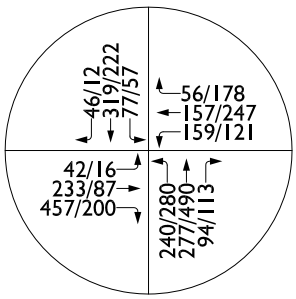


2. Hayes Ave. (NS) & Fullerton Rd. (EW)



3. Hayes Ave. (NS) & Vineyard Pkwy. (EW)



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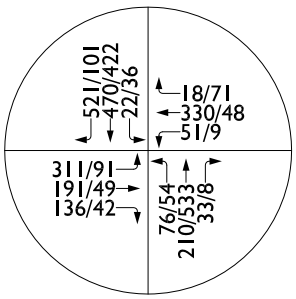

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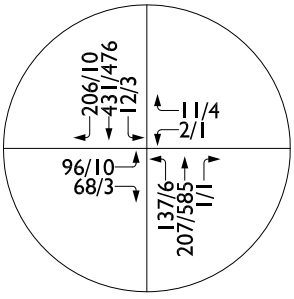

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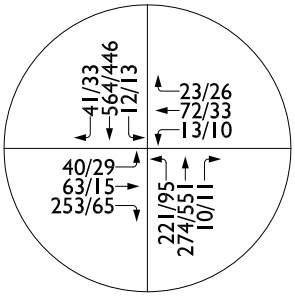

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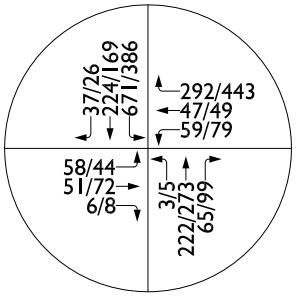

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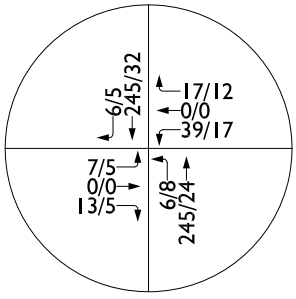

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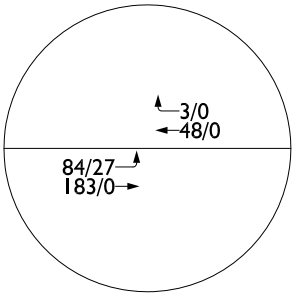

10. Project Dwy. 2 (NS) & Fullerton Rd. (EW)

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Exhibit 2-3

City of Murrieta General Plan 2035 Circulation Plan

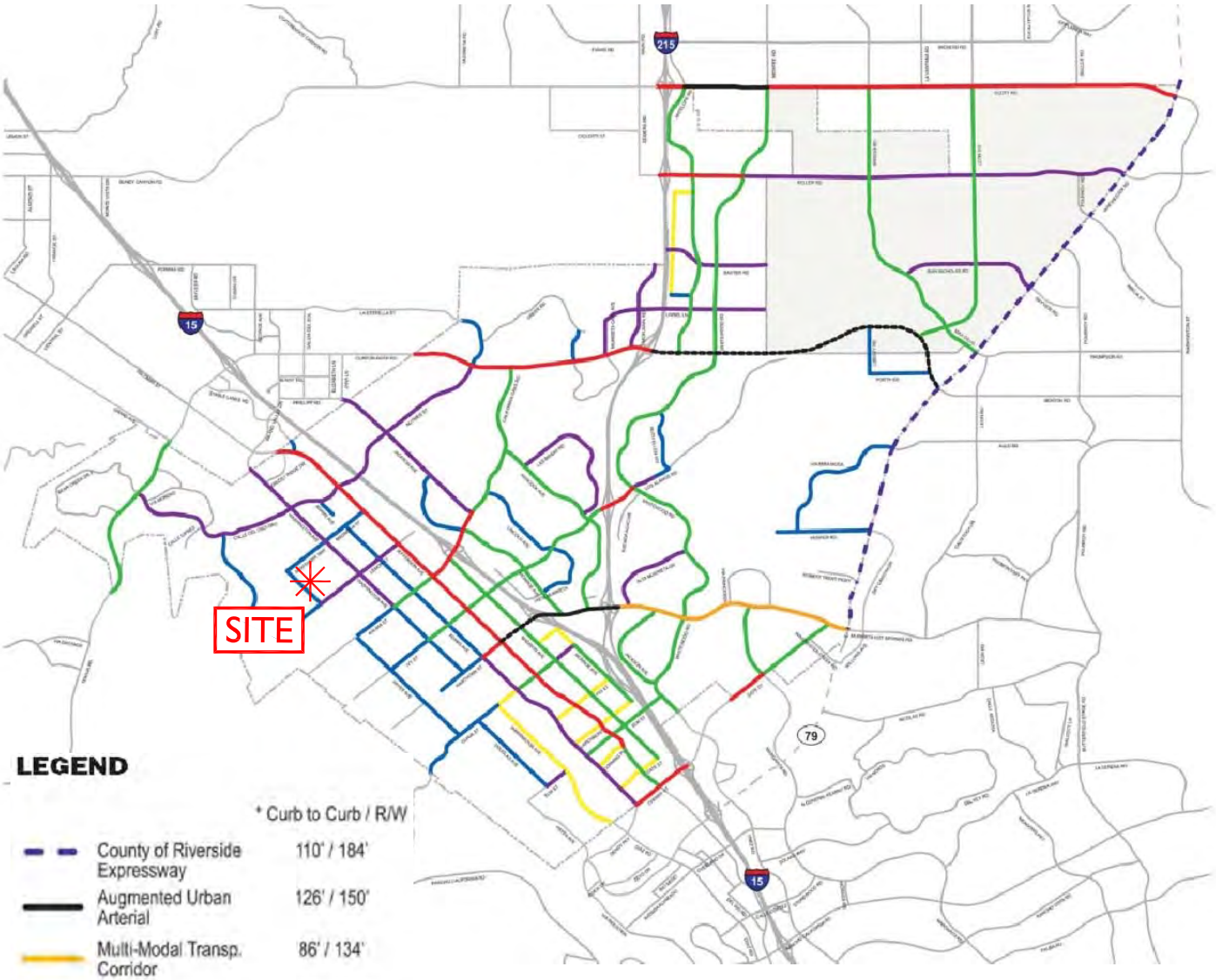
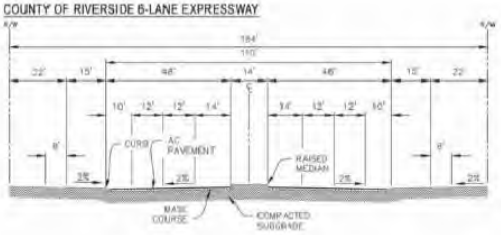


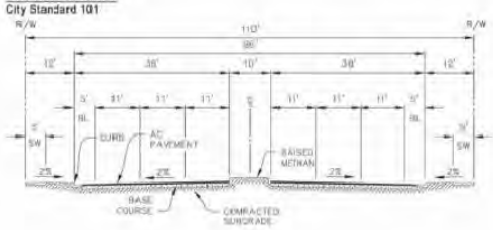
Exhibit 2-4

City of Murrieta Typical Street Cross-Sections

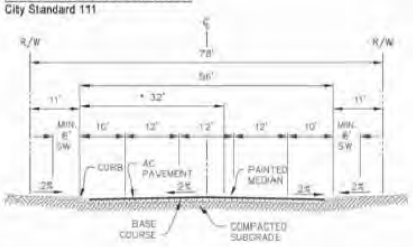
COUNTY OF RIVERSIDE 6-LANE EXPRESSWAY



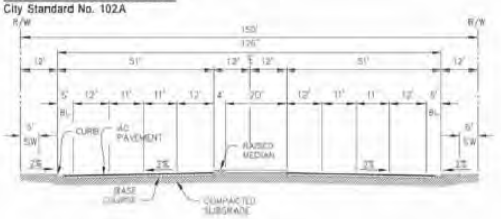
ARTERIAL HIGHWAY
City Standard 101



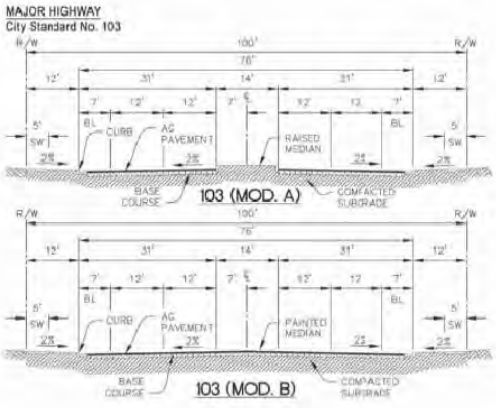
INDUSTRIAL COLLECTOR STREET
City Standard 111



AUGMENTED URBAN ARTERIAL
City Standard No. 102A



MAJOR HIGHWAY
City Standard No. 103



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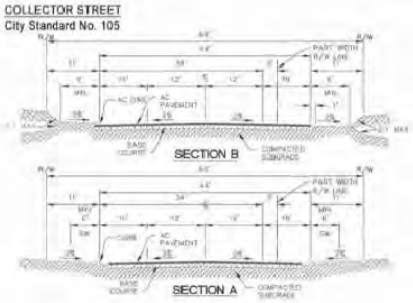
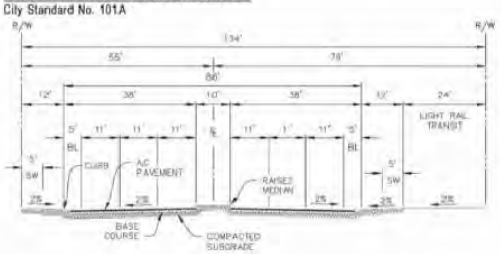
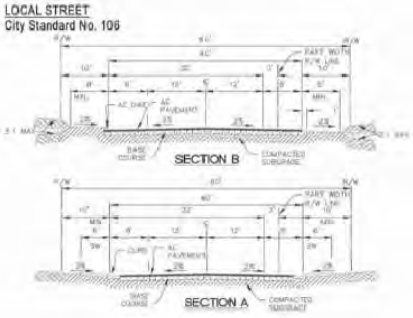


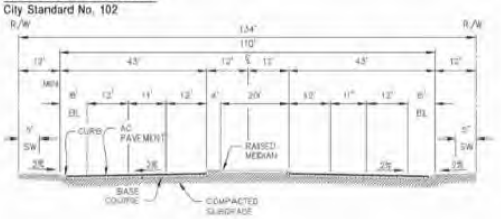
MULTI-MODAL TRANSPORTATION CORRIDOR
City Standard No. 101A



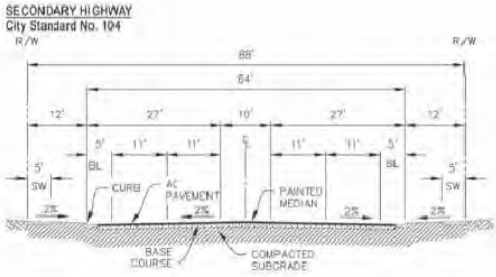
LOCAL STREET
City Standard No. 106



URBAN ARTERIAL HIGHWAY
City Standard No. 102



SECONDARY HIGHWAY
City Standard No. 104



COMMERCIAL CORRIDOR DESIGN

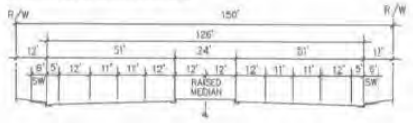
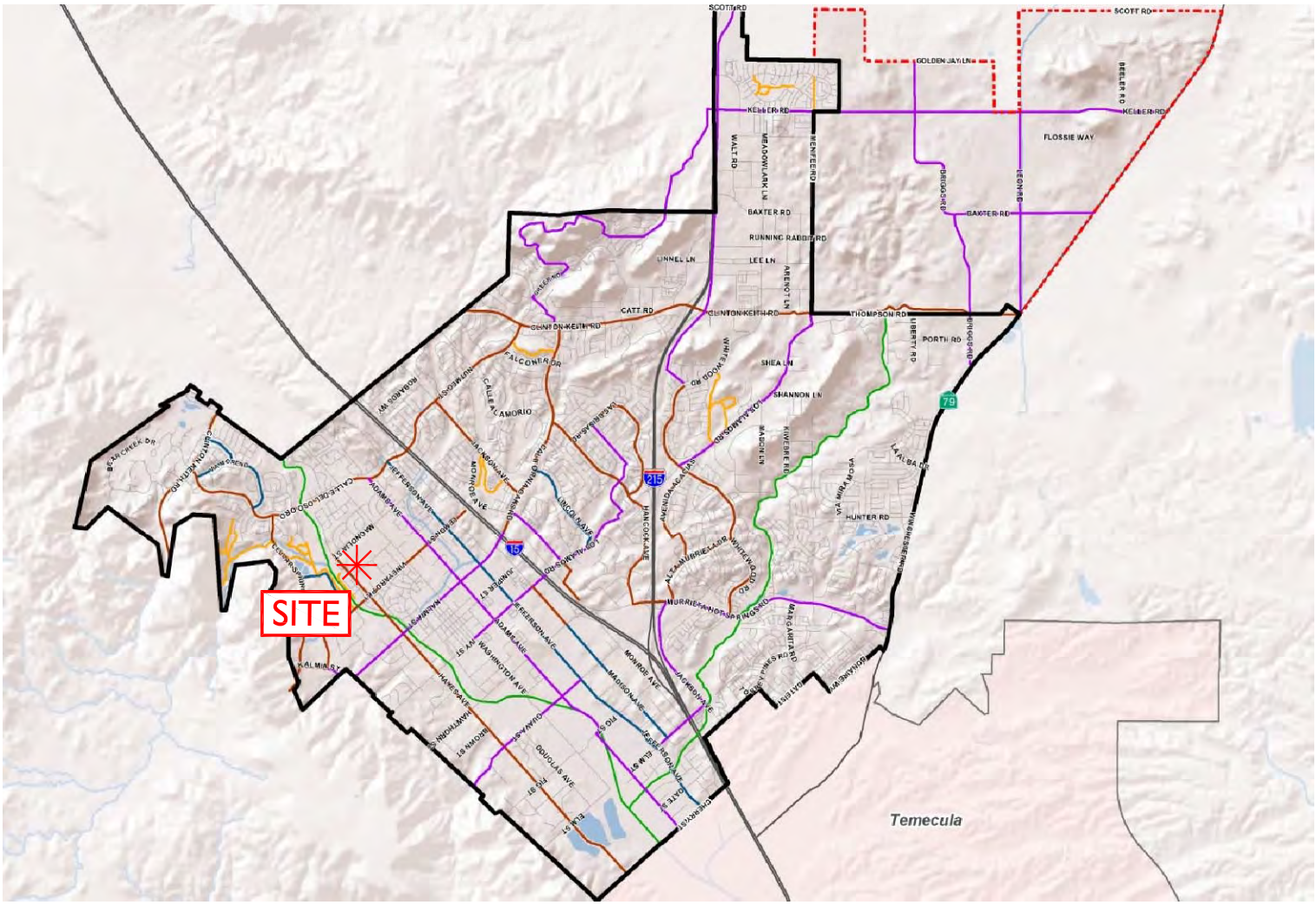


Exhibit 2-5

City of Murrieta Trails and Bikeways



LEGEND

- Class I Bike Lane
- Class II Bike Lane
- Class III Bike Lane

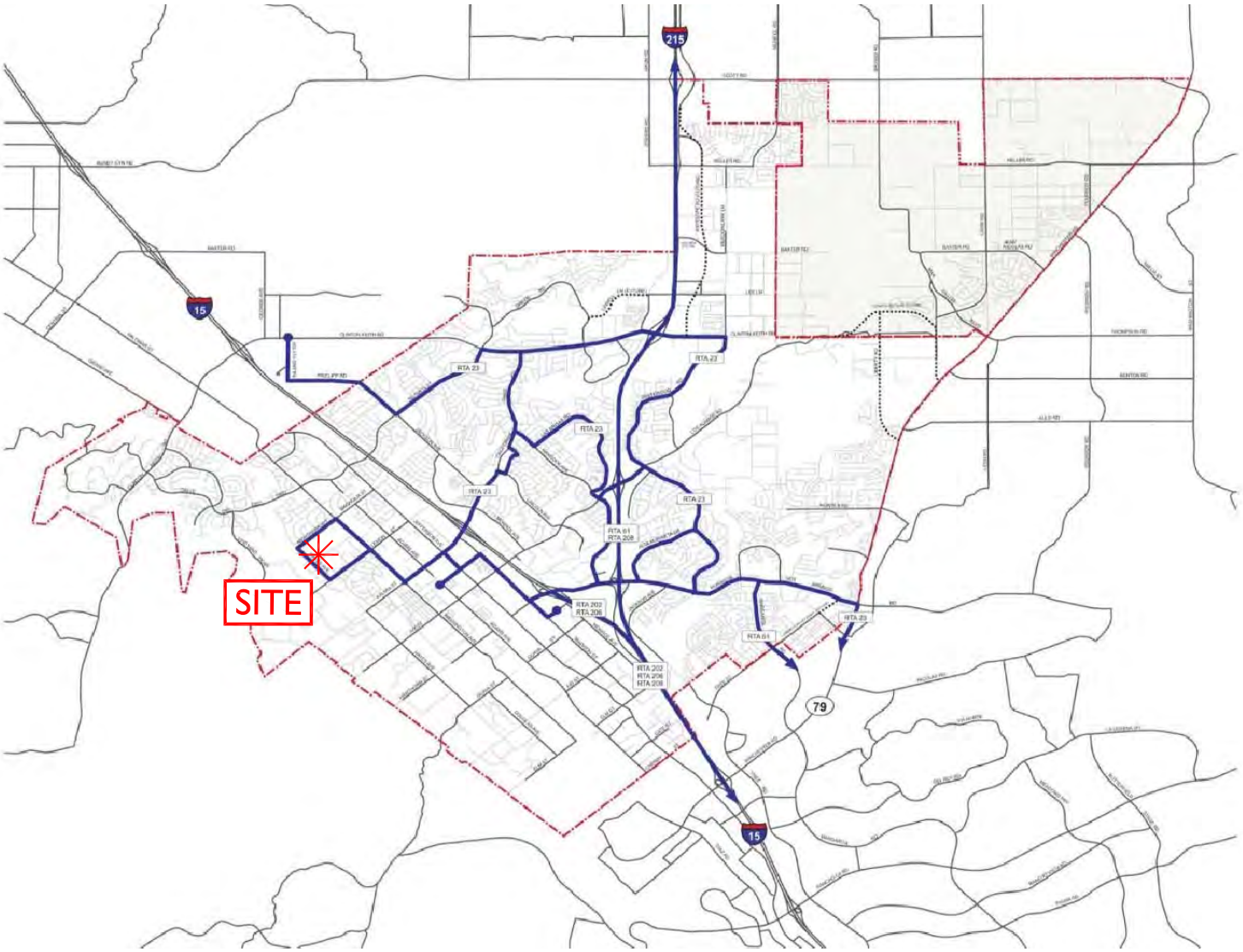
City Trail

- Horse, Bike, Walking
- Creek Segment
- Sphere of Influence
- City Boundary

N

Exhibit 2-6

City of Murrieta Transit Routes



LEGEND

- Bus Transit Line
- City of Murrieta Boundary
- Sphere of Influence
- Future Roadway Alignment

N

Table 2-1
Study Intersection LOS Analysis Summary
Existing Conditions

	Intersection	Traffic Control[3]	Intersection Approach Lane(s)[1]												Delay[2] (Secs)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1.	Hayes Avenue (NS) / Nighthawk Way (EW)	AWS	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	11.6	7.0	B	A
2.	Hayes Avenue (NS) / Fullerton Road (EW)	CSS	0.0	0.5	0.5	1.0	1.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	14.9	9.2	B	A
3.	Hayes Avenue (NS) / Vineyard Parkway (EW)	AWS	0.0	0.0	0.0	0.5	0.0	0.5	1.0	1.0	0.0	0.0	1.0	1.0	15.4	7.7	C	A
4.	Washington Avenue (NS) / Nutmeg Street (EW)	TS	1.0	1.0	1.0	1.0	1.5	0.5	1.0	1.0	1>	1.0	1.0	1.0	32.7	24.8	C	C
5.	Washington Avenue (NS) / Nighthawk Way (EW)	TS	1.0	1.5	0.5	1.0	2.0	1>	1.0	0.5	0.5	1.0	1.5	0.5	31.9	13.7	C	B
6.	Washington Avenue (NS) / Fullerton Road (EW)	TS	1.0	1.0	1.0	1.0	2.0	1.0	1.0	0.5	0.5	1.0	0.5	0.5	14.8	5.3	B	A
7.	Washington Avenue (NS) / Lemon Street (EW)	TS	1.0	1.5	0.5	1.0	1.5	0.5	1.0	0.5	0.5	1.0	0.5	0.5	20.7	9.7	C	A
8.	Washington Avenue (NS) / Kalmia Street (EW)	TS	1.0	1.0	1.0	2.0	0.5	0.5	1.0	0.5	0.5	1.0	1.0	1>	27.3	26.5	C	C
9.	Hayes Avenue (NS) / Project Driveway 1 (EW)	CSS	1.0	1.0	0.0	0.0	0.5	0.5	0.5	0.0	0.5	0.5	0.5	1.0	16.5	9.2	C	A
10.	Project Driveway 2 (NS) / Fullerton Road (EW)	--	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.5	0.5	7.7	7.3	A	A

[1] When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. Where "1" is indicated for the through movement and "0"s are indicated for R/L movements, the R and/or L turns are shared with the through movement.
Deficient operation shown in **Bold.**

L = Left; T = Through; R = Right; > = Right Turn Overlap; >> = Free Right Turn; * = Defacto Right Turn Lane; ! = Indicates general purpose lane; **Bold Underline** = Improvement;

[2] Analysis Software: Synchro, Version 10.0. Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all-way stop control. For intersections with cross-street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] AWS = All Way Stop
CSS = Cross Street Stop

Table 2-2
Study Roadway Segment LOS Analysis Summary
Existing Conditions & Existing Plus Project Conditions

Study Roadway Segment	General Plan		No. of Lanes		Daily Capacity		Daily Traffic Volume			V/C Ratio		LOS	
	Classification	LOS E Capacity	Existing Conditions	Existing Plus Project Conditions	Existing Conditions	Existing Plus Project Conditions	Existing Conditions	Project ADT Assignment	Existing Plus Project Conditions	Existing Conditions	Existing Plus Project Conditions	Existing Conditions	Existing Plus Project Conditions
1. **Hayes Avenue** Nighthawk Way to Sherry Lane	Collector (2 Lanes)	13,000	2	2	13,000	13,000	2,222	335	2,557	0.17	0.20	A	A
2. **Hayes Avenue** Sherry Lane to Fullerton Road	Collector (2 Lanes)	13,000	2	2	13,000	13,000	2,344	518	2,862	0.18	0.22	A	A
3. **Hayes Avenue** Fullerton Road to Vineyard Parkway	Collector (2 Lanes)	13,000	2	2	13,000	13,000	2,683	883	3,566	0.21	0.27	A	A

3.0 Projected Traffic

A. Project Traffic Conditions

1. Trip Generation

Trip generation represents the amount of traffic that is attracted and produced by a development. The trip generation for the project is based upon the specific land uses that have been planned for this development.

Trip generation rates for the proposed development expansion are shown in Table 3-1. Due to the Murrieta Canyon Academy being an alternative high school with distinct operations that differ from those of a typical high school, the trip generation rates for this land use were calculated based on existing driveway counts at the site, which are based on the existing enrollment of 200 students.

Both daily and peak hour trip generation for the proposed development expansion are shown in Table 3-2. The proposed expansion is projected to generate approximately 1,218 daily trips, which include approximately 312 AM peak hour trips and approximately 90 PM peak hour trips.

2. Trip Distribution and Assignment

Trip distribution represents the directional orientation of traffic to and from the project site. Trip distribution is heavily influenced by the geographical location of the site, the location of residential, employment and recreational opportunities and the proximity to the regional freeway system. The directional orientation of traffic for the proposed project was determined by evaluating existing travel patterns and traffic volumes at the driveways.

Trip distribution for this study has been based upon near-term conditions, based upon those highway facilities, which are either in place or will be implemented over the next few years, which represents the buildout occupancy for the proposed development expansion.

Exhibit 3-1 shows the *inbound* trip distribution for the proposed project.

Exhibit 3-2 shows the *outbound* trip distribution for the proposed project.

The assignment of traffic from the site to the adjoining roadway system has been based upon the site's trip generation, trip distributions, existing and proposed arterial highway and local street systems, which would be in place by the time of completion of the development expansion.

3. Modal Split

Modal split denotes the proportion of traffic generated by a project that would use any of the transportation modes, namely buses, cars, bicycles, motorcycles, trains, carpools, etc. The traffic reducing potential of public transit and other modes is significant. However, the traffic projections are "conservative" in that public transit and alternative transportation may be able to reduce the traffic volumes. Thus, no modal split reduction is applied to the projections. With the implementation of transit service and provision of alternative transportation ideas and incentives, the automobile traffic demand can be reduced.

4. Project Traffic Volumes

Project peak hour traffic volumes have been calculated throughout the study area. The project traffic volumes are shown on Exhibit 3-3.

B. Existing Plus Project Conditions

1. Existing Plus Project Conditions Traffic Volumes

Existing Plus Project Conditions include existing traffic volumes and project traffic. Existing Plus Project Conditions traffic volumes are shown on Exhibit 3-4.

2. Intersection Level of Service for Existing Plus Project Conditions

Intersection levels of service for the existing network with the proposed project are shown in Table 3-3. As shown in Table 3-3, HCM calculations are based on the existing intersection geometrics. For Existing Plus Project Conditions, all study area intersections are forecast to continue to operate at Level of Service D or better during the peak hours.

HCM calculation worksheets for Existing Plus Project Conditions are provided in Appendix D.

3. Roadway Segment Level of Service for Existing Plus Project Conditions

The roadway segment level of service calculations for Existing Plus Project Conditions are shown in Table 2-2. The City of Murrieta requires Level of Service C or better for all study area roadway segments.

As shown in Table 2-2, for Existing Plus Project Conditions, the study area roadway segments are forecast to continue to operate at an acceptable level of service based on the General Plan Classification of the roadway.

C. Cumulative Projects Traffic

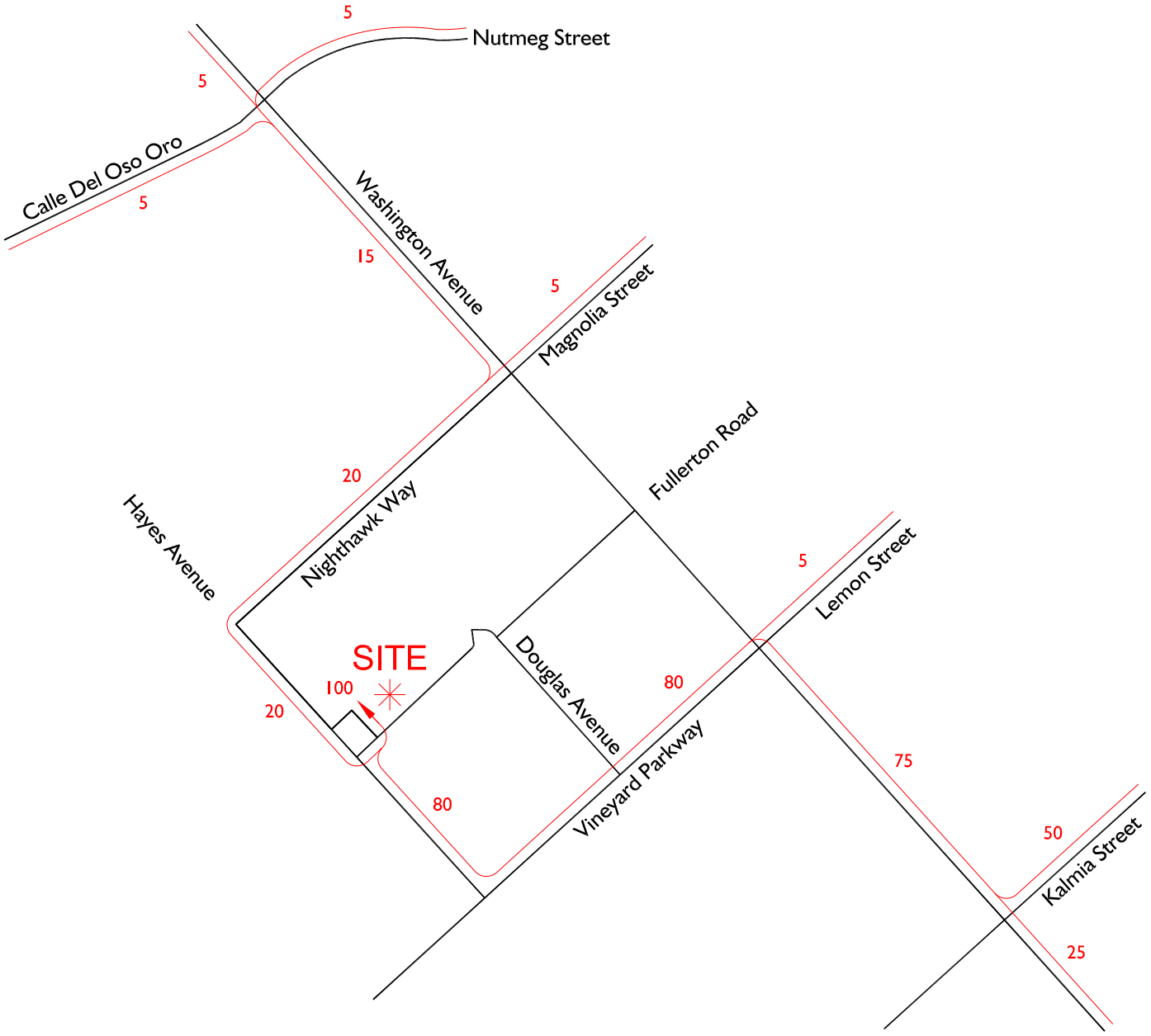
Table 3-4 lists the proposed land uses for the nearby developments for Project Buildout Year With Ambient Growth With Cumulative Projects Plus Project Conditions known by the City of Murrieta and RK Engineering at the time this study was prepared.

Developments that have been approved or are being processed concurrently in the study area include the projects illustrated in Exhibit 3-5.

The Cumulative Projects' traffic volumes are shown on Exhibit 3-6.

Exhibit 3-1

Project Inbound Trip Distribution



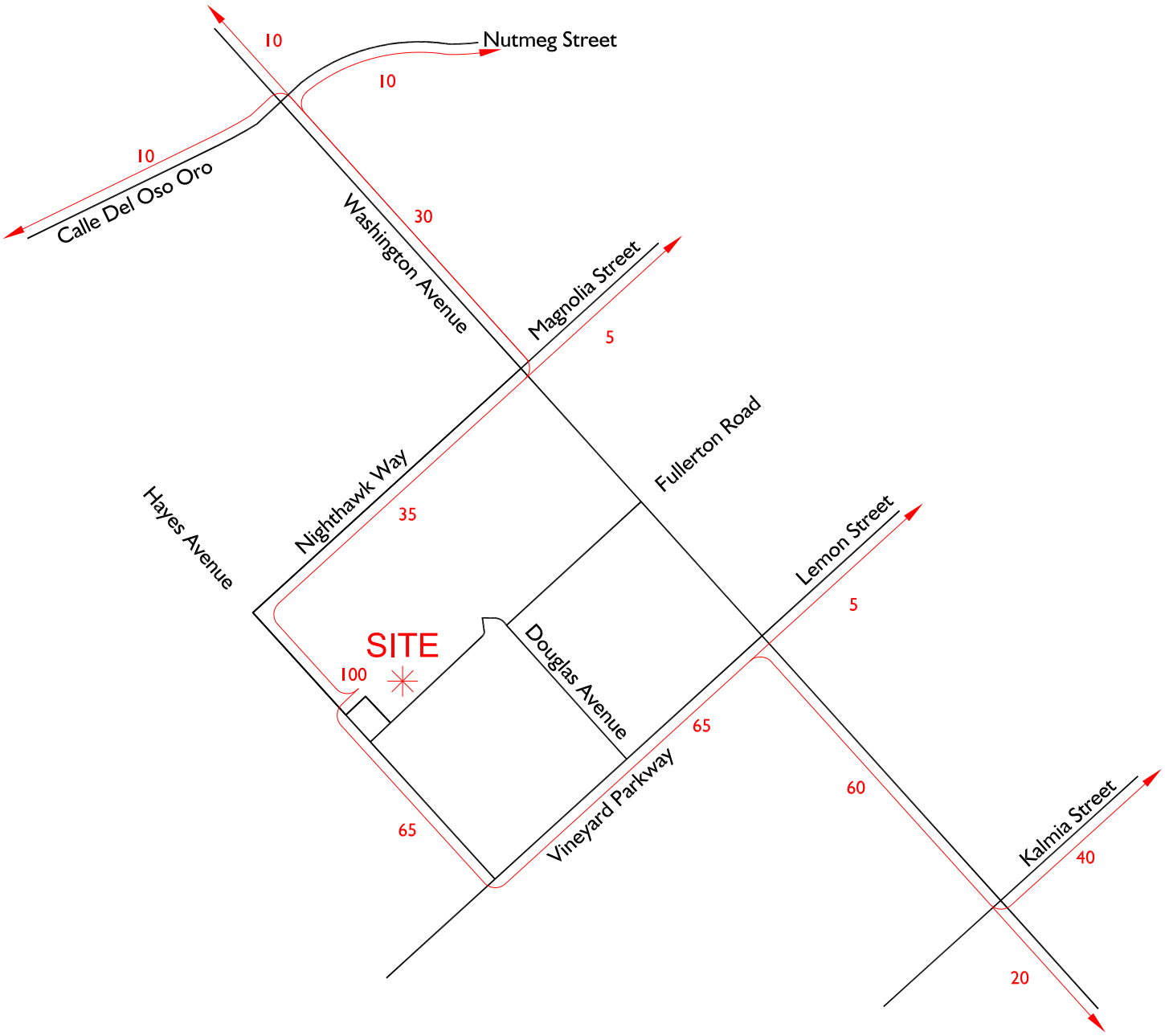
Legend:

10 = Percent to Site

N

Exhibit 3-2

Project Outbound Trip Distribution



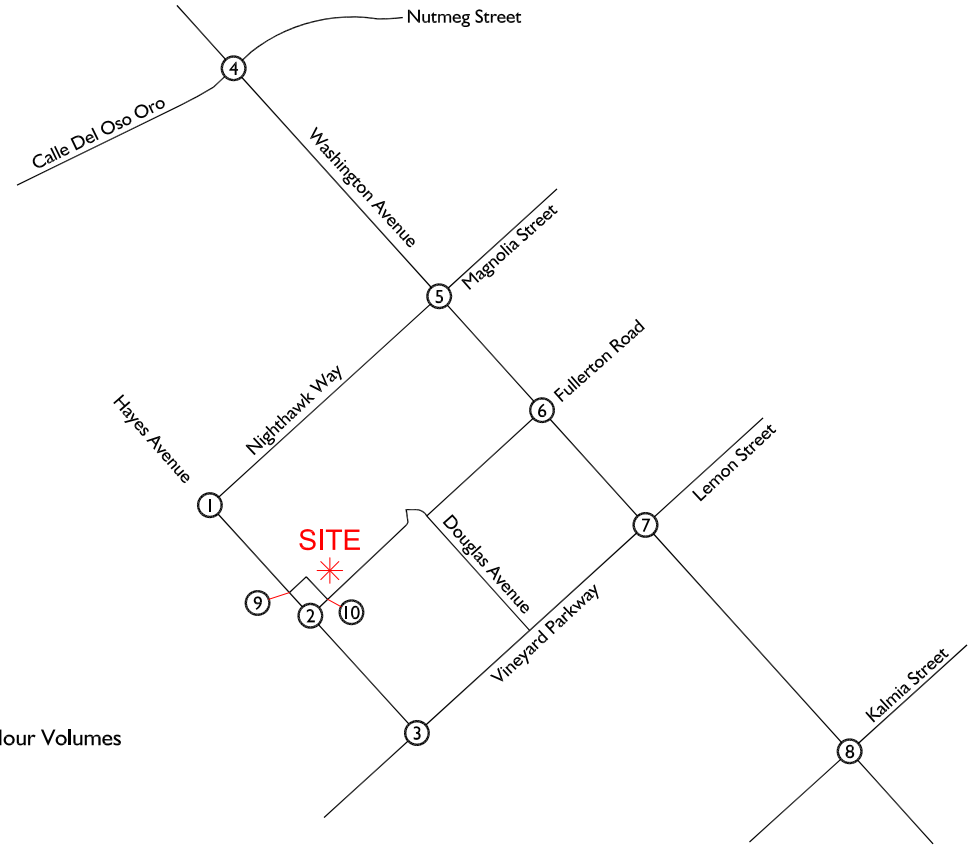
Legend:

10 = Percent from Site

N

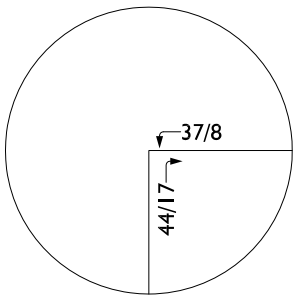
Exhibit 3-3

Project Traffic Volumes

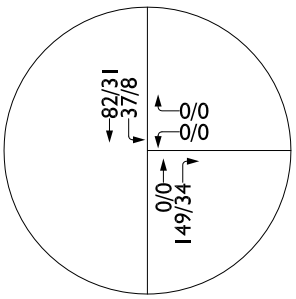


Legend:

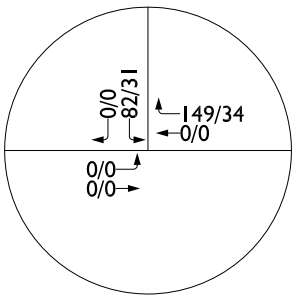
10/20 = AM/PM Peak Hour Volumes



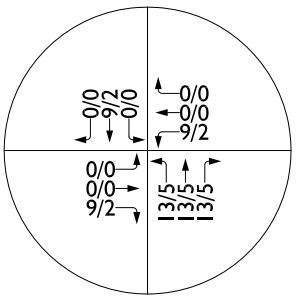
1. Hayes Ave. (NS) & Nighthawk Way (EW)



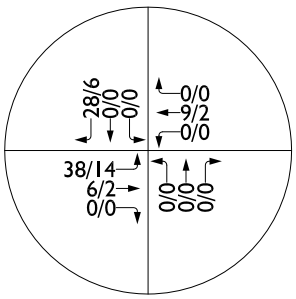
2. Hayes Ave. (NS) & Fullerton Rd. (EW)



3. Hayes Ave. (NS) & Vineyard Pkwy. (EW)



4. Washington Ave. (NS) & Nutmeg St. (EW)



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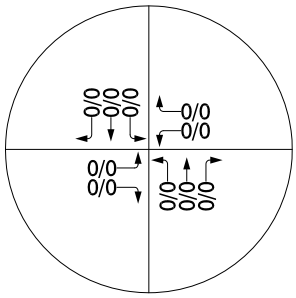
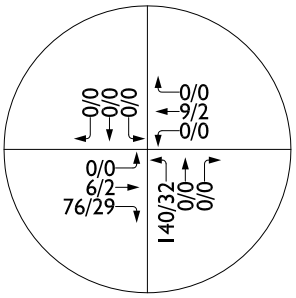
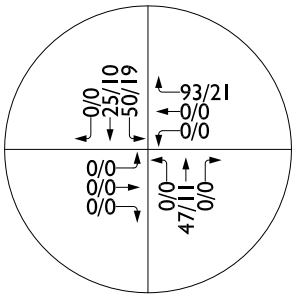


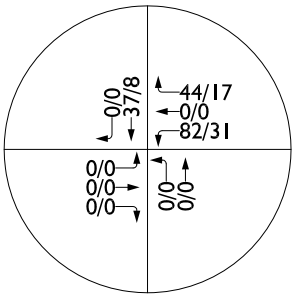
6. Washington Ave. (NS) & Fullerton Rd. (EW)



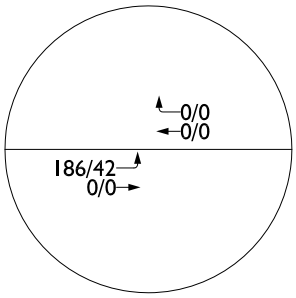
7. Washington Ave. (NS) & Lemon St. (EW)



8. Washington Ave. (NS) & Kalmia St. (EW)



9. Hayes Ave. (NS) & Project Dwy. 1 (EW)

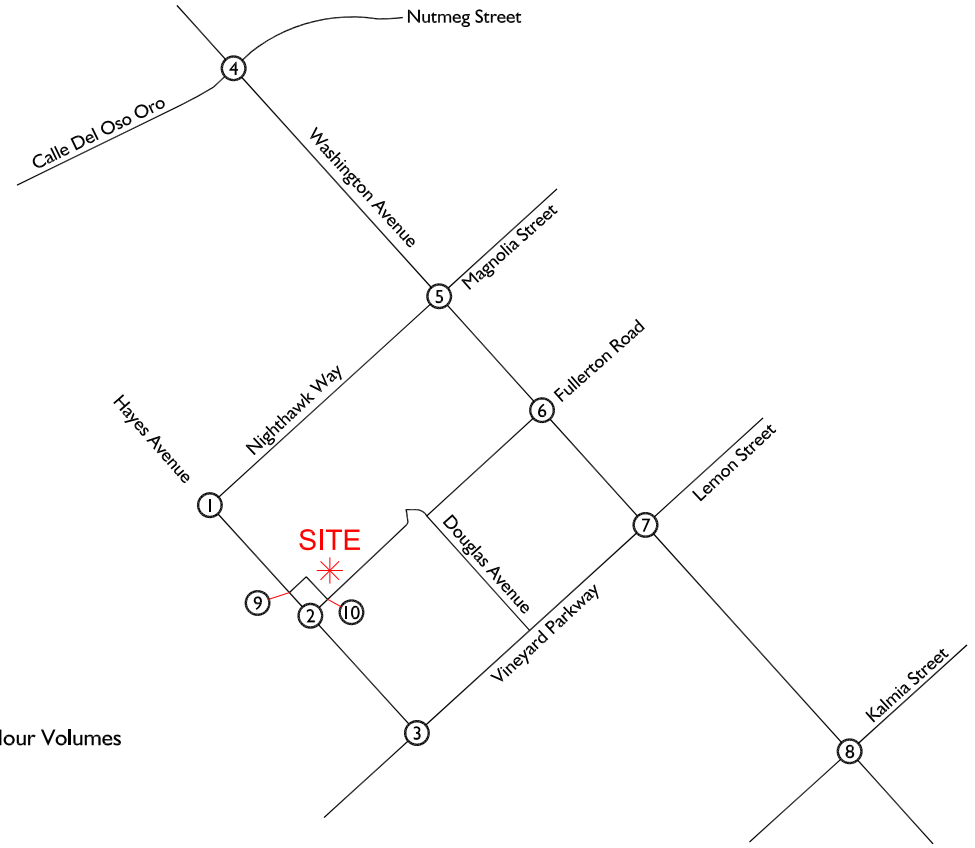


10. Project Dwy. 2 (NS) & Fullerton Rd. (EW)

N

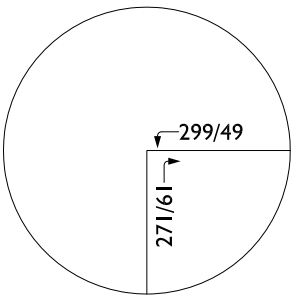
Exhibit 3-4

Existing Plus Project Conditions Traffic Volumes

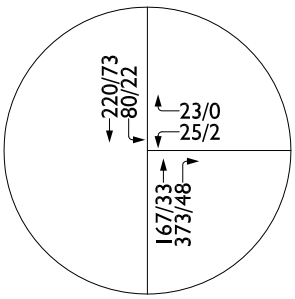


Legend:

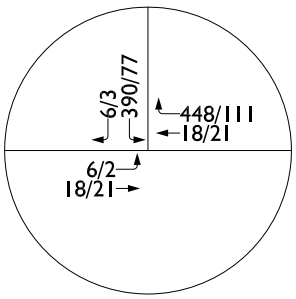
10/20 = AM/PM Peak Hour Volumes



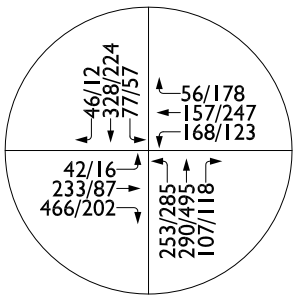
1. Hayes Ave. (NS) & Nighthawk Way (EW)



2. Hayes Ave. (NS) & Fullerton Rd. (EW)



3. Hayes Ave. (NS) & Vineyard Pkwy. (EW)



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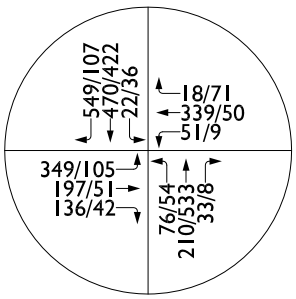

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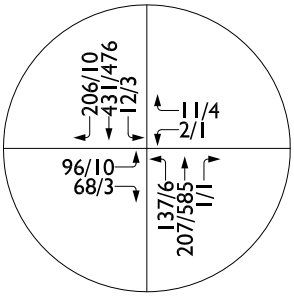
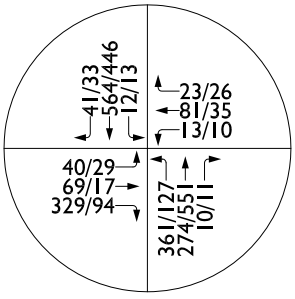
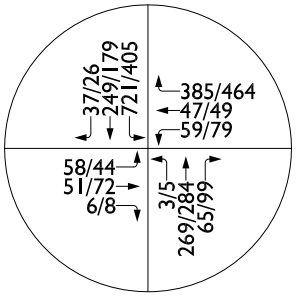


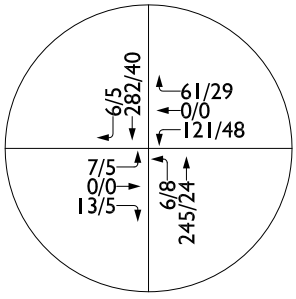
6. Washington Ave. (NS) & Fullerton Rd. (EW)



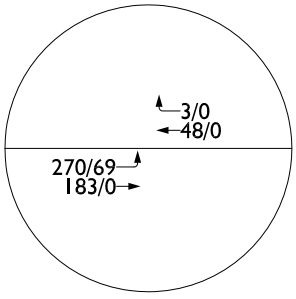
7. Washington Ave. (NS) & Lemon St. (EW)



8. Washington Ave. (NS) & Kalmia St. (EW)



9. Hayes Ave. (NS) & Project Dwy. 1 (EW)

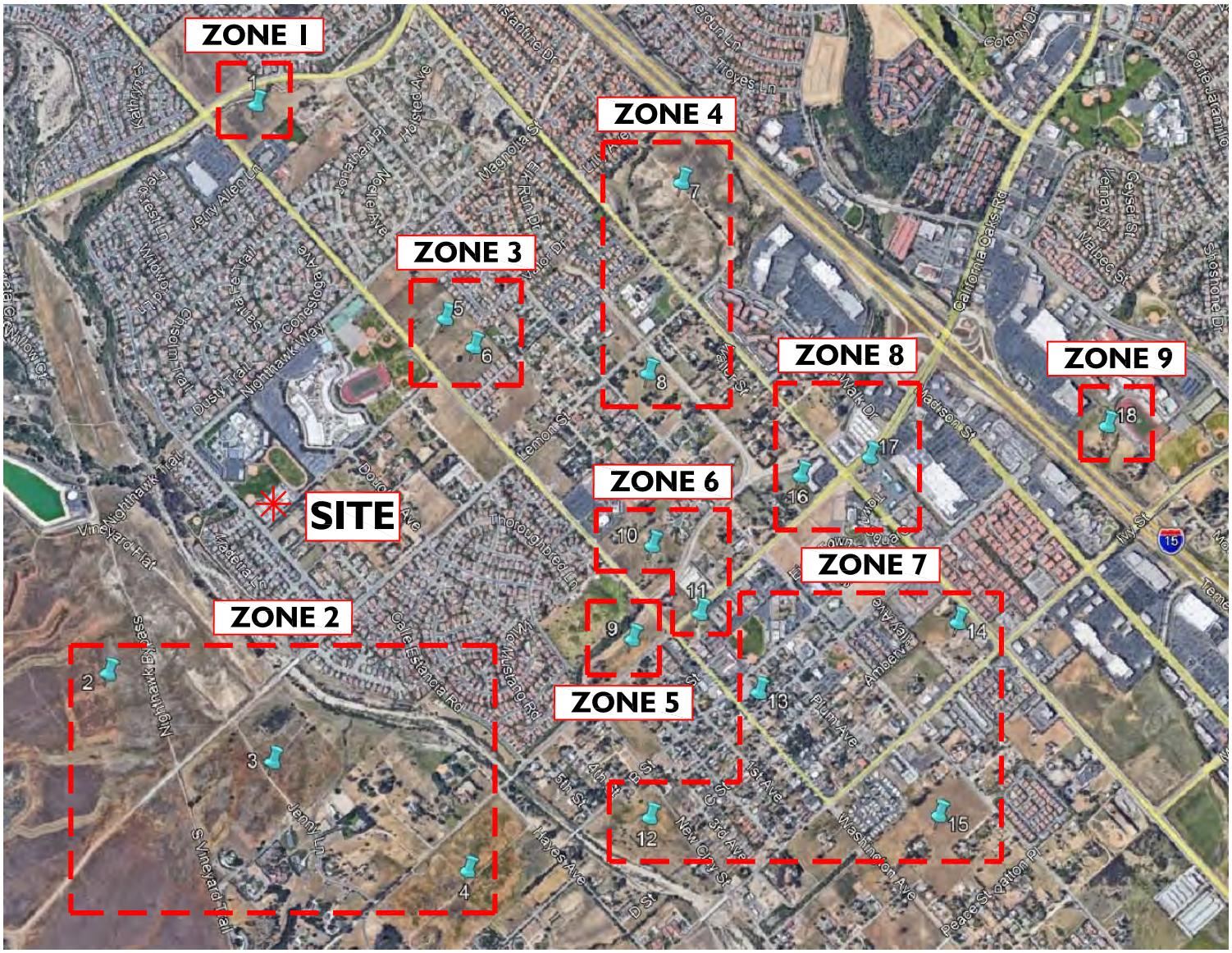


10. Project Dwy. 2 (NS) & Fullerton Rd. (EW)

N

Exhibit 3-5

Cumulative Projects Location Map



Zone 1:
- (1) = DP-2016-992
- (2) = Raintree Investments GVSP

Zone 2:
- (2) = VTTM 28903
- (3) = TTM 36385
- (4) = TTM 37621

Zone 3:
- (5) = TTM 30953
- (6) = TTM 31467

Zone 4:
- (7) = TTM 36850
- (8) = TTM 37430

Zone 5:
- (9) = DP-2018-1593

Zone 6:
- (10) = DP-2017-1299
- (11) = DP-2018-1741

Zone 7:
- (12) = TTM 34439
- (13) = DP-2013-118
- (14) = DP-2017-1397
- (15) = TTM 36848

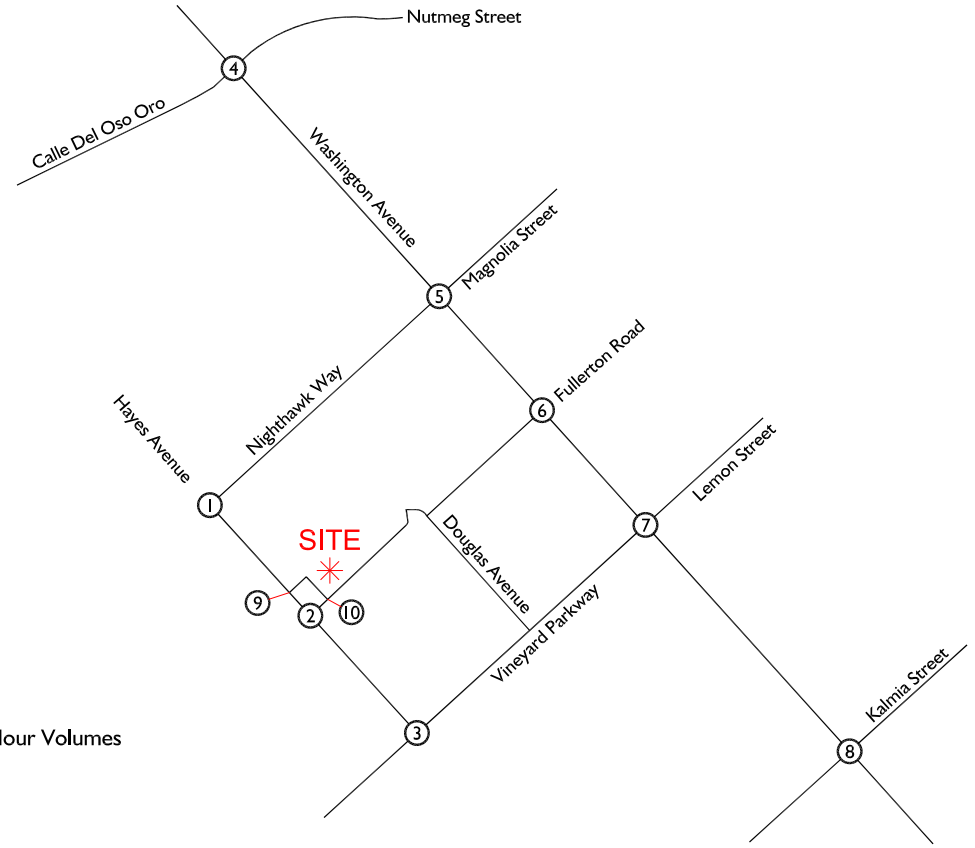
Zone 8:
- (16) = DP-2017-1359
- (17) = DP-2019-1856

Zone 9:
- (18) = DP-2016-1010

N

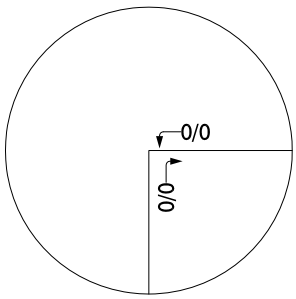
Exhibit 3-6

Cumulative Projects Traffic Volumes

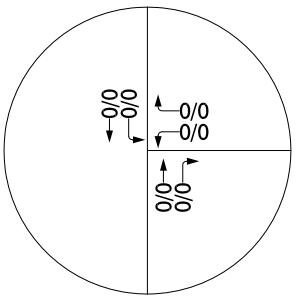


Legend:

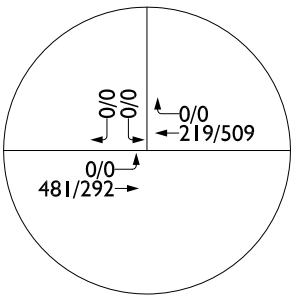
10/20 = AM/PM Peak Hour Volumes



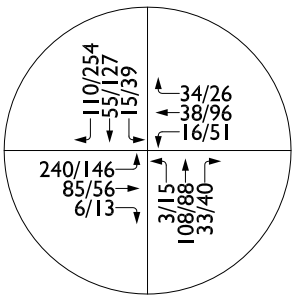
1. Hayes Ave. (NS) & Nighthawk Way (EW)



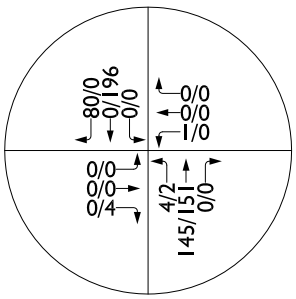
2. Hayes Ave. (NS) & Fullerton Rd. (EW)



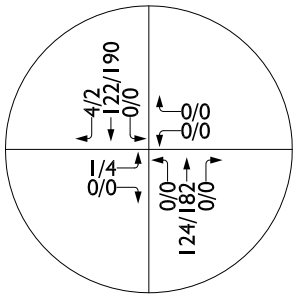
3. Hayes Ave. (NS) & Vineyard Pkwy. (EW)



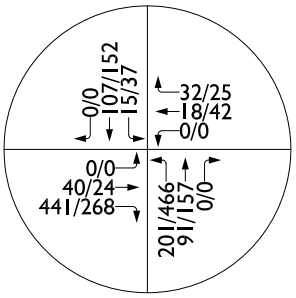
4. Washington Ave. (NS) & Nutmeg St. (EW)



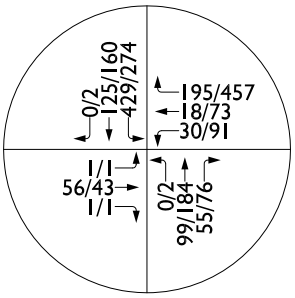
5. Washington Ave. (NS) & Nighthawk Way (EW)



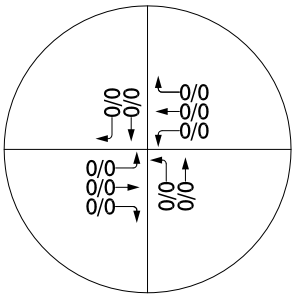
6. Washington Ave. (NS) & Fullerton Rd. (EW)



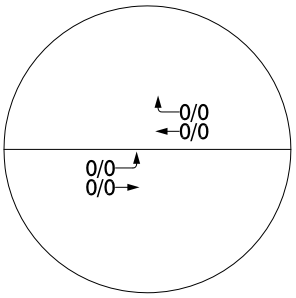
7. Washington Ave. (NS) & Lemon St. (EW)



8. Washington Ave. (NS) & Kalmia St. (EW)



9. Hayes Ave. (NS) & Project Dwy. 1 (EW)



10. Project Dwy. 2 (NS) & Fullerton Rd. (EW)

N

Table 3-1

Project Trip Generation Rates[1]

Land Use	Units[2]	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Murrieta Canyon Academy	STU	0.62	0.42	1.04	0.14	0.16	0.30	4.06

[1] Source: Existing traffic counts based on existing enrollment of 200 students.

[2] STU = Students.

Table 3-2

Project Trip Generation[1]

Land Use	Quantity	Units[2]	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Murrieta Canyon Academy	300	STU	186	126	312	42	48	90	1,218
Total Trips			**186**	**126**	**312**	**42**	**48**	**90**	**1,218**

[1] Source: Existing traffic counts based on existing enrollment of 200 students.

[2] STU = Students.

Table 3-3
Study Intersection LOS Analysis Summary
Existing Plus Project Conditions

	Intersection	Traffic Control[3]	Intersection Approach Lane(s)[1]												Delay[2] (Secs)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1.	Hayes Avenue (NS) / Nighthawk Way (EW)	AWS	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	13.7	7.1	B	A
2.	Hayes Avenue (NS) / Fullerton Road (EW)	CSS	0.0	0.5	0.5	1.0	1.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	22.7	9.7	C	A
3.	Hayes Avenue (NS) / Vineyard Parkway (EW)	AWS	0.0	0.0	0.0	0.5	0.0	0.5	1.0	1.0	0.0	0.0	1.0	1.0	33.5	8.2	D	A
4.	Washington Avenue (NS) / Nutmeg Street (EW)	TS	1.0	1.0	1.0	1.0	1.5	0.5	1.0	1.0	1>	1.0	1.0	1.0	34.2	24.9	C	C
5.	Washington Avenue (NS) / Nighthawk Way (EW)	TS	1.0	1.5	0.5	1.0	2.0	1>	1.0	0.5	0.5	1.0	1.5	0.5	35.6	13.8	D	B
6.	Washington Avenue (NS) / Fullerton Road (EW)	TS	1.0	1.0	1.0	1.0	2.0	1.0	1.0	0.5	0.5	1.0	0.5	0.5	14.9	5.3	B	A
7.	Washington Avenue (NS) / Lemon Street (EW)	TS	1.0	1.5	0.5	1.0	1.5	0.5	1.0	0.5	0.5	1.0	0.5	0.5	34.9	10.8	C	B
8.	Washington Avenue (NS) / Kalmia Street (EW)	TS	1.0	1.0	1.0	2.0	0.5	0.5	1.0	0.5	0.5	1.0	1.0	1>	32.8	27.8	C	C
9.	Hayes Avenue (NS) / Project Driveway 1 (EW)	CSS	1.0	1.0	0.0	0.0	0.5	0.5	0.5	0.0	0.5	0.5	0.5	1.0	24.7	9.5	C	A
10.	Project Driveway 2 (NS) / Fullerton Road (EW)	--	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.5	0.5	8.9	8.3	A	A

[1] When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. Where "1" is indicated for the through movement and "0"s are indicated for R/L movements, the R and/or L turns are shared with the through movement.
Deficient operation shown in **Bold.**

L = Left; T = Through; R = Right; > = Right Turn Overlap; >> = Free Right Turn; * = Defacto Right Turn Lane; ! = Indicates general purpose lane; **Bold Underline** = Improvement;

[2] Analysis Software: Synchro, Version 10.0. Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all-way stop control. For intersections with cross-street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] AWS = All Way Stop
CSS = Cross Street Stop

Table 3-4
Cumulative Projects Trip Generation[1]

ID No.	Jurisdiction	Project Name / Case Number	Land Use	ITE Trip Code	Quantity	Units[2]	Peak Hour						Daily
							AM			PM			
							In	Out	Total	In	Out	Total	
TAZ 1													
1	Murrieta	DP-2016-992	Assisted Living	254	108	Beds	13	8	21	11	17	28	281
TAZ 2													
2	Murrieta	VTTM 28903[3]	Single Family Housing	210	1,306	DU	216	637	853	739	410	1,149	10,890
			Elementary School	520	600	STU	102	72	174	6	6	12	612
			Day Care Center	565	50	STU	22	19	41	20	23	43	226
3	Murrieta	TTM 36385[3]	Single Family Housing	210	105	DU	20	59	79	67	39	106	1,005
4	Murrieta	TTM 37621	Single Family Housing	210	25	DU	5	14	19	16	9	25	236
						TAZ 2 Total	**365**	**801**	**1,166**	**848**	**487**	**1,335**	**12,969**
TAZ 3													
5	Murrieta	TTM 30953[3]	Multifamily Housing (Low-Rise)	220	141	DU	11	61	72	59	28	87	935
6	Murrieta	TTM 31467[3]	Multifamily Housing (Low-Rise)	220	64	DU	4	24	28	23	12	35	375
						TAZ 3 Total	**15**	**85**	**100**	**82**	**40**	**122**	**1,310**
TAZ 4													
7	Murrieta	TTM 36850[3]	Single Family Housing	210	270	DU	51	151	202	170	100	270	2,570
8	Murrieta	TTM 37430	Single Family Housing	210	12	DU	2	7	9	7	4	11	113
						TAZ 4 Total	**53**	**158**	**211**	**177**	**104**	**281**	**2,683**
TAZ 5													
9	Murrieta	DP-2018-1593[3]	Timeshare	265	161	DU	19	58	77	76	45	121	1,615
TAZ 6													
10	Murrieta	DP-2017-1299	Mini Warehouse	151	191.900	TSF	12	8	20	15	17	32	290
11	Murrieta	DP-2018-1741	Shopping Center	820	51.455	TSF	30	18	48	94	102	196	1,942
						TAZ 6 Total	**42**	**26**	**68**	**109**	**119**	**228**	**2,232**
TAZ 7													
12	Murrieta	TTM 34439	Single Family Housing	210	62	DU	11	34	45	39	23	62	585
13	Murrieta	DP-2013-118	Multifamily Housing (Low-Rise)	220	2	DU	0	1	1	1	0	1	15
			Shopping Center	820	6.212	TSF	4	2	6	11	12	23	235
14	Murrieta	DP-2017-1397[3]	Multifamily Housing (Low-Rise)	220	333	DU	33	137	170	133	73	206	2,214
15	Murrieta	TTM 36848[3]	Single Family Housing	210	86	DU	16	48	64	54	32	86	819
						TAZ 7 Total	**64**	**222**	**286**	**238**	**140**	**378**	**3,868**
TAZ 8													
16	Murrieta	DP-2017-1359	Medical/Dental Office Building	720	13.100	TSF	28	8	36	13	33	46	456
17	Murrieta	DP-2019-1856	Automated Car Wash	948	4.975	TSF	NA	NA	NA	35	35	70	NA
						TAZ 8 Total	**28**	**8**	**36**	**48**	**68**	**116**	**456**
TAZ 9													
18	Murrieta	DP-2016-1010[3]	Hotel	310	104	Rooms	166	146	311	150	127	277	4,062
			Shopping Center	820	8.500	TSF							
			Quality Restaurant	931	12.100	TSF							
			Fast Food with Drive-Thru	934	4.000	TSF							
			Coffee/Donut Shop with Drive-Thru	937	2.000	TSF							
						Total Cumulative Projects Trip Generation	***765***	***1,512***	***2,276***	***1,739***	***1,147***	***2,886***	***29,476***

[1] Cumulative Projects information provided by the City of Murrieta.

4.0 MUTCD Traffic Signal Warrant Analysis

For all analysis scenarios, the following study intersection has been evaluated for signalization based on the peak hour volume warrant and procedures contained in the *California Manual on Uniform Traffic Control Devices (CA MUTCD), 2014 Edition*:

- Int 3 – Hayes Avenue / Vineyard Parkway

Table 4-1 summarizes the results of the *MUTCD* signal warrant analysis. Detailed *MUTCD* signal warrant analysis sheets are contained in Appendix E.

As shown in Table 4-1, the Hayes Avenue / Vineyard Parkway intersection does not meet the peak hour volume criteria to satisfy the signal warrant for Existing or Existing Plus Project Conditions. However, the intersection is forecast to continue to perform at an acceptable LOS for Existing Plus Project Conditions.

As shown in Table 4-1, the Hayes Avenue / Vineyard Parkway intersection meets the peak hour volume criteria to satisfy the signal warrant for the following analysis scenarios:

- Project Buildout Year Plus Project (AM Peak Hour);
- Project Buildout Year With Cumulative Projects (AM Peak Hour); and
- Project Buildout Year With Cumulative Projects Plus Project (AM Peak Hour).

Table 4-1
Unsignalized Study Intersections Traffic Signal Warrant Analysis Summary

Intersection		Signal Warrant Met?									
		Existing Conditions		Existing Plus Project Conditions		Project Buildout Year With Ambient Growth Plus Project Conditions		Project Buildout Year With Ambient Growth With Cumulative Projects Conditions		Project Buildout Year With Ambient Growth With Cumulative Projects Plus Project Conditions	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
3.	Hayes Avenue (NS) / Vineyard Parkway (EW)	NO	NO	NO	NO	**YES**	NO	**YES**	NO	**YES**	NO

5.0 Project Buildout Year Conditions

A. Background Traffic

The development expansion is proposed for completion by Year 2023. To be conservative, this traffic impact study has analyzed the project in one (1) complete phase. To assess Project Buildout Year With Ambient Growth traffic conditions, project traffic is combined with existing traffic, and area-wide growth.

Project Buildout Year With Ambient Growth volumes were derived by applying a two percent (2%) annual growth rate over a four-year period to existing volumes. The background traffic growth rate is consistent with typical ambient growth rates used for traffic impact studies in the City of Murrieta.

B. Project Buildout Year With Ambient Growth Plus Project Conditions Traffic Volumes

Project Buildout Year With Ambient Growth Plus Project Conditions include existing traffic volumes on surrounding roadways, area-wide growth, and project traffic. The AM and PM peak hour intersection turning movement volumes and average daily traffic are shown on Exhibit 5-1 for Project Buildout Year With Ambient Growth Plus Project Conditions.

C. Intersection Level of Service for Project Buildout Year With Ambient Growth Plus Project Conditions

Intersection levels of service for the existing network with background growth, and the proposed project are shown in Table 5-1. As shown in Table 5-1, HCM calculations are based on the existing intersection geometrics. For Project Buildout Year With Ambient Growth Plus Project Conditions, all study area intersections are forecast to continue to operate at Level of Service D or better during the peak hours, with the exception of the following intersection that is forecast to operate at an unacceptable Level of Service during peak hours:

- Int 3 – Hayes Avenue / Vineyard Parkway (AM Peak Hour)

HCM calculation worksheets for Project Buildout Year With Ambient Growth Plus Project Conditions are provided in Appendix F.

D. Project Buildout Year With Ambient Growth With Cumulative Projects Conditions Traffic Volumes

Project Buildout Year With Ambient Growth With Cumulative Projects Conditions include existing traffic volumes on surrounding roadways, area-wide growth, and cumulative projects traffic. Project Buildout Year With Ambient Growth With Cumulative Projects Conditions traffic volumes are shown on Exhibit 5-2.

E. Intersection Level of Service for Project Buildout Year With Ambient Growth With Cumulative Projects Conditions

Intersection levels of service for the existing network with background growth, and the cumulative projects are shown in Table 5-2. As shown in Table 5-2, HCM calculations are based on the existing intersection geometrics. For Project Buildout Year With Ambient Growth With Cumulative Projects Conditions, all study area intersections are forecast to continue to operate at Level of Service D or better during the peak hours, with the exception of the following intersections that are forecast to operate at an unacceptable Level of Service during peak hours:

- Int 3 – Hayes Avenue / Vineyard Parkway (AM and PM Peak Hours); and
- Int 7 – Washington Avenue / Lemon Street (AM Peak Hour); and
- Int 8 – Washington Avenue / Kalmia Street (PM Peak Hour).

HCM calculation worksheets for Project Buildout Year With Ambient Growth With Cumulative Projects Conditions are provided in Appendix G.

F. Roadway Segment Level of Service for Project Buildout Year With Ambient Growth With Cumulative Projects Conditions

The roadway segment level of service calculations for Project Buildout Year With Ambient Growth With Cumulative Projects Conditions are shown in Table 5-4. The City of Murrieta requires Level of Service C or better for all study area roadway segments.

For Project Buildout Year With Ambient Growth With Cumulative Projects Conditions, the study area roadway segments are forecast to operate at an acceptable level of service based on the General Plan Classification of the roadway.

G. Project Buildout Year With Ambient Growth With Cumulative Projects Plus Project Conditions Traffic Volumes

Project Buildout Year With Ambient Growth With Cumulative Projects Plus Project Conditions include existing traffic volumes on surrounding roadways, area-wide growth, cumulative projects traffic, and project traffic. Project Buildout Year With Ambient Growth With Cumulative Projects Plus Project Conditions traffic volumes are shown on Exhibit 5-3.

H. Intersection Level of Service for Project Buildout Year With Ambient Growth With Cumulative Projects Plus Project Conditions

Intersection levels of service for the existing network with background growth, cumulative projects, and the proposed project are shown in Table 5-3. As shown in Table 5-3, HCM calculations are based on the existing intersection geometrics. For Project Buildout Year With Ambient Growth With Cumulative Projects Plus Project Conditions, all study area intersections are forecast to continue to operate at Level of Service D or better during the peak hours, with the exception of the following intersections that are forecast to operate at an unacceptable Level of Service during peak hours:

- Int 3 – Hayes Avenue / Vineyard Parkway (AM and PM Peak Hours); and
- Int 7 – Washington Avenue / Lemon Street (AM and PM Peak Hours); and
- Int 8 – Washington Avenue / Kalmia Street (AM and PM Peak Hours).

HCM calculation worksheets for Project Buildout Year With Ambient Growth With Cumulative Projects Plus Project Conditions are provided in Appendix H.

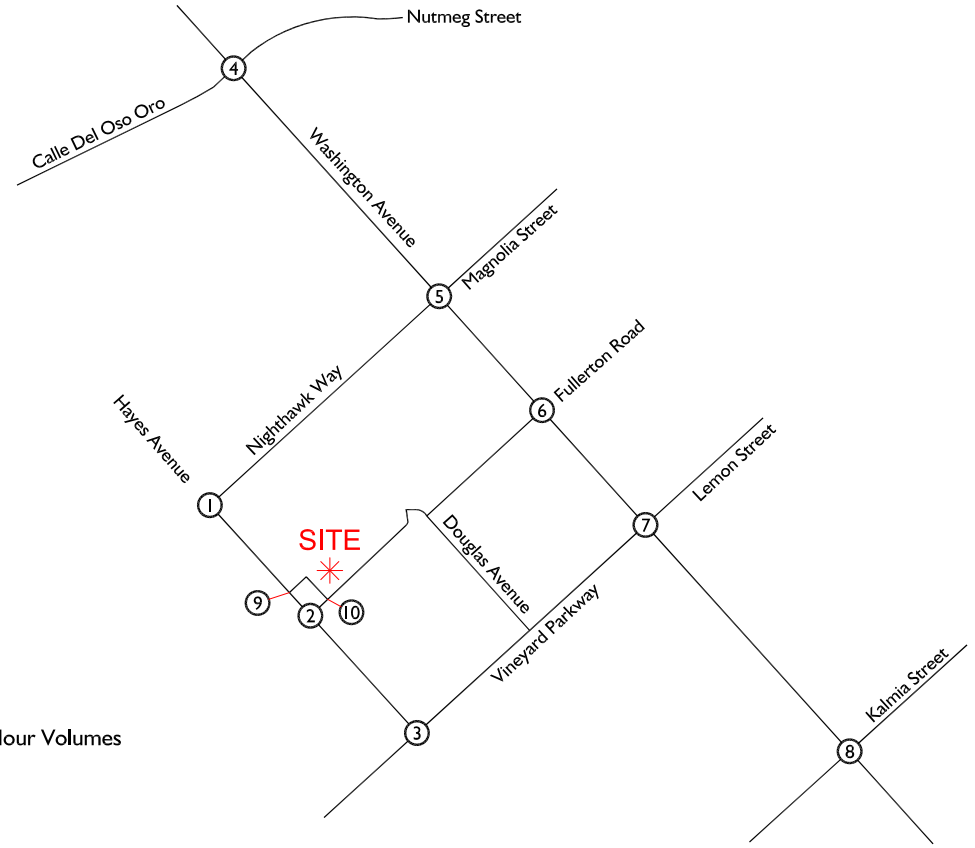
I. Roadway Segment Level of Service for Project Buildout Year With Ambient Growth With Cumulative Projects Plus Project Conditions

The roadway segment level of service calculations for Project Buildout Year With Ambient Growth With Cumulative Projects Plus Project Conditions are shown in Table 5-4. The City of Murrieta requires Level of Service C or better for all study area roadway segments.

As shown in Table 5-4, for Project Buildout Year With Ambient Growth With Cumulative Projects Plus Project Conditions, the study area roadway segments are forecast to operate at an acceptable level of service based on the General Plan Classification of the roadway.

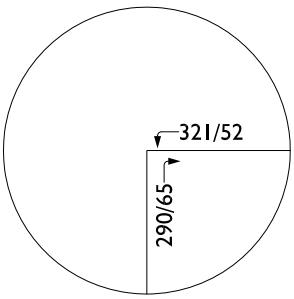
Exhibit 5-1

Project Buildout Year With Ambient Growth Plus Project Conditions Traffic Volumes

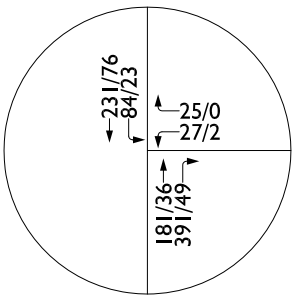


Legend:

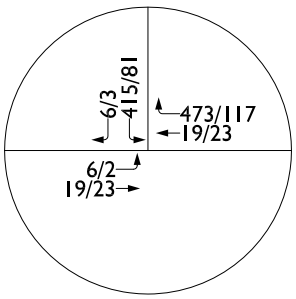
10/20 = AM/PM Peak Hour Volumes



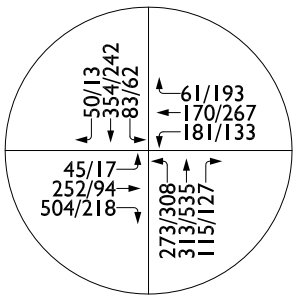
1. Hayes Ave. (NS) & Nighthawk Way (EW)



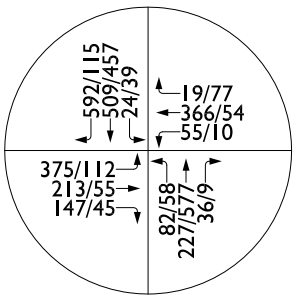
2. Hayes Ave. (NS) & Fullerton Rd. (EW)



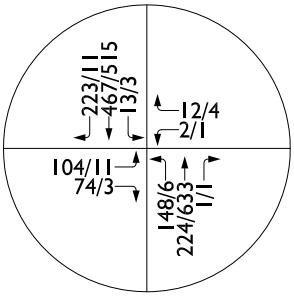
3. Hayes Ave. (NS) & Vineyard Pkwy. (EW)



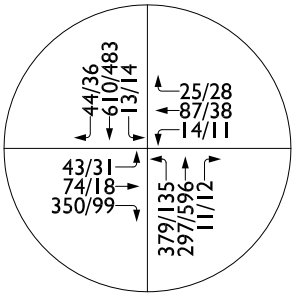
4. Washington Ave. (NS) & Nutmeg St. (EW)



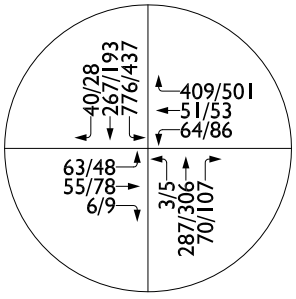
5. Washington Ave. (NS) & Nighthawk Way (EW)



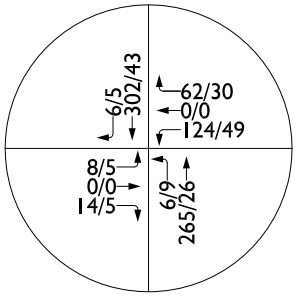
6. Washington Ave. (NS) & Fullerton Rd. (EW)



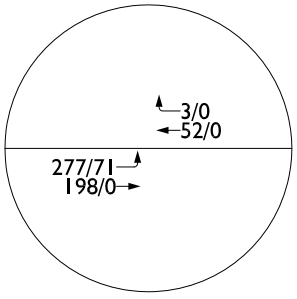
7. Washington Ave. (NS) & Lemon St. (EW)



8. Washington Ave. (NS) & Kalmia St. (EW)



9. Hayes Ave. (NS) & Project Dwy. 1 (EW)

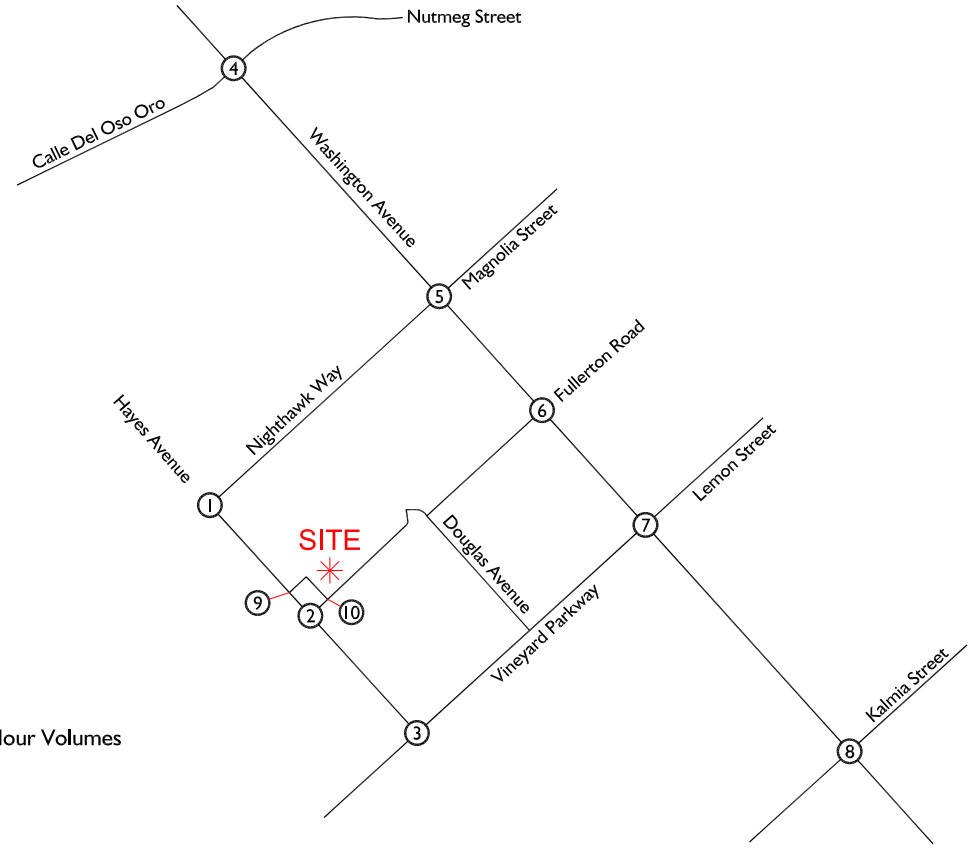


10. Project Dwy. 2 (NS) & Fullerton Rd. (EW)

N

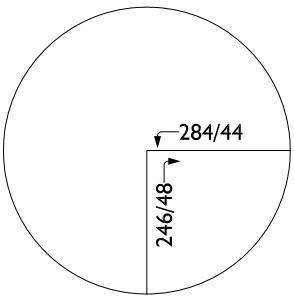
Exhibit 5-2

Project Buildout Year With Ambient Growth With Cumulative Projects Conditions Traffic Volumes

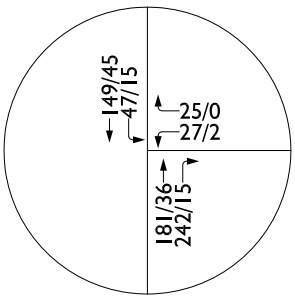


Legend:

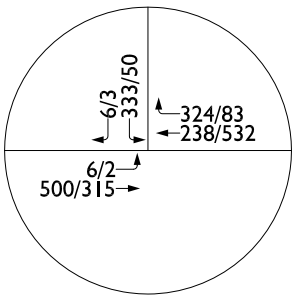
10/20 = AM/PM Peak Hour Volumes



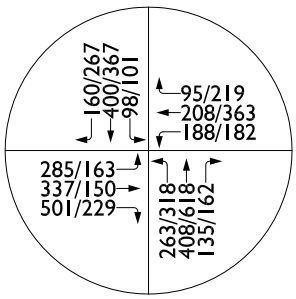
1. Hayes Ave. (NS) & Nighthawk Way (EW)



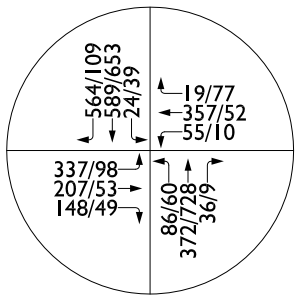
2. Hayes Ave. (NS) & Fullerton Rd. (EW)



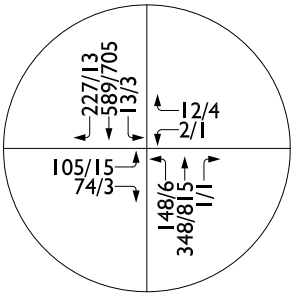
3. Hayes Ave. (NS) & Vineyard Pkwy. (EW)



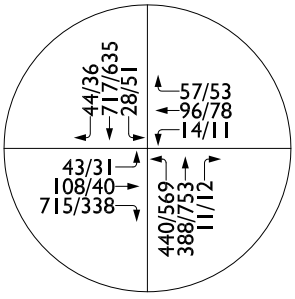
4. Washington Ave. (NS) & Nutmeg St. (EW)



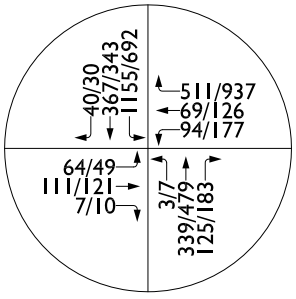
5. Washington Ave. (NS) & Nighthawk Way (EW)



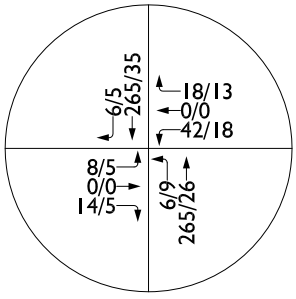
6. Washington Ave. (NS) & Fullerton Rd. (EW)



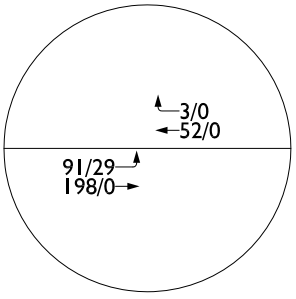
7. Washington Ave. (NS) & Lemon St. (EW)



8. Washington Ave. (NS) & Kalmia St. (EW)



9. Hayes Ave. (NS) & Project Dwy. 1 (EW)

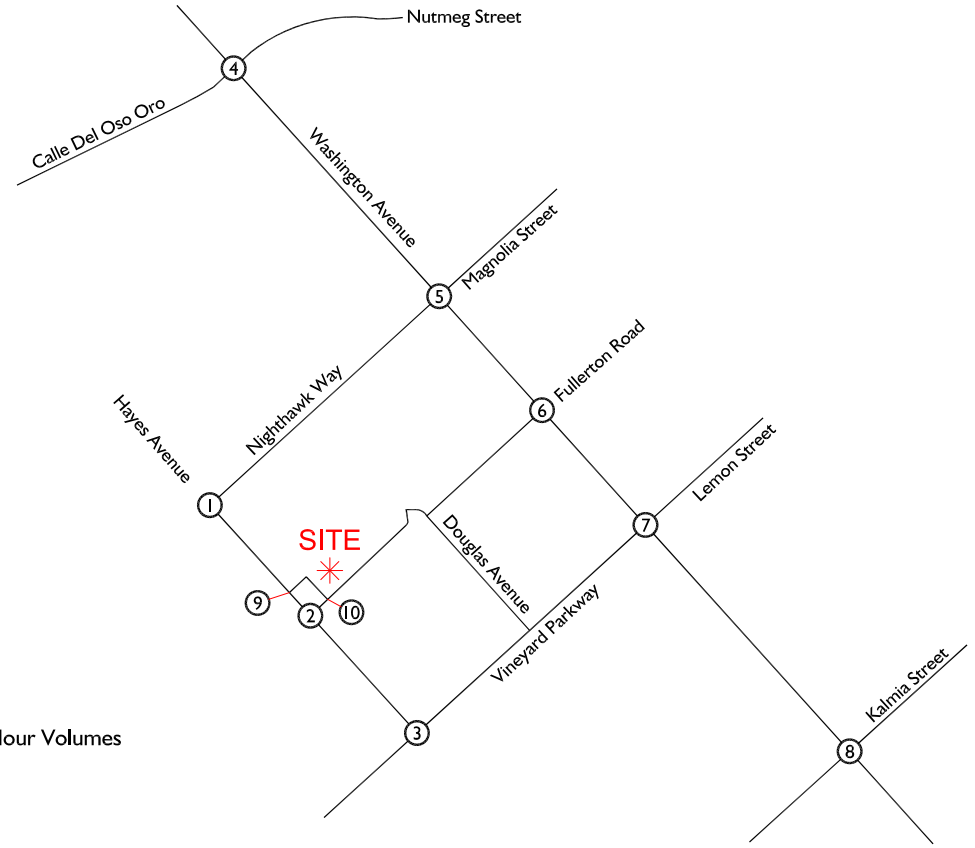


10. Project Dwy. 2 (NS) & Fullerton Rd. (EW)

N

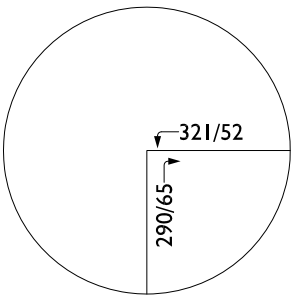
Exhibit 5-3

Project Buildout Year With Ambient Growth With Cumulative Projects Plus Project Conditions Traffic Volumes

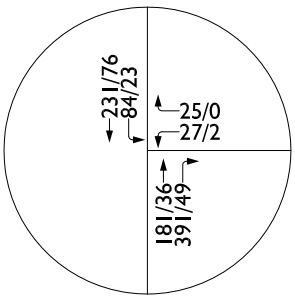


Legend:

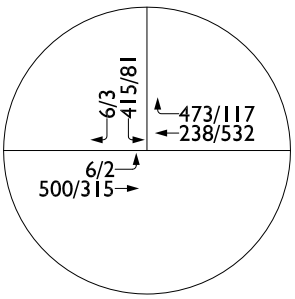
10/20 = AM/PM Peak Hour Volumes



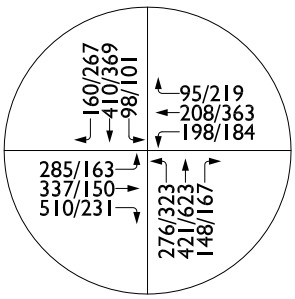
1. Hayes Ave. (NS) & Nighthawk Way (EW)



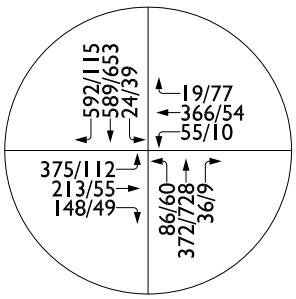
2. Hayes Ave. (NS) & Fullerton Rd. (EW)



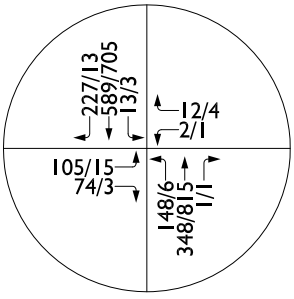
3. Hayes Ave. (NS) & Vineyard Pkwy. (EW)



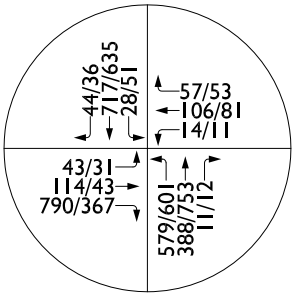
4. Washington Ave. (NS) & Nutmeg St. (EW)



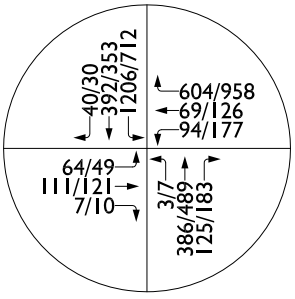
5. Washington Ave. (NS) & Nighthawk Way (EW)



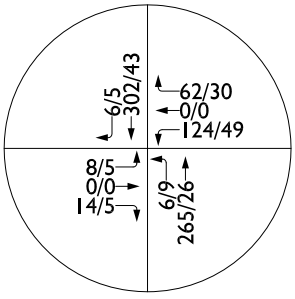
6. Washington Ave. (NS) & Fullerton Rd. (EW)



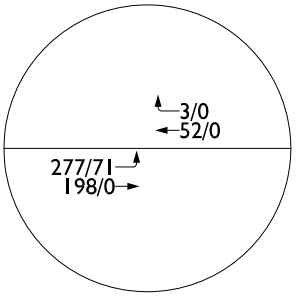
7. Washington Ave. (NS) & Lemon St. (EW)



8. Washington Ave. (NS) & Kalmia St. (EW)



9. Hayes Ave. (NS) & Project Dwy. 1 (EW)



10. Project Dwy. 2 (NS) & Fullerton Rd. (EW)

N

Table 5-1
Study Intersection LOS Analysis Summary
Project Buildout Year With Ambient Growth Plus Project Conditions

	Intersection	Traffic Control[3]	Intersection Approach Lane(s)[1]												Delay[2] (Secs)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1.	Hayes Avenue (NS) / Nighthawk Way (EW)	AWS	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	15.3	7.2	C	A
2.	Hayes Avenue (NS) / Fullerton Road (EW)	CSS	0.0	0.5	0.5	1.0	1.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	25.7	9.8	D	A
3.	Hayes Avenue (NS) / Vineyard Parkway (EW)	AWS	0.0	0.0	0.0	0.5	0.0	0.5	1.0	1.0	0.0	0.0	1.0	1.0	**44.3**	8.3	**E**	A
	With Mitigation	*TS*	*0.0*	*0.0*	*0.0*	*1.0*	*0.0*	*1.0*	*1.0*	*1.0*	*0.0*	*0.0*	*1.0*	*1.0*	*14.6*	*6.4*	*B*	*A*
4.	Washington Avenue (NS) / Nutmeg Street (EW)	TS	1.0	1.0	1.0	1.0	1.5	0.5	1.0	1.0	1>	1.0	1.0	1.0	37.0	27.1	D	C
5.	Washington Avenue (NS) / Nighthawk Way (EW)	TS	1.0	1.5	0.5	1.0	2.0	1>	1.0	0.5	0.5	1.0	1.5	0.5	45.1	14.2	D	B
6.	Washington Avenue (NS) / Fullerton Road (EW)	TS	1.0	1.0	1.0	1.0	2.0	1.0	1.0	0.5	0.5	1.0	0.5	0.5	16.4	5.6	B	A
7.	Washington Avenue (NS) / Lemon Street (EW)	TS	1.0	1.5	0.5	1.0	1.5	0.5	1.0	0.5	0.5	1.0	0.5	0.5	39.7	11.1	D	B
	With Mitigation	*TS*	*1.0*	*1.5*	*0.5*	*1.0*	*1.5*	*0.5*	*1.0*	*1.0*	*1>*	*1.0*	*0.5*	*0.5*	*20.9*	*10.3*	*C*	*B*
8.	Washington Avenue (NS) / Kalmia Street (EW)	TS	1.0	1.0	1.0	2.0	0.5	0.5	1.0	0.5	0.5	1.0	1.0	1>	33.4	28.0	C	C
	With Mitigation	*TS*	*1.0*	*1.0*	*1.0*	*2.0*	*0.5*	*0.5*	*1.0*	*0.5*	*0.5*	*1.0*	*1.0*	*2>*	*28.5*	*22.9*	*C*	*C*
9.	Hayes Avenue (NS) / Project Driveway 1 (EW)	CSS	1.0	1.0	0.0	0.0	0.5	0.5	0.5	0.0	0.5	0.5	0.5	1.0	28.7	9.6	D	A
10.	Project Driveway 2 (NS) / Fullerton Road (EW)	--	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.5	0.5	9.0	7.3	A	A

[1] When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. Where "1" is indicated for the through movement and "0"s are indicated for R/L movements, the R and/or L turns are shared with the through movement.
Deficient operation shown in **Bold.**

L = Left; T = Through; R = Right; > = Right Turn Overlap; >> = Free Right Turn; * = Defacto Right Turn Lane; ! = Indicates general purpose lane; **Bold Underline** = Improvement;

[2] Analysis Software: Synchro, Version 10.0. Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all-way stop control. For intersections with cross-street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] AWS = All Way Stop
CSS = Cross Street Stop

Table 5-2
Study Intersection LOS Analysis Summary
Project Buildout Year With Ambient Growth With Cumulative Projects Conditions

	Intersection	Traffic Control[3]	Intersection Approach Lane(s)[1]												Delay[2] (Secs)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1.	Hayes Avenue (NS) / Nighthawk Way (EW)	AWS	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	12.6	7.1	B	A
2.	Hayes Avenue (NS) / Fullerton Road (EW)	CSS	0.0	0.5	0.5	1.0	1.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	16.1	9.3	C	A
3.	Hayes Avenue (NS) / Vineyard Parkway (EW)	AWS	0.0	0.0	0.0	0.5	0.0	0.5	1.0	1.0	0.0	0.0	1.0	1.0	**75.8**	**35.8**	**F**	**E**
4.	Washington Avenue (NS) / Nutmeg Street (EW)	TS	1.0	1.0	1.0	1.0	1.5	0.5	1.0	1.0	1>	1.0	1.0	1.0	45.6	45.2	D	D
5.	Washington Avenue (NS) / Nighthawk Way (EW)	TS	1.0	1.5	0.5	1.0	2.0	1>	1.0	0.5	0.5	1.0	1.5	0.5	40.8	14.6	D	B
6.	Washington Avenue (NS) / Fullerton Road (EW)	TS	1.0	1.0	1.0	1.0	2.0	1.0	1.0	0.5	0.5	1.0	0.5	0.5	17.5	5.3	B	A
7.	Washington Avenue (NS) / Lemon Street (EW)	TS	1.0	1.5	0.5	1.0	1.5	0.5	1.0	0.5	0.5	1.0	0.5	0.5	**148.9**	43.2	**F**	D
8.	Washington Avenue (NS) / Kalmia Street (EW)	TS	1.0	1.0	1.0	2.0	0.5	0.5	1.0	0.5	0.5	1.0	1.0	1>	47.9	**84.9**	D	**F**
9.	Hayes Avenue (NS) / Project Driveway 1 (EW)	CSS	1.0	1.0	0.0	0.0	0.5	0.5	0.5	0.0	0.5	0.5	0.5	1.0	17.9	9.3	C	A
10.	Project Driveway 2 (NS) / Fullerton Road (EW)	--	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.5	0.5	7.8	7.3	A	A

[1] When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. Where "1" is indicated for the through movement and "0"s are indicated for R/L movements, the R and/or L turns are shared with the through movement.
Deficient operation shown in **Bold.**

L = Left; T = Through; R = Right; > = Right Turn Overlap; >> = Free Right Turn; * = Defacto Right Turn Lane; ! = Indicates general purpose lane; **Bold Underline** = Improvement;

[2] Analysis Software: Synchro, Version 10.0. Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all-way stop control. For intersections with cross-street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] AWS = All Way Stop
CSS = Cross Street Stop

Table 5-3
Study Intersection LOS Analysis Summary
Project Buildout Year With Ambient Growth With Cumulative Projects Plus Project Conditions

	Intersection	Traffic Control[3]	Intersection Approach Lane(s)[1]												Delay[2] (Secs)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1.	Hayes Avenue (NS) / Nighthawk Way (EW)	AWS	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	15.3	7.2	C	A
2.	Hayes Avenue (NS) / Fullerton Road (EW)	CSS	0.0	0.5	0.5	1.0	1.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	25.7	9.8	D	A
3.	Hayes Avenue (NS) / Vineyard Parkway (EW)	AWS	0.0	0.0	0.0	0.5	0.0	0.5	1.0	1.0	0.0	0.0	1.0	1.0	**115.3**	**43.4**	**F**	**E**
	With Mitigation	*TS*	*0.0*	*0.0*	*0.0*	*1.0*	*0.0*	*1.0*	*1.0*	*1.0*	*0.0*	*0.0*	*1.0*	*1.0*	*12.3*	*5.8*	*B*	*A*
4.	Washington Avenue (NS) / Nutmeg Street (EW)	TS	1.0	1.0	1.0	1.0	1.5	0.5	1.0	1.0	1>	1.0	1.0	1.0	46.9	46.2	D	D
5.	Washington Avenue (NS) / Nighthawk Way (EW)	TS	1.0	1.5	0.5	1.0	2.0	1>	1.0	0.5	0.5	1.0	1.5	0.5	46.2	14.8	D	B
6.	Washington Avenue (NS) / Fullerton Road (EW)	TS	1.0	1.0	1.0	1.0	2.0	1.0	1.0	0.5	0.5	1.0	0.5	0.5	17.5	5.3	B	A
7.	Washington Avenue (NS) / Lemon Street (EW)	TS	1.0	1.5	0.5	1.0	1.5	0.5	1.0	0.5	0.5	1.0	0.5	0.5	**202.4**	**55.8**	**F**	**E**
	With Mitigation	*TS*	*1.0*	*1.5*	*0.5*	*1.0*	*1.5*	*0.5*	*1.0*	*1.0*	*1>*	*1.0*	*0.5*	*0.5*	*37.1*	*25.9*	*D*	*C*
8.	Washington Avenue (NS) / Kalmia Street (EW)	TS	1.0	1.0	1.0	2.0	0.5	0.5	1.0	0.5	0.5	1.0	1.0	1>	**57.1**	**94.4**	**E**	**F**
	With Mitigation	*TS*	*1.0*	*1.0*	*1.0*	*2.0*	*0.5*	*0.5*	*1.0*	*0.5*	*0.5*	*1.0*	*1.0*	*2>*	*53.7*	*37.6*	*D*	*D*
9.	Hayes Avenue (NS) / Project Driveway 1 (EW)	CSS	1.0	1.0	0.0	0.0	0.5	0.5	0.5	0.0	0.5	0.5	0.5	1.0	28.7	9.6	D	A
10.	Project Driveway 2 (NS) / Fullerton Road (EW)	--	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.5	0.5	9.0	7.3	A	A

[1] When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. Where "1" is indicated for the through movement and "0"s are indicated for R/L movements, the R and/or L turns are shared with the through movement.
Deficient operation shown in **Bold.**

L = Left; T = Through; R = Right; > = Right Turn Overlap; >> = Free Right Turn; * = Defacto Right Turn Lane; ! = Indicates general purpose lane; **Bold Underline** = Improvement;

[2] Analysis Software: Synchro, Version 10.0. Per the 2010 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all-way stop control. For intersections with cross-street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] AWS = All Way Stop
CSS = Cross Street Stop

Table 5-4

Study Roadway Segment LOS Analysis Summary

Project Buildout Year With Ambient Growth With Cumulative Projects Without & With Project Conditions

Study Roadway Segment	General Plan		No. of Lanes		Daily Capacity		Daily Traffic Volume					V/C Ratio		LOS	
	Classification	LOS E Capacity	Project Buildout Year With Ambient Growth With Cumulative Projects Without Project Conditions	Project Buildout Year With Ambient Growth With Cumulative Projects With Project Conditions	Project Buildout Year With Ambient Growth With Cumulative Projects Without Project Conditions	Project Buildout Year With Ambient Growth With Cumulative Projects With Project Conditions	Existing Conditions	Cumulative Project ADT Assignment	Project ADT Assignment	Project Buildout Year With Ambient Growth With Cumulative Projects Without Project Conditions	Project Buildout Year With Ambient Growth With Cumulative Projects With Project Conditions	Project Buildout Year With Ambient Growth With Cumulative Projects Without Project Conditions	Project Buildout Year With Ambient Growth With Cumulative Projects With Project Conditions	Project Buildout Year With Ambient Growth With Cumulative Projects Without Project Conditions	Project Buildout Year With Ambient Growth With Cumulative Projects With Project Conditions
1. **Hayes Avenue** Nighthawk Way to Sherry Lane	Collector (2 Lanes)	13,000	2	2	13,000	13,000	2,222	0	335	2,405	2,740	0.19	0.21	A	A
2. **Hayes Avenue** Sherry Lane to Fullerton Road	Collector (2 Lanes)	13,000	2	2	13,000	13,000	2,344	0	518	2,537	3,055	0.20	0.24	A	A
3. **Hayes Avenue** Fullerton Road to Vineyard Parkway	Collector (2 Lanes)	13,000	2	2	13,000	13,000	2,683	0	883	2,904	3,787	0.22	0.29	A	A

6.0 Findings and Recommendations

A. Site Overview

The findings of this study are based on the land use plan for the proposed Murrieta Canyon Academy expansion project. The development expansion will increase the facility capacity by 300 students.

B. LOS & Impact Analysis Summary & Required Mitigation Measures

All study area intersections are currently operating at an acceptable LOS (LOS D or better) and are expected to continue to operate at an acceptable LOS for the analysis scenarios, with the exception of the following intersections, which are forecast to operate at an unacceptable LOS during peak hours:

- Project Buildout Year With Ambient Growth Plus Project
    - Int 3 – Hayes Avenue / Vineyard Parkway (AM Peak Hour)
- Project Buildout Year With Ambient Growth With Cumulative Projects
    - Int 3 – Hayes Avenue / Vineyard Parkway (AM and PM Peak Hours)
    - Int 7 – Washington Avenue / Lemon Street (AM Peak Hour)
    - Int 8 – Washington Avenue / Kalmia Street (PM Peak Hour)
- Project Buildout Year With Ambient Growth With Cumulative Projects Plus Project
    - Int 3 – Hayes Avenue / Vineyard Parkway (AM and PM Peak Hours)
    - Int 7 – Washington Avenue / Lemon Street (AM and PM Peak Hours)
    - Int 8 – Washington Avenue / Kalmia Street (AM and PM Peak Hours)

All study roadway segments are currently operating at an acceptable LOS (LOS C or better) and are forecast to continue to operate at an acceptable LOS for all the analysis scenarios.

In accordance with the City of Murrieta General Plan Circulation Element, its LOS operation goals established for the study area, and adopted thresholds, the proposed development expansion results in LOS deficiencies at the study intersections listed above, which would be considered impacts and would require improvements.

The following mitigation measures are recommended for the impacted intersections:

- Int 3 – Hayes Avenue / Vineyard Parkway
    - Install traffic signals to replace the existing all-way stop condition.
- Int 7 – Washington Avenue / Lemon Street
    - Restripe/widen the northeastbound Lemon Street approach from one left-turn lane and one shared through/right-turn lane to one left-turn lane, one through lane, and one right-turn lane; and
    - Install a right-turn-overlap signal head on the northeastbound Lemon Street approach.
- Int 8 – Washington Avenue / Kalmia Street
    - Restripe/widen the southwestbound Kalmia Street approach from one left-turn lane, one through lane, and one right-turn lane to one left-turn lane, one through lane, and two right-turn lanes.

The recommended intersection improvements are summarized in Table 6-1.

HCM calculation worksheets for Mitigated Project Buildout Year With Ambient Growth Plus Project Conditions are provided in Appendix I.

HCM calculation worksheets for Mitigated Project Buildout Year With Ambient Growth With Cumulative Projects Plus Project Conditions are provided in Appendix J.

C. Project Fair-Share Calculations

The significant traffic impact at the Hayes Avenue / Vineyard Parkway intersection is forecast to occur for the Project Buildout Year With Ambient Growth Plus Project Conditions. Therefore, the impact at this location is considered to be a project direct impact and the full responsibility of the proposed project to mitigate.

The Washington Avenue / Lemon Street and Washington Avenue / Kalmia Street study intersections is forecast to occur for the Project Buildout Year With Ambient Growth With Cumulative Project Plus Project Conditions. Therefore, the impact at these two locations are considered to be a cumulative impacts and the project would need to contribute to the mitigations on a fair-share basis. Project fair-share calculations for these mitigation measures are summarized in Table 6-2.

D. Circulation Recommendations

I. Construct an on-site circulation system per the detailed site plan.

II. Install stop signs, stop bars, and stop legends at all project access points.

E. Safety and Operational Improvements

Sight distance at each project access should be reviewed at the time of construction per City of Murrieta standards, provided in Appendix K.

I. A limited use area shall be maintained where a clear line of sight can be established.

II. The limited use area shall be used for the purpose of prohibiting or clearing obstructions to maintain adequate sight distance at intersections.

III. Limited use area to be kept clear of all obstructions over 30 inches high, including vegetation.

IV. No trees, walls, or any obstructions shall be allowed in the limited use area.

V. The toe of the slope shall not encroach into the limited use area.

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

F. Regional Funding Mechanisms

Participate in any approved transportation or development impact fees, such as TUMF fees, required by the City of Murrieta and County of Riverside.

Table 6-1
Recommended Intersection Improvements[1]

Intersection	Project Buildout Year With Ambient Growth Plus Project Conditions	Project Buildout Year With Ambient Growth With Cumulative Projects Plus Project Conditions
3. Hayes Ave (NS) / Vineyard Pkwy (EW)	- Install traffic signals to replace the existing all-way stop condition.	Same as Project Buildout Year With Ambient Growth Plus Project Conditions.
7. Washington Ave (NS) / Lemon St (EW)	No mitigations recommended.	- Restripe/widen the northeastbound Lemon Street approach from one left-turn lane and one shared through/right-turn lane to one left-turn lane, one through lane, and one right-turn lane. - Install a right-turn-overlap signal head on the northeastbound Lemon Street approach.
8. Washington Ave (NS) / Kalmia St (EW)	No mitigations recommended.	- Restripe/widen the southwestbound Kalmia Street approach from one left-turn lane, one through lane, and one right-turn lane to one left-turn lane, one through lane, and two right-turn lanes.

[1] Recommended improvements generally consist of the minimum necessary improvements to improve operations to acceptable Level of Service.

Table 6-2

Project Fair-Share Calculations Summary

Project Buildout Year With Ambient Growth With Cumulative Projects Plus Project Conditions

Intersection	Existing Conditions		Project Buildout Year With Ambient Growth With Cumulative Projects Plus Project Conditions		Total Growth in Traffic		Project Traffic		Project % of Trips	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Washington Avenue / Lemon Street	1,586	1,327	2,892	2,674	1,306	1,347	231	65	17.69%	4.83%
Washington Avenue / Kalmia Street	1,735	1,653	3,103	3,214	1,368	1,561	215	61	15.72%	3.91%

[1] Project Fair-Share Traffic Contribution represents the project's traffic contribution at each study area intersection as a percentage of the overall growth in traffic for Project Buildout Year With Ambient Growth Plus Project Conditions, and Project Buildout Year With Ambient Growth With Cumulative Projects Plus Project Conditions.

Appendix A

Highway Capacity Manual
Level of Service Definition

Highway Capacity Manual Level of Service Definition

The current technical guide to the evaluation of traffic operations is the *Highway Capacity Manual* (HCM2010). The HCM defines level of service as a qualitative measure which describes operational conditions within a traffic stream, generally in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. The criteria used to evaluate LOS (Level of Service) conditions vary based on the type of roadway and whether the traffic flow is considered interrupted or uninterrupted.

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

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

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

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

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

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

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

The definitions of level of service for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control.

The level of service is typically dependent on the quality of traffic flow at the intersections along a roadway. The HCM methodology expresses the level of service at an intersection in terms of delay time for the various intersection approaches. The HCM uses different

procedures depending on the type of intersection control. The levels of service determined in this study are determined using the HCM methodology.

For signalized intersections, average control delay per vehicle is used to determine level of service. Levels of service at signalized study intersections have been evaluated using the HCM intersection analysis program.

Study area intersections which are stop sign controlled with stop control on the minor street only have been analyzed using the unsignalized intersection methodology of the HCM. For these intersections, the calculation of level of service is dependent on the occurrence of gaps occurring in the traffic flow of the main street. Using data collected describing the intersection configuration and traffic volumes at these locations; the level of service has been calculated. The level of service is determined based on worst individual movement or movements sharing a single lane. The relationship between level of service and delay is different than for signalized intersections.

The level of services are defined for the various analysis methodologies as follows:

	Average Control Delay Per Vehicle (Seconds)	
LOS	Signalized	Unsignalized
A	0.00 - 10.00	0.00 - 10.00
B	10.01 - 20.00	10.01 - 15.00
C	20.01 - 35.00	15.01 - 25.00
D	35.01 - 55.00	25.01 - 35.00
E	55.01 - 80.00	35.01 - 50.00
F	>80.01	>50.01

The LOS analysis for signalized intersections has been performed using optimized signal timing. This analysis has included an assumed lost time of four seconds per phase in accordance with the City of Murrieta Guidelines for the preparation of Traffic Impact Analyses. Signal timing optimization has considered pedestrian safety and signal coordination requirements. Appropriate time for pedestrian crossings have also been considered in the signalized intersection analysis. Saturation flow rates of 1,900 vehicles per hour of green (vphg) have been assumed for all capacity analysis.

Appendix B

Traffic Count Worksheets

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Murrieta
N/S: Hayes Avenue
E/W: Nighthawk Way
Weather: Clear

File Name : 01_MUR_Hayes_Nighthawk AM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 1

Groups Printed- Total Volume

	Hayes Avenue Southbound			Nighthawk Way Westbound			Hayes Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	10	0	10	0	25	25	35
07:15 AM	0	0	0	15	0	15	0	53	53	68
07:30 AM	0	0	0	55	0	55	0	57	57	112
07:45 AM	0	0	0	63	0	63	0	64	64	127
Total	0	0	0	143	0	143	0	199	199	342
08:00 AM	1	0	1	38	1	39	0	33	33	73
08:15 AM	0	0	0	49	0	49	0	48	48	97
08:30 AM	0	0	0	85	0	85	0	59	59	144
08:45 AM	0	0	0	90	0	90	0	87	87	177
Total	1	0	1	262	1	263	0	227	227	491
Grand Total	1	0	1	405	1	406	0	426	426	833
Apprch %	100	0		99.8	0.2		0	100		
Total %	0.1	0	0.1	48.6	0.1	48.7	0	51.1	51.1	

	Hayes Avenue Southbound			Nighthawk Way Westbound			Hayes Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	**1**	0	**1**	38	**1**	39	0	33	33	73
08:15 AM	0	0	0	49	0	49	0	48	48	97
08:30 AM	0	0	0	85	0	85	0	59	59	144
08:45 AM	0	0	0	**90**	0	**90**	0	**87**	**87**	**177**
Total Volume	1	0	1	262	1	263	0	227	227	491
% App. Total	100	0		99.6	0.4		0	100		
PHF	.250	.000	.250	.728	.250	.731	.000	.652	.652	.694

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City of Murrieta
N/S: Hayes Avenue
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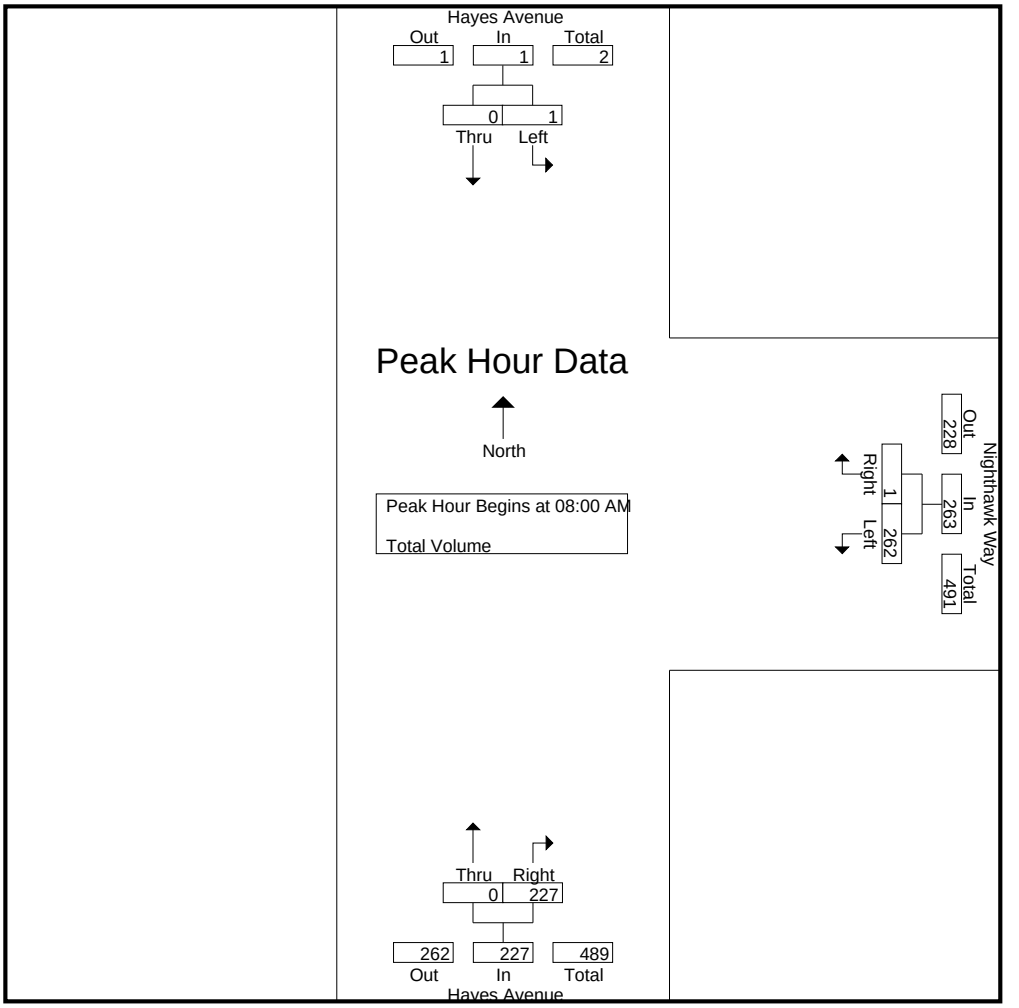
File Name : 01_MUR_Hayes_Nighthawk AM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			08:00 AM			08:00 AM		
+0 mins.	0	0	0	38	**1**	39	0	33	33
+15 mins.	0	0	0	49	0	49	0	48	48
+30 mins.	0	0	0	85	0	85	0	59	59
+45 mins.	**1**	0	**1**	**90**	0	**90**	0	**87**	**87**
Total Volume	1	0	1	262	1	263	0	227	227
% App. Total	100	0		99.6	0.4		0	100	
PHF	.250	.000	.250	.728	.250	.731	.000	.652	.652

Counts Unlimited
PO Box 1178
Corona, CA 92878
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City of Murrieta
N/S: Hayes Avenue
E/W: Nighthawk Way
Weather: Clear

File Name : 01_MUR_Hayes_Nighthawk PM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 1

Groups Printed- Total Volume

	Hayes Avenue Southbound			Nighthawk Way Westbound			Hayes Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	6	0	6	0	11	11	17
04:15 PM	0	0	0	10	0	10	0	9	9	19
04:30 PM	0	0	0	8	0	8	0	6	6	14
04:45 PM	0	0	0	11	0	11	0	10	10	21
Total	0	0	0	35	0	35	0	36	36	71
05:00 PM	0	0	0	9	0	9	0	13	13	22
05:15 PM	0	0	0	10	0	10	0	14	14	24
05:30 PM	0	0	0	7	0	7	0	6	6	13
05:45 PM	0	0	0	15	0	15	0	11	11	26
Total	0	0	0	41	0	41	0	44	44	85
Grand Total	0	0	0	76	0	76	0	80	80	156
Apprch %	0	0		100	0		0	100		
Total %	0	0	0	48.7	0	48.7	0	51.3	51.3	

	Hayes Avenue Southbound			Nighthawk Way Westbound			Hayes Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	0	0	0	9	0	9	0	13	13	22
05:15 PM	0	0	0	10	0	10	0	**14**	**14**	24
05:30 PM	0	0	0	7	0	7	0	6	6	13
05:45 PM	0	0	0	**15**	0	**15**	0	11	11	**26**
Total Volume	0	0	0	41	0	41	0	44	44	85
% App. Total	0	0		100	0		0	100		
PHF	.000	.000	.000	.683	.000	.683	.000	.786	.786	.817

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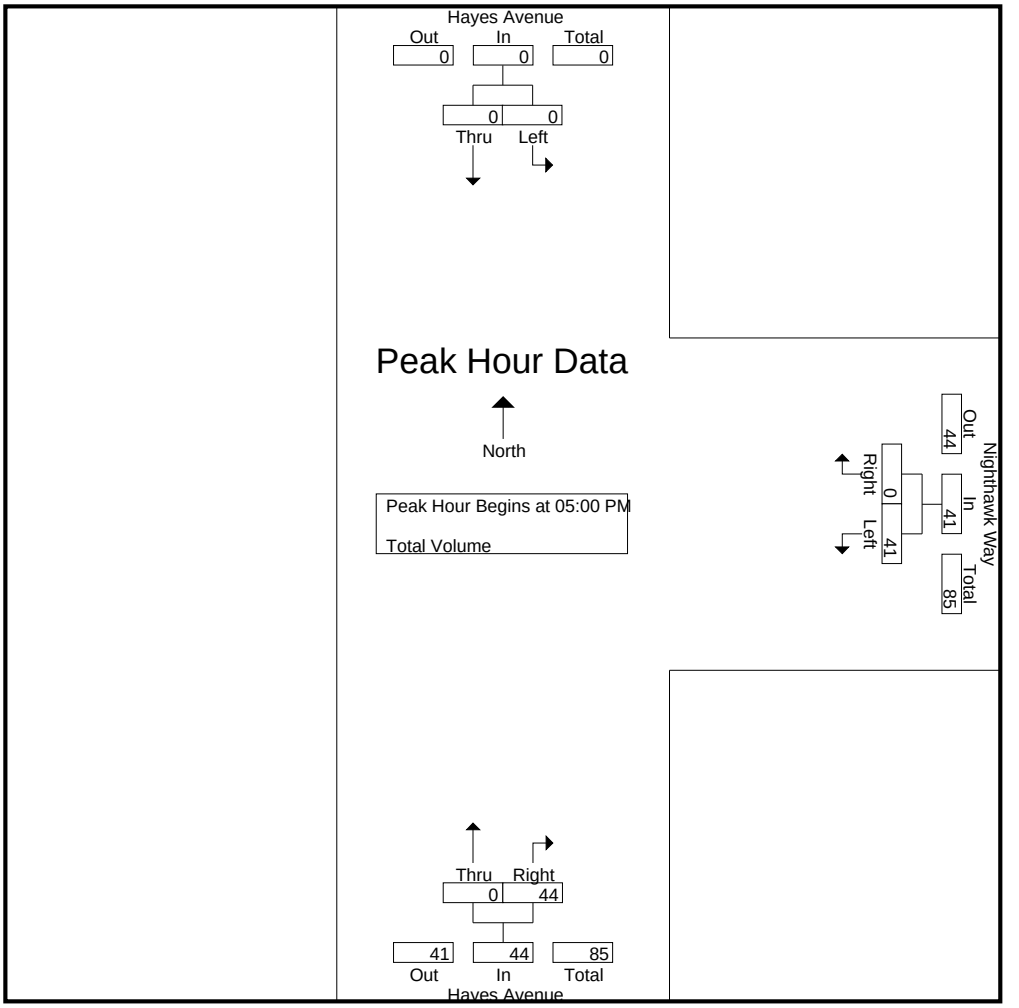
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			05:00 PM			05:00 PM		
+0 mins.	0	0	0	9	0	9	0	13	13
+15 mins.	0	0	0	10	0	10	0	**14**	**14**
+30 mins.	0	0	0	7	0	7	0	6	6
+45 mins.	0	0	0	**15**	0	**15**	0	11	11
Total Volume	0	0	0	41	0	41	0	44	44
% App. Total	0	0		100	0		0	100	
PHF	.000	.000	.000	.683	.000	.683	.000	.786	.786

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Murrieta
N/S: Hayes Avenue
E/W: Fullerton Road
Weather: Clear

File Name : 02_MUR_Hayes_Fullerton AM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 1

Groups Printed- Total Volume

	Hayes Avenue Southbound			Fullerton Road Westbound			Hayes Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	5	6	11	5	4	9	29	55	84	104
07:15 AM	10	19	29	16	14	30	63	118	181	240
07:30 AM	6	41	47	4	5	9	35	12	47	103
07:45 AM	22	72	94	0	0	0	40	39	79	173
Total	43	138	181	25	23	48	167	224	391	620
08:00 AM	9	45	54	0	0	0	30	20	50	104
08:15 AM	7	52	59	0	1	1	72	14	86	146
08:30 AM	2	94	96	0	0	0	89	3	92	188
08:45 AM	3	86	89	2	0	2	62	10	72	163
Total	21	277	298	2	1	3	253	47	300	601
Grand Total	64	415	479	27	24	51	420	271	691	1221
Apprch %	13.4	86.6		52.9	47.1		60.8	39.2		
Total %	5.2	34	39.2	2.2	2	4.2	34.4	22.2	56.6	

	Hayes Avenue Southbound			Fullerton Road Westbound			Hayes Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	5	6	11	5	4	9	29	55	84	104
07:15 AM	10	19	29	**16**	**14**	**30**	**63**	**118**	**181**	**240**
07:30 AM	6	41	47	4	5	9	35	12	47	103
07:45 AM	**22**	**72**	**94**	0	0	0	40	39	79	173
Total Volume	43	138	181	25	23	48	167	224	391	620
% App. Total	23.8	76.2		52.1	47.9		42.7	57.3		
PHF	.489	.479	.481	.391	.411	.400	.663	.475	.540	.646

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City of Murrieta
N/S: Hayes Avenue
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File Name : 02_MUR_Hayes_Fullerton AM
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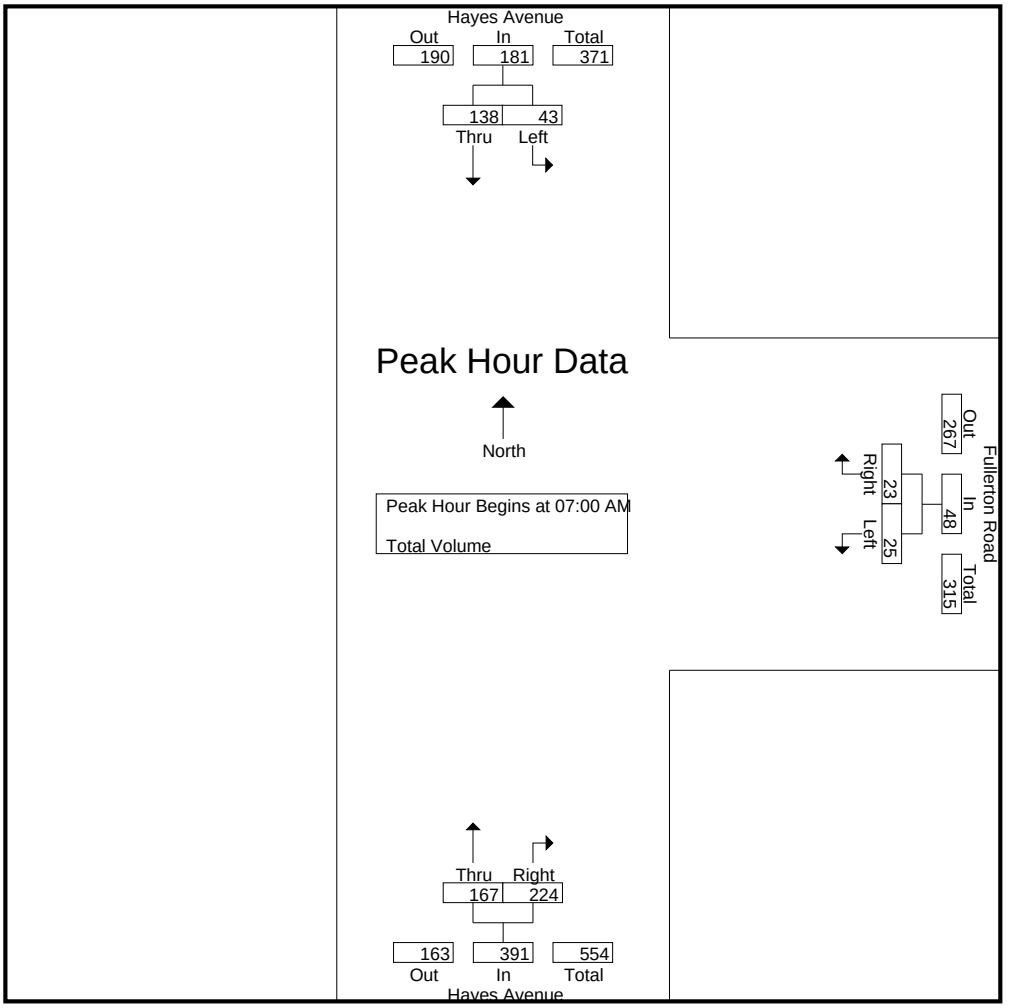
Start Date : 5/15/2019
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM			07:00 AM			07:00 AM		
+0 mins.	**22**	72	94	5	4	9	29	55	84
+15 mins.	9	45	54	**16**	**14**	**30**	**63**	**118**	**181**
+30 mins.	7	52	59	4	5	9	35	12	47
+45 mins.	2	**94**	**96**	0	0	0	40	39	79
Total Volume	40	263	303	25	23	48	167	224	391
% App. Total	13.2	86.8		52.1	47.9		42.7	57.3	
PHF	.455	.699	.789	.391	.411	.400	.663	.475	.540

Counts Unlimited
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City of Murrieta
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E/W: Fullerton Road
Weather: Clear

File Name : 02_MUR_Hayes_Fullerton PM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 1

Groups Printed- Total Volume

	Hayes Avenue Southbound			Fullerton Road Westbound			Hayes Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	11	11	0	0	0	7	2	9	20
04:15 PM	2	12	14	0	0	0	7	3	10	24
04:30 PM	3	10	13	0	0	0	4	3	7	20
04:45 PM	6	11	17	0	0	0	7	3	10	27
Total	11	44	55	0	0	0	25	11	36	91
05:00 PM	2	13	15	1	0	1	10	6	16	32
05:15 PM	3	8	11	1	0	1	12	2	14	26
05:30 PM	0	4	4	0	0	0	10	3	13	17
05:45 PM	0	6	6	0	0	0	6	2	8	14
Total	5	31	36	2	0	2	38	13	51	89
Grand Total	16	75	91	2	0	2	63	24	87	180
Apprch %	17.6	82.4		100	0		72.4	27.6		
Total %	8.9	41.7	50.6	1.1	0	1.1	35	13.3	48.3	

	Hayes Avenue Southbound			Fullerton Road Westbound			Hayes Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	3	10	13	0	0	0	4	3	7	20
04:45 PM	**6**	11	**17**	0	0	0	7	3	10	27
05:00 PM	2	**13**	15	**1**	0	**1**	10	**6**	**16**	**32**
05:15 PM	3	8	11	1	0	1	**12**	2	14	26
Total Volume	14	42	56	2	0	2	33	14	47	105
% App. Total	25	75		100	0		70.2	29.8		
PHF	.583	.808	.824	.500	.000	.500	.688	.583	.734	.820

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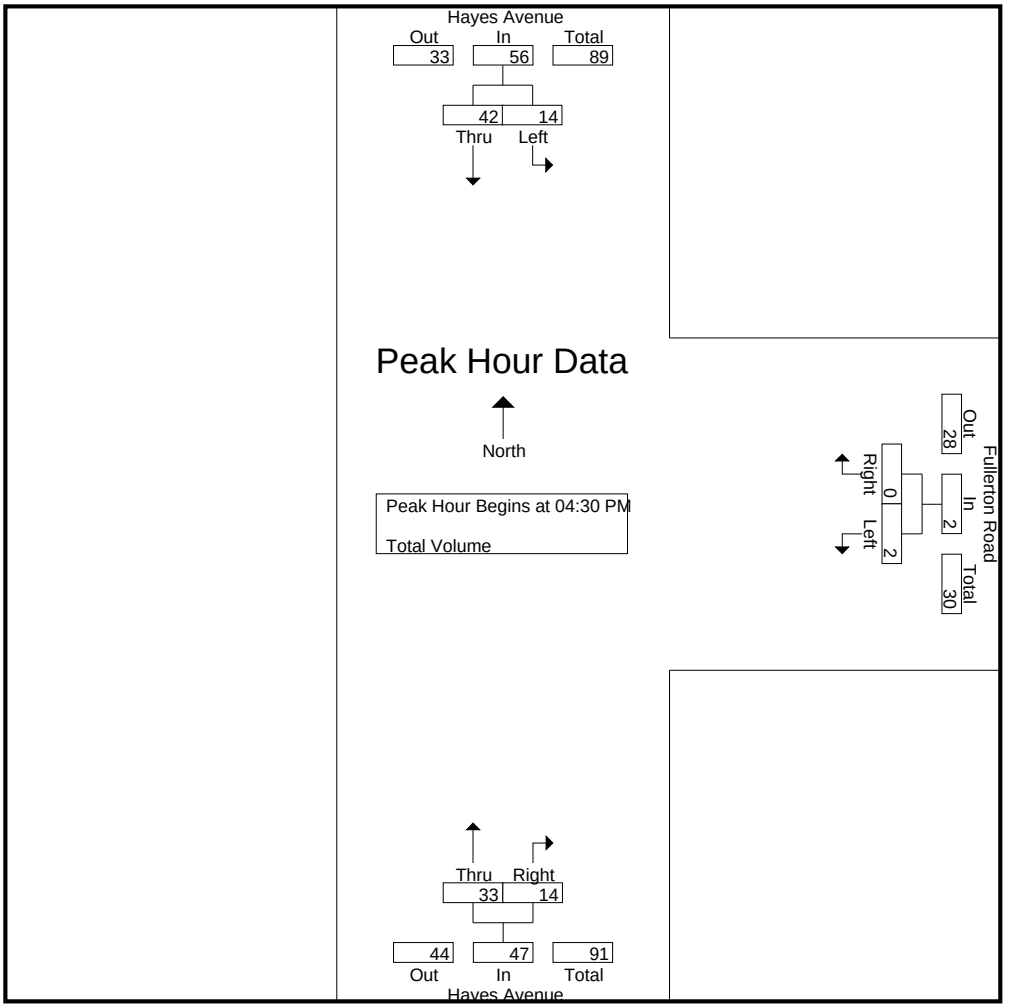
City of Murrieta
N/S: Hayes Avenue
E/W: Fullerton Road
Weather: Clear

File Name : 02_MUR_Hayes_Fullerton PM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM			04:30 PM			04:45 PM		
+0 mins.	2	12	14	0	0	0	7	3	10
+15 mins.	3	10	13	0	0	0	10	**6**	**16**
+30 mins.	**6**	11	**17**	**1**	0	**1**	**12**	2	14
+45 mins.	2	**13**	15	1	0	1	10	3	13
Total Volume	13	46	59	2	0	2	39	14	53
% App. Total	22	78		100	0		73.6	26.4	
PHF	.542	.885	.868	.500	.000	.500	.813	.583	.828

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City of Murrieta
N/S: Hayes Avenue
E/W: Vineyard Parkway
Weather: Clear

File Name : 03_MUR_Hayes_Vineyard AM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 1

Groups Printed- Total Volume

	Hayes Avenue Southbound			Vineyard Parkway Westbound			Vineyard Parkway Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
07:00 AM	14	1	15	2	85	87	1	3	4	106
07:15 AM	37	1	38	8	169	177	5	7	12	227
07:30 AM	43	3	46	4	46	50	0	6	6	102
07:45 AM	76	0	76	1	75	76	3	3	6	158
Total	170	5	175	15	375	390	9	19	28	593
08:00 AM	53	2	55	3	49	52	1	5	6	113
08:15 AM	64	1	65	4	90	94	1	5	6	165
08:30 AM	97	1	98	5	92	97	3	0	3	198
08:45 AM	94	2	96	6	68	74	1	8	9	179
Total	308	6	314	18	299	317	6	18	24	655
Grand Total	478	11	489	33	674	707	15	37	52	1248
Apprch %	97.8	2.2		4.7	95.3		28.8	71.2		
Total %	38.3	0.9	39.2	2.6	54	56.7	1.2	3	4.2	

	Hayes Avenue Southbound			Vineyard Parkway Westbound			Vineyard Parkway Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	53	**2**	55	3	49	52	1	5	6	113
08:15 AM	64	1	65	4	90	94	1	5	6	165
08:30 AM	**97**	1	**98**	5	**92**	**97**	**3**	0	3	**198**
08:45 AM	94	2	96	**6**	68	74	1	**8**	**9**	179
Total Volume	308	6	314	18	299	317	6	18	24	655
% App. Total	98.1	1.9		5.7	94.3		25	75		
PHF	.794	.750	.801	.750	.813	.817	.500	.563	.667	.827

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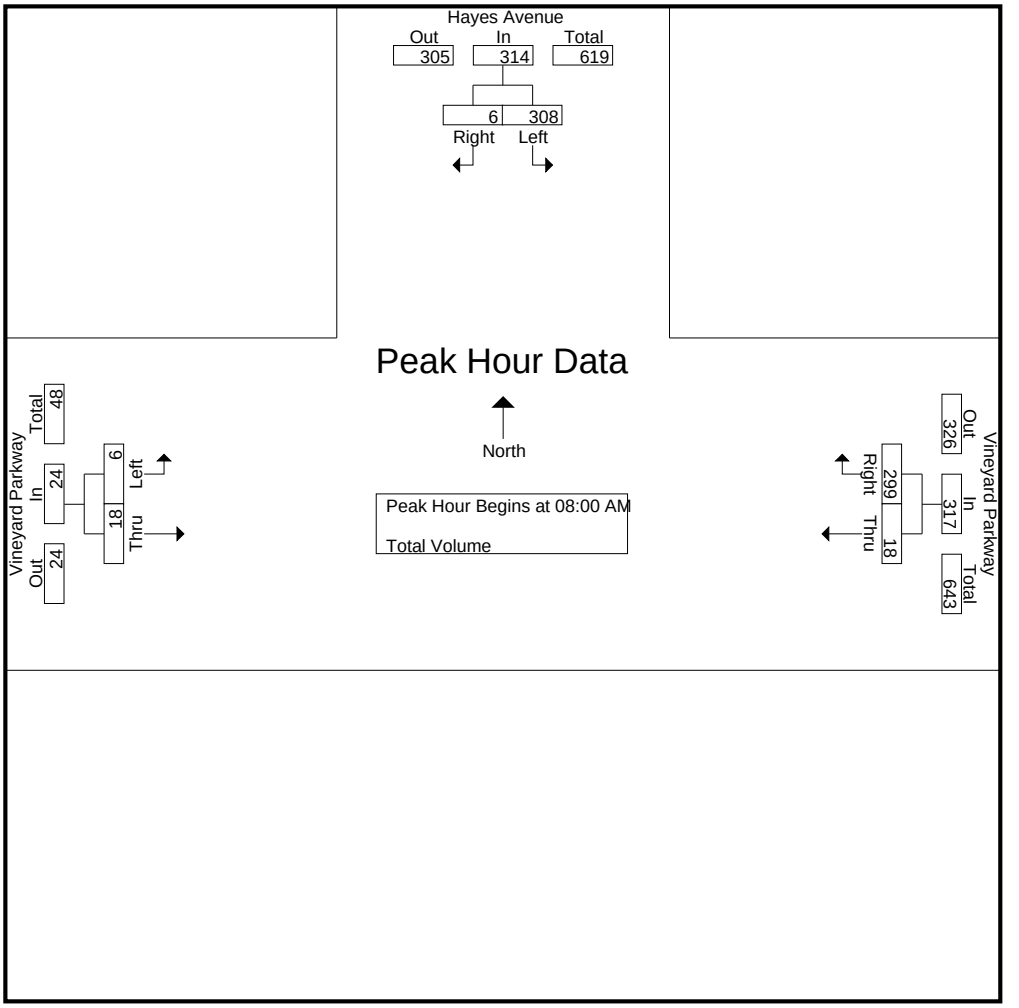
City of Murrieta
N/S: Hayes Avenue
E/W: Vineyard Parkway
Weather: Clear

File Name : 03_MUR_Hayes_Vineyard AM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM			07:00 AM			07:15 AM		
+0 mins.	53	**2**	55	2	85	87	**5**	**7**	**12**
+15 mins.	64	1	65	**8**	**169**	**177**	0	6	6
+30 mins.	**97**	1	**98**	4	46	50	3	3	6
+45 mins.	94	2	96	1	75	76	1	5	6
Total Volume	308	6	314	15	375	390	9	21	30
% App. Total	98.1	1.9		3.8	96.2		30	70	
PHF	.794	.750	.801	.469	.555	.551	.450	.750	.625

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City of Murrieta
N/S: Hayes Avenue
E/W: Vineyard Parkway
Weather: Clear

File Name : 03_MUR_Hayes_Vineyard PM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 1

Groups Printed- Total Volume

	Hayes Avenue Southbound			Vineyard Parkway Westbound			Vineyard Parkway Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
04:00 PM	14	0	14	5	17	22	0	8	8	44
04:15 PM	10	1	11	4	11	15	0	2	2	28
04:30 PM	15	1	16	3	11	14	1	4	5	35
04:45 PM	13	0	13	3	17	20	0	7	7	40
Total	52	2	54	15	56	71	1	21	22	147
05:00 PM	14	1	15	9	25	34	0	6	6	55
05:15 PM	10	1	11	5	18	23	1	1	2	36
05:30 PM	9	1	10	4	17	21	1	7	8	39
05:45 PM	8	1	9	5	14	19	1	2	3	31
Total	41	4	45	23	74	97	3	16	19	161
Grand Total	93	6	99	38	130	168	4	37	41	308
Apprch %	93.9	6.1		22.6	77.4		9.8	90.2		
Total %	30.2	1.9	32.1	12.3	42.2	54.5	1.3	12	13.3	

	Hayes Avenue Southbound			Vineyard Parkway Westbound			Vineyard Parkway Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	13	0	13	3	17	20	0	**7**	7	40
05:00 PM	**14**	**1**	**15**	**9**	**25**	**34**	0	6	6	**55**
05:15 PM	10	1	11	5	18	23	**1**	1	2	36
05:30 PM	9	1	10	4	17	21	1	7	**8**	39
Total Volume	46	3	49	21	77	98	2	21	23	170
% App. Total	93.9	6.1		21.4	78.6		8.7	91.3		
PHF	.821	.750	.817	.583	.770	.721	.500	.750	.719	.773

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City of Murrieta
N/S: Hayes Avenue
E/W: Vineyard Parkway
Weather: Clear

File Name : 03_MUR_Hayes_Vineyard PM
Site Code : 10519351
Start Date : 5/15/2019
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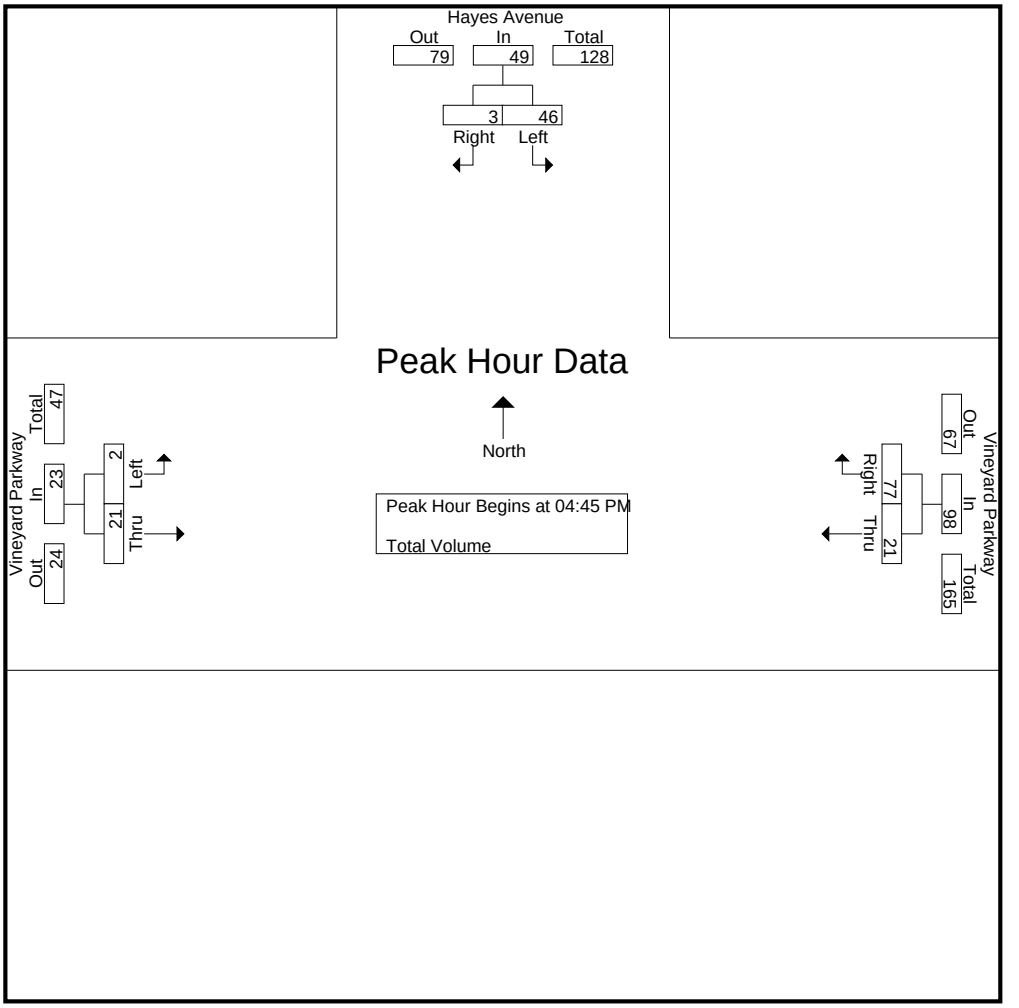

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM			04:45 PM			04:45 PM		
+0 mins.	10	**1**	11	3	17	20	0	**7**	7
+15 mins.	**15**	1	**16**	**9**	**25**	**34**	0	6	6
+30 mins.	13	0	13	5	18	23	**1**	1	2
+45 mins.	14	1	15	4	17	21	1	7	**8**
Total Volume	52	3	55	21	77	98	2	21	23
% App. Total	94.5	5.5		21.4	78.6		8.7	91.3	
PHF	.867	.750	.859	.583	.770	.721	.500	.750	.719

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City of Murrieta
N/S: Washington Avenue
E/W: Nutmeg Street
Weather: Clear

File Name : 04_MUR_Washington_Nutmeg AM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 1

Groups Printed- Total Volume

	Washington Avenue Southbound				Nutmeg Street Westbound				Washington Avenue Northbound				Nutmeg Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	20	143	1	164	30	21	14	65	32	56	31	119	1	50	150	201	549
07:15 AM	15	103	1	119	28	25	22	75	55	93	45	193	0	61	121	182	569
07:30 AM	14	77	0	91	51	9	9	69	49	68	25	142	4	44	62	110	412
07:45 AM	24	94	5	123	43	13	19	75	56	53	21	130	3	48	72	123	451
Total	73	417	7	497	152	68	64	284	192	270	122	584	8	203	405	616	1981
08:00 AM	23	84	28	135	29	52	18	99	65	47	14	126	6	50	86	142	502
08:15 AM	17	81	13	111	41	53	9	103	57	54	19	130	21	82	131	234	578
08:30 AM	23	96	4	123	47	27	14	88	51	82	30	163	9	67	157	233	607
08:45 AM	14	58	1	73	42	25	15	82	67	94	31	192	6	34	83	123	470
Total	77	319	46	442	159	157	56	372	240	277	94	611	42	233	457	732	2157
Grand Total	150	736	53	939	311	225	120	656	432	547	216	1195	50	436	862	1348	4138
Apprch %	16	78.4	5.6		47.4	34.3	18.3		36.2	45.8	18.1		3.7	32.3	63.9		
Total %	3.6	17.8	1.3	22.7	7.5	5.4	2.9	15.9	10.4	13.2	5.2	28.9	1.2	10.5	20.8	32.6	

	Washington Avenue Southbound				Nutmeg Street Westbound				Washington Avenue Northbound				Nutmeg Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	**23**	84	**28**	**135**	29	52	**18**	99	65	47	14	126	6	50	86	142	502
08:15 AM	17	81	13	111	41	**53**	9	**103**	57	54	19	130	**21**	**82**	131	**234**	578
08:30 AM	23	**96**	4	123	**47**	27	14	88	51	82	30	163	9	67	**157**	233	**607**
08:45 AM	14	58	1	73	42	25	15	82	**67**	**94**	**31**	**192**	6	34	83	123	470
Total Volume	77	319	46	442	159	157	56	372	240	277	94	611	42	233	457	732	2157
% App. Total	17.4	72.2	10.4		42.7	42.2	15.1		39.3	45.3	15.4		5.7	31.8	62.4		
PHF	.837	.831	.411	.819	.846	.741	.778	.903	.896	.737	.758	.796	.500	.710	.728	.782	.888

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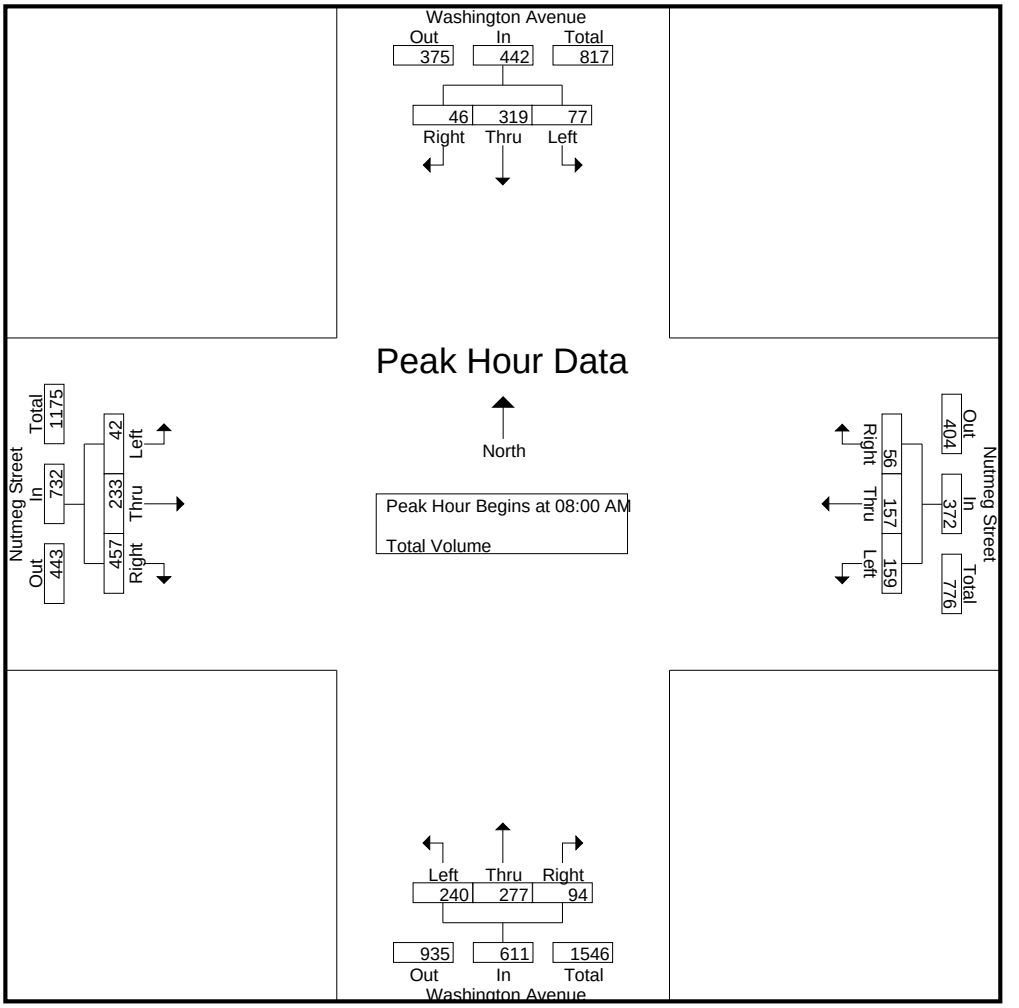
City of Murrieta
N/S: Washington Avenue
E/W: Nutmeg Street
Weather: Clear

File Name : 04_MUR_Washington_Nutmeg AM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				08:00 AM				08:00 AM				07:45 AM			
+0 mins.	20	**143**	1	**164**	29	52	**18**	99	65	47	14	126	3	48	72	123
+15 mins.	15	103	1	119	41	**53**	9	**103**	57	54	19	130	6	50	86	142
+30 mins.	14	77	0	91	**47**	27	14	88	51	82	30	163	**21**	**82**	131	**234**
+45 mins.	**24**	94	**5**	123	42	25	15	82	**67**	**94**	**31**	**192**	9	67	**157**	233
Total Volume	73	417	7	497	159	157	56	372	240	277	94	611	39	247	446	732
% App. Total	14.7	83.9	1.4		42.7	42.2	15.1		39.3	45.3	15.4		5.3	33.7	60.9	
PHF	.760	.729	.350	.758	.846	.741	.778	.903	.896	.737	.758	.796	.464	.753	.710	.782

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City of Murrieta
N/S: Washington Avenue
E/W: Nutmeg Street
Weather: Clear

File Name : 04_MUR_Washington_Nutmeg PM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 1

Groups Printed- Total Volume

	Washington Avenue Southbound				Nutmeg Street Westbound				Washington Avenue Northbound				Nutmeg Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	17	63	2	82	27	57	36	120	62	104	36	202	2	27	54	83	487
04:15 PM	12	74	5	91	27	49	45	121	67	109	24	200	4	26	48	78	490
04:30 PM	20	54	4	78	32	65	40	137	61	124	24	209	6	16	50	72	496
04:45 PM	15	58	2	75	39	65	55	159	63	97	24	184	5	30	60	95	513
Total	64	249	13	326	125	236	176	537	253	434	108	795	17	99	212	328	1986
05:00 PM	8	57	3	68	28	60	37	125	58	138	38	234	2	24	31	57	484
05:15 PM	14	53	3	70	22	57	46	125	98	131	27	256	3	17	59	79	530
05:30 PM	29	69	2	100	21	46	38	105	73	70	22	165	4	33	39	76	446
05:45 PM	21	69	1	91	39	49	30	118	70	67	23	160	4	22	51	77	446
Total	72	248	9	329	110	212	151	473	299	406	110	815	13	96	180	289	1906
Grand Total	136	497	22	655	235	448	327	1010	552	840	218	1610	30	195	392	617	3892
Apprch %	20.8	75.9	3.4		23.3	44.4	32.4		34.3	52.2	13.5		4.9	31.6	63.5		
Total %	3.5	12.8	0.6	16.8	6	11.5	8.4	26	14.2	21.6	5.6	41.4	0.8	5	10.1	15.9	

	Washington Avenue Southbound				Nutmeg Street Westbound				Washington Avenue Northbound				Nutmeg Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	**20**	54	**4**	**78**	32	**65**	40	137	61	124	24	209	**6**	16	50	72	496
04:45 PM	15	**58**	2	75	**39**	65	**55**	**159**	63	97	24	184	5	**30**	**60**	**95**	513
05:00 PM	8	57	3	68	28	60	37	125	58	**138**	**38**	234	2	24	31	57	484
05:15 PM	14	53	3	70	22	57	46	125	**98**	131	27	**256**	3	17	59	79	**530**
Total Volume	57	222	12	291	121	247	178	546	280	490	113	883	16	87	200	303	2023
% App. Total	19.6	76.3	4.1		22.2	45.2	32.6		31.7	55.5	12.8		5.3	28.7	66		
PHF	.713	.957	.750	.933	.776	.950	.809	.858	.714	.888	.743	.862	.667	.725	.833	.797	.954

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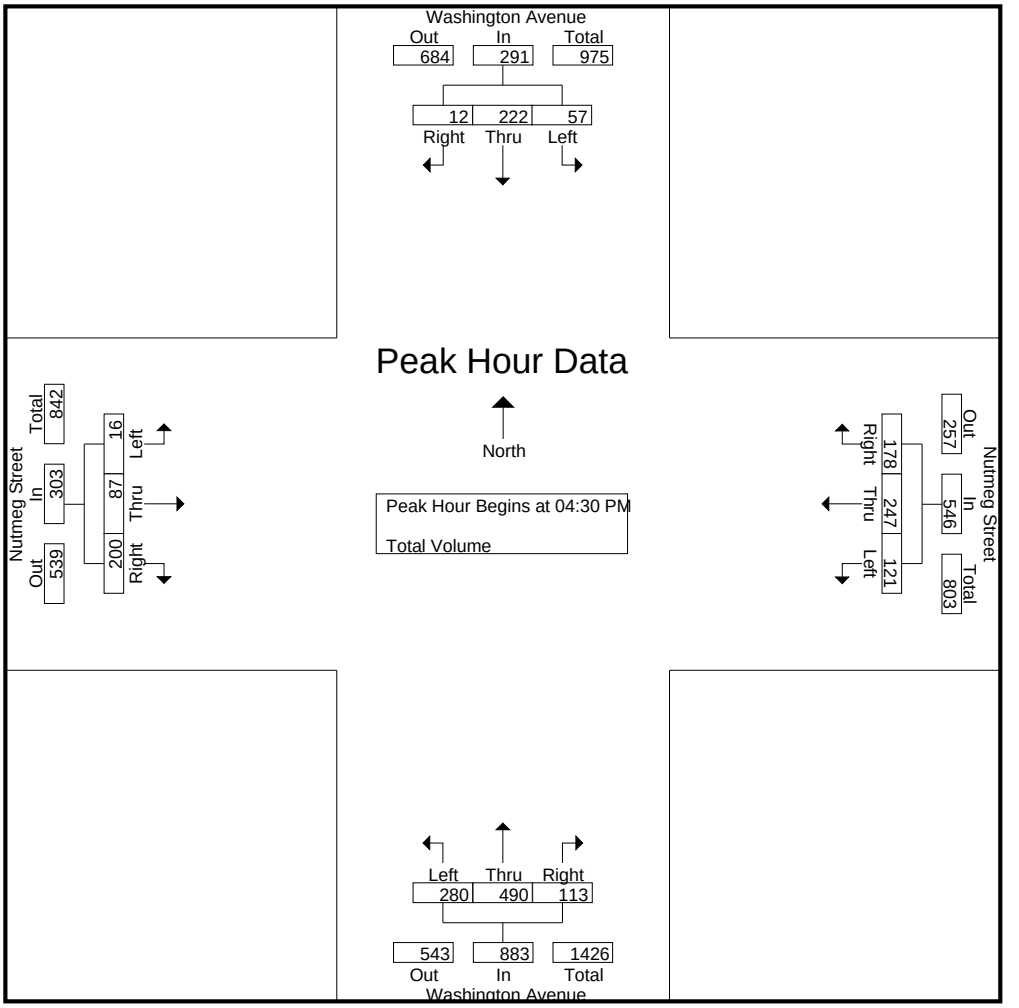
City of Murrieta
N/S: Washington Avenue
E/W: Nutmeg Street
Weather: Clear

File Name : 04_MUR_Washington_Nutmeg PM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				04:30 PM				04:30 PM				04:00 PM			
+0 mins.	8	57	**3**	68	32	**65**	40	137	61	124	24	209	2	27	54	83
+15 mins.	14	53	3	70	**39**	65	**55**	**159**	63	97	24	184	4	26	48	78
+30 mins.	**29**	**69**	2	**100**	28	60	37	125	58	**138**	**38**	234	**6**	16	50	72
+45 mins.	21	69	1	91	22	57	46	125	**98**	131	27	**256**	5	**30**	**60**	**95**
Total Volume	72	248	9	329	121	247	178	546	280	490	113	883	17	99	212	328
% App. Total	21.9	75.4	2.7		22.2	45.2	32.6		31.7	55.5	12.8		5.2	30.2	64.6	
PHF	.621	.899	.750	.823	.776	.950	.809	.858	.714	.888	.743	.862	.708	.825	.883	.863

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City of Murrieta
N/S: Washington Avenue
E/W: Nighthawk Way/Magnolia Street
Weather: Clear

File Name : 05_MUR_Washington_Nighthawk_Magnolia AM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 1

Groups Printed- Total Volume

	Washington Avenue Southbound				Magnolia Street Westbound				Washington Avenue Northbound				Nighthawk Way Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	9	144	192	345	16	112	4	132	31	46	8	85	62	24	21	107	669
07:15 AM	8	162	174	344	30	140	4	174	22	73	16	111	108	70	71	249	878
07:30 AM	3	73	75	151	2	41	6	49	14	50	9	73	76	53	32	161	434
07:45 AM	2	91	80	173	3	37	4	44	9	41	0	50	65	44	12	121	388
Total	22	470	521	1013	51	330	18	399	76	210	33	319	311	191	136	638	2369
08:00 AM	6	128	65	199	7	24	6	37	16	56	5	77	38	13	12	63	376
08:15 AM	4	121	132	257	2	48	17	67	15	72	6	93	74	34	27	135	552
08:30 AM	9	125	167	301	2	49	11	62	11	63	5	79	94	53	26	173	615
08:45 AM	7	116	117	240	4	47	11	62	7	61	2	70	98	64	49	211	583
Total	26	490	481	997	15	168	45	228	49	252	18	319	304	164	114	582	2126
Grand Total	48	960	1002	2010	66	498	63	627	125	462	51	638	615	355	250	1220	4495
Apprch %	2.4	47.8	49.9		10.5	79.4	10		19.6	72.4	8		50.4	29.1	20.5		
Total %	1.1	21.4	22.3	44.7	1.5	11.1	1.4	13.9	2.8	10.3	1.1	14.2	13.7	7.9	5.6	27.1	

	Washington Avenue Southbound				Magnolia Street Westbound				Washington Avenue Northbound				Nighthawk Way Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	**9**	144	**192**	**345**	16	112	4	132	**31**	46	8	85	62	24	21	107	669
07:15 AM	8	**162**	174	344	**30**	**140**	4	**174**	22	**73**	**16**	**111**	**108**	**70**	**71**	**249**	**878**
07:30 AM	3	73	75	151	2	41	**6**	49	14	50	9	73	76	53	32	161	434
07:45 AM	2	91	80	173	3	37	4	44	9	41	0	50	65	44	12	121	388
Total Volume	22	470	521	1013	51	330	18	399	76	210	33	319	311	191	136	638	2369
% App. Total	2.2	46.4	51.4		12.8	82.7	4.5		23.8	65.8	10.3		48.7	29.9	21.3		
PHF	.611	.725	.678	.734	.425	.589	.750	.573	.613	.719	.516	.718	.720	.682	.479	.641	.675

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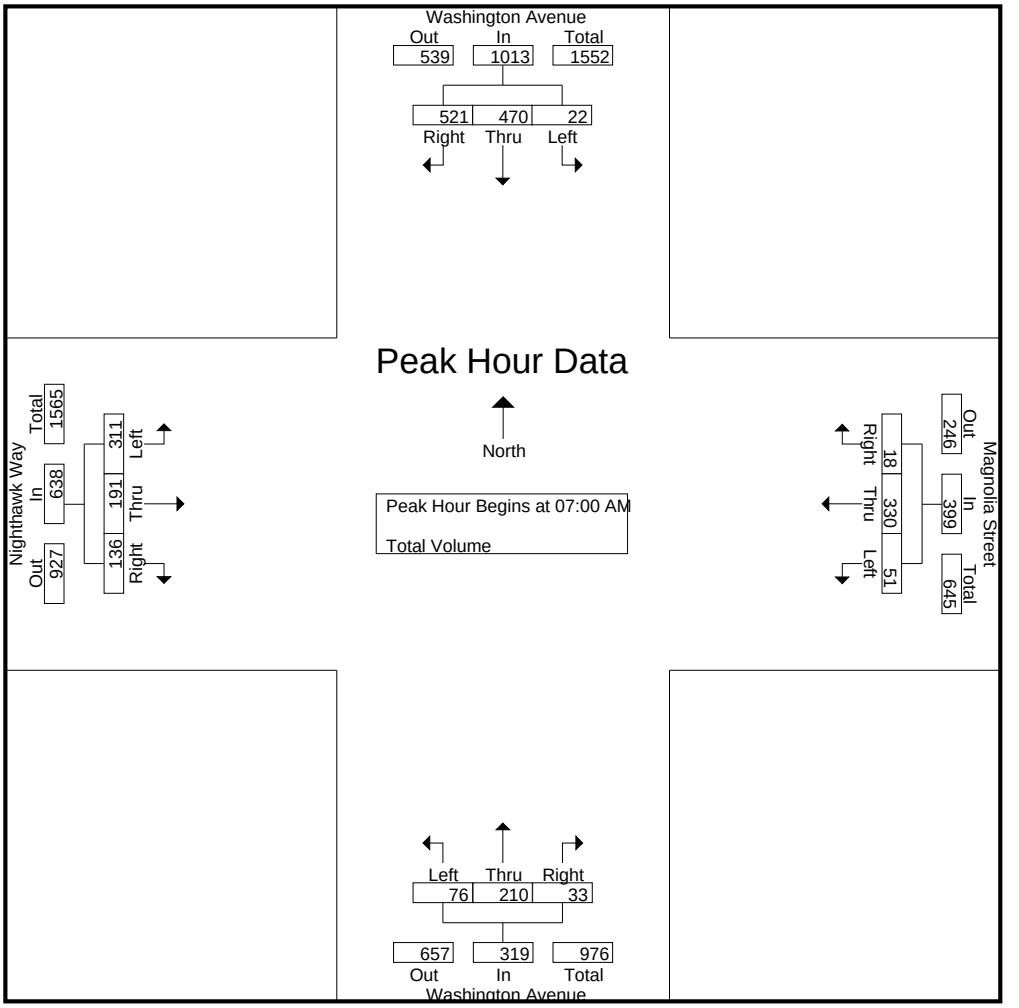
City of Murrieta
N/S: Washington Avenue
E/W: Nighthawk Way/Magnolia Street
Weather: Clear

File Name : 05_MUR_Washington_Nighthawk_Magnolia AM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	**9**	144	**192**	**345**	16	112	4	132	**31**	46	8	85	62	24	21	107
+15 mins.	8	**162**	174	344	**30**	**140**	4	**174**	22	**73**	**16**	**111**	**108**	**70**	**71**	**249**
+30 mins.	3	73	75	151	2	41	**6**	49	14	50	9	73	76	53	32	161
+45 mins.	2	91	80	173	3	37	4	44	9	41	0	50	65	44	12	121
Total Volume	22	470	521	1013	51	330	18	399	76	210	33	319	311	191	136	638
% App. Total	2.2	46.4	51.4		12.8	82.7	4.5		23.8	65.8	10.3		48.7	29.9	21.3	
PHF	.611	.725	.678	.734	.425	.589	.750	.573	.613	.719	.516	.718	.720	.682	.479	.641

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City of Murrieta
N/S: Washington Avenue
E/W: Nighthawk Way/Magnolia Street
Weather: Clear

File Name : 05_MUR_Washington_Nighthawk_Magnolia PM
Site Code : 10519351
Start Date : 5/15/2019
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Groups Printed- Total Volume

	Washington Avenue Southbound				Magnolia Street Westbound				Washington Avenue Northbound				Nighthawk Way Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	7	123	12	142	2	4	11	17	7	121	2	130	17	19	9	45	334
04:15 PM	11	114	12	137	4	7	13	24	5	155	1	161	12	5	7	24	346
04:30 PM	14	103	11	128	0	5	17	22	12	130	3	145	5	3	4	12	307
04:45 PM	12	110	19	141	4	10	18	32	16	133	2	151	12	4	12	28	352
Total	44	450	54	548	10	26	59	95	40	539	8	587	46	31	32	109	1339
05:00 PM	6	108	41	155	1	12	18	31	14	128	0	142	27	19	11	57	385
05:15 PM	10	117	26	153	2	15	18	35	12	120	1	133	26	13	8	47	368
05:30 PM	8	87	15	110	2	11	17	30	12	152	5	169	26	13	11	50	359
05:45 PM	9	97	18	124	0	5	23	28	14	110	0	124	12	2	12	26	302
Total	33	409	100	542	5	43	76	124	52	510	6	568	91	47	42	180	1414
Grand Total	77	859	154	1090	15	69	135	219	92	1049	14	1155	137	78	74	289	2753
Apprch %	7.1	78.8	14.1		6.8	31.5	61.6		8	90.8	1.2		47.4	27	25.6		
Total %	2.8	31.2	5.6	39.6	0.5	2.5	4.9	8	3.3	38.1	0.5	42	5	2.8	2.7	10.5	

	Washington Avenue Southbound				Magnolia Street Westbound				Washington Avenue Northbound				Nighthawk Way Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**12**	110	19	141	**4**	10	**18**	32	**16**	133	2	151	12	4	**12**	28	352
05:00 PM	6	108	**41**	**155**	1	12	18	31	14	128	0	142	**27**	**19**	11	**57**	**385**
05:15 PM	10	**117**	26	153	2	**15**	18	**35**	12	120	1	133	26	13	8	47	368
05:30 PM	8	87	15	110	2	11	17	30	12	**152**	**5**	**169**	26	13	11	50	359
Total Volume	36	422	101	559	9	48	71	128	54	533	8	595	91	49	42	182	1464
% App. Total	6.4	75.5	18.1		7	37.5	55.5		9.1	89.6	1.3		50	26.9	23.1		
PHF	.750	.902	.616	.902	.563	.800	.986	.914	.844	.877	.400	.880	.843	.645	.875	.798	.951

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City of Murrieta
N/S: Washington Avenue
E/W: Nighthawk Way/Magnolia Street
Weather: Clear

File Name : 05_MUR_Washington_Nighthawk_Magnolia PM
Site Code : 10519351
Start Date : 5/15/2019
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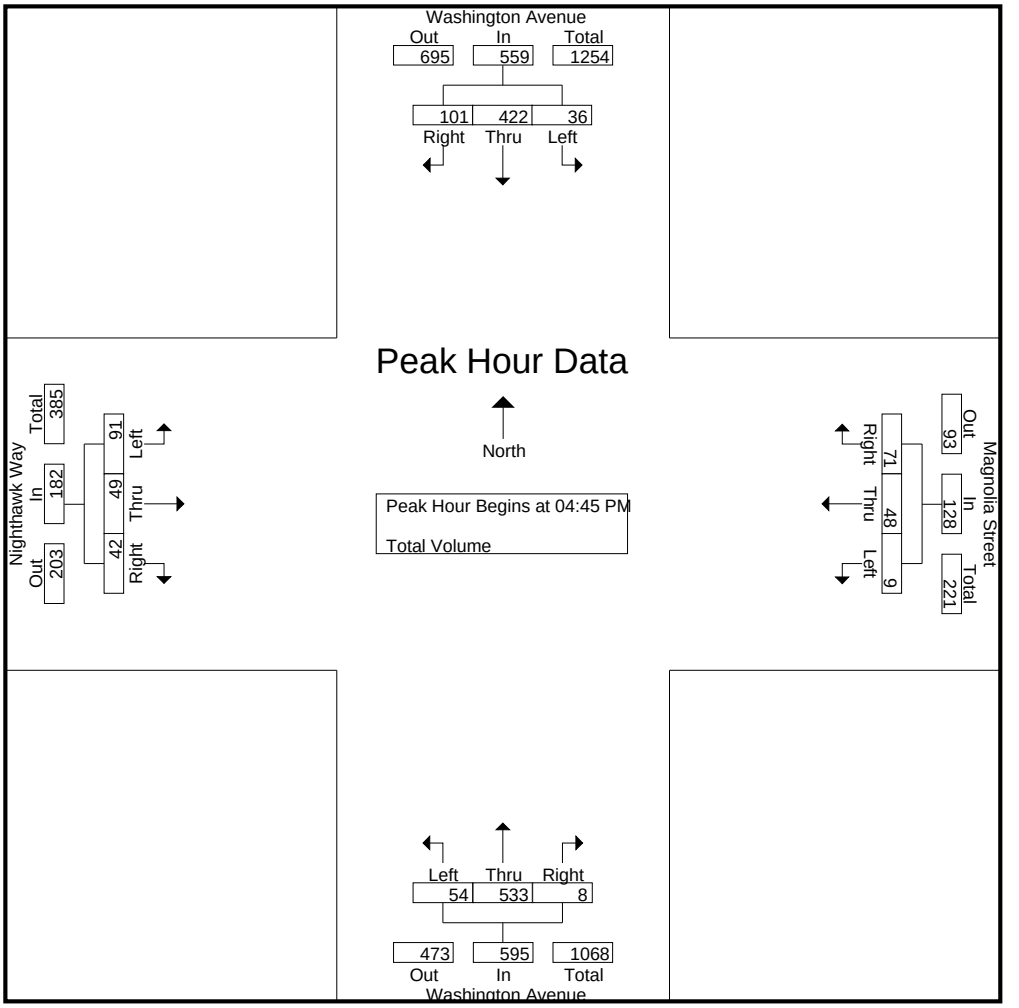

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:45 PM				04:15 PM				04:45 PM			
+0 mins.	**14**	103	11	128	**4**	10	**18**	32	5	**155**	1	**161**	12	4	**12**	28
+15 mins.	12	110	19	141	1	12	18	31	12	130	**3**	145	**27**	**19**	11	**57**
+30 mins.	6	108	**41**	**155**	2	**15**	18	**35**	**16**	133	2	151	26	13	8	47
+45 mins.	10	**117**	26	153	2	11	17	30	14	128	0	142	26	13	11	50
Total Volume	42	438	97	577	9	48	71	128	47	546	6	599	91	49	42	182
% App. Total	7.3	75.9	16.8		7	37.5	55.5		7.8	91.2	1		50	26.9	23.1	
PHF	.750	.936	.591	.931	.563	.800	.986	.914	.734	.881	.500	.930	.843	.645	.875	.798

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City of Murrieta
N/S: Washington Avenue
E/W: Fullerton Road
Weather: Clear

File Name : 06_MUR_Washington_Fullerton AM
Site Code : 10519351
Start Date : 5/15/2019
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Groups Printed- Total Volume

	Washington Avenue Southbound				Fullerton Road Westbound				Washington Avenue Northbound				Fullerton Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	1	98	75	174	0	0	1	1	59	64	1	124	23	0	13	36	335
07:15 AM	10	127	121	258	0	0	9	9	71	55	0	126	50	0	38	88	481
07:30 AM	1	107	9	117	2	0	1	3	7	41	0	48	22	0	16	38	206
07:45 AM	0	99	1	100	0	0	0	0	0	47	0	47	1	0	1	2	149
Total	12	431	206	649	2	0	11	13	137	207	1	345	96	0	68	164	1171
08:00 AM	0	143	3	146	2	0	1	3	1	79	1	81	1	0	0	1	231
08:15 AM	0	147	4	151	1	0	0	1	2	97	0	99	5	0	1	6	257
08:30 AM	0	146	3	149	0	0	0	0	1	77	0	78	1	0	0	1	228
08:45 AM	0	163	1	164	0	0	0	0	0	56	1	57	1	0	1	2	223
Total	0	599	11	610	3	0	1	4	4	309	2	315	8	0	2	10	939
Grand Total	12	1030	217	1259	5	0	12	17	141	516	3	660	104	0	70	174	2110
Apprch %	1	81.8	17.2		29.4	0	70.6		21.4	78.2	0.5		59.8	0	40.2		
Total %	0.6	48.8	10.3	59.7	0.2	0	0.6	0.8	6.7	24.5	0.1	31.3	4.9	0	3.3	8.2	

	Washington Avenue Southbound				Fullerton Road Westbound				Washington Avenue Northbound				Fullerton Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	1	98	75	174	0	0	1	1	59	**64**	**1**	124	23	0	13	36	335
07:15 AM	**10**	**127**	**121**	**258**	0	0	**9**	**9**	**71**	55	0	**126**	**50**	0	**38**	**88**	**481**
07:30 AM	1	107	9	117	**2**	0	1	3	7	41	0	48	22	0	16	38	206
07:45 AM	0	99	1	100	0	0	0	0	0	47	0	47	1	0	1	2	149
Total Volume	12	431	206	649	2	0	11	13	137	207	1	345	96	0	68	164	1171
% App. Total	1.8	66.4	31.7		15.4	0	84.6		39.7	60	0.3		58.5	0	41.5		
PHF	.300	.848	.426	.629	.250	.000	.306	.361	.482	.809	.250	.685	.480	.000	.447	.466	.609

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City of Murrieta
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E/W: Fullerton Road
Weather: Clear

File Name : 06_MUR_Washington_Fullerton AM
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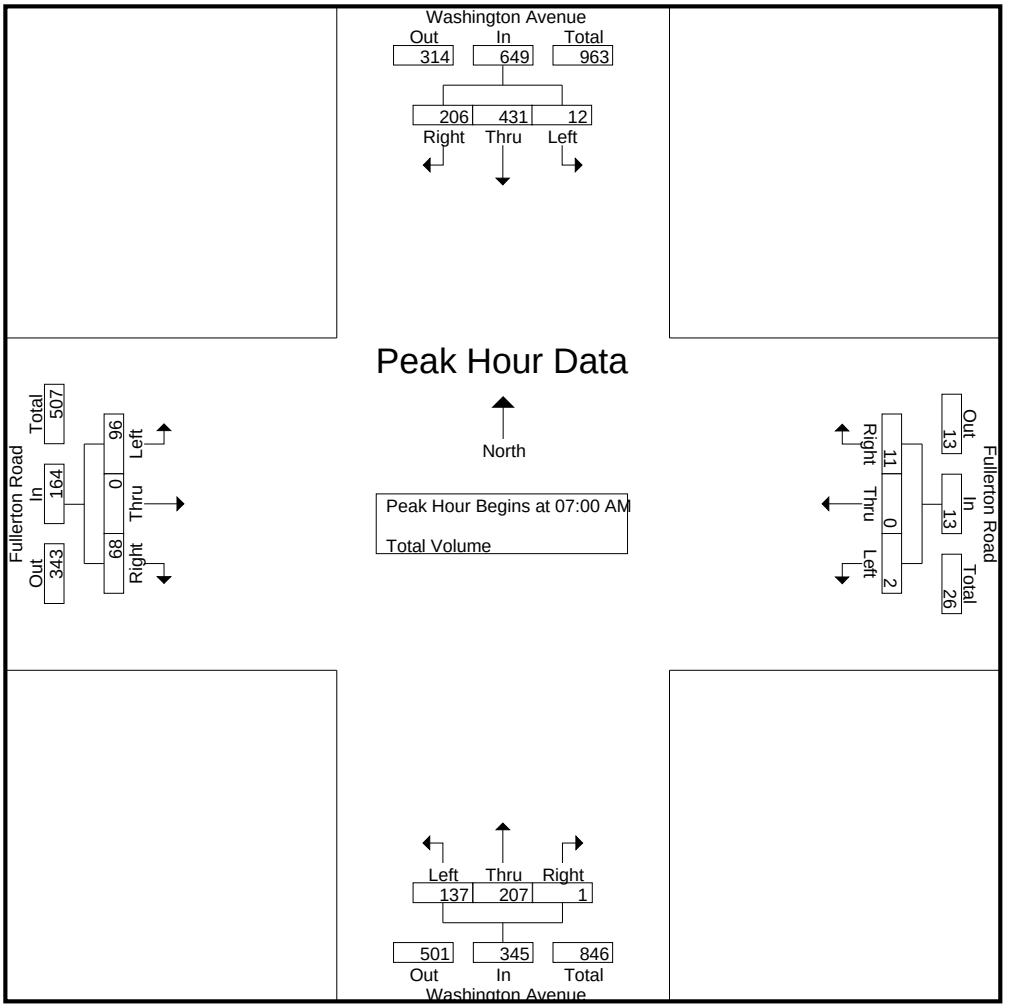

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:15 AM				07:00 AM				07:00 AM			
+0 mins.	1	98	75	174	0	0	**9**	**9**	59	**64**	**1**	124	23	0	13	36
+15 mins.	**10**	**127**	**121**	**258**	**2**	0	1	3	**71**	55	0	**126**	**50**	0	**38**	**88**
+30 mins.	1	107	9	117	0	0	0	0	7	41	0	48	22	0	16	38
+45 mins.	0	99	1	100	2	0	1	3	0	47	0	47	1	0	1	2
Total Volume	12	431	206	649	4	0	11	15	137	207	1	345	96	0	68	164
% App. Total	1.8	66.4	31.7		26.7	0	73.3		39.7	60	0.3		58.5	0	41.5	
PHF	.300	.848	.426	.629	.500	.000	.306	.417	.482	.809	.250	.685	.480	.000	.447	.466

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City of Murrieta
N/S: Washington Avenue
E/W: Fullerton Road
Weather: Clear

File Name : 06_MUR_Washington_Fullerton PM
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Start Date : 5/15/2019
Page No : 1

Groups Printed- Total Volume

	Washington Avenue Southbound				Fullerton Road Westbound				Washington Avenue Northbound				Fullerton Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	129	7	136	1	0	0	1	3	126	0	129	5	0	3	8	274
04:15 PM	0	118	5	123	0	0	0	0	2	159	0	161	2	0	3	5	289
04:30 PM	0	97	1	98	1	0	0	1	2	138	0	140	7	0	3	10	249
04:45 PM	0	131	4	135	0	0	0	0	2	147	0	149	2	0	0	2	286
Total	0	475	17	492	2	0	0	2	9	570	0	579	16	0	9	25	1098
05:00 PM	0	117	1	118	0	0	0	0	3	143	0	146	1	0	1	2	266
05:15 PM	1	124	2	127	1	0	1	2	1	132	1	134	3	0	0	3	266
05:30 PM	2	104	3	109	0	0	3	3	0	163	0	163	4	0	2	6	281
05:45 PM	0	101	3	104	0	0	0	0	3	117	0	120	0	0	0	0	224
Total	3	446	9	458	1	0	4	5	7	555	1	563	8	0	3	11	1037
Grand Total	3	921	26	950	3	0	4	7	16	1125	1	1142	24	0	12	36	2135
Apprch %	0.3	96.9	2.7		42.9	0	57.1		1.4	98.5	0.1		66.7	0	33.3		
Total %	0.1	43.1	1.2	44.5	0.1	0	0.2	0.3	0.7	52.7	0	53.5	1.1	0	0.6	1.7	

	Washington Avenue Southbound				Fullerton Road Westbound				Washington Avenue Northbound				Fullerton Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	**131**	**4**	**135**	0	0	0	0	2	147	0	149	2	0	0	2	**286**
05:00 PM	0	117	1	118	0	0	0	0	**3**	143	0	146	1	0	1	2	266
05:15 PM	1	124	2	127	**1**	0	1	2	1	132	**1**	134	3	0	0	3	266
05:30 PM	**2**	104	3	109	0	0	**3**	**3**	0	**163**	0	**163**	**4**	0	**2**	**6**	281
Total Volume	3	476	10	489	1	0	4	5	6	585	1	592	10	0	3	13	1099
% App. Total	0.6	97.3	2		20	0	80		1	98.8	0.2		76.9	0	23.1		
PHF	.375	.908	.625	.906	.250	.000	.333	.417	.500	.897	.250	.908	.625	.000	.375	.542	.961

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City of Murrieta
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E/W: Fullerton Road
Weather: Clear

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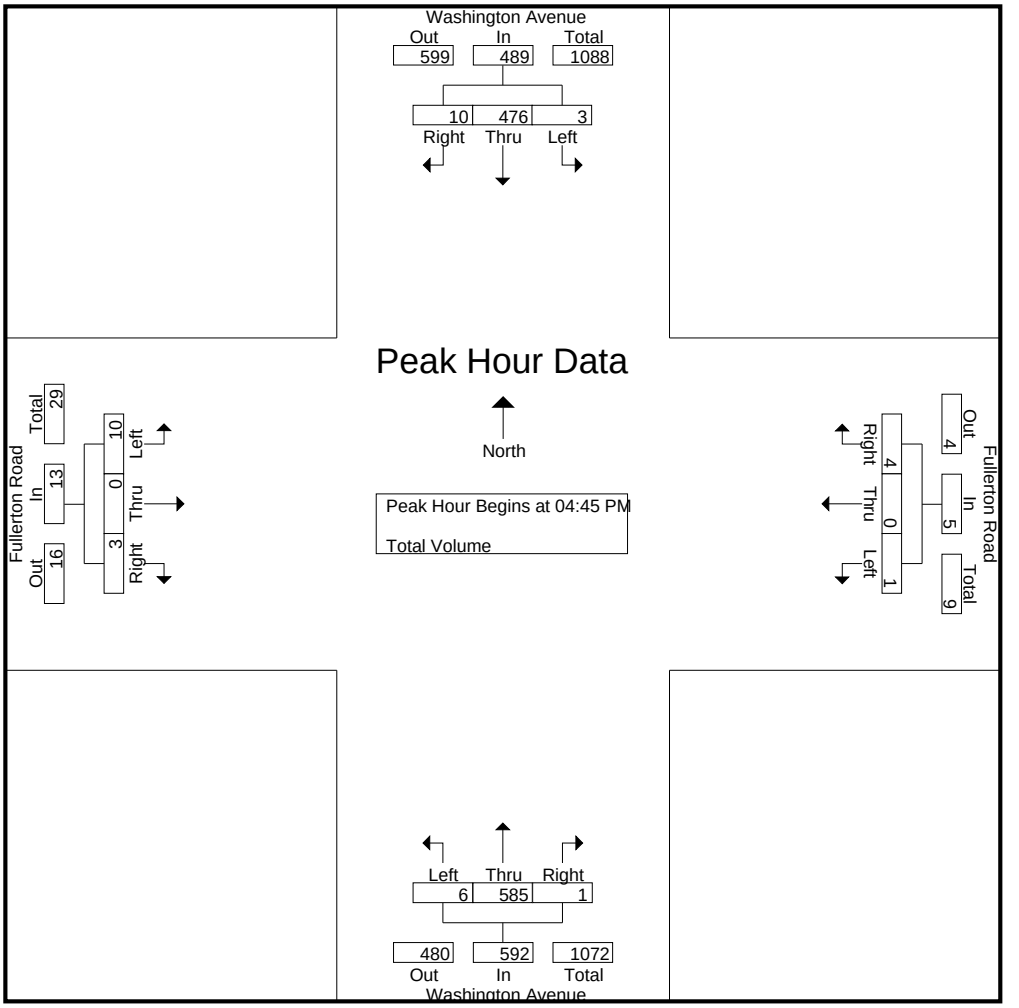

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:45 PM				04:15 PM				04:00 PM			
+0 mins.	0	129	**7**	**136**	0	0	0	0	2	**159**	0	**161**	5	0	**3**	8
+15 mins.	0	118	5	123	0	0	0	0	2	138	0	140	2	0	3	5
+30 mins.	0	97	1	98	**1**	0	1	2	2	147	0	149	**7**	0	3	**10**
+45 mins.	0	**131**	4	135	0	0	**3**	**3**	**3**	143	0	146	2	0	0	2
Total Volume	0	475	17	492	1	0	4	5	9	587	0	596	16	0	9	25
% App. Total	0	96.5	3.5		20	0	80		1.5	98.5	0		64	0	36	
PHF	.000	.906	.607	.904	.250	.000	.333	.417	.750	.923	.000	.925	.571	.000	.750	.625

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City of Murrieta
N/S: Washington Avenue
E/W: Vineyard Parkway/Lemon Street
Weather: Clear

File Name : 07_MUR_Washington_Vineyard_Lemon AM
Site Code : 10519351
Start Date : 5/15/2019
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Groups Printed- Total Volume

	Washington Avenue Southbound				Lemon Street Westbound				Washington Avenue Northbound				Vineyard Parkway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	5	84	21	110	0	32	18	50	53	101	0	154	4	5	28	37	351
07:15 AM	5	138	23	166	0	64	21	85	88	87	0	175	18	23	45	86	512
07:30 AM	5	128	7	140	1	8	5	14	31	39	1	71	6	14	49	69	294
07:45 AM	3	94	5	102	0	20	2	22	59	41	1	101	7	17	59	83	308
Total	18	444	56	518	1	124	46	171	231	268	2	501	35	59	181	275	1465
08:00 AM	1	142	3	146	1	16	3	20	32	71	1	104	13	15	53	81	351
08:15 AM	4	145	6	155	3	31	10	44	62	92	8	162	5	8	55	68	429
08:30 AM	2	137	12	151	1	20	2	23	75	65	1	141	12	22	72	106	421
08:45 AM	5	140	20	165	8	5	8	21	52	46	0	98	10	18	73	101	385
Total	12	564	41	617	13	72	23	108	221	274	10	505	40	63	253	356	1586
Grand Total	30	1008	97	1135	14	196	69	279	452	542	12	1006	75	122	434	631	3051
Apprch %	2.6	88.8	8.5		5	70.3	24.7		44.9	53.9	1.2		11.9	19.3	68.8		
Total %	1	33	3.2	37.2	0.5	6.4	2.3	9.1	14.8	17.8	0.4	33	2.5	4	14.2	20.7	

	Washington Avenue Southbound				Lemon Street Westbound				Washington Avenue Northbound				Vineyard Parkway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	1	142	3	146	1	16	3	20	32	71	1	104	**13**	15	53	81	351
08:15 AM	4	**145**	6	155	3	**31**	**10**	**44**	62	**92**	**8**	**162**	5	8	55	68	**429**
08:30 AM	2	137	12	151	1	20	2	23	**75**	65	1	141	12	**22**	72	**106**	421
08:45 AM	**5**	140	**20**	**165**	**8**	5	8	21	52	46	0	98	10	18	**73**	101	385
Total Volume	12	564	41	617	13	72	23	108	221	274	10	505	40	63	253	356	1586
% App. Total	1.9	91.4	6.6		12	66.7	21.3		43.8	54.3	2		11.2	17.7	71.1		
PHF	.600	.972	.513	.935	.406	.581	.575	.614	.737	.745	.313	.779	.769	.716	.866	.840	.924

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City of Murrieta
N/S: Washington Avenue
E/W: Vineyard Parkway/Lemon Street
Weather: Clear

File Name : 07_MUR_Washington_Vineyard_Lemon AM
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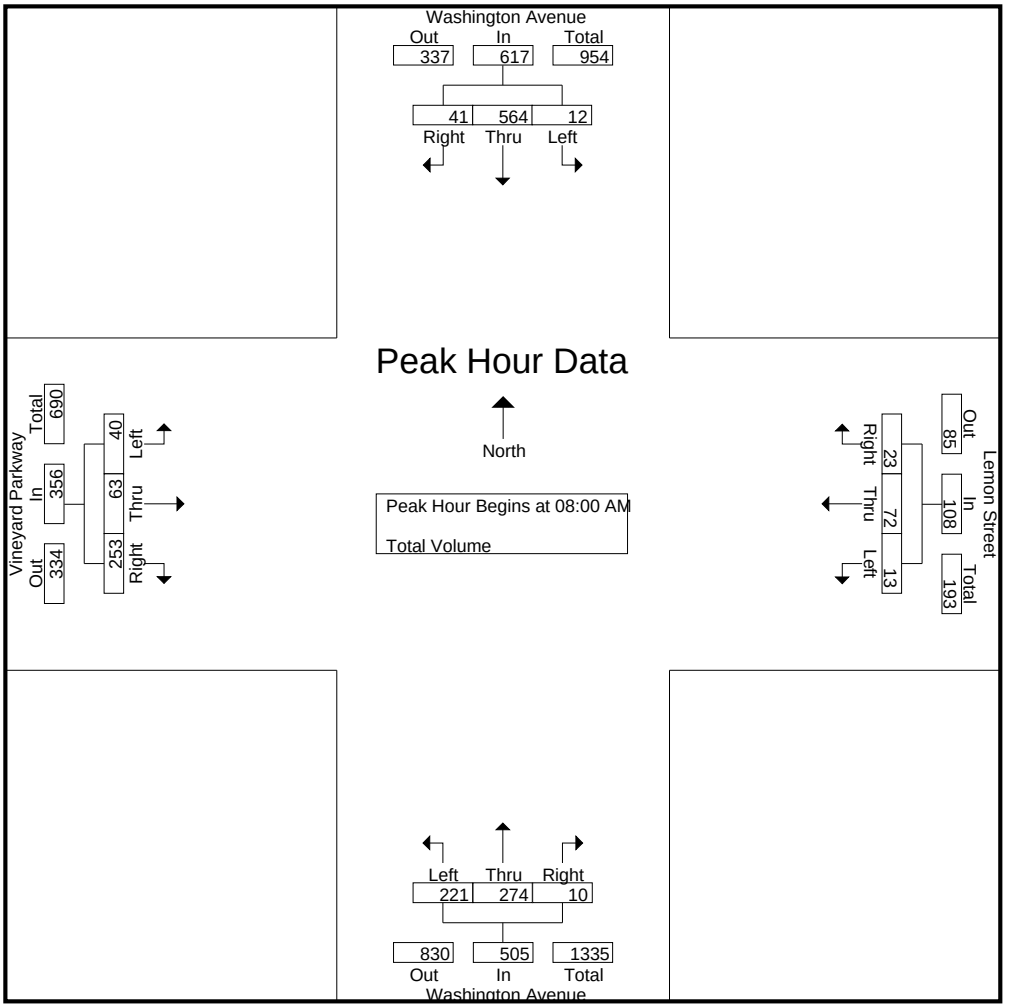

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM				07:00 AM				07:45 AM				08:00 AM			
+0 mins.	1	142	3	146	0	32	18	50	59	41	1	101	**13**	15	53	81
+15 mins.	4	**145**	6	155	0	**64**	**21**	**85**	32	71	1	104	5	8	55	68
+30 mins.	2	137	12	151	**1**	8	5	14	62	**92**	**8**	**162**	12	**22**	72	**106**
+45 mins.	**5**	140	**20**	**165**	0	20	2	22	**75**	65	1	141	10	18	**73**	101
Total Volume	12	564	41	617	1	124	46	171	228	269	11	508	40	63	253	356
% App. Total	1.9	91.4	6.6		0.6	72.5	26.9		44.9	53	2.2		11.2	17.7	71.1	
PHF	.600	.972	.513	.935	.250	.484	.548	.503	.760	.731	.344	.784	.769	.716	.866	.840

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City of Murrieta
N/S: Washington Avenue
E/W: Vineyard Parkway/Lemon Street
Weather: Clear

File Name : 07_MUR_Washington_Vineyard_Lemon PM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 1

Groups Printed- Total Volume

	Washington Avenue Southbound				Lemon Street Westbound				Washington Avenue Northbound				Vineyard Parkway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	3	124	11	138	1	5	5	11	21	121	2	144	4	2	30	36	329
04:15 PM	7	101	5	113	2	3	3	8	20	151	3	174	9	3	15	27	322
04:30 PM	2	109	2	113	2	4	8	14	15	131	4	150	4	3	26	33	310
04:45 PM	2	122	7	131	2	10	7	19	19	139	5	163	12	6	21	39	352
Total	14	456	25	495	7	22	23	52	75	542	14	631	29	14	92	135	1313
05:00 PM	3	106	15	124	3	6	7	16	30	136	4	170	5	5	17	27	337
05:15 PM	5	115	8	128	3	11	6	20	22	126	1	149	4	0	14	18	315
05:30 PM	3	103	3	109	2	6	6	14	24	150	1	175	8	4	13	25	323
05:45 PM	5	94	6	105	2	6	6	14	31	108	3	142	4	1	13	18	279
Total	16	418	32	466	10	29	25	64	107	520	9	636	21	10	57	88	1254
Grand Total	30	874	57	961	17	51	48	116	182	1062	23	1267	50	24	149	223	2567
Apprch %	3.1	90.9	5.9		14.7	44	41.4		14.4	83.8	1.8		22.4	10.8	66.8		
Total %	1.2	34	2.2	37.4	0.7	2	1.9	4.5	7.1	41.4	0.9	49.4	1.9	0.9	5.8	8.7	

	Washington Avenue Southbound				Lemon Street Westbound				Washington Avenue Northbound				Vineyard Parkway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	2	**122**	7	**131**	2	10	**7**	19	19	139	**5**	163	**12**	**6**	**21**	**39**	**352**
05:00 PM	3	106	**15**	124	**3**	6	7	16	**30**	136	4	170	5	5	17	27	337
05:15 PM	**5**	115	8	128	3	**11**	6	**20**	22	126	1	149	4	0	14	18	315
05:30 PM	3	103	3	109	2	6	6	14	24	**150**	1	**175**	8	4	13	25	323
Total Volume	13	446	33	492	10	33	26	69	95	551	11	657	29	15	65	109	1327
% App. Total	2.6	90.7	6.7		14.5	47.8	37.7		14.5	83.9	1.7		26.6	13.8	59.6		
PHF	.650	.914	.550	.939	.833	.750	.929	.863	.792	.918	.550	.939	.604	.625	.774	.699	.942

Counts Unlimited
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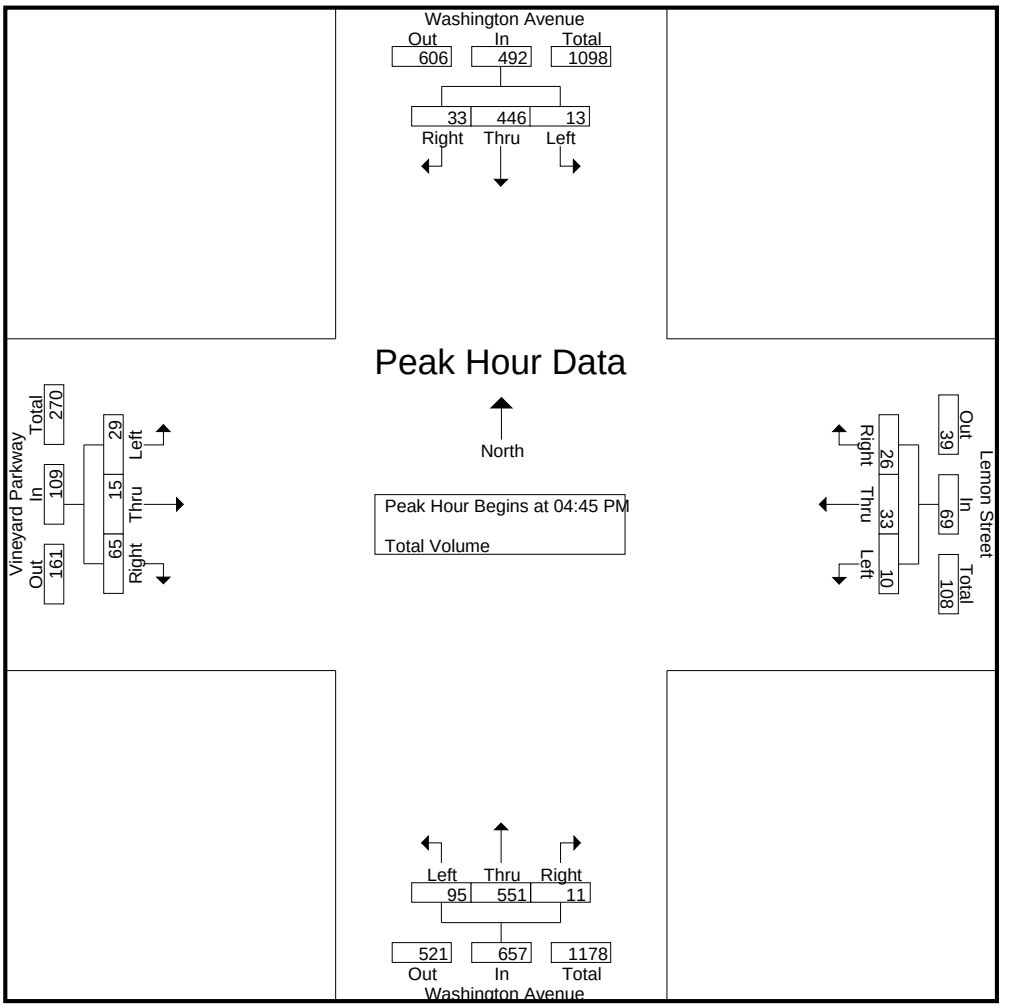
City of Murrieta
N/S: Washington Avenue
E/W: Vineyard Parkway/Lemon Street
Weather: Clear

File Name : 07_MUR_Washington_Vineyard_Lemon PM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:15 PM				04:00 PM			
+0 mins.	2	109	2	113	2	4	**8**	14	20	**151**	3	**174**	4	2	**30**	36
+15 mins.	2	**122**	7	**131**	2	10	7	19	15	131	4	150	9	3	15	27
+30 mins.	3	106	**15**	124	**3**	6	7	16	19	139	**5**	163	4	3	26	33
+45 mins.	**5**	115	8	128	3	**11**	6	**20**	**30**	136	4	170	**12**	**6**	21	**39**
Total Volume	12	452	32	496	10	31	28	69	84	557	16	657	29	14	92	135
% App. Total	2.4	91.1	6.5		14.5	44.9	40.6		12.8	84.8	2.4		21.5	10.4	68.1	
PHF	.600	.926	.533	.947	.833	.705	.875	.863	.700	.922	.800	.944	.604	.583	.767	.865

Counts Unlimited
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City of Murrieta
N/S: Washington Avenue
E/W: Kalmia Street
Weather: Clear

File Name : 08_MUR_Washington_Kalmia AM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 1

Groups Printed- Total Volume

	Washington Avenue Southbound				Kalmia Street Westbound				Washington Avenue Northbound				Kalmia Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	89	33	3	125	4	4	107	115	1	26	4	31	31	5	0	36	307
07:15 AM	145	54	9	208	9	12	120	141	0	39	8	47	14	6	1	21	417
07:30 AM	142	49	7	198	6	13	43	62	2	18	2	22	9	9	0	18	300
07:45 AM	116	63	4	183	12	11	84	107	2	23	6	31	7	10	1	18	339
Total	492	199	23	714	31	40	354	425	5	106	20	131	61	30	2	93	1363
08:00 AM	178	51	5	234	14	9	66	89	1	31	9	41	15	10	3	28	392
08:15 AM	182	62	5	249	14	14	79	107	1	92	27	120	11	23	0	34	510
08:30 AM	150	50	16	216	10	13	72	95	0	69	13	82	16	10	1	27	420
08:45 AM	161	61	11	233	21	11	75	107	1	30	16	47	16	8	2	26	413
Total	671	224	37	932	59	47	292	398	3	222	65	290	58	51	6	115	1735
Grand Total	1163	423	60	1646	90	87	646	823	8	328	85	421	119	81	8	208	3098
Apprch %	70.7	25.7	3.6		10.9	10.6	78.5		1.9	77.9	20.2		57.2	38.9	3.8		
Total %	37.5	13.7	1.9	53.1	2.9	2.8	20.9	26.6	0.3	10.6	2.7	13.6	3.8	2.6	0.3	6.7	

	Washington Avenue Southbound				Kalmia Street Westbound				Washington Avenue Northbound				Kalmia Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	178	51	5	234	14	9	66	89	**1**	31	9	41	15	10	**3**	28	392
08:15 AM	**182**	**62**	5	**249**	14	**14**	**79**	**107**	1	**92**	**27**	**120**	11	**23**	0	**34**	**510**
08:30 AM	150	50	**16**	216	10	13	72	95	0	69	13	82	**16**	10	1	27	420
08:45 AM	161	61	11	233	**21**	11	75	107	1	30	16	47	16	8	2	26	413
Total Volume	671	224	37	932	59	47	292	398	3	222	65	290	58	51	6	115	1735
% App. Total	72	24	4		14.8	11.8	73.4		1	76.6	22.4		50.4	44.3	5.2		
PHF	.922	.903	.578	.936	.702	.839	.924	.930	.750	.603	.602	.604	.906	.554	.500	.846	.850

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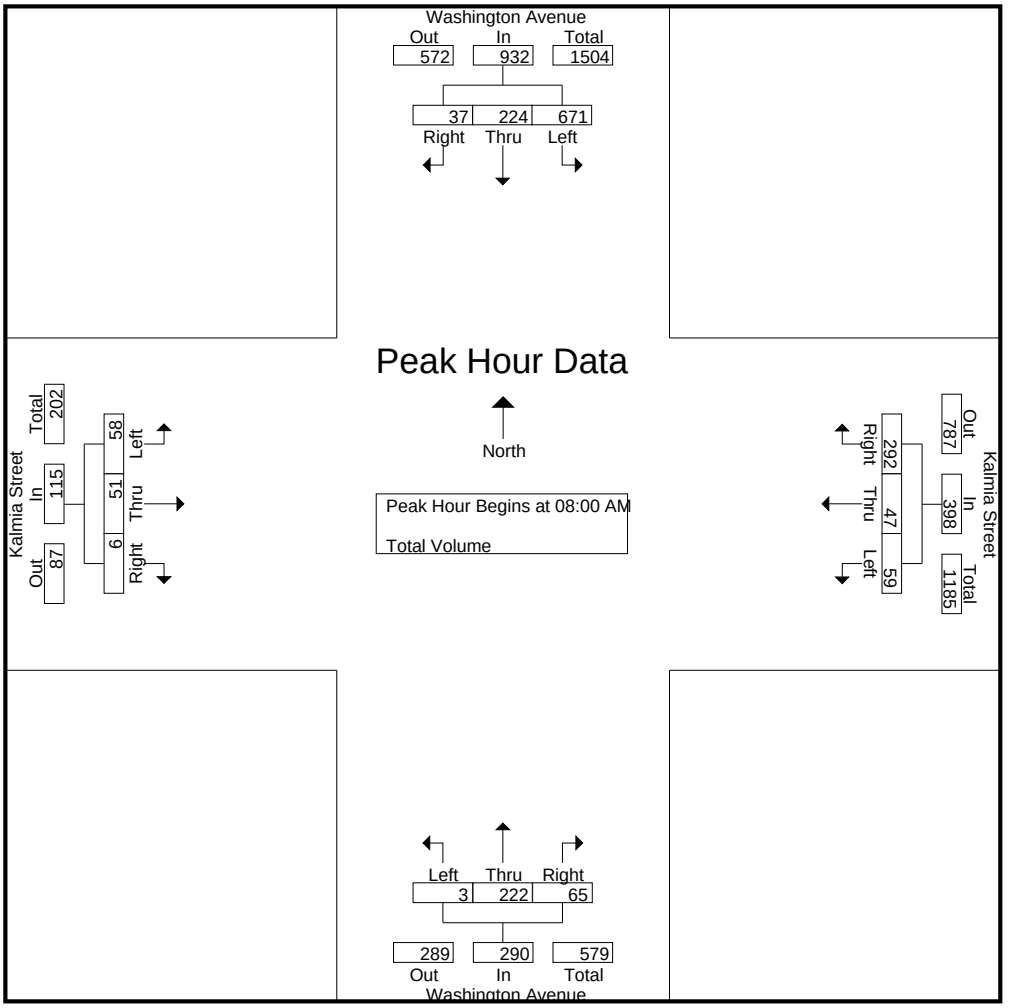
City of Murrieta
N/S: Washington Avenue
E/W: Kalmia Street
Weather: Clear

File Name : 08_MUR_Washington_Kalmia AM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM				07:00 AM				08:00 AM				08:00 AM			
+0 mins.	178	51	5	234	4	4	107	115	**1**	31	9	41	15	10	**3**	28
+15 mins.	**182**	**62**	5	**249**	9	12	**120**	**141**	1	**92**	**27**	**120**	11	**23**	0	**34**
+30 mins.	150	50	**16**	216	6	**13**	43	62	0	69	13	82	**16**	10	1	27
+45 mins.	161	61	11	233	**12**	11	84	107	1	30	16	47	16	8	2	26
Total Volume	671	224	37	932	31	40	354	425	3	222	65	290	58	51	6	115
% App. Total	72	24	4		7.3	9.4	83.3		1	76.6	22.4		50.4	44.3	5.2	
PHF	.922	.903	.578	.936	.646	.769	.738	.754	.750	.603	.602	.604	.906	.554	.500	.846

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City of Murrieta
N/S: Washington Avenue
E/W: Kalmia Street
Weather: Clear

File Name : 08_MUR_Washington_Kalmia PM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 1

Groups Printed- Total Volume

	Washington Avenue Southbound				Kalmia Street Westbound				Washington Avenue Northbound				Kalmia Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	116	45	8	169	10	7	110	127	1	62	24	87	6	13	1	20	403
04:15 PM	97	32	4	133	20	14	121	155	1	69	26	96	15	22	2	39	423
04:30 PM	104	35	8	147	21	12	94	127	0	69	18	87	9	21	1	31	392
04:45 PM	86	61	7	154	18	13	106	137	2	65	31	98	11	13	2	26	415
Total	403	173	27	603	69	46	431	546	4	265	99	368	41	69	6	116	1633
05:00 PM	99	41	7	147	20	10	122	152	2	70	24	96	9	16	3	28	423
05:15 PM	81	40	8	129	18	16	97	131	4	66	22	92	14	26	3	43	395
05:30 PM	91	48	11	150	11	24	119	154	2	68	8	78	17	14	2	33	415
05:45 PM	74	34	11	119	15	10	106	131	1	54	17	72	10	19	1	30	352
Total	345	163	37	545	64	60	444	568	9	258	71	338	50	75	9	134	1585
Grand Total	748	336	64	1148	133	106	875	1114	13	523	170	706	91	144	15	250	3218
Apprch %	65.2	29.3	5.6		11.9	9.5	78.5		1.8	74.1	24.1		36.4	57.6	6		
Total %	23.2	10.4	2	35.7	4.1	3.3	27.2	34.6	0.4	16.3	5.3	21.9	2.8	4.5	0.5	7.8	

	Washington Avenue Southbound				Kalmia Street Westbound				Washington Avenue Northbound				Kalmia Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	97	32	4	133	20	**14**	121	**155**	1	69	26	96	**15**	**22**	2	**39**	**423**
04:30 PM	**104**	35	**8**	147	**21**	12	94	127	0	69	18	87	9	21	1	31	392
04:45 PM	86	**61**	7	**154**	18	13	106	137	**2**	65	**31**	**98**	11	13	2	26	415
05:00 PM	99	41	7	147	20	10	**122**	152	2	**70**	24	96	9	16	**3**	28	423
Total Volume	386	169	26	581	79	49	443	571	5	273	99	377	44	72	8	124	1653
% App. Total	66.4	29.1	4.5		13.8	8.6	77.6		1.3	72.4	26.3		35.5	58.1	6.5		
PHF	.928	.693	.813	.943	.940	.875	.908	.921	.625	.975	.798	.962	.733	.818	.667	.795	.977

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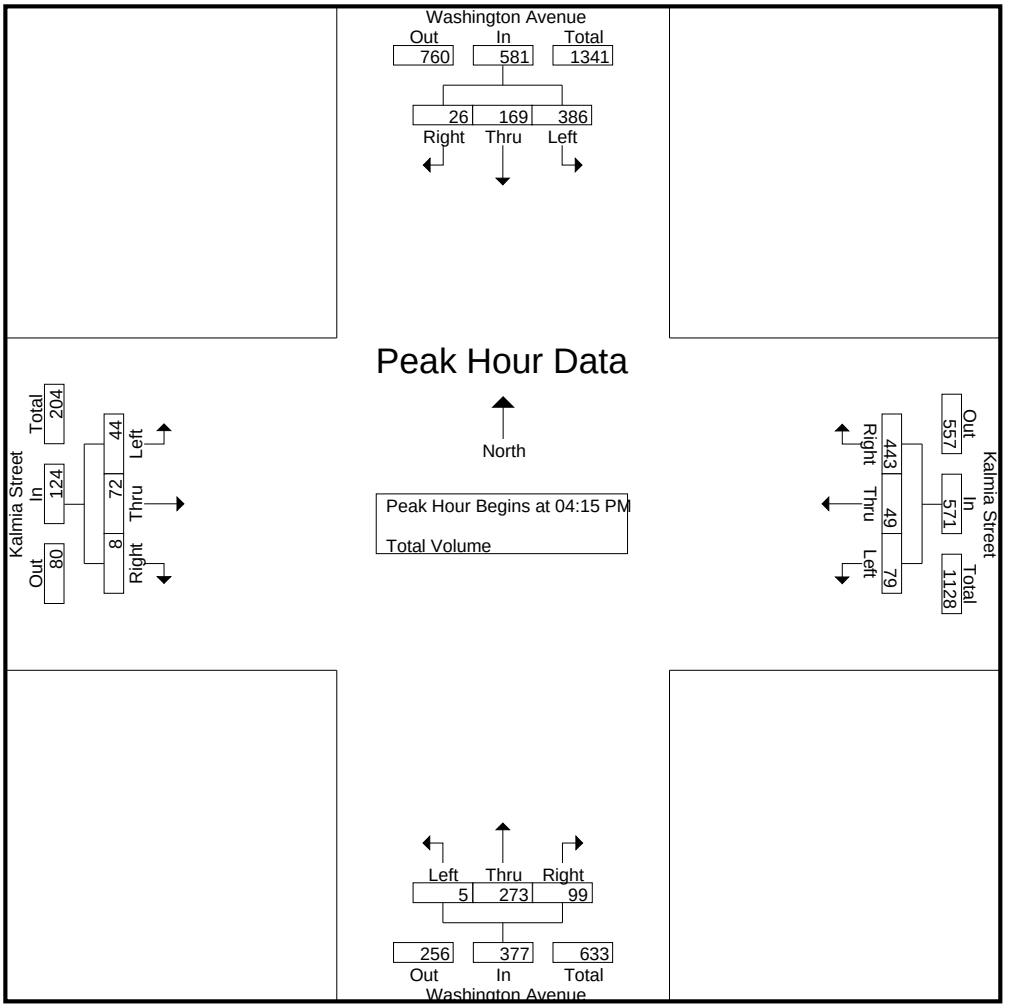
City of Murrieta
N/S: Washington Avenue
E/W: Kalmia Street
Weather: Clear

File Name : 08_MUR_Washington_Kalmia PM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:45 PM				04:15 PM				05:00 PM			
+0 mins.	**116**	45	**8**	**169**	18	13	106	137	1	69	26	96	9	16	**3**	28
+15 mins.	97	32	4	133	**20**	10	**122**	152	0	69	18	87	14	**26**	3	**43**
+30 mins.	104	35	8	147	18	16	97	131	**2**	65	**31**	**98**	**17**	14	2	33
+45 mins.	86	**61**	7	154	11	**24**	119	**154**	2	**70**	24	96	10	19	1	30
Total Volume	403	173	27	603	67	63	444	574	5	273	99	377	50	75	9	134
% App. Total	66.8	28.7	4.5		11.7	11	77.4		1.3	72.4	26.3		37.3	56	6.7	
PHF	.869	.709	.844	.892	.838	.656	.910	.932	.625	.975	.798	.962	.735	.721	.750	.779

Counts Unlimited
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City of Murrieta
N/S: Hayes Avenue
E/W: Sherry Lane/High School Access
Weather: Clear

File Name : 09_MUR_Hayes_HS Access AM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 1

Groups Printed- Total Volume

	Hayes Avenue Southbound				High School Access Westbound				Hayes Avenue Northbound				Sherry Lane Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	8	1	9	1	0	0	1	1	27	0	28	2	0	2	4	42
07:15 AM	0	23	1	24	2	0	0	2	3	71	0	74	2	0	3	5	105
07:30 AM	0	41	0	41	3	0	4	7	1	40	0	41	2	0	0	2	91
07:45 AM	0	67	1	68	25	0	13	38	0	37	0	37	5	0	0	5	148
Total	0	139	3	142	31	0	17	48	5	175	0	180	11	0	5	16	386
08:00 AM	0	30	0	30	21	0	7	28	0	30	0	30	3	0	4	7	95
08:15 AM	0	50	3	53	5	0	5	10	3	67	0	70	2	0	3	5	138
08:30 AM	0	84	0	84	7	0	2	9	2	86	0	88	1	0	5	6	187
08:45 AM	0	81	3	84	6	0	3	9	1	62	0	63	1	0	1	2	158
Total	0	245	6	251	39	0	17	56	6	245	0	251	7	0	13	20	578
Grand Total	0	384	9	393	70	0	34	104	11	420	0	431	18	0	18	36	964
Apprch %	0	97.7	2.3		67.3	0	32.7		2.6	97.4	0		50	0	50		
Total %	0	39.8	0.9	40.8	7.3	0	3.5	10.8	1.1	43.6	0	44.7	1.9	0	1.9	3.7	

	Hayes Avenue Southbound				High School Access Westbound				Hayes Avenue Northbound				Sherry Lane Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	30	0	30	**21**	0	**7**	**28**	0	30	0	30	**3**	0	4	**7**	95
08:15 AM	0	50	**3**	53	5	0	5	10	**3**	67	0	70	2	0	3	5	138
08:30 AM	0	**84**	0	**84**	7	0	2	9	2	**86**	0	**88**	1	0	**5**	6	**187**
08:45 AM	0	81	3	84	6	0	3	9	1	62	0	63	1	0	1	2	158
Total Volume	0	245	6	251	39	0	17	56	6	245	0	251	7	0	13	20	578
% App. Total	0	97.6	2.4		69.6	0	30.4		2.4	97.6	0		35	0	65		
PHF	.000	.729	.500	.747	.464	.000	.607	.500	.500	.712	.000	.713	.583	.000	.650	.714	.773

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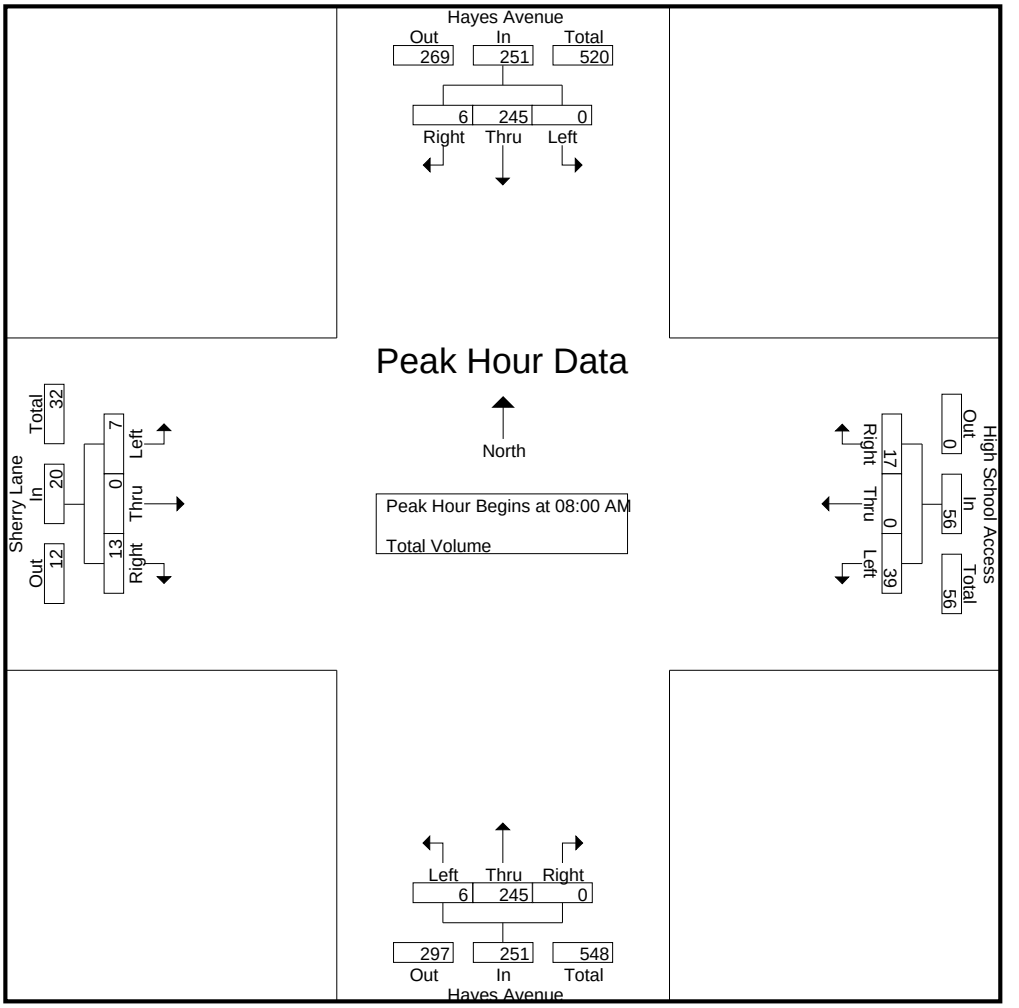
City of Murrieta
N/S: Hayes Avenue
E/W: Sherry Lane/High School Access
Weather: Clear

File Name : 09_MUR_Hayes_HS Access AM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM				07:45 AM				08:00 AM				07:45 AM			
+0 mins.	0	30	0	30	**25**	0	**13**	**38**	0	30	0	30	**5**	0	0	5
+15 mins.	0	50	**3**	53	21	0	7	28	**3**	67	0	70	3	0	4	**7**
+30 mins.	0	**84**	0	**84**	5	0	5	10	2	**86**	0	**88**	2	0	3	5
+45 mins.	0	81	3	84	7	0	2	9	1	62	0	63	1	0	**5**	6
Total Volume	0	245	6	251	58	0	27	85	6	245	0	251	11	0	12	23
% App. Total	0	97.6	2.4		68.2	0	31.8		2.4	97.6	0		47.8	0	52.2	
PHF	.000	.729	.500	.747	.580	.000	.519	.559	.500	.712	.000	.713	.550	.000	.600	.821

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City of Murrieta
N/S: Hayes Avenue
E/W: Sherry Lane/High School Access
Weather: Clear

File Name : 09_MUR_Hayes_HS Access PM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 1

Groups Printed- Total Volume

	Hayes Avenue Southbound				High School Access Westbound				Hayes Avenue Northbound				Sherry Lane Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	8	3	11	2	0	1	3	0	7	0	7	2	0	1	3	24
04:15 PM	0	11	0	11	3	0	2	5	1	5	0	6	3	0	1	4	26
04:30 PM	0	6	0	6	5	0	1	6	1	3	0	4	1	0	1	2	18
04:45 PM	0	9	2	11	5	0	2	7	2	6	0	8	1	0	1	2	28
Total	0	34	5	39	15	0	6	21	4	21	0	25	7	0	4	11	96
05:00 PM	0	9	1	10	7	0	6	13	2	7	0	9	2	0	0	2	34
05:15 PM	0	8	2	10	0	0	3	3	3	8	0	11	1	0	3	4	28
05:30 PM	0	1	1	2	2	0	1	3	1	9	0	10	0	0	1	1	16
05:45 PM	0	6	2	8	0	0	0	0	1	5	0	6	2	0	0	2	16
Total	0	24	6	30	9	0	10	19	7	29	0	36	5	0	4	9	94
Grand Total	0	58	11	69	24	0	16	40	11	50	0	61	12	0	8	20	190
Apprch %	0	84.1	15.9		60	0	40		18	82	0		60	0	40		
Total %	0	30.5	5.8	36.3	12.6	0	8.4	21.1	5.8	26.3	0	32.1	6.3	0	4.2	10.5	

	Hayes Avenue Southbound				High School Access Westbound				Hayes Avenue Northbound				Sherry Lane Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	6	0	6	5	0	1	6	1	3	0	4	1	0	1	2	18
04:45 PM	0	**9**	**2**	**11**	5	0	2	7	2	6	0	8	1	0	1	2	28
05:00 PM	0	9	1	10	**7**	0	**6**	**13**	2	7	0	9	**2**	0	0	2	**34**
05:15 PM	0	8	2	10	0	0	3	3	**3**	**8**	0	**11**	1	0	**3**	**4**	28
Total Volume	0	32	5	37	17	0	12	29	8	24	0	32	5	0	5	10	108
% App. Total	0	86.5	13.5		58.6	0	41.4		25	75	0		50	0	50		
PHF	.000	.889	.625	.841	.607	.000	.500	.558	.667	.750	.000	.727	.625	.000	.417	.625	.794

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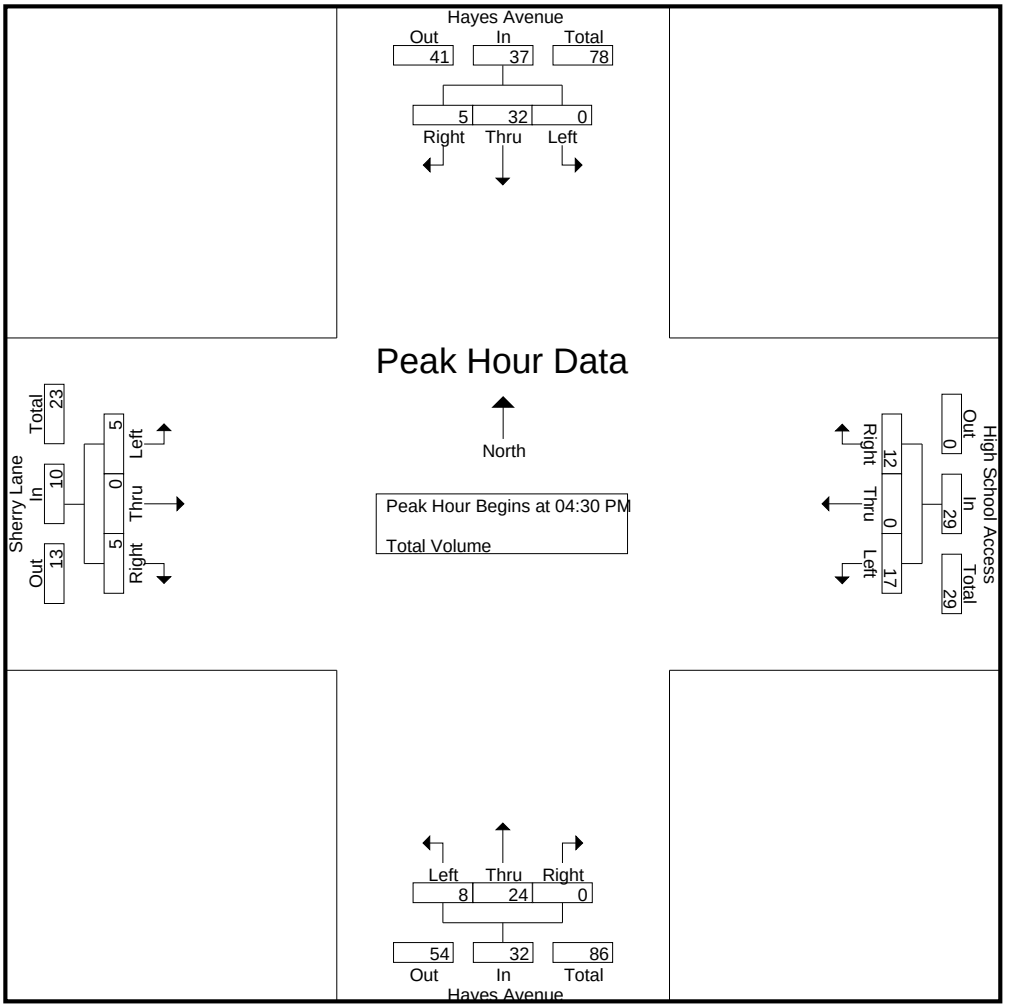
City of Murrieta
N/S: Hayes Avenue
E/W: Sherry Lane/High School Access
Weather: Clear

File Name : 09_MUR_Hayes_HS Access PM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:15 PM				04:45 PM				04:00 PM			
+0 mins.	0	8	**3**	**11**	3	0	2	5	2	6	0	8	2	0	**1**	3
+15 mins.	0	**11**	0	11	5	0	1	6	2	7	0	9	**3**	0	1	**4**
+30 mins.	0	6	0	6	5	0	2	7	**3**	8	0	**11**	1	0	1	2
+45 mins.	0	9	2	11	**7**	0	**6**	**13**	1	**9**	0	10	1	0	1	2
Total Volume	0	34	5	39	20	0	11	31	8	30	0	38	7	0	4	11
% App. Total	0	87.2	12.8		64.5	0	35.5		21.1	78.9	0		63.6	0	36.4	
PHF	.000	.773	.417	.886	.714	.000	.458	.596	.667	.833	.000	.864	.583	.000	1.000	.688

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City of Murrieta
N/S: High School Access
E/W: Fullerton Road
Weather: Clear

File Name : 10_MUR_HS Access_Fullerton AM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 1

Groups Printed- Total Volume

	High School Access Southbound			Fullerton Road Westbound			Fullerton Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
07:00 AM	0	0	0	8	2	10	2	51	53	63
07:15 AM	0	0	0	29	1	30	7	129	136	166
07:30 AM	0	0	0	11	0	11	15	3	18	29
07:45 AM	0	0	0	0	0	0	60	0	60	60
Total	0	0	0	48	3	51	84	183	267	318
08:00 AM	0	0	0	0	0	0	32	0	32	32
08:15 AM	0	0	0	1	0	1	16	3	19	20
08:30 AM	0	0	0	0	0	0	5	0	5	5
08:45 AM	0	1	1	1	0	1	13	0	13	15
Total	0	1	1	2	0	2	66	3	69	72
Grand Total	0	1	1	50	3	53	150	186	336	390
Apprch %	0	100		94.3	5.7		44.6	55.4		
Total %	0	0.3	0.3	12.8	0.8	13.6	38.5	47.7	86.2	

	High School Access Southbound			Fullerton Road Westbound			Fullerton Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	0	0	0	8	**2**	10	2	51	53	63
07:15 AM	0	0	0	**29**	1	**30**	7	**129**	**136**	**166**
07:30 AM	0	0	0	11	0	11	15	3	18	29
07:45 AM	0	0	0	0	0	0	**60**	0	60	60
Total Volume	0	0	0	48	3	51	84	183	267	318
% App. Total	0	0		94.1	5.9		31.5	68.5		
PHF	.000	.000	.000	.414	.375	.425	.350	.355	.491	.479

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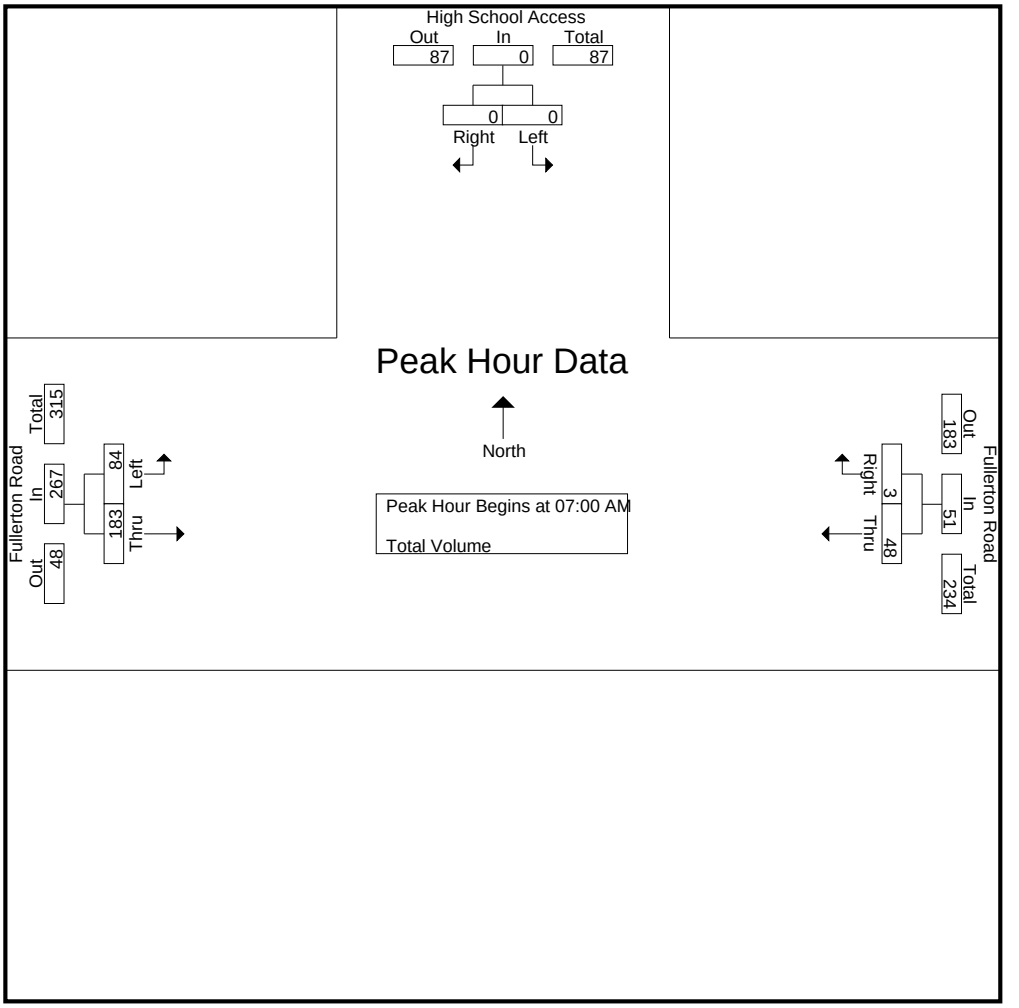
City of Murrieta
N/S: High School Access
E/W: Fullerton Road
Weather: Clear

File Name : 10_MUR_HS Access_Fullerton AM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM			07:00 AM			07:00 AM		
+0 mins.	0	0	0	8	**2**	10	2	51	53
+15 mins.	0	0	0	**29**	1	**30**	7	**129**	**136**
+30 mins.	0	0	0	11	0	11	15	3	18
+45 mins.	0	**1**	**1**	0	0	0	**60**	0	60
Total Volume	0	1	1	48	3	51	84	183	267
% App. Total	0	100		94.1	5.9		31.5	68.5	
PHF	.000	.250	.250	.414	.375	.425	.350	.355	.491

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City of Murrieta
N/S: High School Access
E/W: Fullerton Road
Weather: Clear

File Name : 10_MUR_HS Access_Fullerton PM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 1

Groups Printed- Total Volume

	High School Access Southbound			Fullerton Road Westbound			Fullerton Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	3	0	3	3
04:15 PM	0	0	0	0	0	0	5	0	5	5
04:30 PM	0	0	0	0	0	0	6	0	6	6
04:45 PM	0	0	0	0	0	0	8	0	8	8
Total	0	0	0	0	0	0	22	0	22	22
05:00 PM	0	1	1	0	0	0	8	0	8	9
05:15 PM	0	1	1	0	0	0	5	0	5	6
05:30 PM	0	0	0	0	0	0	3	0	3	3
05:45 PM	0	0	0	0	0	0	2	0	2	2
Total	0	2	2	0	0	0	18	0	18	20
Grand Total	0	2	2	0	0	0	40	0	40	42
Apprch %	0	100		0	0		100	0		
Total %	0	4.8	4.8	0	0	0	95.2	0	95.2	

	High School Access Southbound			Fullerton Road Westbound			Fullerton Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	0	0	0	0	0	0	6	0	6	6
04:45 PM	0	0	0	0	0	0	**8**	0	**8**	8
05:00 PM	0	**1**	**1**	0	0	0	8	0	8	**9**
05:15 PM	0	1	1	0	0	0	5	0	5	6
Total Volume	0	2	2	0	0	0	27	0	27	29
% App. Total	0	100		0	0		100	0		
PHF	.000	.500	.500	.000	.000	.000	.844	.000	.844	.806

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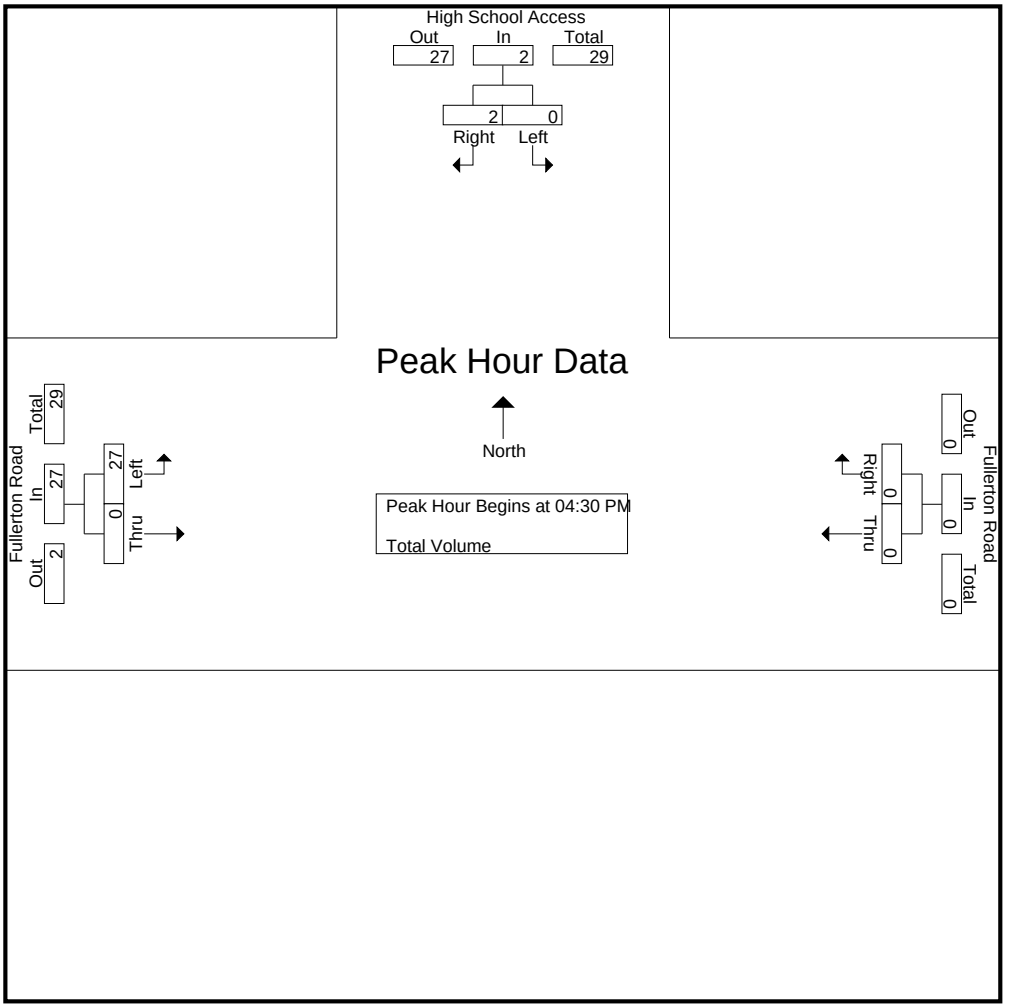
City of Murrieta
N/S: High School Access
E/W: Fullerton Road
Weather: Clear

File Name : 10_MUR_HS Access_Fullerton PM
Site Code : 10519351
Start Date : 5/15/2019
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM			04:00 PM			04:15 PM		
+0 mins.	0	0	0	0	0	0	5	0	5
+15 mins.	0	0	0	0	0	0	6	0	6
+30 mins.	0	**1**	**1**	0	0	0	**8**	0	**8**
+45 mins.	0	1	1	0	0	0	8	0	8
Total Volume	0	2	2	0	0	0	27	0	27
% App. Total	0	100		0	0		100	0	
PHF	.000	.500	.500	.000	.000	.000	.844	.000	.844

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City of Murrieta
Hayes Avenue
N/ Sherry Lane
24 Hour Directional Volume Count

MUR001
Site Code: 105-19351

Start Time	15-May-19 Wed	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		1	8			1	14				
12:15		1	14			2	19				
12:30		0	10			0	12				
12:45		1	12	3	44	1	12	4	57	7	101
01:00		0	5			1	15				
01:15		0	6			1	3				
01:30		0	8			1	15				
01:45		1	14	1	33	0	14	3	47	4	80
02:00		0	18			0	10				
02:15		0	19			2	9				
02:30		1	**36**			0	12				
02:45		0	**41**	1	114	0	14	2	45	3	159
03:00		0	**41**			0	**19**				
03:15		0	**61**			0	**124**				
03:30		0	31			0	**41**				
03:45		1	16	1	149	0	**21**	0	205	1	354
04:00		0	10			0	11				
04:15		0	10			0	11				
04:30		0	5			1	6				
04:45		0	9	0	34	0	11	1	39	1	73
05:00		1	15			0	10				
05:15		2	12			1	10				
05:30		0	10			0	2				
05:45		3	7	6	44	2	8	3	30	9	74
06:00		2	7			1	9				
06:15		3	7			1	16				
06:30		5	9			3	11				
06:45		10	12	20	35	2	1	7	37	27	72
07:00		29	9			9	8				
07:15		73	5			24	4				
07:30		46	5			41	15				
07:45		55	4	203	23	68	5	142	32	345	55
08:00		**40**	5			**30**	4				
08:15		**74**	5			**53**	8				
08:30		**89**	8			**84**	5				
08:45		**66**	9	269	27	**84**	7	251	24	520	51
09:00		16	5			24	4				
09:15		4	6			12	6				
09:30		6	2			3	5				
09:45		9	1	35	14	13	1	52	16	87	30
10:00		7	4			7	2				
10:15		13	0			8	1				
10:30		17	3			6	0				
10:45		5	0	42	7	9	2	30	5	72	12
11:00		10	0			12	3				
11:15		12	1			8	1				
11:30		4	0			14	2				
11:45		12	0	38	1	5	1	39	7	77	8
Total		619	525	619	525	534	544	534	544	1153	1069
Combined Total		1144		1144		1078		1078		2222	
AM Peak	-	08:00	-	-	-	08:00	-	-	-	-	-
Vol.	-	269	-	-	-	251	-	-	-	-	-
P.H.F.		0.756				0.747					
PM Peak	-	-	02:30	-	-	-	03:00	-	-	-	-
Vol.	-	-	179	-	-	-	205	-	-	-	-
P.H.F.			0.734				0.413				
Percentage		54.1%	45.9%			49.5%	50.5%				
ADT/AADT		ADT 2,222		AADT 2,222							

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City of Murrieta
Hayes Avenue
B/ Sherry Lane - Fullerton Road
24 Hour Directional Volume Count

MUR002
Site Code: 105-19351

Start Time	15-May-19 Wed	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		0	6			1	12				
12:15		1	11			1	23				
12:30		0	6			0	16				
12:45		0	8	1	31	0	15	2	66	3	97
01:00		0	1			0	18				
01:15		0	3			1	3				
01:30		0	6			1	14				
01:45		1	6	1	16	0	26	2	61	3	77
02:00		1	10			1	24				
02:15		0	18			1	18				
02:30		0	**36**			0	23				
02:45		0	**54**	1	118	0	15	2	80	3	198
03:00		0	**54**			1	**27**				
03:15		0	**57**			0	**149**				
03:30		0	31			0	**44**				
03:45		1	15	1	157	0	**24**	1	244	2	401
04:00		0	7			0	11				
04:15		0	7			0	14				
04:30		0	4			0	13				
04:45		0	7	0	25	0	17	0	55	0	80
05:00		0	10			1	15				
05:15		2	12			2	11				
05:30		0	10			0	4				
05:45		2	6	4	38	4	6	7	36	11	74
06:00		0	5			1	9				
06:15		2	6			1	17				
06:30		3	9			3	11				
06:45		8	10	13	30	2	1	7	38	20	68
07:00		33	6			11	6				
07:15		77	3			29	5				
07:30		40	4			47	11				
07:45		40	5	190	18	**94**	3	181	25	371	43
08:00		**30**	5			**54**	4				
08:15		**73**	7			**59**	5				
08:30		**89**	10			**96**	4				
08:45		**62**	6	254	28	89	11	298	24	552	52
09:00		9	6			26	6				
09:15		3	8			13	5				
09:30		6	1			3	3				
09:45		6	2	24	17	19	7	61	21	85	38
10:00		5	3			12	1				
10:15		5	0			8	1				
10:30		11	3			15	2				
10:45		0	0	21	6	11	2	46	6	67	12
11:00		12	0			17	2				
11:15		7	1			11	0				
11:30		3	0			13	1				
11:45		10	1	32	2	8	1	49	4	81	6
Total		542	486	542	486	656	660	656	660	1198	1146
Combined Total		1028		1028		1316		1316		2344	
AM Peak	-	08:00	-	-	-	07:45	-	-	-	-	-
Vol.	-	254	-	-	-	303	-	-	-	-	-
P.H.F.		0.713				0.789					
PM Peak	-	-	02:30	-	-	-	03:00	-	-	-	-
Vol.	-	-	201	-	-	-	244	-	-	-	-
P.H.F.			0.882				0.409				
Percentage		52.7%	47.3%			49.8%	50.2%				
ADT/AADT		ADT 2,344		AADT 2,344							

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City of Murrieta
Hayes Avenue
S/ Fullerton Road
24 Hour Directional Volume Count

MUR003
Site Code: 105-19351

Start Time	15-May-19 Wed	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		0	6			1	12				
12:15		1	17			0	19				
12:30		0	9			0	14				
12:45		0	8	1	40	0	12	1	57	2	97
01:00		0	3			0	12				
01:15		0	6			0	2				
01:30		0	8			1	9				
01:45		2	16	2	33	1	19	2	42	4	75
02:00		0	18			0	25				
02:15		0	36			1	15				
02:30		0	**40**			0	**70**				
02:45		0	**59**	0	153	0	**23**	1	133	1	286
03:00		0	**62**			1	**31**				
03:15		0	**77**			0	**132**				
03:30		0	32			0	46				
03:45		1	19	1	190	0	21	1	230	2	420
04:00		0	9			0	11				
04:15		0	10			0	12				
04:30		0	7			0	10				
04:45		0	10	0	36	0	11	0	44	0	80
05:00		0	16			0	14				
05:15		2	14			2	9				
05:30		0	13			0	4				
05:45		2	8	4	51	4	6	6	33	10	84
06:00		0	8			1	8				
06:15		2	9			1	15				
06:30		2	12			1	10				
06:45		15	10	19	39	2	1	5	34	24	73
07:00		**84**	5			11	5				
07:15		**181**	4			35	4				
07:30		**47**	4			45	11				
07:45		**79**	5	391	18	72	3	163	23	554	41
08:00		50	5			**45**	4				
08:15		86	7			**52**	5				
08:30		92	10			**94**	4				
08:45		72	7	300	29	**88**	10	279	23	579	52
09:00		14	6			24	7				
09:15		4	8			8	5				
09:30		9	1			2	3				
09:45		9	2	36	17	15	8	49	23	85	40
10:00		6	3			6	2				
10:15		11	0			4	1				
10:30		16	3			11	4				
10:45		2	0	35	6	10	3	31	10	66	16
11:00		17	0			13	2				
11:15		10	1			8	0				
11:30		7	0			11	1				
11:45		13	1	47	2	7	1	39	4	86	6
Total		836	614	836	614	577	656	577	656	1413	1270
Combined Total		1450		1450		1233		1233		2683	
AM Peak	-	07:00	-	-	-	08:00	-	-	-	-	-
Vol.	-	391	-	-	-	279	-	-	-	-	-
P.H.F.		0.540				0.742					
PM Peak	-	-	02:30	-	-	-	02:30	-	-	-	-
Vol.	-	-	238	-	-	-	256	-	-	-	-
P.H.F.			0.773				0.485				
Percentage		57.7%	42.3%			46.8%	53.2%				
ADT/AADT		ADT 2,683		AADT 2,683							

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City of Murrieta
Fullerton Road
E/ Hayes Avenue
24 Hour Directional Volume Count

MUR004
Site Code: 105-19351

Start Time	15-May-19 Wed	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		0	0			0	0				
12:15		1	10			0	0				
12:30		0	7			0	2				
12:45		0	4	1	21	0	1	0	3	1	24
01:00		0	8			0	0				
01:15		1	4			0	0				
01:30		0	7			0	0				
01:45		1	18	2	37	1	1	1	1	3	38
02:00		1	11			1	4				
02:15		0	23			0	2				
02:30		0	**18**			0	**61**				
02:45		0	**10**	1	62	0	**13**	1	80	2	142
03:00		1	**13**			1	**9**				
03:15		0	**43**			0	**6**				
03:30		0	5			0	6				
03:45		0	7	1	68	0	0	1	21	2	89
04:00		0	2			0	0				
04:15		0	5			0	0				
04:30		0	6			0	0				
04:45		0	9	0	22	0	0	0	0	0	22
05:00		1	8			0	1				
05:15		0	5			0	1				
05:30		0	3			0	0				
05:45		0	2	1	18	0	0	0	2	1	20
06:00		0	4			0	0				
06:15		0	5			0	0				
06:30		2	4			1	0				
06:45		7	0	9	13	**0**	0	1	0	10	13
07:00		**60**	1			**9**	1				
07:15		**128**	2			**30**	0				
07:30		**18**	0			**9**	0				
07:45		**61**	0	267	3	0	0	48	1	315	4
08:00		29	0			0	0				
08:15		21	0			1	0				
08:30		5	0			0	0				
08:45		13	2	68	2	2	0	3	0	71	2
09:00		7	0			0	1				
09:15		6	0			0	0				
09:30		6	0			2	0				
09:45		7	0	26	0	0	1	2	2	28	2
10:00		8	0			1	1				
10:15		10	0			0	0				
10:30		9	0			0	2				
10:45		3	0	30	0	0	1	1	4	31	4
11:00		9	0			0	0				
11:15		6	0			0	0				
11:30		6	0			0	0				
11:45		4	0	25	0	0	0	0	0	25	0
Total		431	246	431	246	58	114	58	114	489	360
Combined Total		677		677		172		172		849	
AM Peak	-	07:00	-	-	-	06:45	-	-	-	-	-
Vol.	-	267	-	-	-	48	-	-	-	-	-
P.H.F.		0.521				0.400					
PM Peak	-	-	02:30	-	-	-	02:30	-	-	-	-
Vol.	-	-	84	-	-	-	89	-	-	-	-
P.H.F.			0.488				0.365				
Percentage		63.7%	36.3%			33.7%	66.3%				
ADT/AADT		ADT 849		AADT 849							

Counts Unlimited, Inc.

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City of Murrieta
High School Access
E/ Hayes Avenue
24 Hour Directional Volume Count

MUR005
Site Code: 105-19351

Start Time	15-May-19 Wed	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon	Morning	Afternoon
12:00		0	1			0	0				
12:15		0	5			0	0				
12:30		0	13			0	0				
12:45		0	5	0	24	0	0	0	0	0	24
01:00		0	9			0	0				
01:15		0	4			0	0				
01:30		0	4			0	0				
01:45		0	**18**	0	35	0	0	0	0	0	35
02:00		0	**25**			0	0				
02:15		0	**7**			0	0				
02:30		0	**13**			0	0				
02:45		0	4	0	49	0	0	0	0	0	49
03:00		0	4			0	0				
03:15		0	10			0	0				
03:30		0	5			0	0				
03:45		0	6	0	25	0	0	0	0	0	25
04:00		0	3			0	0				
04:15		0	5			0	0				
04:30		0	6			0	0				
04:45		0	7	0	21	0	0	0	0	0	21
05:00		0	13			0	0				
05:15		0	3			0	0				
05:30		0	3			0	0				
05:45		0	0	0	19	0	0	0	0	0	19
06:00		0	0			0	0				
06:15		0	2			0	0				
06:30		0	3			0	0				
06:45		0	0	0	5	0	0	0	0	0	5
07:00		1	1			0	0				
07:15		2	3			0	0				
07:30		7	2			0	0				
07:45		**38**	0	48	6	0	0	0	0	48	6
08:00		**28**	0			0	0				
08:15		**10**	0			0	0				
08:30		**9**	0			0	0				
08:45		9	5	56	5	0	0	0	0	56	5
09:00		6	10			0	0				
09:15		2	0			0	0				
09:30		5	0			0	0				
09:45		8	5	21	15	0	0	0	0	21	15
10:00		3	1			0	0				
10:15		9	0			0	0				
10:30		13	2			0	0				
10:45		7	0	32	3	0	0	0	0	32	3
11:00		4	0			0	0				
11:15		8	0			0	0				
11:30		2	0			0	0				
11:45		5	0	19	0	0	0	0	0	19	0
Total		176	207	176	207	0	0	0	0	176	207
Combined Total		383		383		0		0		383	
AM Peak	-	07:45	-	-	-	-	-	-	-	-	-
Vol.	-	85	-	-	-	-	-	-	-	-	-
P.H.F.		0.559									
PM Peak	-	-	01:45	-	-	-	-	-	-	-	-
Vol.	-	-	63	-	-	-	-	-	-	-	-
P.H.F.			0.630								
Percentage		46.0%	54.0%			0.0%	0.0%				
ADT/AADT		ADT 383		AADT 383							

Counts Unlimited, Inc.

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City of Murrieta
High School Access
N/ Fullerton Road
24 Hour Directional Volume Count

MUR006
Site Code: 105-19351

Start Time	15-May-19 Wed	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		0	0			0	0				
12:15		0	10			0	0				
12:30		0	6			0	1				
12:45		0	1	0	17	0	0	0	1	0	18
01:00		0	10			0	0				
01:15		0	3			0	0				
01:30		0	**7**			0	0				
01:45		0	**14**	0	34	0	0	0	0	0	34
02:00		0	**12**			0	0				
02:15		0	**8**			0	0				
02:30		0	5			0	1				
02:45		0	4	0	29	0	**1**	0	2	0	31
03:00		0	10			0	**4**				
03:15		0	9			0	**7**				
03:30		0	5			0	**2**				
03:45		0	6	0	30	0	0	0	13	0	43
04:00		0	3			0	0				
04:15		0	5			0	0				
04:30		0	6			0	0				
04:45		0	8	0	22	0	0	0	0	0	22
05:00		0	9			0	1				
05:15		0	5			0	1				
05:30		0	3			0	0				
05:45		0	2	0	19	0	0	0	2	0	21
06:00		0	4			0	0				
06:15		0	5			0	0				
06:30		0	4			0	0				
06:45		2	0	2	13	0	0	0	0	2	13
07:00		4	1			0	0				
07:15		8	2			0	0				
07:30		**15**	0			0	0				
07:45		**60**	0	87	3	0	0	0	0	87	3
08:00		**32**	0			**0**	0				
08:15		**16**	0			**0**	0				
08:30		5	0			**0**	0				
08:45		13	2	66	2	**1**	0	1	0	67	2
09:00		7	0			0	1				
09:15		6	0			0	0				
09:30		6	0			0	0				
09:45		7	0	26	0	0	1	0	2	26	2
10:00		7	0			0	1				
10:15		9	0			0	0				
10:30		10	0			0	2				
10:45		3	0	29	0	0	1	0	4	29	4
11:00		9	0			0	0				
11:15		6	0			0	0				
11:30		6	0			0	0				
11:45		4	0	25	0	0	0	0	0	25	0
Total		235	169	235	169	1	24	1	24	236	193
Combined Total		404		404		25		25		429	
AM Peak	-	07:30	-	-	-	08:00	-	-	-	-	-
Vol.	-	123	-	-	-	1	-	-	-	-	-
P.H.F.		0.513				0.250					
PM Peak	-	-	01:30	-	-	-	02:45	-	-	-	-
Vol.	-	-	41	-	-	-	14	-	-	-	-
P.H.F.			0.732				0.500				
Percentage		58.2%	41.8%			4.0%	96.0%				
ADT/AADT		ADT 429		AADT 429							

Appendix C

Existing Conditions Intersection Analysis

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.865		
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	0	1611	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	0	1611	1770	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		340	1045		2657	
Travel Time (s)		7.7	23.8		60.4	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Traffic Volume (vph)	0	0	0	227	262	0
Future Volume (vph)	0	0	0	227	262	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	0	0	329	380	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	329	380	0

Intersection Summary

Intersection	
Intersection Delay, s/veh	11.6
Intersection LOS	B

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	227	262	0
Future Vol, veh/h	0	0	0	227	262	0
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	329	380	0
Number of Lanes	0	1	0	1	1	0

Approach	SE	NW	SW
Opposing Approach	NW	SE	
Opposing Lanes	1	1	0
Conflicting Approach Left	SW		NW
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SW	SE
Conflicting Lanes Right	0	1	1
HCM Control Delay	0	10.1	12.9
HCM LOS	-	B	B

Lane	NWLn1	SELn1	SWLn1
Vol Left, %	0%	0%	100%
Vol Thru, %	0%	100%	0%
Vol Right, %	100%	0%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	227	0	262
LT Vol	0	0	262
Through Vol	0	0	0
RT Vol	227	0	0
Lane Flow Rate	329	0	380
Geometry Grp	1	1	1
Degree of Util (X)	0.394	0	0.512
Departure Headway (Hd)	4.306	5.296	4.853
Convergence, Y/N	Yes	Yes	Yes
Cap	836	0	740
Service Time	2.335	3.358	2.91
HCM Lane V/C Ratio	0.394	0	0.514
HCM Control Delay	10.1	8.4	12.9
HCM Lane LOS	B	N	B
HCM 95th-tile Q	1.9	0	3

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	60			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.923		0.935	
Flt Protected	0.950				0.975	
Satd. Flow (prot)	1770	1863	1719	0	1698	0
Flt Permitted	0.950				0.975	
Satd. Flow (perm)	1770	1863	1719	0	1698	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		237	1361		181	
Travel Time (s)		5.4	30.9		4.1	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Traffic Volume (vph)	43	138	167	224	25	23
Future Volume (vph)	43	138	167	224	25	23
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	66	212	257	345	38	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	66	212	602	0	73	0

Intersection Summary

Intersection	
Int Delay, s/veh	1.8

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	43	138	167	224	25	23
Future Vol, veh/h	43	138	167	224	25	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	60	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	66	212	257	345	38	35

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	602	0	-	0	774	430
Stage 1	-	-	-	-	430	-
Stage 2	-	-	-	-	344	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	975	-	-	-	367	625
Stage 1	-	-	-	-	656	-
Stage 2	-	-	-	-	718	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	975	-	-	-	342	625
Mov Cap-2 Maneuver	-	-	-	-	342	-
Stage 1	-	-	-	-	611	-
Stage 2	-	-	-	-	718	-

Approach	SE	NW	SW
HCM Control Delay, s	2.1	0	14.9
HCM LOS			B

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	975	-	437
HCM Lane V/C Ratio	-	-	0.068	-	0.169
HCM Control Delay (s)	-	-	9	-	14.9
HCM Lane LOS	-	-	A	-	B
HCM 95th %tile Q(veh)	-	-	0.2	-	0.6

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	120	0	100			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	1863	1863	1583
Link Speed (mph)	30			30	30	
Link Distance (ft)	1361			666	2655	
Travel Time (s)	30.9			15.1	60.3	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Traffic Volume (vph)	308	6	6	18	18	299
Future Volume (vph)	308	6	6	18	18	299
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	371	7	7	22	22	360
Shared Lane Traffic (%)						
Lane Group Flow (vph)	371	7	7	22	22	360

Intersection Summary

Intersection	
Intersection Delay, s/veh	15.4
Intersection LOS	C

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	308	6	6	18	18	299
Future Vol, veh/h	308	6	6	18	18	299
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	371	7	7	22	22	360
Number of Lanes	1	1	1	1	1	1

Approach	SE	NE	SW
Opposing Approach		SW	NE
Opposing Lanes	0	2	2
Conflicting Approach Left	SW	SE	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NE		SE
Conflicting Lanes Right	2	0	2
HCM Control Delay	18.5	9.4	12.8
HCM LOS	C	A	B

Lane	NELn1	NELn2	SELn1	SELn2	SWLn1	SWLn2
Vol Left, %	100%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	6	18	308	6	18	299
LT Vol	6	0	308	0	0	0
Through Vol	0	18	0	0	18	0
RT Vol	0	0	0	6	0	299
Lane Flow Rate	7	22	371	7	22	360
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.014	0.038	0.631	0.01	0.035	0.505
Departure Headway (Hd)	6.811	6.302	6.124	4.919	5.75	5.042
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	527	569	594	731	617	706
Service Time	4.537	4.028	3.828	2.622	3.542	2.834
HCM Lane V/C Ratio	0.013	0.039	0.625	0.01	0.036	0.51
HCM Control Delay	9.6	9.3	18.7	7.7	8.8	13
HCM Lane LOS	A	A	C	A	A	B
HCM 95th-tile Q	0	0.1	4.4	0	0.1	2.9

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	85		0	150		0	150		0	250		100
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.981				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3472	0	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3472	0	1770	1863	1583	1770	1863	1583	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19				143			162			205
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1461			2630			1510			1533	
Travel Time (s)		33.2			59.8			34.3			34.8	

Intersection Summary

Area Type: Other

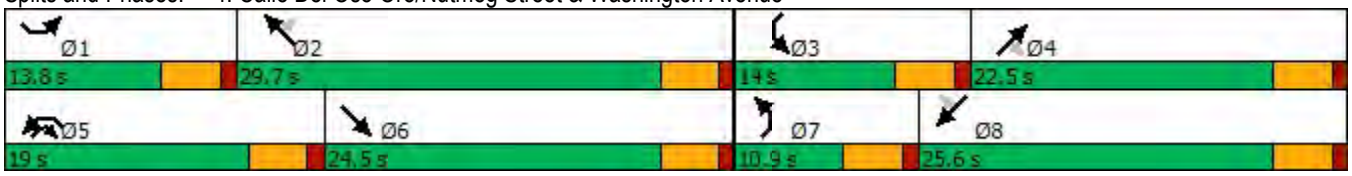
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	77	319	46	240	277	94	42	233	457	159	157	56
Future Volume (vph)	77	319	46	240	277	94	42	233	457	159	157	56
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	87	358	52	270	311	106	47	262	513	179	176	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	410	0	270	311	106	47	262	513	179	176	63

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	77	319	240	277	94	42	233	457	159	157	56
Future Volume (vph)	77	319	240	277	94	42	233	457	159	157	56
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	5	2		7	4	5	3	8	
Permitted Phases					2			4			8
Detector Phase	1	6	5	2	2	7	4	5	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5	9.5	22.5	22.5
Total Split (s)	13.8	24.5	19.0	29.7	29.7	10.9	22.5	19.0	14.0	25.6	25.6
Total Split (%)	17.3%	30.6%	23.8%	37.1%	37.1%	13.6%	28.1%	23.8%	17.5%	32.0%	32.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	8.2	20.1	13.9	28.1	28.1	6.2	14.9	33.4	9.5	22.6	22.6
Actuated g/C Ratio	0.11	0.26	0.18	0.37	0.37	0.08	0.19	0.44	0.12	0.30	0.30
v/c Ratio	0.46	0.44	0.84	0.45	0.16	0.33	0.72	0.66	0.81	0.32	0.10
Control Delay	41.2	24.9	55.0	23.3	2.4	41.0	40.9	15.7	63.7	24.7	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.2	24.9	55.0	23.3	2.4	41.0	40.9	15.7	63.7	24.7	0.3
LOS	D	C	E	C	A	D	D	B	E	C	A
Approach Delay		27.8		32.6			25.2			37.7	
Approach LOS		C		C			C			D	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 76.5	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 30.0	Intersection LOS: C
Intersection Capacity Utilization 59.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Calle Del Oso Oro/Nutmeg Street & Washington Avenue



Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Group Flow (vph)	87	410	270	311	106	47	262	513	179	176	63
v/c Ratio	0.46	0.44	0.84	0.45	0.16	0.33	0.72	0.66	0.81	0.32	0.10
Control Delay	41.2	24.9	55.0	23.3	2.4	41.0	40.9	15.7	63.7	24.7	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.2	24.9	55.0	23.3	2.4	41.0	40.9	15.7	63.7	24.7	0.3
Queue Length 50th (ft)	40	83	127	121	0	22	119	124	86	71	0
Queue Length 95th (ft)	84	127	#254	201	19	55	193	221	#196	125	0
Internal Link Dist (ft)		1381		2550			1430			1453	
Turn Bay Length (ft)	85		150			150			250		100
Base Capacity (vph)	215	924	336	684	671	148	439	793	220	561	619
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.44	0.80	0.45	0.16	0.32	0.60	0.65	0.81	0.31	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	77	319	46	240	277	94	42	233	457	159	157	56
Future Volume (veh/h)	77	319	46	240	277	94	42	233	457	159	157	56
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	87	358	52	270	311	106	47	262	513	179	176	63
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	112	783	113	309	676	575	72	423	635	213	570	485
Arrive On Green	0.06	0.25	0.25	0.17	0.36	0.36	0.04	0.23	0.23	0.12	0.31	0.31
Sat Flow, veh/h	1774	3106	447	1774	1863	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	87	203	207	270	311	106	47	262	513	179	176	63
Grp Sat Flow(s),veh/h/ln	1774	1770	1784	1774	1863	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	3.8	7.7	7.8	11.8	10.1	3.6	2.1	10.0	18.0	7.8	5.7	2.3
Cycle Q Clear(g_c), s	3.8	7.7	7.8	11.8	10.1	3.6	2.1	10.0	18.0	7.8	5.7	2.3
Prop In Lane	1.00		0.25	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	112	446	450	309	676	575	72	423	635	213	570	485
V/C Ratio(X)	0.78	0.45	0.46	0.88	0.46	0.18	0.65	0.62	0.81	0.84	0.31	0.13
Avail Cap(c_a), veh/h	208	446	450	324	676	575	143	423	635	213	570	485
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.6	25.0	25.1	31.9	19.3	17.2	37.5	27.6	21.0	34.2	21.1	19.9
Incr Delay (d2), s/veh	10.8	3.3	3.4	21.7	2.2	0.7	9.5	2.8	7.7	25.1	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	4.1	4.2	7.6	5.6	1.7	1.2	5.5	11.3	5.3	3.0	1.0
LnGrp Delay(d),s/veh	47.4	28.3	28.5	53.6	21.6	18.0	47.0	30.3	28.7	59.3	21.4	20.0
LnGrp LOS	D	C	C	D	C	B	D	C	C	E	C	B
Approach Vol, veh/h		497			687			822			418	
Approach Delay, s/veh		31.7			33.6			30.3			37.4	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	33.3	14.0	22.5	18.3	24.5	7.7	28.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.3	25.2	9.5	18.0	14.5	20.0	6.4	21.1
Max Q Clear Time (g_c+I1), s	5.8	12.1	9.8	20.0	13.8	9.8	4.1	7.7
Green Ext Time (p_c), s	0.0	1.8	0.0	0.0	0.1	1.7	0.0	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	32.7
HCM 2010 LOS	C

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		280	300		0	350		0	150		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor												
Frt			0.850		0.979			0.938			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3465	0	1770	1747	0	1770	3511	0
Flt Permitted	0.950			0.950			0.190			0.489		
Satd. Flow (perm)	1770	3539	1583	1770	3465	0	354	1747	0	911	3511	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			77		19			48			5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2630			1335			2657			1296	
Travel Time (s)		59.8			30.3			60.4			29.5	

Intersection Summary	
Area Type:	Other

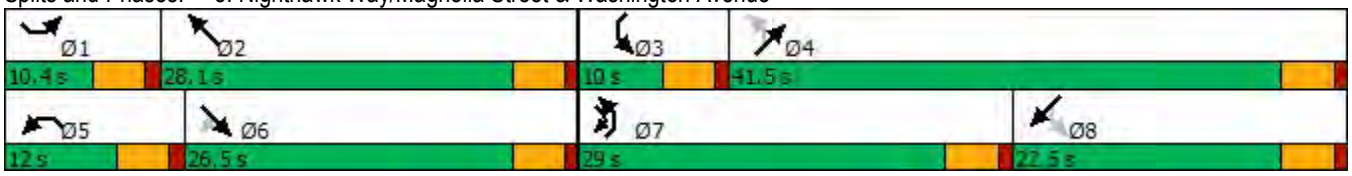
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	22	470	521	76	210	33	311	191	136	51	330	18
Future Volume (vph)	22	470	521	76	210	33	311	191	136	51	330	18
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	32	691	766	112	309	49	457	281	200	75	485	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	691	766	112	358	0	457	481	0	75	511	0

Intersection Summary

Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Configurations									
Traffic Volume (vph)	22	470	521	76	210	311	191	51	330
Future Volume (vph)	22	470	521	76	210	311	191	51	330
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	7	5	2	7	4	3	8
Permitted Phases			6			4		8	
Detector Phase	1	6	7	5	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	10.4	26.5	29.0	12.0	28.1	29.0	41.5	10.0	22.5
Total Split (%)	11.6%	29.4%	32.2%	13.3%	31.2%	32.2%	46.1%	11.1%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	Max	None	None	None	None
Act Effct Green (s)	5.8	22.1	49.7	7.5	28.1	43.9	36.1	21.7	16.2
Actuated g/C Ratio	0.07	0.25	0.57	0.09	0.32	0.50	0.41	0.25	0.19
v/c Ratio	0.27	0.77	0.82	0.74	0.32	0.82	0.64	0.27	0.78
Control Delay	46.0	37.6	22.7	68.8	24.0	32.7	23.3	16.7	42.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.0	37.6	22.7	68.8	24.0	32.7	23.3	16.7	42.4
LOS	D	D	C	E	C	C	C	B	D
Approach Delay		30.1			34.7		27.9		39.1
Approach LOS		C			C		C		D

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 87	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 31.7	Intersection LOS: C
Intersection Capacity Utilization 59.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 5: Nighthawk Way/Magnolia Street & Washington Avenue



Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	32	691	766	112	358	457	481	75	511
v/c Ratio	0.27	0.77	0.82	0.74	0.32	0.82	0.64	0.27	0.78
Control Delay	46.0	37.6	22.7	68.8	24.0	32.7	23.3	16.7	42.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.0	37.6	22.7	68.8	24.0	32.7	23.3	16.7	42.4
Queue Length 50th (ft)	18	194	300	64	83	180	192	20	142
Queue Length 95th (ft)	35	182	263	#90	88	184	193	31	141
Internal Link Dist (ft)		2550			1255		2577		1216
Turn Bay Length (ft)	150		280	300		350		150	
Base Capacity (vph)	120	898	962	153	1130	578	772	281	732
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.77	0.80	0.73	0.32	0.79	0.62	0.27	0.70

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	22	470	521	76	210	33	311	191	136	51	330	18
Future Volume (veh/h)	22	470	521	76	210	33	311	191	136	51	330	18
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	32	691	766	112	309	49	457	281	200	75	485	26
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	2	0
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	57	989	811	142	1004	158	542	366	260	287	613	33
Arrive On Green	0.03	0.28	0.28	0.08	0.33	0.33	0.23	0.36	0.36	0.05	0.18	0.18
Sat Flow, veh/h	1774	3539	1583	1774	3066	481	1774	1014	722	1774	3417	183
Grp Volume(v), veh/h	32	691	766	112	177	181	457	0	481	75	251	260
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1778	1774	0	1735	1774	1770	1830
Q Serve(g_s), s	1.4	13.8	22.0	4.9	5.9	6.0	15.4	0.0	19.3	2.7	10.7	10.7
Cycle Q Clear(g_c), s	1.4	13.8	22.0	4.9	5.9	6.0	15.4	0.0	19.3	2.7	10.7	10.7
Prop In Lane	1.00		1.00	1.00		0.27	1.00		0.42	1.00		0.10
Lane Grp Cap(c), veh/h	57	989	811	142	580	582	542	0	626	287	317	328
V/C Ratio(X)	0.56	0.70	0.95	0.79	0.31	0.31	0.84	0.00	0.77	0.26	0.79	0.79
Avail Cap(c_a), veh/h	133	989	811	169	580	582	682	0	816	321	405	419
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.6	25.4	18.2	35.6	19.8	19.8	18.3	0.0	22.3	24.5	30.9	30.9
Incr Delay (d2), s/veh	8.5	4.1	20.8	18.7	1.4	1.4	7.7	0.0	3.3	0.5	7.9	7.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	7.3	20.3	3.1	3.1	3.1	8.5	0.0	9.8	1.3	5.9	6.1
LnGrp Delay(d),s/veh	46.1	29.5	38.9	54.2	21.1	21.2	26.0	0.0	25.6	25.0	38.8	38.8
LnGrp LOS	D	C	D	D	C	C	C		C	C	D	D
Approach Vol, veh/h		1489			470			938			586	
Approach Delay, s/veh		34.7			29.1			25.8			37.0	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.0	30.3	8.5	32.9	10.8	26.5	22.8	18.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.9	23.6	5.5	37.0	7.5	22.0	24.5	18.0
Max Q Clear Time (g_c+I1), s	3.4	8.0	4.7	21.3	6.9	24.0	17.4	12.7
Green Ext Time (p_c), s	0.0	1.8	0.0	2.9	0.0	0.0	0.9	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	31.9
HCM 2010 LOS	C

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		170	150		0	80		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850			0.850		0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	1863	1583	1770	1583	0	1770	1583	0
Flt Permitted	0.950			0.950			0.746			0.685		
Satd. Flow (perm)	1770	3539	1583	1770	1863	1583	1390	1583	0	1276	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			338			109		342			509	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1335			1310			2481			639	
Travel Time (s)		30.3			29.8			56.4			14.5	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	12	341	206	137	207	1	96	0	68	2	0	11
Future Volume (vph)	12	341	206	137	207	1	96	0	68	2	0	11
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	20	559	338	225	339	2	157	0	111	3	0	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	559	338	225	339	2	157	111	0	3	18	0

Intersection Summary

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Configurations										
Traffic Volume (vph)	12	341	206	137	207	1	96	0	2	0
Future Volume (vph)	12	341	206	137	207	1	96	0	2	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			4		8
Permitted Phases			6			2	4		8	
Detector Phase	1	6	6	5	2	2	4	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	22.5	22.5	15.0	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	37.5%	37.5%	25.0%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	5.1	20.0	20.0	9.9	33.9	33.9	11.2	11.2	11.0	11.0
Actuated g/C Ratio	0.10	0.38	0.38	0.19	0.65	0.65	0.21	0.21	0.21	0.21
v/c Ratio	0.12	0.41	0.41	0.67	0.28	0.00	0.53	0.18	0.01	0.02
Control Delay	25.9	15.3	4.1	33.5	8.4	0.0	25.0	0.7	15.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.9	15.3	4.1	33.5	8.4	0.0	25.0	0.7	15.5	0.1
LOS	C	B	A	C	A	A	C	A	B	A
Approach Delay		11.4			18.3			14.9		2.3
Approach LOS		B			B			B		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 52.1	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 14.0	Intersection LOS: B
Intersection Capacity Utilization 40.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: Fullerton Road & Washington Avenue

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Group Flow (vph)	20	559	338	225	339	2	157	111	3	18
v/c Ratio	0.12	0.41	0.41	0.67	0.28	0.00	0.53	0.18	0.01	0.02
Control Delay	25.9	15.3	4.1	33.5	8.4	0.0	25.0	0.7	15.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.9	15.3	4.1	33.5	8.4	0.0	25.0	0.7	15.5	0.1
Queue Length 50th (ft)	6	70	0	66	41	0	44	0	1	0
Queue Length 95th (ft)	16	80	3	89	90	0	56	0	4	0
Internal Link Dist (ft)		1255			1230			2401		559
Turn Bay Length (ft)			170	150			80			
Base Capacity (vph)	172	1357	815	361	1213	1069	487	776	447	885
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.41	0.41	0.62	0.28	0.00	0.32	0.14	0.01	0.02

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	12	341	206	137	207	1	96	0	68	2	0	11
Future Volume (veh/h)	12	341	206	137	207	1	96	0	68	2	0	11
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	20	559	338	225	339	2	157	0	111	3	0	18
Adj No. of Lanes	1	2	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	43	1353	605	283	964	819	378	0	272	292	0	272
Arrive On Green	0.02	0.38	0.38	0.16	0.52	0.52	0.17	0.00	0.17	0.17	0.00	0.17
Sat Flow, veh/h	1774	3539	1583	1774	1863	1583	1389	0	1583	1277	0	1583
Grp Volume(v), veh/h	20	559	338	225	339	2	157	0	111	3	0	18
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1863	1583	1389	0	1583	1277	0	1583
Q Serve(g_s), s	0.5	5.5	7.9	5.7	5.1	0.0	5.0	0.0	2.9	0.1	0.0	0.4
Cycle Q Clear(g_c), s	0.5	5.5	7.9	5.7	5.1	0.0	5.5	0.0	2.9	3.0	0.0	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	43	1353	605	283	964	819	378	0	272	292	0	272
V/C Ratio(X)	0.46	0.41	0.56	0.80	0.35	0.00	0.42	0.00	0.41	0.01	0.00	0.07
Avail Cap(c_a), veh/h	188	1353	605	396	964	819	671	0	605	561	0	605
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.7	10.7	11.4	19.1	6.7	5.5	18.6	0.0	17.4	18.7	0.0	16.3
Incr Delay (d2), s/veh	7.4	0.9	3.7	7.4	1.0	0.0	0.7	0.0	1.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.8	4.0	3.4	2.8	0.0	2.0	0.0	1.3	0.0	0.0	0.2
LnGrp Delay(d),s/veh	30.1	11.6	15.1	26.5	7.7	5.5	19.4	0.0	18.4	18.7	0.0	16.4
LnGrp LOS	C	B	B	C	A	A	B		B	B		B
Approach Vol, veh/h		917			566			268			21	
Approach Delay, s/veh		13.3			15.2			18.9			16.8	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	28.9		12.6	12.0	22.5		12.6
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	23.5		18.0	10.5	18.0		18.0
Max Q Clear Time (g_c+I1), s	2.5	7.1		7.5	7.7	9.9		5.0
Green Ext Time (p_c), s	0.0	1.8		0.8	0.2	3.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	14.8
HCM 2010 LOS	B

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	255		0	160		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.990			0.995			0.880			0.964	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3504	0	1770	3522	0	1770	1639	0	1770	1796	0
Flt Permitted	0.950			0.950			0.690			0.421		
Satd. Flow (perm)	1770	3504	0	1770	3522	0	1285	1639	0	784	1796	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			7			275			25	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1310			2652			2655			1165	
Travel Time (s)		29.8			60.3			60.3			26.5	

Intersection Summary	
Area Type:	Other

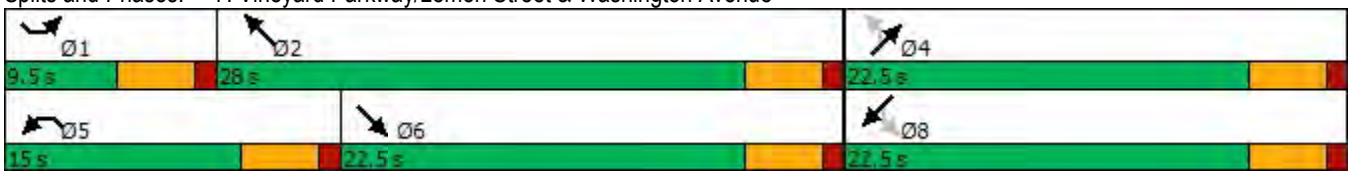
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	12	564	41	221	274	10	40	63	253	13	72	23
Future Volume (vph)	12	564	41	221	274	10	40	63	253	13	72	23
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	13	613	45	240	298	11	43	68	275	14	78	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	658	0	240	309	0	43	343	0	14	103	0

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Configurations								
Traffic Volume (vph)	12	564	221	274	40	63	13	72
Future Volume (vph)	12	564	221	274	40	63	13	72
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	1	6	5	2		4		8
Permitted Phases					4		8	
Detector Phase	1	6	5	2	4	4	8	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	22.5	15.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	37.5%	25.0%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	None	Max	None	None	None	None
Act Effct Green (s)	5.0	18.2	10.1	31.2	9.5	9.5	9.5	9.5
Actuated g/C Ratio	0.10	0.35	0.20	0.61	0.18	0.18	0.18	0.18
v/c Ratio	0.08	0.53	0.69	0.14	0.18	0.65	0.10	0.29
Control Delay	24.8	15.8	33.7	6.4	18.7	11.3	17.9	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.8	15.8	33.7	6.4	18.7	11.3	17.9	16.1
LOS	C	B	C	A	B	B	B	B
Approach Delay		16.0		18.3		12.1		16.3
Approach LOS		B		B		B		B

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 51.4	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 15.9	Intersection LOS: B
Intersection Capacity Utilization 59.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 7: Vineyard Parkway/Lemon Street & Washington Avenue



Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	13	658	240	309	43	343	14	103
v/c Ratio	0.08	0.53	0.69	0.14	0.18	0.65	0.10	0.29
Control Delay	24.8	15.8	33.7	6.4	18.7	11.3	17.9	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.8	15.8	33.7	6.4	18.7	11.3	17.9	16.1
Queue Length 50th (ft)	4	74	64	13	11	18	4	20
Queue Length 95th (ft)	18	151	#184	60	31	74	15	52
Internal Link Dist (ft)		1230		2572		2575		1085
Turn Bay Length (ft)	150		255		160		150	
Base Capacity (vph)	173	1247	365	2140	454	757	277	651
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.53	0.66	0.14	0.09	0.45	0.05	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	12	564	41	221	274	10	40	63	253	13	72	23
Future Volume (veh/h)	12	564	41	221	274	10	40	63	253	13	72	23
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	13	613	45	240	298	11	43	68	275	14	78	25
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	29	1109	81	292	1672	62	402	82	333	191	345	110
Arrive On Green	0.02	0.33	0.33	0.16	0.48	0.48	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1774	3344	245	1774	3482	128	1286	324	1308	1033	1353	434
Grp Volume(v), veh/h	13	324	334	240	151	158	43	0	343	14	0	103
Grp Sat Flow(s),veh/h/ln	1774	1770	1819	1774	1770	1840	1286	0	1632	1033	0	1786
Q Serve(g_s), s	0.4	8.1	8.2	7.1	2.6	2.6	1.5	0.0	10.8	0.7	0.0	2.5
Cycle Q Clear(g_c), s	0.4	8.1	8.2	7.1	2.6	2.6	4.0	0.0	10.8	11.5	0.0	2.5
Prop In Lane	1.00		0.13	1.00		0.07	1.00		0.80	1.00		0.24
Lane Grp Cap(c), veh/h	29	587	603	292	850	883	402	0	416	191	0	455
V/C Ratio(X)	0.45	0.55	0.55	0.82	0.18	0.18	0.11	0.00	0.83	0.07	0.00	0.23
Avail Cap(c_a), veh/h	163	587	603	343	850	883	501	0	541	270	0	592
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.4	14.8	14.8	21.9	8.0	8.0	17.6	0.0	19.1	24.5	0.0	16.0
Incr Delay (d2), s/veh	10.4	3.7	3.6	12.8	0.5	0.4	0.1	0.0	7.9	0.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	4.6	4.7	4.5	1.4	1.4	0.5	0.0	5.8	0.2	0.0	1.2
LnGrp Delay(d),s/veh	36.8	18.6	18.5	34.7	8.5	8.5	17.7	0.0	27.0	24.7	0.0	16.2
LnGrp LOS	D	B	B	C	A	A	B		C	C		B
Approach Vol, veh/h		671			549			386			117	
Approach Delay, s/veh		18.9			19.9			26.0			17.3	
Approach LOS		B			B			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	30.6		18.3	13.4	22.5		18.3
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	23.5		18.0	10.5	18.0		18.0
Max Q Clear Time (g_c+I1), s	2.4	4.6		12.8	9.1	10.2		13.5
Green Ext Time (p_c), s	0.0	1.6		1.1	0.1	2.5		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	20.7
HCM 2010 LOS	C

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	200		0	100		100	105		0	150		150
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.979				0.850		0.984				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1824	0	1770	1863	1583	1770	1833	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1824	0	1770	1863	1583	1770	1833	0	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				205		7				344
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2652			1695			1544			1371	
Travel Time (s)		60.3			38.5			35.1			31.2	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	671	224	37	3	222	65	58	51	6	59	47	292
Future Volume (vph)	671	224	37	3	222	65	58	51	6	59	47	292
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	789	264	44	4	261	76	68	60	7	69	55	344
Shared Lane Traffic (%)												
Lane Group Flow (vph)	789	308	0	4	261	76	68	67	0	69	55	344

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	671	224	3	222	65	58	51	59	47	292
Future Volume (vph)	671	224	3	222	65	58	51	59	47	292
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	1	6	5	2		7	4	3	8	1
Permitted Phases					2					8
Detector Phase	1	6	5	2	2	7	4	3	8	1
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5
Total Split (s)	25.0	38.5	9.5	23.0	23.0	9.5	22.5	9.5	22.5	25.0
Total Split (%)	31.3%	48.1%	11.9%	28.8%	28.8%	11.9%	28.1%	11.9%	28.1%	31.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	18.9	42.7	5.2	19.4	19.4	5.2	7.8	5.2	7.7	18.9
Actuated g/C Ratio	0.31	0.69	0.08	0.31	0.31	0.08	0.13	0.08	0.12	0.31
v/c Ratio	0.75	0.24	0.03	0.45	0.12	0.45	0.28	0.46	0.24	0.48
Control Delay	26.8	7.7	31.7	23.8	0.4	43.0	28.7	43.3	30.2	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.8	7.7	31.7	23.8	0.4	43.0	28.7	43.3	30.2	5.2
LOS	C	A	C	C	A	D	C	D	C	A
Approach Delay		21.5		18.7			35.9		13.8	
Approach LOS		C		B			D		B	

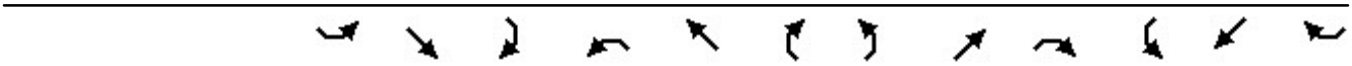
Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 61.8	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 20.2	Intersection LOS: C
Intersection Capacity Utilization 52.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: Kalmia Street & Washington Avenue

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Group Flow (vph)	789	308	4	261	76	68	67	69	55	344
v/c Ratio	0.75	0.24	0.03	0.45	0.12	0.45	0.28	0.46	0.24	0.48
Control Delay	26.8	7.7	31.7	23.8	0.4	43.0	28.7	43.3	30.2	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.8	7.7	31.7	23.8	0.4	43.0	28.7	43.3	30.2	5.2
Queue Length 50th (ft)	158	49	2	95	0	29	24	29	22	0
Queue Length 95th (ft)	214	124	10	159	0	#74	55	#75	50	46
Internal Link Dist (ft)		2572		1615			1464		1291	
Turn Bay Length (ft)	200		100		100	105		150		150
Base Capacity (vph)	1194	1264	150	584	637	150	564	150	568	774
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.24	0.03	0.45	0.12	0.45	0.12	0.46	0.10	0.44

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	671	224	37	3	222	65	58	51	6	59	47	292
Future Volume (veh/h)	671	224	37	3	222	65	58	51	6	59	47	292
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	789	264	44	4	261	76	68	60	7	69	55	344
Adj No. of Lanes	2	1	0	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	893	790	132	9	472	401	91	310	36	91	354	711
Arrive On Green	0.26	0.51	0.51	0.01	0.25	0.25	0.05	0.19	0.19	0.05	0.19	0.19
Sat Flow, veh/h	3442	1557	260	1774	1863	1583	1774	1638	191	1774	1863	1583
Grp Volume(v), veh/h	789	0	308	4	261	76	68	0	67	69	55	344
Grp Sat Flow(s),veh/h/ln	1721	0	1817	1774	1863	1583	1774	0	1829	1774	1863	1583
Q Serve(g_s), s	16.1	0.0	7.3	0.2	8.9	2.8	2.8	0.0	2.3	2.8	1.8	11.2
Cycle Q Clear(g_c), s	16.1	0.0	7.3	0.2	8.9	2.8	2.8	0.0	2.3	2.8	1.8	11.2
Prop In Lane	1.00		0.14	1.00		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	893	0	922	9	472	401	91	0	347	91	354	711
V/C Ratio(X)	0.88	0.00	0.33	0.42	0.55	0.19	0.75	0.00	0.19	0.75	0.16	0.48
Avail Cap(c_a), veh/h	966	0	922	121	472	401	121	0	451	121	459	801
HCM 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
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.0	0.0	10.7	36.2	23.7	21.4	34.2	0.0	24.9	34.2	24.7	14.2
Incr Delay (d2), s/veh	9.3	0.0	1.0	27.2	4.6	1.0	16.0	0.0	0.3	16.9	0.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.8	0.0	3.9	0.2	5.2	1.3	1.8	0.0	1.2	1.8	0.9	4.9
LnGrp Delay(d),s/veh	35.3	0.0	11.7	63.4	28.3	22.5	50.2	0.0	25.2	51.1	24.9	14.7
LnGrp LOS	D		B	E	C	C	D		C	D	C	B
Approach Vol, veh/h		1097			341			135			468	
Approach Delay, s/veh		28.6			27.4			37.8			21.2	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.5	23.0	8.3	18.3	4.9	41.6	8.2	18.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	20.5	18.5	5.0	18.0	5.0	34.0	5.0	18.0
Max Q Clear Time (g_c+I1), s	18.1	10.9	4.8	4.3	2.2	9.3	4.8	13.2
Green Ext Time (p_c), s	0.9	1.0	0.0	0.2	0.0	1.9	0.0	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	27.3
HCM 2010 LOS	C

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	60		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor												
Frt		0.997						0.912				0.850
Flt Protected				0.950				0.983			0.950	
Satd. Flow (prot)	0	1857	0	1770	1863	0	0	1670	0	0	1770	1583
Flt Permitted				0.950				0.983			0.950	
Satd. Flow (perm)	0	1857	0	1770	1863	0	0	1670	0	0	1770	1583
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1045			237			351			183	
Travel Time (s)		23.8			5.4			8.0			4.2	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	0	245	6	6	245	0	7	0	13	39	0	17
Future Volume (vph)	0	245	6	6	245	0	7	0	13	39	0	17
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	318	8	8	318	0	9	0	17	51	0	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	326	0	8	318	0	0	26	0	0	51	22

Intersection Summary

Intersection	
Int Delay, s/veh	1.9

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	245	6	6	245	0	7	0	13	39	0	17
Future Vol, veh/h	0	245	6	6	245	0	7	0	13	39	0	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	60	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	318	8	8	318	0	9	0	17	51	0	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	326	0	0	667	656	322	665	660	318
Stage 1	-	-	-	-	-	-	322	322	-	334	334	-
Stage 2	-	-	-	-	-	-	345	334	-	331	326	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1234	-	0	372	385	719	374	383	723
Stage 1	0	-	-	-	-	0	690	651	-	680	643	-
Stage 2	0	-	-	-	-	0	671	643	-	682	648	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1234	-	-	359	383	719	364	381	723
Mov Cap-2 Maneuver	-	-	-	-	-	-	359	383	-	364	381	-
Stage 1	-	-	-	-	-	-	690	651	-	680	639	-
Stage 2	-	-	-	-	-	-	646	639	-	666	648	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0.2	12.1	14.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	532	1234	-	-	-	364	723
HCM Lane V/C Ratio	0.049	0.006	-	-	-	0.139	0.031
HCM Control Delay (s)	12.1	7.9	-	-	-	16.5	10.1
HCM Lane LOS	B	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.2	0	-	-	-	0.5	0.1

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt					0.992	
Flt Protected				0.985		
Satd. Flow (prot)	1863	0	0	1835	1848	0
Flt Permitted				0.985		
Satd. Flow (perm)	1863	0	0	1835	1848	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	112			181	2481	
Travel Time (s)	2.5			4.1	56.4	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Traffic Volume (vph)	0	0	84	183	48	3
Future Volume (vph)	0	0	84	183	48	3
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.48	0.48	0.48	0.48	0.48	0.48
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	0	0	175	381	100	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	556	106	0

Intersection Summary

Intersection	
Int Delay, s/veh	2

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	0	0	84	183	48	3
Future Vol, veh/h	0	0	84	183	48	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	48	48	48	48	48	48
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	175	381	100	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	834	103	106	0	-	0
Stage 1	103	-	-	-	-	-
Stage 2	731	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	338	952	1485	-	-	-
Stage 1	921	-	-	-	-	-
Stage 2	476	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	287	952	1485	-	-	-
Mov Cap-2 Maneuver	287	-	-	-	-	-
Stage 1	783	-	-	-	-	-
Stage 2	476	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	0	2.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1485	-	-	-	-
HCM Lane V/C Ratio	0.118	-	-	-	-
HCM Control Delay (s)	7.7	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	-	-

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.865		
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	0	1611	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	0	1611	1770	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		340	1045		2657	
Travel Time (s)		7.7	23.8		60.4	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Traffic Volume (vph)	0	0	0	44	41	0
Future Volume (vph)	0	0	0	44	41	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	0	0	54	50	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	54	50	0

Intersection Summary

Intersection	
Intersection Delay, s/veh	7
Intersection LOS	A

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	44	41	0
Future Vol, veh/h	0	0	0	44	41	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	54	50	0
Number of Lanes	0	1	0	1	1	0

Approach	SE	NW	SW
Opposing Approach	NW	SE	
Opposing Lanes	1	1	0
Conflicting Approach Left	SW		NW
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SW	SE
Conflicting Lanes Right	0	1	1
HCM Control Delay	0	6.6	7.5
HCM LOS	-	A	A

Lane	NWLn1	SELn1	SWLn1
Vol Left, %	0%	0%	100%
Vol Thru, %	0%	100%	0%
Vol Right, %	100%	0%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	44	0	41
LT Vol	0	0	41
Through Vol	0	0	0
RT Vol	44	0	0
Lane Flow Rate	54	0	50
Geometry Grp	1	1	1
Degree of Util (X)	0.051	0	0.059
Departure Headway (Hd)	3.42	4.062	4.229
Convergence, Y/N	Yes	Yes	Yes
Cap	1045	0	851
Service Time	1.449	2.094	2.234
HCM Lane V/C Ratio	0.052	0	0.059
HCM Control Delay	6.6	7.1	7.5
HCM Lane LOS	A	N	A
HCM 95th-tile Q	0.2	0	0.2

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	60			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.960			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1863	1788	0	1770	0
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1863	1788	0	1770	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		237	1361		181	
Travel Time (s)		5.4	30.9		4.1	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Traffic Volume (vph)	14	42	33	14	2	0
Future Volume (vph)	14	42	33	14	2	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	17	51	40	17	2	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	51	57	0	2	0

Intersection Summary

Intersection	
Int Delay, s/veh	1.1

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	14	42	33	14	2	0
Future Vol, veh/h	14	42	33	14	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	60	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	51	40	17	2	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	57	0	-	0	134	49
Stage 1	-	-	-	-	49	-
Stage 2	-	-	-	-	85	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1547	-	-	-	860	1020
Stage 1	-	-	-	-	973	-
Stage 2	-	-	-	-	938	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1547	-	-	-	851	1020
Mov Cap-2 Maneuver	-	-	-	-	851	-
Stage 1	-	-	-	-	962	-
Stage 2	-	-	-	-	938	-

Approach	SE	NW	SW
HCM Control Delay, s	1.8	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	1547	-	851
HCM Lane V/C Ratio	-	-	0.011	-	0.003
HCM Control Delay (s)	-	-	7.4	-	9.2
HCM Lane LOS	-	-	A	-	A
HCM 95th %tile Q(veh)	-	-	0	-	0

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	120	0	100			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	1863	1863	1583
Link Speed (mph)	30			30	30	
Link Distance (ft)	1361			666	2655	
Travel Time (s)	30.9			15.1	60.3	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Traffic Volume (vph)	46	3	2	21	21	77
Future Volume (vph)	46	3	2	21	21	77
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	60	4	3	27	27	100
Shared Lane Traffic (%)						
Lane Group Flow (vph)	60	4	3	27	27	100

Intersection Summary

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	46	3	2	21	21	77
Future Vol, veh/h	46	3	2	21	21	77
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	60	4	3	27	27	100
Number of Lanes	1	1	1	1	1	1

Approach	SE	NE	SW
Opposing Approach		SW	NE
Opposing Lanes	0	2	2
Conflicting Approach Left	SW	SE	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NE		SE
Conflicting Lanes Right	2	0	2
HCM Control Delay	8.5	7.7	7.3
HCM LOS	A	A	A

Lane	NELn1	NELn2	SELn1	SELn2	SWLn1	SWLn2
Vol Left, %	100%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	2	21	46	3	21	77
LT Vol	2	0	46	0	0	0
Through Vol	0	21	0	0	21	0
RT Vol	0	0	0	3	0	77
Lane Flow Rate	3	27	60	4	27	100
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.004	0.036	0.088	0.004	0.035	0.11
Departure Headway (Hd)	5.21	4.709	5.295	4.094	4.659	3.958
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	679	750	670	862	760	893
Service Time	3.004	2.503	3.079	1.878	2.439	1.737
HCM Lane V/C Ratio	0.004	0.036	0.09	0.005	0.036	0.112
HCM Control Delay	8	7.7	8.6	6.9	7.6	7.2
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0	0.1	0.3	0	0.1	0.4

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	85		0	150		0	150		0	250		100
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.992				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3511	0	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3511	0	1770	1863	1583	1770	1863	1583	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				143			211			205
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1461			2630			1510			1533	
Travel Time (s)		33.2			59.8			34.3			34.8	

Intersection Summary

Area Type: Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	57	222	12	280	490	113	16	87	200	121	247	178
Future Volume (vph)	57	222	12	280	490	113	16	87	200	121	247	178
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	60	234	13	295	516	119	17	92	211	127	260	187
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	247	0	295	516	119	17	92	211	127	260	187

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	57	222	280	490	113	16	87	200	121	247	178
Future Volume (vph)	57	222	280	490	113	16	87	200	121	247	178
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	5	2		7	4	5	3	8	
Permitted Phases					2			4			8
Detector Phase	1	6	5	2	2	7	4	5	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5	9.5	22.5	22.5
Total Split (s)	9.5	23.5	21.0	35.0	35.0	9.5	22.5	21.0	13.0	26.0	26.0
Total Split (%)	11.9%	29.4%	26.3%	43.8%	43.8%	11.9%	28.1%	26.3%	16.3%	32.5%	32.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	5.1	19.7	15.0	32.1	32.1	5.1	10.5	30.1	8.2	18.7	18.7
Actuated g/C Ratio	0.07	0.29	0.22	0.47	0.47	0.07	0.15	0.44	0.12	0.27	0.27
v/c Ratio	0.46	0.24	0.76	0.59	0.15	0.13	0.32	0.26	0.60	0.51	0.32
Control Delay	46.7	21.5	41.9	20.2	2.7	35.9	30.7	2.8	45.5	25.7	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.7	21.5	41.9	20.2	2.7	35.9	30.7	2.8	45.5	25.7	4.6
LOS	D	C	D	C	A	D	C	A	D	C	A
Approach Delay		26.4		24.8			12.6			23.2	
Approach LOS		C		C			B			C	

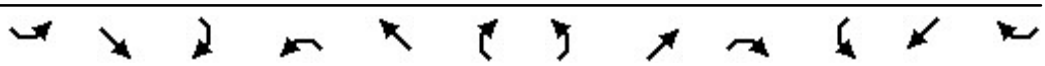
Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 68.8	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 22.8	Intersection LOS: C
Intersection Capacity Utilization 54.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 4: Calle Del Oso Oro/Nutmeg Street & Washington Avenue

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Group Flow (vph)	60	247	295	516	119	17	92	211	127	260	187
v/c Ratio	0.46	0.24	0.76	0.59	0.15	0.13	0.32	0.26	0.60	0.51	0.32
Control Delay	46.7	21.5	41.9	20.2	2.7	35.9	30.7	2.8	45.5	25.7	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.7	21.5	41.9	20.2	2.7	35.9	30.7	2.8	45.5	25.7	4.6
Queue Length 50th (ft)	26	43	119	170	0	7	38	0	54	90	0
Queue Length 95th (ft)	#80	83	#269	331	23	28	77	32	#139	182	39
Internal Link Dist (ft)		1381		2550			1430			1453	
Turn Bay Length (ft)	85		150			150			250		100
Base Capacity (vph)	131	1009	433	869	814	131	497	848	223	604	651
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.24	0.68	0.59	0.15	0.13	0.19	0.25	0.57	0.43	0.29

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	57	222	12	280	490	113	16	87	200	121	247	178
Future Volume (veh/h)	57	222	12	280	490	113	16	87	200	121	247	178
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	60	234	13	295	516	119	17	92	211	127	260	187
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	89	1043	58	344	838	713	36	267	534	162	399	339
Arrive On Green	0.05	0.31	0.31	0.19	0.45	0.45	0.02	0.14	0.14	0.09	0.21	0.21
Sat Flow, veh/h	1774	3411	188	1774	1863	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	60	121	126	295	516	119	17	92	211	127	260	187
Grp Sat Flow(s),veh/h/ln	1774	1770	1829	1774	1863	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	2.3	3.4	3.5	10.9	14.3	3.0	0.6	3.0	6.9	4.7	8.6	7.1
Cycle Q Clear(g_c), s	2.3	3.4	3.5	10.9	14.3	3.0	0.6	3.0	6.9	4.7	8.6	7.1
Prop In Lane	1.00		0.10	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	89	541	560	344	838	713	36	267	534	162	399	339
V/C Ratio(X)	0.68	0.22	0.23	0.86	0.62	0.17	0.47	0.34	0.39	0.79	0.65	0.55
Avail Cap(c_a), veh/h	131	541	560	432	838	713	131	495	728	223	591	502
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.7	17.5	17.5	26.4	14.2	11.1	32.8	26.2	17.2	30.1	24.3	23.7
Incr Delay (d2), s/veh	8.7	1.0	0.9	13.0	3.4	0.5	9.4	0.8	0.5	11.9	1.8	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.8	1.9	6.6	8.1	1.4	0.4	1.6	3.1	2.9	4.6	3.2
LnGrp Delay(d),s/veh	40.3	18.5	18.5	39.4	17.5	11.6	42.3	26.9	17.6	42.0	26.1	25.1
LnGrp LOS	D	B	B	D	B	B	D	C	B	D	C	C
Approach Vol, veh/h		307			930			320			574	
Approach Delay, s/veh		22.7			23.7			21.6			29.3	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	35.0	10.7	14.2	17.7	25.2	5.9	19.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	30.5	8.5	18.0	16.5	19.0	5.0	21.5
Max Q Clear Time (g_c+I1), s	4.3	16.3	6.7	8.9	12.9	5.5	2.6	10.6
Green Ext Time (p_c), s	0.0	3.2	0.0	0.8	0.3	1.1	0.0	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	24.8
HCM 2010 LOS	C

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		280	300		0	350		0	150		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor												
Frt			0.850		0.998			0.931			0.911	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3532	0	1770	1734	0	1770	3224	0
Flt Permitted	0.950			0.950			0.476			0.695		
Satd. Flow (perm)	1770	3539	1583	1770	3532	0	887	1734	0	1295	3224	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			176		2			44			75	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2630			1335			2657			1296	
Travel Time (s)		59.8			30.3			60.4			29.5	

Intersection Summary	
Area Type:	Other

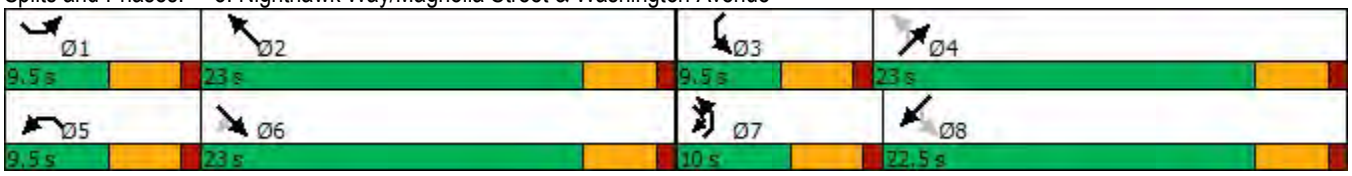
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	36	422	101	54	533	8	91	49	42	9	48	71
Future Volume (vph)	36	422	101	54	533	8	91	49	42	9	48	71
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	38	444	106	57	561	8	96	52	44	9	51	75
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	444	106	57	569	0	96	96	0	9	126	0

Intersection Summary

Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Configurations									
Traffic Volume (vph)	36	422	101	54	533	91	49	9	48
Future Volume (vph)	36	422	101	54	533	91	49	9	48
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	7	5	2	7	4	3	8
Permitted Phases			6			4		8	
Detector Phase	1	6	7	5	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	9.5	23.0	10.0	9.5	23.0	10.0	23.0	9.5	22.5
Total Split (%)	14.6%	35.4%	15.4%	14.6%	35.4%	15.4%	35.4%	14.6%	34.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	Max	None	None	None	None
Act Effct Green (s)	5.1	24.0	5.6	5.1	25.7	13.7	12.8	10.5	6.7
Actuated g/C Ratio	0.10	0.49	0.11	0.10	0.52	0.28	0.26	0.21	0.14
v/c Ratio	0.21	0.26	0.31	0.31	0.31	0.27	0.20	0.03	0.25
Control Delay	26.1	12.4	4.0	28.0	11.5	15.2	11.7	13.0	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.1	12.4	4.0	28.0	11.5	15.2	11.7	13.0	11.9
LOS	C	B	A	C	B	B	B	B	B
Approach Delay		11.8			13.0		13.5		12.0
Approach LOS		B			B		B		B

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 49	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.31	
Intersection Signal Delay: 12.5	Intersection LOS: B
Intersection Capacity Utilization 42.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 5: Nighthawk Way/Magnolia Street & Washington Avenue



Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	38	444	106	57	569	96	96	9	126
v/c Ratio	0.21	0.26	0.31	0.31	0.31	0.27	0.20	0.03	0.25
Control Delay	26.1	12.4	4.0	28.0	11.5	15.2	11.7	13.0	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.1	12.4	4.0	28.0	11.5	15.2	11.7	13.0	11.9
Queue Length 50th (ft)	11	53	0	17	47	22	12	2	7
Queue Length 95th (ft)	36	93	13	48	119	49	49	10	26
Internal Link Dist (ft)		2550			1255		2577		1216
Turn Bay Length (ft)	150		280	300		350		150	
Base Capacity (vph)	184	1732	337	184	1855	350	697	325	1260
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.26	0.31	0.31	0.31	0.27	0.14	0.03	0.10

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	36	422	101	54	533	8	91	49	42	9	48	71
Future Volume (veh/h)	36	422	101	54	533	8	91	49	42	9	48	71
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	38	444	106	57	561	8	96	52	44	9	51	75
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	1379	736	99	1442	21	356	153	130	302	177	159
Arrive On Green	0.04	0.39	0.39	0.06	0.40	0.40	0.08	0.16	0.16	0.01	0.10	0.10
Sat Flow, veh/h	1774	3539	1583	1774	3572	51	1774	933	790	1774	1770	1583
Grp Volume(v), veh/h	38	444	106	57	278	291	96	0	96	9	51	75
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1854	1774	0	1723	1774	1770	1583
Q Serve(g_s), s	1.0	4.2	1.8	1.5	5.3	5.3	2.2	0.0	2.3	0.2	1.3	2.1
Cycle Q Clear(g_c), s	1.0	4.2	1.8	1.5	5.3	5.3	2.2	0.0	2.3	0.2	1.3	2.1
Prop In Lane	1.00		1.00	1.00		0.03	1.00		0.46	1.00		1.00
Lane Grp Cap(c), veh/h	74	1379	736	99	714	748	356	0	283	302	177	159
V/C Ratio(X)	0.52	0.32	0.14	0.58	0.39	0.39	0.27	0.00	0.34	0.03	0.29	0.47
Avail Cap(c_a), veh/h	187	1379	736	187	714	748	427	0	671	468	671	600
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.3	10.1	7.3	21.9	10.0	10.0	16.7	0.0	17.6	18.8	19.8	20.2
Incr Delay (d2), s/veh	5.5	0.6	0.4	5.2	1.6	1.5	0.4	0.0	0.7	0.0	0.9	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.2	0.9	0.9	2.9	3.0	1.1	0.0	1.2	0.1	0.7	1.0
LnGrp Delay(d),s/veh	27.8	10.7	7.7	27.1	11.6	11.5	17.1	0.0	18.3	18.9	20.7	22.4
LnGrp LOS	C	B	A	C	B	B	B		B	B	C	C
Approach Vol, veh/h		588			626			192			135	
Approach Delay, s/veh		11.3			13.0			17.7			21.5	
Approach LOS		B			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.5	23.7	5.1	12.3	7.1	23.0	8.1	9.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.5	5.0	18.5	5.0	18.5	5.5	18.0
Max Q Clear Time (g_c+I1), s	3.0	7.3	2.2	4.3	3.5	6.2	4.2	4.1
Green Ext Time (p_c), s	0.0	2.6	0.0	0.3	0.0	2.6	0.0	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	13.7
HCM 2010 LOS	B

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		170	150		0	80		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850			0.850		0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	1863	1583	1770	1583	0	1770	1583	0
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	1770	3539	1583	1770	1863	1583	1863	1583	0	1863	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109			109		363			307	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1335			1310			2481			639	
Travel Time (s)		30.3			29.8			56.4			14.5	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	3	476	10	6	585	1	10	0	3	1	0	4
Future Volume (vph)	3	476	10	6	585	1	10	0	3	1	0	4
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	3	496	10	6	609	1	10	0	3	1	0	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	496	10	6	609	1	10	3	0	1	4	0

Intersection Summary

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Configurations										
Traffic Volume (vph)	3	476	10	6	585	1	10	0	1	0
Future Volume (vph)	3	476	10	6	585	1	10	0	1	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			4		8
Permitted Phases			6			2	4		8	
Detector Phase	1	6	6	5	2	2	4	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	28.0	28.0	9.5	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	46.7%	46.7%	15.8%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	5.0	39.6	39.6	5.0	39.6	39.6	5.9	5.9	5.8	5.8
Actuated g/C Ratio	0.11	0.90	0.90	0.11	0.90	0.90	0.13	0.13	0.13	0.13
v/c Ratio	0.01	0.16	0.01	0.03	0.36	0.00	0.04	0.01	0.00	0.01
Control Delay	18.7	2.6	0.0	19.0	4.2	0.0	17.8	0.0	18.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.7	2.6	0.0	19.0	4.2	0.0	17.8	0.0	18.0	0.0
LOS	B	A	A	B	A	A	B	A	B	A
Approach Delay		2.6			4.4			13.7		3.6
Approach LOS		A			A			B		A

Intersection Summary		
Cycle Length: 60		
Actuated Cycle Length: 44.2		
Natural Cycle: 60		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.36		
Intersection Signal Delay: 3.7	Intersection LOS: A	
Intersection Capacity Utilization 45.5%	ICU Level of Service A	
Analysis Period (min) 15		

Splits and Phases: 6: Fullerton Road & Washington Avenue

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Group Flow (vph)	3	496	10	6	609	1	10	3	1	4
v/c Ratio	0.01	0.16	0.01	0.03	0.36	0.00	0.04	0.01	0.00	0.01
Control Delay	18.7	2.6	0.0	19.0	4.2	0.0	17.8	0.0	18.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.7	2.6	0.0	19.0	4.2	0.0	17.8	0.0	18.0	0.0
Queue Length 50th (ft)	1	0	0	1	0	0	2	0	0	0
Queue Length 95th (ft)	6	65	0	10	215	0	13	0	4	0
Internal Link Dist (ft)		1255			1230			2401		559
Turn Bay Length (ft)			170	150			80			
Base Capacity (vph)	200	3172	1430	200	1670	1430	761	861	761	828
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.16	0.01	0.03	0.36	0.00	0.01	0.00	0.00	0.00

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	3	476	10	6	585	1	10	0	3	1	0	4
Future Volume (veh/h)	3	476	10	6	585	1	10	0	3	1	0	4
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	3	496	10	6	609	1	10	0	3	1	0	4
Adj No. of Lanes	1	2	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	7	2179	975	14	1154	981	217	0	36	218	0	36
Arrive On Green	0.00	0.62	0.62	0.01	0.62	0.62	0.02	0.00	0.02	0.02	0.00	0.02
Sat Flow, veh/h	1774	3539	1583	1774	1863	1583	1407	0	1583	1408	0	1583
Grp Volume(v), veh/h	3	496	10	6	609	1	10	0	3	1	0	4
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1863	1583	1407	0	1583	1408	0	1583
Q Serve(g_s), s	0.1	2.4	0.1	0.1	7.1	0.0	0.3	0.0	0.1	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.1	2.4	0.1	0.1	7.1	0.0	0.4	0.0	0.1	0.1	0.0	0.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	7	2179	975	14	1154	981	217	0	36	218	0	36
V/C Ratio(X)	0.41	0.23	0.01	0.42	0.53	0.00	0.05	0.00	0.08	0.00	0.00	0.11
Avail Cap(c_a), veh/h	232	2179	975	232	1154	981	848	0	747	850	0	747
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.0	3.3	2.8	18.8	4.1	2.8	18.5	0.0	18.3	18.3	0.0	18.3
Incr Delay (d2), s/veh	33.3	0.2	0.0	18.3	1.7	0.0	0.1	0.0	1.0	0.0	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.2	0.0	0.1	4.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1
LnGrp Delay(d),s/veh	52.3	3.5	2.9	37.1	5.8	2.8	18.5	0.0	19.2	18.3	0.0	19.6
LnGrp LOS	D	A	A	D	A	A	B		B	B		B
Approach Vol, veh/h		509			616			13			5	
Approach Delay, s/veh		3.8			6.1			18.7			19.4	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.7	28.2		5.4	4.8	28.0		5.4
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	23.5		18.0	5.0	23.5		18.0
Max Q Clear Time (g_c+I1), s	2.1	9.1		2.4	2.1	4.4		2.1
Green Ext Time (p_c), s	0.0	3.6		0.0	0.0	3.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	5.3
HCM 2010 LOS	A

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	255		0	160		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.990			0.997			0.878			0.933	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3504	0	1770	3529	0	1770	1635	0	1770	1738	0
Flt Permitted	0.950			0.950			0.952			0.952		
Satd. Flow (perm)	1770	3504	0	1770	3529	0	1773	1635	0	1773	1738	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			4			69			28	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1310			2652			2655			1165	
Travel Time (s)		29.8			60.3			60.3			26.5	

Intersection Summary	
Area Type:	Other

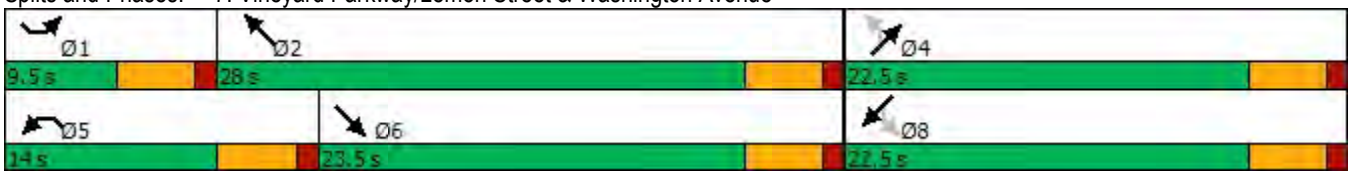
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	13	446	33	95	551	11	29	15	65	10	33	26
Future Volume (vph)	13	446	33	95	551	11	29	15	65	10	33	26
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	14	474	35	101	586	12	31	16	69	11	35	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	509	0	101	598	0	31	85	0	11	63	0

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Configurations								
Traffic Volume (vph)	13	446	95	551	29	15	10	33
Future Volume (vph)	13	446	95	551	29	15	10	33
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	1	6	5	2		4		8
Permitted Phases					4		8	
Detector Phase	1	6	5	2	4	4	8	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	23.5	14.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	39.2%	23.3%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	None	Max	None	None	None	None
Act Effct Green (s)	5.1	28.6	7.7	34.4	6.7	6.7	6.7	6.7
Actuated g/C Ratio	0.11	0.63	0.17	0.76	0.15	0.15	0.15	0.15
v/c Ratio	0.07	0.23	0.34	0.22	0.12	0.28	0.04	0.23
Control Delay	21.2	8.5	20.6	4.4	19.0	10.4	18.1	14.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.2	8.5	20.6	4.4	19.0	10.4	18.1	14.4
LOS	C	A	C	A	B	B	B	B
Approach Delay		8.8		6.7		12.7		15.0
Approach LOS		A		A		B		B

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 45.2	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.34	
Intersection Signal Delay: 8.4	Intersection LOS: A
Intersection Capacity Utilization 39.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 7: Vineyard Parkway/Lemon Street & Washington Avenue



Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	14	509	101	598	31	85	11	63
v/c Ratio	0.07	0.23	0.34	0.22	0.12	0.28	0.04	0.23
Control Delay	21.2	8.5	20.6	4.4	19.0	10.4	18.1	14.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.2	8.5	20.6	4.4	19.0	10.4	18.1	14.4
Queue Length 50th (ft)	4	46	25	24	8	4	3	9
Queue Length 95th (ft)	17	86	60	85	26	33	13	35
Internal Link Dist (ft)		1230		2572		2575		1085
Turn Bay Length (ft)	150		255		160		150	
Base Capacity (vph)	198	2224	377	2683	716	701	716	718
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.23	0.27	0.22	0.04	0.12	0.02	0.09

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	13	446	33	95	551	11	29	15	65	10	33	26
Future Volume (veh/h)	13	446	33	95	551	11	29	15	65	10	33	26
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	14	474	35	101	586	12	31	16	69	11	35	28
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	32	1646	121	146	1974	40	266	32	140	244	101	81
Arrive On Green	0.02	0.49	0.49	0.08	0.56	0.56	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1774	3343	246	1774	3547	73	1334	307	1323	1307	960	768
Grp Volume(v), veh/h	14	250	259	101	292	306	31	0	85	11	0	63
Grp Sat Flow(s),veh/h/ln	1774	1770	1819	1774	1770	1850	1334	0	1629	1307	0	1727
Q Serve(g_s), s	0.3	3.5	3.6	2.3	3.7	3.7	0.9	0.0	2.1	0.3	0.0	1.4
Cycle Q Clear(g_c), s	0.3	3.5	3.6	2.3	3.7	3.7	2.4	0.0	2.1	2.4	0.0	1.4
Prop In Lane	1.00		0.14	1.00		0.04	1.00		0.81	1.00		0.44
Lane Grp Cap(c), veh/h	32	871	896	146	985	1030	266	0	172	244	0	183
V/C Ratio(X)	0.44	0.29	0.29	0.69	0.30	0.30	0.12	0.00	0.49	0.05	0.00	0.35
Avail Cap(c_a), veh/h	210	871	896	399	985	1030	694	0	695	664	0	736
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.5	6.3	6.3	18.9	5.0	5.0	18.6	0.0	17.8	19.0	0.0	17.5
Incr Delay (d2), s/veh	9.3	0.8	0.8	5.8	0.8	0.7	0.2	0.0	2.2	0.1	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.9	1.9	1.4	2.0	2.1	0.4	0.0	1.0	0.1	0.0	0.7
LnGrp Delay(d),s/veh	29.8	7.2	7.2	24.6	5.7	5.7	18.8	0.0	20.0	19.0	0.0	18.6
LnGrp LOS	C	A	A	C	A	A	B		B	B		B
Approach Vol, veh/h		523			699			116			74	
Approach Delay, s/veh		7.8			8.5			19.7			18.7	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.3	28.0		9.0	8.0	25.3		9.0
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	23.5		18.0	9.5	19.0		18.0
Max Q Clear Time (g_c+I1), s	2.3	5.7		4.4	4.3	5.6		4.4
Green Ext Time (p_c), s	0.0	3.4		0.4	0.1	2.5		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	9.7
HCM 2010 LOS	A

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	200		0	100		100	105		0	150		150
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.980				0.850		0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1825	0	1770	1863	1583	1770	1835	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1825	0	1770	1863	1583	1770	1835	0	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12				164		8				452
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2652			1695			1544			1371	
Travel Time (s)		60.3			38.5			35.1			31.2	

Intersection Summary	
Area Type:	Other

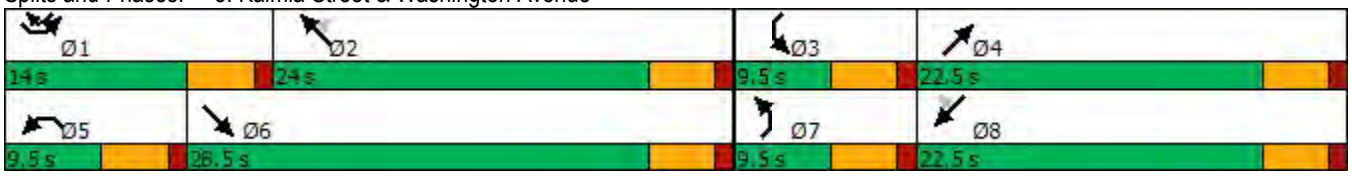
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	386	169	26	5	273	99	44	72	8	79	49	443
Future Volume (vph)	386	169	26	5	273	99	44	72	8	79	49	443
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	394	172	27	5	279	101	45	73	8	81	50	452
Shared Lane Traffic (%)												
Lane Group Flow (vph)	394	199	0	5	279	101	45	81	0	81	50	452

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	386	169	5	273	99	44	72	79	49	443
Future Volume (vph)	386	169	5	273	99	44	72	79	49	443
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	1	6	5	2		7	4	3	8	1
Permitted Phases					2					8
Detector Phase	1	6	5	2	2	7	4	3	8	1
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5
Total Split (s)	14.0	28.5	9.5	24.0	24.0	9.5	22.5	9.5	22.5	14.0
Total Split (%)	20.0%	40.7%	13.6%	34.3%	34.3%	13.6%	32.1%	13.6%	32.1%	20.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	9.5	34.2	5.2	20.3	20.3	5.2	7.8	5.2	9.6	9.5
Actuated g/C Ratio	0.17	0.61	0.09	0.36	0.36	0.09	0.14	0.09	0.17	0.17
v/c Ratio	0.67	0.18	0.03	0.41	0.15	0.27	0.31	0.49	0.16	0.70
Control Delay	31.0	9.0	26.6	18.4	1.5	31.1	24.8	39.7	23.6	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	9.0	26.6	18.4	1.5	31.1	24.8	39.7	23.6	10.2
LOS	C	A	C	B	A	C	C	D	C	B
Approach Delay		23.6		14.1			27.0		15.4	
Approach LOS		C		B			C		B	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 55.7	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 18.9	Intersection LOS: B
Intersection Capacity Utilization 57.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Kalmia Street & Washington Avenue



Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Group Flow (vph)	394	199	5	279	101	45	81	81	50	452
v/c Ratio	0.67	0.18	0.03	0.41	0.15	0.27	0.31	0.49	0.16	0.70
Control Delay	31.0	9.0	26.6	18.4	1.5	31.1	24.8	39.7	23.6	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	9.0	26.6	18.4	1.5	31.1	24.8	39.7	23.6	10.2
Queue Length 50th (ft)	70	29	2	78	0	16	24	29	16	0
Queue Length 95th (ft)	#132	90	11	148	10	44	58	#84	43	#105
Internal Link Dist (ft)		2572		1615			1464		1291	
Turn Bay Length (ft)	200		100		100	105		150		150
Base Capacity (vph)	609	1124	165	678	681	165	622	165	626	652
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.18	0.03	0.41	0.15	0.27	0.13	0.49	0.08	0.69

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	386	169	26	5	273	99	44	72	8	79	49	443
Future Volume (veh/h)	386	169	26	5	273	99	44	72	8	79	49	443
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	394	172	27	5	279	101	45	73	8	81	50	452
Adj No. of Lanes	2	1	0	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	482	662	104	12	535	455	75	411	45	103	494	642
Arrive On Green	0.14	0.42	0.42	0.01	0.29	0.29	0.04	0.25	0.25	0.06	0.27	0.27
Sat Flow, veh/h	3442	1572	247	1774	1863	1583	1774	1650	181	1774	1863	1583
Grp Volume(v), veh/h	394	0	199	5	279	101	45	0	81	81	50	452
Grp Sat Flow(s),veh/h/ln	1721	0	1819	1774	1863	1583	1774	0	1831	1774	1863	1583
Q Serve(g_s), s	7.5	0.0	4.8	0.2	8.5	3.3	1.7	0.0	2.4	3.1	1.4	16.1
Cycle Q Clear(g_c), s	7.5	0.0	4.8	0.2	8.5	3.3	1.7	0.0	2.4	3.1	1.4	16.1
Prop In Lane	1.00		0.14	1.00		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	482	0	765	12	535	455	75	0	456	103	494	642
V/C Ratio(X)	0.82	0.00	0.26	0.43	0.52	0.22	0.60	0.00	0.18	0.78	0.10	0.70
Avail Cap(c_a), veh/h	482	0	765	131	535	455	131	0	486	131	494	642
HCM 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
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.3	0.0	12.8	33.6	20.3	18.4	31.9	0.0	20.0	31.5	18.8	16.8
Incr Delay (d2), s/veh	10.6	0.0	0.8	22.5	3.6	1.1	7.6	0.0	0.2	20.8	0.1	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	0.0	2.6	0.2	4.9	1.6	1.0	0.0	1.2	2.1	0.7	7.6
LnGrp Delay(d),s/veh	38.9	0.0	13.6	56.1	23.9	19.5	39.5	0.0	20.2	52.4	18.9	20.3
LnGrp LOS	D		B	E	C	B	D		C	D	B	C
Approach Vol, veh/h		593			385			126			583	
Approach Delay, s/veh		30.4			23.1			27.1			24.6	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	24.0	8.5	21.4	4.9	33.1	7.4	22.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.5	19.5	5.0	18.0	5.0	24.0	5.0	18.0
Max Q Clear Time (g_c+I1), s	9.5	10.5	5.1	4.4	2.2	6.8	3.7	18.1
Green Ext Time (p_c), s	0.0	1.3	0.0	0.3	0.0	1.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	26.5
HCM 2010 LOS	C

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	60		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor												
Frt		0.983						0.932				0.850
Flt Protected				0.950				0.976			0.950	
Satd. Flow (prot)	0	1831	0	1770	1863	0	0	1694	0	0	1770	1583
Flt Permitted				0.950				0.976			0.950	
Satd. Flow (perm)	0	1831	0	1770	1863	0	0	1694	0	0	1770	1583
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1045			237			351			183	
Travel Time (s)		23.8			5.4			8.0			4.2	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	0	32	5	8	24	0	5	0	5	17	0	12
Future Volume (vph)	0	32	5	8	24	0	5	0	5	17	0	12
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	41	6	10	30	0	6	0	6	22	0	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	47	0	10	30	0	0	12	0	0	22	15

Intersection Summary

Intersection	
Int Delay, s/veh	3.7

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	32	5	8	24	0	5	0	5	17	0	12
Future Vol, veh/h	0	32	5	8	24	0	5	0	5	17	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	60	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	41	6	10	30	0	6	0	6	22	0	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	47	0	0	102	94	44	97	97	30
Stage 1	-	-	-	-	-	-	44	44	-	50	50	-
Stage 2	-	-	-	-	-	-	58	50	-	47	47	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1560	-	0	879	796	1026	885	793	1044
Stage 1	0	-	-	-	-	0	970	858	-	963	853	-
Stage 2	0	-	-	-	-	0	954	853	-	967	856	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1560	-	-	862	791	1026	875	788	1044
Mov Cap-2 Maneuver	-	-	-	-	-	-	862	791	-	875	788	-
Stage 1	-	-	-	-	-	-	970	858	-	963	848	-
Stage 2	-	-	-	-	-	-	934	848	-	961	856	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	1.8	8.9	8.9
HCM LOS			A	A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	937	1560	-	-	-	875	1044
HCM Lane V/C Ratio	0.014	0.006	-	-	-	0.025	0.015
HCM Control Delay (s)	8.9	7.3	-	-	-	9.2	8.5
HCM Lane LOS	A	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	0	-	-	-	0.1	0

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected				0.950		
Satd. Flow (prot)	1863	0	0	1770	1863	0
Flt Permitted				0.950		
Satd. Flow (perm)	1863	0	0	1770	1863	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	112			181	2481	
Travel Time (s)	2.5			4.1	56.4	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Traffic Volume (vph)	0	0	27	0	0	0
Future Volume (vph)	0	0	27	0	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	0	0	33	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	33	0	0

Intersection Summary

Intersection	
Int Delay, s/veh	7

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	0	0	27	0	0	0
Future Vol, veh/h	0	0	27	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	33	0	0	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	67	1	1	0	-	0
Stage 1	1	-	-	-	-	-
Stage 2	66	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	938	1084	1622	-	-	-
Stage 1	1022	-	-	-	-	-
Stage 2	957	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	919	1084	1622	-	-	-
Mov Cap-2 Maneuver	919	-	-	-	-	-
Stage 1	1002	-	-	-	-	-
Stage 2	957	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	0	7.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1622	-	-	-	-
HCM Lane V/C Ratio	0.021	-	-	-	-
HCM Control Delay (s)	7.3	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-	-

Appendix D

Existing Plus Project Conditions
Intersection Analysis

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.865		
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	0	1611	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	0	1611	1770	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		340	1045		2657	
Travel Time (s)		7.7	23.8		60.4	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Traffic Volume (vph)	0	0	0	271	299	0
Future Volume (vph)	0	0	0	271	299	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	0	0	393	433	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	393	433	0

Intersection Summary

Intersection	
Intersection Delay, s/veh	13.7
Intersection LOS	B

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	271	299	0
Future Vol, veh/h	0	0	0	271	299	0
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	393	433	0
Number of Lanes	0	1	0	1	1	0

Approach	SE	NW	SW
Opposing Approach	NW	SE	
Opposing Lanes	1	1	0
Conflicting Approach Left	SW		NW
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SW	SE
Conflicting Lanes Right	0	1	1
HCM Control Delay	0	11.7	15.5
HCM LOS	-	B	C

Lane	NWLn1	SELn1	SWLn1
Vol Left, %	0%	0%	100%
Vol Thru, %	0%	100%	0%
Vol Right, %	100%	0%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	271	0	299
LT Vol	0	0	299
Through Vol	0	0	0
RT Vol	271	0	0
Lane Flow Rate	393	0	433
Geometry Grp	1	1	1
Degree of Util (X)	0.487	0	0.603
Departure Headway (Hd)	4.468	5.56	5.013
Convergence, Y/N	Yes	Yes	Yes
Cap	805	0	715
Service Time	2.513	3.655	3.093
HCM Lane V/C Ratio	0.488	0	0.606
HCM Control Delay	11.7	8.7	15.5
HCM Lane LOS	B	N	C
HCM 95th-tile Q	2.7	0	4.1

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	60			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.907		0.935	
Flt Protected	0.950				0.975	
Satd. Flow (prot)	1770	1863	1690	0	1698	0
Flt Permitted	0.950				0.975	
Satd. Flow (perm)	1770	1863	1690	0	1698	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		237	1361		181	
Travel Time (s)		5.4	30.9		4.1	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Traffic Volume (vph)	80	220	167	373	25	23
Future Volume (vph)	80	220	167	373	25	23
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	123	338	257	574	38	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	123	338	831	0	73	0

Intersection Summary

Intersection	
Int Delay, s/veh	2.1

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	80	220	167	373	25	23
Future Vol, veh/h	80	220	167	373	25	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	60	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	123	338	257	574	38	35

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	831	0	-	0	1128	544
Stage 1	-	-	-	-	544	-
Stage 2	-	-	-	-	584	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	801	-	-	-	226	539
Stage 1	-	-	-	-	582	-
Stage 2	-	-	-	-	557	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	801	-	-	-	191	539
Mov Cap-2 Maneuver	-	-	-	-	191	-
Stage 1	-	-	-	-	492	-
Stage 2	-	-	-	-	557	-

Approach	SE	NW	SW
HCM Control Delay, s	2.7	0	22.7
HCM LOS			C

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	801	-	277
HCM Lane V/C Ratio	-	-	0.154	-	0.267
HCM Control Delay (s)	-	-	10.3	-	22.7
HCM Lane LOS	-	-	B	-	C
HCM 95th %tile Q(veh)	-	-	0.5	-	1

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	120	0	100			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	1863	1863	1583
Link Speed (mph)	30			30	30	
Link Distance (ft)	1361			666	2655	
Travel Time (s)	30.9			15.1	60.3	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Traffic Volume (vph)	390	6	6	18	18	448
Future Volume (vph)	390	6	6	18	18	448
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	470	7	7	22	22	540
Shared Lane Traffic (%)						
Lane Group Flow (vph)	470	7	7	22	22	540

Intersection Summary

Intersection	
Intersection Delay, s/veh	33.5
Intersection LOS	D

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	390	6	6	18	18	448
Future Vol, veh/h	390	6	6	18	18	448
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	470	7	7	22	22	540
Number of Lanes	1	1	1	1	1	1

Approach	SE	NE	SW
Opposing Approach		SW	NE
Opposing Lanes	0	2	2
Conflicting Approach Left	SW	SE	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NE		SE
Conflicting Lanes Right	2	0	2
HCM Control Delay	39.5	10.4	29.5
HCM LOS	E	B	D

Lane	NELn1	NELn2	SELn1	SELn2	SWLn1	SWLn2
Vol Left, %	100%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	6	18	390	6	18	448
LT Vol	6	0	390	0	0	0
Through Vol	0	18	0	0	18	0
RT Vol	0	0	0	6	0	448
Lane Flow Rate	7	22	470	7	22	540
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.015	0.043	0.875	0.011	0.038	0.835
Departure Headway (Hd)	7.702	7.187	6.707	5.498	6.279	5.567
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	462	494	540	650	568	648
Service Time	5.5	4.985	4.446	3.237	4.038	3.326
HCM Lane V/C Ratio	0.015	0.045	0.87	0.011	0.039	0.833
HCM Control Delay	10.6	10.3	40	8.3	9.3	30.3
HCM Lane LOS	B	B	E	A	A	D
HCM 95th-tile Q	0	0.1	9.7	0	0.1	9

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	85		0	150		0	150		0	250		100
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.981				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3472	0	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3472	0	1770	1863	1583	1770	1863	1583	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18				143			524			205
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1461			2630			1510			1533	
Travel Time (s)		33.2			59.8			34.3			34.8	

Intersection Summary	
Area Type:	Other

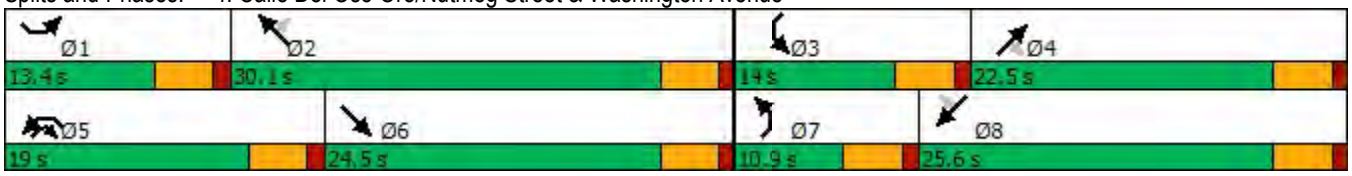
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	77	328	46	253	290	107	42	233	466	168	157	56
Future Volume (vph)	77	328	46	253	290	107	42	233	466	168	157	56
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	87	369	52	284	326	120	47	262	524	189	176	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	421	0	284	326	120	47	262	524	189	176	63

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	77	328	253	290	107	42	233	466	168	157	56
Future Volume (vph)	77	328	253	290	107	42	233	466	168	157	56
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	5	2		7	4	5	3	8	
Permitted Phases					2			4			8
Detector Phase	1	6	5	2	2	7	4	5	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5	9.5	22.5	22.5
Total Split (s)	13.4	24.5	19.0	30.1	30.1	10.9	22.5	19.0	14.0	25.6	25.6
Total Split (%)	16.8%	30.6%	23.8%	37.6%	37.6%	13.6%	28.1%	23.8%	17.5%	32.0%	32.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	8.0	20.0	14.2	28.5	28.5	6.2	14.9	14.2	9.5	22.6	22.6
Actuated g/C Ratio	0.10	0.26	0.19	0.37	0.37	0.08	0.19	0.19	0.12	0.29	0.29
v/c Ratio	0.48	0.46	0.87	0.47	0.18	0.33	0.72	0.73	0.86	0.32	0.10
Control Delay	42.2	25.2	59.1	23.4	3.4	41.0	41.0	9.8	70.3	24.7	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.2	25.2	59.1	23.4	3.4	41.0	41.0	9.8	70.3	24.7	0.3
LOS	D	C	E	C	A	D	D	A	E	C	A
Approach Delay		28.1		34.0			21.4			41.3	
Approach LOS		C		C			C			D	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 76.7	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 29.9	Intersection LOS: C
Intersection Capacity Utilization 61.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Calle Del Oso Oro/Nutmeg Street & Washington Avenue



Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Group Flow (vph)	87	421	284	326	120	47	262	524	189	176	63
v/c Ratio	0.48	0.46	0.87	0.47	0.18	0.33	0.72	0.73	0.86	0.32	0.10
Control Delay	42.2	25.2	59.1	23.4	3.4	41.0	41.0	9.8	70.3	24.7	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.2	25.2	59.1	23.4	3.4	41.0	41.0	9.8	70.3	24.7	0.3
Queue Length 50th (ft)	40	86	135	127	0	22	119	0	92	71	0
Queue Length 95th (ft)	85	131	#272	209	25	55	193	85	#209	125	0
Internal Link Dist (ft)		1381		2550			1430			1453	
Turn Bay Length (ft)	85		150			150			250		100
Base Capacity (vph)	205	920	335	691	677	148	438	724	219	559	618
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.46	0.85	0.47	0.18	0.32	0.60	0.72	0.86	0.31	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	77	328	46	253	290	107	42	233	466	168	157	56
Future Volume (veh/h)	77	328	46	253	290	107	42	233	466	168	157	56
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	87	369	52	284	326	120	47	262	524	189	176	63
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	112	780	109	321	685	582	72	419	643	211	565	480
Arrive On Green	0.06	0.25	0.25	0.18	0.37	0.37	0.04	0.23	0.23	0.12	0.30	0.30
Sat Flow, veh/h	1774	3119	436	1774	1863	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	87	208	213	284	326	120	47	262	524	189	176	63
Grp Sat Flow(s),veh/h/ln	1774	1770	1786	1774	1863	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	3.9	8.0	8.1	12.5	10.7	4.1	2.1	10.1	18.0	8.4	5.8	2.3
Cycle Q Clear(g_c), s	3.9	8.0	8.1	12.5	10.7	4.1	2.1	10.1	18.0	8.4	5.8	2.3
Prop In Lane	1.00		0.24	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	112	443	447	321	685	582	72	419	643	211	565	480
V/C Ratio(X)	0.78	0.47	0.48	0.89	0.48	0.21	0.65	0.62	0.82	0.90	0.31	0.13
Avail Cap(c_a), veh/h	197	443	447	322	685	582	142	419	643	211	565	480
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.9	25.5	25.5	31.9	19.4	17.3	37.8	27.9	21.1	34.7	21.4	20.2
Incr Delay (d2), s/veh	10.9	3.6	3.6	24.1	2.4	0.8	9.6	2.9	8.0	35.3	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	4.3	4.4	8.2	6.0	1.9	1.2	5.5	11.7	6.2	3.0	1.0
LnGrp Delay(d),s/veh	47.8	29.0	29.1	56.0	21.7	18.1	47.4	30.8	29.1	70.1	21.7	20.3
LnGrp LOS	D	C	C	E	C	B	D	C	C	E	C	C
Approach Vol, veh/h		508			730			833			428	
Approach Delay, s/veh		32.3			34.5			30.7			42.9	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	33.9	14.0	22.5	19.0	24.5	7.7	28.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.9	25.6	9.5	18.0	14.5	20.0	6.4	21.1
Max Q Clear Time (g_c+I1), s	5.9	12.7	10.4	20.0	14.5	10.1	4.1	7.8
Green Ext Time (p_c), s	0.0	1.9	0.0	0.0	0.0	1.7	0.0	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	34.2
HCM 2010 LOS	C

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		280	300		0	350		0	150		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor												
Frt			0.850		0.979			0.939			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3465	0	1770	1749	0	1770	3514	0
Flt Permitted	0.950			0.950			0.182			0.485		
Satd. Flow (perm)	1770	3539	1583	1770	3465	0	339	1749	0	903	3514	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			554		19			48			5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2630			1335			2657			1296	
Travel Time (s)		59.8			30.3			60.4			29.5	

Intersection Summary	
Area Type:	Other

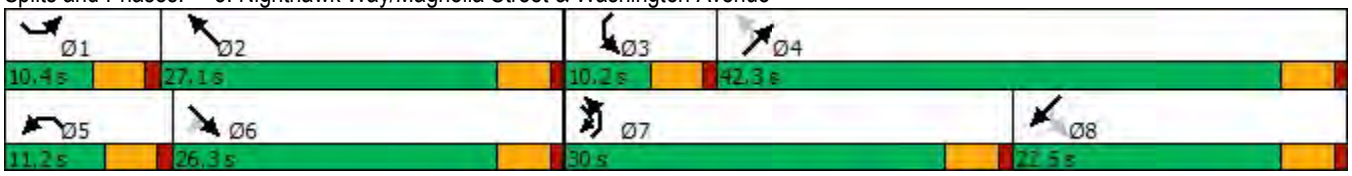
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	22	470	549	76	210	33	349	197	136	51	339	18
Future Volume (vph)	22	470	549	76	210	33	349	197	136	51	339	18
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	32	691	807	112	309	49	513	290	200	75	499	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	691	807	112	358	0	513	490	0	75	525	0

Intersection Summary

Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Configurations									
Traffic Volume (vph)	22	470	549	76	210	349	197	51	339
Future Volume (vph)	22	470	549	76	210	349	197	51	339
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	7	5	2	7	4	3	8
Permitted Phases			6			4		8	
Detector Phase	1	6	7	5	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	10.4	26.3	30.0	11.2	27.1	30.0	42.3	10.2	22.5
Total Split (%)	11.6%	29.2%	33.3%	12.4%	30.1%	33.3%	47.0%	11.3%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	Max	None	None	None	None
Act Effct Green (s)	5.8	21.8	24.9	6.7	26.9	46.0	37.9	22.2	16.5
Actuated g/C Ratio	0.07	0.25	0.28	0.08	0.31	0.52	0.43	0.25	0.19
v/c Ratio	0.27	0.79	0.96	0.84	0.33	0.88	0.63	0.27	0.79
Control Delay	46.2	39.0	33.1	86.6	25.2	38.8	22.4	16.5	43.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.2	39.0	33.1	86.6	25.2	38.8	22.4	16.5	43.5
LOS	D	D	C	F	C	D	C	B	D
Approach Delay		36.1			39.8		30.8		40.1
Approach LOS		D			D		C		D

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 88	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 35.8	Intersection LOS: D
Intersection Capacity Utilization 61.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 5: Nighthawk Way/Magnolia Street & Washington Avenue



Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	32	691	807	112	358	513	490	75	525
v/c Ratio	0.27	0.79	0.96	0.84	0.33	0.88	0.63	0.27	0.79
Control Delay	46.2	39.0	33.1	86.6	25.2	38.8	22.4	16.5	43.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.2	39.0	33.1	86.6	25.2	38.8	22.4	16.5	43.5
Queue Length 50th (ft)	18	195	163	64	84	219	194	20	147
Queue Length 95th (ft)	35	183	108	#102	90	216	194	30	145
Internal Link Dist (ft)		2550			1255		2577		1216
Turn Bay Length (ft)	150		280	300		350		150	
Base Capacity (vph)	119	877	852	134	1073	592	788	284	723
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.79	0.95	0.84	0.33	0.87	0.62	0.26	0.73

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	22	470	549	76	210	33	349	197	136	51	339	18
Future Volume (veh/h)	22	470	549	76	210	33	349	197	136	51	339	18
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	32	691	807	112	309	49	513	290	200	75	499	26
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	2	0
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	940	825	141	962	151	576	397	273	306	617	32
Arrive On Green	0.03	0.27	0.27	0.08	0.31	0.31	0.26	0.39	0.39	0.05	0.18	0.18
Sat Flow, veh/h	1774	3539	1583	1774	3066	481	1774	1028	709	1774	3423	178
Grp Volume(v), veh/h	32	691	807	112	177	181	513	0	490	75	258	267
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1778	1774	0	1738	1774	1770	1831
Q Serve(g_s), s	1.5	14.6	21.8	5.1	6.3	6.4	18.0	0.0	19.8	2.8	11.5	11.5
Cycle Q Clear(g_c), s	1.5	14.6	21.8	5.1	6.3	6.4	18.0	0.0	19.8	2.8	11.5	11.5
Prop In Lane	1.00		1.00	1.00		0.27	1.00		0.41	1.00		0.10
Lane Grp Cap(c), veh/h	56	940	825	141	555	558	576	0	670	306	319	330
V/C Ratio(X)	0.57	0.74	0.98	0.79	0.32	0.32	0.89	0.00	0.73	0.24	0.81	0.81
Avail Cap(c_a), veh/h	128	940	825	145	555	558	674	0	800	341	388	402
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.2	27.5	19.2	37.1	21.5	21.5	18.5	0.0	21.6	25.5	32.3	32.3
Incr Delay (d2), s/veh	8.9	5.1	26.6	24.8	1.5	1.5	12.7	0.0	2.8	0.4	10.0	9.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	7.8	23.6	3.5	3.3	3.4	10.7	0.0	9.9	1.4	6.5	6.7
LnGrp Delay(d),s/veh	48.1	32.6	45.8	61.9	23.0	23.1	31.2	0.0	24.4	25.9	42.3	42.2
LnGrp LOS	D	C	D	E	C	C	C		C	C	D	D
Approach Vol, veh/h		1530			470			1003			600	
Approach Delay, s/veh		39.9			32.3			27.9			40.2	
Approach LOS		D			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.1	30.2	8.6	36.1	11.0	26.3	25.5	19.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.9	22.6	5.7	37.8	6.7	21.8	25.5	18.0
Max Q Clear Time (g_c+I1), s	3.5	8.4	4.8	21.8	7.1	23.8	20.0	13.5
Green Ext Time (p_c), s	0.0	1.7	0.0	3.0	0.0	0.0	0.9	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	35.6
HCM 2010 LOS	D

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		170	150		0	80		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850			0.850		0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	1863	1583	1770	1583	0	1770	1583	0
Flt Permitted	0.950			0.950			0.746			0.685		
Satd. Flow (perm)	1770	3539	1583	1770	1863	1583	1390	1583	0	1276	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			338			109		307			509	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1335			1310			2481			639	
Travel Time (s)		30.3			29.8			56.4			14.5	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	12	431	206	137	207	1	96	0	68	2	0	11
Future Volume (vph)	12	431	206	137	207	1	96	0	68	2	0	11
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	20	707	338	225	339	2	157	0	111	3	0	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	707	338	225	339	2	157	111	0	3	18	0

Intersection Summary

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Configurations										
Traffic Volume (vph)	12	431	206	137	207	1	96	0	2	0
Future Volume (vph)	12	431	206	137	207	1	96	0	2	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			4		8
Permitted Phases			6			2	4		8	
Detector Phase	1	6	6	5	2	2	4	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	22.5	22.5	15.0	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	37.5%	37.5%	25.0%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	5.1	20.0	20.0	9.9	33.9	33.9	11.2	11.2	11.0	11.0
Actuated g/C Ratio	0.10	0.38	0.38	0.19	0.65	0.65	0.21	0.21	0.21	0.21
v/c Ratio	0.12	0.52	0.41	0.67	0.28	0.00	0.53	0.19	0.01	0.02
Control Delay	25.9	16.4	4.1	33.5	8.4	0.0	25.0	0.7	15.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.9	16.4	4.1	33.5	8.4	0.0	25.0	0.7	15.5	0.1
LOS	C	B	A	C	A	A	C	A	B	A
Approach Delay		12.7			18.3			15.0		2.3
Approach LOS		B			B			B		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 52.1	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 14.5	Intersection LOS: B
Intersection Capacity Utilization 42.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: Fullerton Road & Washington Avenue

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Group Flow (vph)	20	707	338	225	339	2	157	111	3	18
v/c Ratio	0.12	0.52	0.41	0.67	0.28	0.00	0.53	0.19	0.01	0.02
Control Delay	25.9	16.4	4.1	33.5	8.4	0.0	25.0	0.7	15.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.9	16.4	4.1	33.5	8.4	0.0	25.0	0.7	15.5	0.1
Queue Length 50th (ft)	6	94	0	66	41	0	44	0	1	0
Queue Length 95th (ft)	16	101	3	89	90	0	56	0	4	0
Internal Link Dist (ft)		1255			1230			2401		559
Turn Bay Length (ft)			170	150			80			
Base Capacity (vph)	172	1357	815	361	1213	1069	487	754	447	885
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.52	0.41	0.62	0.28	0.00	0.32	0.15	0.01	0.02

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	12	431	206	137	207	1	96	0	68	2	0	11
Future Volume (veh/h)	12	431	206	137	207	1	96	0	68	2	0	11
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	20	707	338	225	339	2	157	0	111	3	0	18
Adj No. of Lanes	1	2	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	43	1353	605	283	964	819	378	0	272	292	0	272
Arrive On Green	0.02	0.38	0.38	0.16	0.52	0.52	0.17	0.00	0.17	0.17	0.00	0.17
Sat Flow, veh/h	1774	3539	1583	1774	1863	1583	1389	0	1583	1277	0	1583
Grp Volume(v), veh/h	20	707	338	225	339	2	157	0	111	3	0	18
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1863	1583	1389	0	1583	1277	0	1583
Q Serve(g_s), s	0.5	7.3	7.9	5.7	5.1	0.0	5.0	0.0	2.9	0.1	0.0	0.4
Cycle Q Clear(g_c), s	0.5	7.3	7.9	5.7	5.1	0.0	5.5	0.0	2.9	3.0	0.0	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	43	1353	605	283	964	819	378	0	272	292	0	272
V/C Ratio(X)	0.46	0.52	0.56	0.80	0.35	0.00	0.42	0.00	0.41	0.01	0.00	0.07
Avail Cap(c_a), veh/h	188	1353	605	396	964	819	671	0	605	561	0	605
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.7	11.2	11.4	19.1	6.7	5.5	18.6	0.0	17.4	18.7	0.0	16.3
Incr Delay (d2), s/veh	7.4	1.4	3.7	7.4	1.0	0.0	0.7	0.0	1.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	3.8	4.0	3.4	2.8	0.0	2.0	0.0	1.3	0.0	0.0	0.2
LnGrp Delay(d),s/veh	30.1	12.7	15.1	26.5	7.7	5.5	19.4	0.0	18.4	18.7	0.0	16.4
LnGrp LOS	C	B	B	C	A	A	B		B	B		B
Approach Vol, veh/h		1065			566			268			21	
Approach Delay, s/veh		13.8			15.2			18.9			16.8	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	28.9		12.6	12.0	22.5		12.6
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	23.5		18.0	10.5	18.0		18.0
Max Q Clear Time (g_c+I1), s	2.5	7.1		7.5	7.7	9.9		5.0
Green Ext Time (p_c), s	0.0	1.8		0.8	0.2	3.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	14.9
HCM 2010 LOS	B

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	255		0	160		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.990			0.995			0.876			0.967	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3504	0	1770	3522	0	1770	1632	0	1770	1801	0
Flt Permitted	0.950			0.950			0.684			0.385		
Satd. Flow (perm)	1770	3504	0	1770	3522	0	1274	1632	0	717	1801	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			7			358			22	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1310			2652			2655			1165	
Travel Time (s)		29.8			60.3			60.3			26.5	

Intersection Summary	
Area Type:	Other

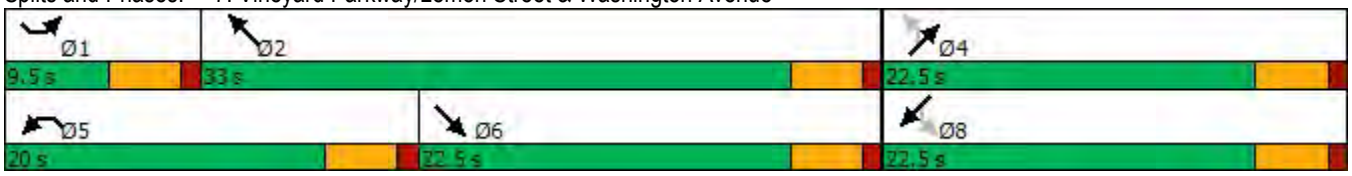
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	12	564	41	361	274	10	40	69	329	13	81	23
Future Volume (vph)	12	564	41	361	274	10	40	69	329	13	81	23
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	13	613	45	392	298	11	43	75	358	14	88	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	658	0	392	309	0	43	433	0	14	113	0

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Configurations								
Traffic Volume (vph)	12	564	361	274	40	69	13	81
Future Volume (vph)	12	564	361	274	40	69	13	81
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	1	6	5	2		4		8
Permitted Phases					4		8	
Detector Phase	1	6	5	2	4	4	8	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	22.5	20.0	33.0	22.5	22.5	22.5	22.5
Total Split (%)	14.6%	34.6%	30.8%	50.8%	34.6%	34.6%	34.6%	34.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	None	Max	None	None	None	None
Act Effct Green (s)	5.0	18.1	15.3	36.3	10.4	10.4	10.4	10.4
Actuated g/C Ratio	0.09	0.32	0.27	0.63	0.18	0.18	0.18	0.18
v/c Ratio	0.08	0.59	0.83	0.14	0.19	0.74	0.11	0.33
Control Delay	27.9	19.8	39.6	6.1	21.0	13.1	20.5	19.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.9	19.8	39.6	6.1	21.0	13.1	20.5	19.1
LOS	C	B	D	A	C	B	C	B
Approach Delay		20.0		24.8		13.8		19.3
Approach LOS		B		C		B		B

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 57.4	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 20.2	Intersection LOS: C
Intersection Capacity Utilization 72.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: Vineyard Parkway/Lemon Street & Washington Avenue



Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	13	658	392	309	43	433	14	113
v/c Ratio	0.08	0.59	0.83	0.14	0.19	0.74	0.11	0.33
Control Delay	27.9	19.8	39.6	6.1	21.0	13.1	20.5	19.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.9	19.8	39.6	6.1	21.0	13.1	20.5	19.1
Queue Length 50th (ft)	4	94	122	15	13	22	4	27
Queue Length 95th (ft)	20	172	#305	60	35	96	17	63
Internal Link Dist (ft)		1230		2572		2575		1085
Turn Bay Length (ft)	150		255		160		150	
Base Capacity (vph)	155	1114	481	2230	402	760	226	583
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.59	0.81	0.14	0.11	0.57	0.06	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	12	564	41	361	274	10	40	69	329	13	81	23
Future Volume (veh/h)	12	564	41	361	274	10	40	69	329	13	81	23
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	13	613	45	392	298	11	43	75	358	14	88	25
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	29	926	68	423	1738	64	402	78	372	124	387	110
Arrive On Green	0.02	0.28	0.28	0.24	0.50	0.50	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1774	3344	245	1774	3482	128	1275	282	1344	951	1396	397
Grp Volume(v), veh/h	13	324	334	392	151	158	43	0	433	14	0	113
Grp Sat Flow(s),veh/h/ln	1774	1770	1819	1774	1770	1840	1275	0	1626	951	0	1793
Q Serve(g_s), s	0.5	10.5	10.6	14.0	3.0	3.1	1.8	0.0	17.1	0.9	0.0	3.2
Cycle Q Clear(g_c), s	0.5	10.5	10.6	14.0	3.0	3.1	4.9	0.0	17.1	18.0	0.0	3.2
Prop In Lane	1.00		0.13	1.00		0.07	1.00		0.83	1.00		0.22
Lane Grp Cap(c), veh/h	29	490	504	423	884	919	402	0	450	124	0	496
V/C Ratio(X)	0.46	0.66	0.66	0.93	0.17	0.17	0.11	0.00	0.96	0.11	0.00	0.23
Avail Cap(c_a), veh/h	136	490	504	423	884	919	402	0	450	124	0	496
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.7	20.8	20.8	24.2	8.9	8.9	20.0	0.0	23.2	32.0	0.0	18.1
Incr Delay (d2), s/veh	10.9	6.9	6.7	26.4	0.4	0.4	0.1	0.0	32.7	0.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	6.1	6.2	10.0	1.6	1.6	0.6	0.0	11.7	0.3	0.0	1.6
LnGrp Delay(d),s/veh	42.6	27.7	27.5	50.6	9.3	9.3	20.1	0.0	55.8	32.4	0.0	18.4
LnGrp LOS	D	C	C	D	A	A	C		E	C		B
Approach Vol, veh/h		671			701			476			127	
Approach Delay, s/veh		27.9			32.4			52.6			19.9	
Approach LOS		C			C			D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.5	37.0		22.5	20.0	22.5		22.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	28.5		18.0	15.5	18.0		18.0
Max Q Clear Time (g_c+I1), s	2.5	5.1		19.1	16.0	12.6		20.0
Green Ext Time (p_c), s	0.0	1.8		0.0	0.0	1.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	34.9
HCM 2010 LOS	C

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	200		0	100		100	105		0	150		150
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.980				0.850		0.984				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1825	0	1770	1863	1583	1770	1833	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1825	0	1770	1863	1583	1770	1833	0	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12				205		7				453
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2652			1695			1544			1371	
Travel Time (s)		60.3			38.5			35.1			31.2	

Intersection Summary	
Area Type:	Other

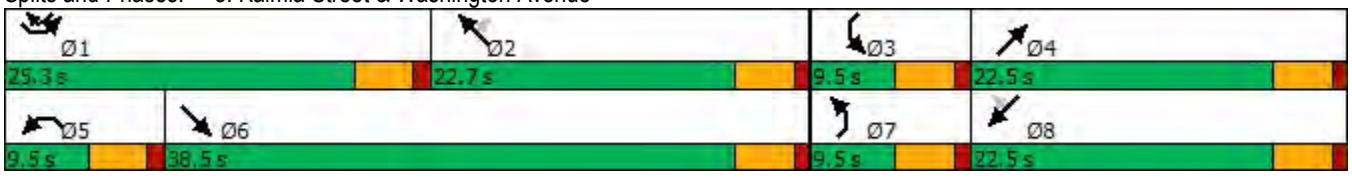
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	721	249	37	3	269	65	58	51	6	59	47	385
Future Volume (vph)	721	249	37	3	269	65	58	51	6	59	47	385
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	848	293	44	4	316	76	68	60	7	69	55	453
Shared Lane Traffic (%)												
Lane Group Flow (vph)	848	337	0	4	316	76	68	67	0	69	55	453

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	721	249	3	269	65	58	51	59	47	385
Future Volume (vph)	721	249	3	269	65	58	51	59	47	385
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	1	6	5	2		7	4	3	8	1
Permitted Phases					2					8
Detector Phase	1	6	5	2	2	7	4	3	8	1
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5
Total Split (s)	25.3	38.5	9.5	22.7	22.7	9.5	22.5	9.5	22.5	25.3
Total Split (%)	31.6%	48.1%	11.9%	28.4%	28.4%	11.9%	28.1%	11.9%	28.1%	31.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	20.2	43.5	5.2	18.9	18.9	5.2	7.7	5.2	7.7	20.2
Actuated g/C Ratio	0.32	0.69	0.08	0.30	0.30	0.08	0.12	0.08	0.12	0.32
v/c Ratio	0.77	0.27	0.03	0.56	0.12	0.47	0.29	0.47	0.24	0.56
Control Delay	27.2	7.8	31.7	26.6	0.4	43.7	28.9	44.1	30.4	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.2	7.8	31.7	26.6	0.4	43.7	28.9	44.1	30.4	5.3
LOS	C	A	C	C	A	D	C	D	C	A
Approach Delay		21.7		21.6			36.4		12.4	
Approach LOS		C		C			D		B	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 62.7	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 20.2	Intersection LOS: C
Intersection Capacity Utilization 55.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Kalmia Street & Washington Avenue



Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Group Flow (vph)	848	337	4	316	76	68	67	69	55	453
v/c Ratio	0.77	0.27	0.03	0.56	0.12	0.47	0.29	0.47	0.24	0.56
Control Delay	27.2	7.8	31.7	26.6	0.4	43.7	28.9	44.1	30.4	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.2	7.8	31.7	26.6	0.4	43.7	28.9	44.1	30.4	5.3
Queue Length 50th (ft)	172	55	2	120	0	29	24	29	22	0
Queue Length 95th (ft)	#240	137	10	195	0	#74	55	#75	50	50
Internal Link Dist (ft)		2572		1615			1464		1291	
Turn Bay Length (ft)	200		100		100	105		150		150
Base Capacity (vph)	1184	1268	146	562	621	146	552	146	556	842
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.27	0.03	0.56	0.12	0.47	0.12	0.47	0.10	0.54

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	721	249	37	3	269	65	58	51	6	59	47	385
Future Volume (veh/h)	721	249	37	3	269	65	58	51	6	59	47	385
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	848	293	44	4	316	76	68	60	7	69	55	453
Adj No. of Lanes	2	1	0	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	908	774	116	9	430	365	87	373	43	88	425	779
Arrive On Green	0.26	0.49	0.49	0.01	0.23	0.23	0.05	0.23	0.23	0.05	0.23	0.23
Sat Flow, veh/h	3442	1583	238	1774	1863	1583	1774	1638	191	1774	1863	1583
Grp Volume(v), veh/h	848	0	337	4	316	76	68	0	67	69	55	453
Grp Sat Flow(s),veh/h/ln	1721	0	1821	1774	1863	1583	1774	0	1829	1774	1863	1583
Q Serve(g_s), s	19.0	0.0	9.2	0.2	12.4	3.1	3.0	0.0	2.3	3.0	1.9	16.1
Cycle Q Clear(g_c), s	19.0	0.0	9.2	0.2	12.4	3.1	3.0	0.0	2.3	3.0	1.9	16.1
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	908	0	891	9	430	365	87	0	416	88	425	779
V/C Ratio(X)	0.93	0.00	0.38	0.42	0.74	0.21	0.78	0.00	0.16	0.78	0.13	0.58
Avail Cap(c_a), veh/h	908	0	891	112	430	365	112	0	417	112	425	779
HCM 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
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.4	0.0	12.6	39.1	28.1	24.5	37.1	0.0	24.4	37.1	24.2	14.3
Incr Delay (d2), s/veh	16.3	0.0	1.2	27.4	10.7	1.3	22.7	0.0	0.2	23.3	0.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.0	0.0	4.9	0.2	7.6	1.5	2.0	0.0	1.2	2.0	1.0	7.2
LnGrp Delay(d),s/veh	44.7	0.0	13.9	66.5	38.8	25.8	59.8	0.0	24.6	60.3	24.3	15.4
LnGrp LOS	D		B	E	D	C	E		C	E	C	B
Approach Vol, veh/h		1185			396			135			577	
Approach Delay, s/veh		35.9			36.6			42.3			21.6	
Approach LOS		D			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.3	22.7	8.4	22.4	4.9	43.1	8.4	22.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	20.8	18.2	5.0	18.0	5.0	34.0	5.0	18.0
Max Q Clear Time (g_c+I1), s	21.0	14.4	5.0	4.3	2.2	11.2	5.0	18.1
Green Ext Time (p_c), s	0.0	0.8	0.0	0.2	0.0	2.1	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	32.8
HCM 2010 LOS	C

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	60		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor												
Frt		0.997						0.912				0.850
Flt Protected				0.950				0.983			0.950	
Satd. Flow (prot)	0	1857	0	1770	1863	0	0	1670	0	0	1770	1583
Flt Permitted				0.950				0.983			0.950	
Satd. Flow (perm)	0	1857	0	1770	1863	0	0	1670	0	0	1770	1583
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1045			237			351			183	
Travel Time (s)		23.8			5.4			8.0			4.2	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	0	282	6	6	245	0	7	0	13	121	0	61
Future Volume (vph)	0	282	6	6	245	0	7	0	13	121	0	61
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	366	8	8	318	0	9	0	17	157	0	79
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	374	0	8	318	0	0	26	0	0	157	79

Intersection Summary

Intersection	
Int Delay, s/veh	5.3

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	282	6	6	245	0	7	0	13	121	0	61
Future Vol, veh/h	0	282	6	6	245	0	7	0	13	121	0	61
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	60	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	366	8	8	318	0	9	0	17	157	0	79

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	374	0	0	744	704	370	713	708	318
Stage 1	-	-	-	-	-	-	370	370	-	334	334	-
Stage 2	-	-	-	-	-	-	374	334	-	379	374	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1184	-	0	331	361	676	347	360	723
Stage 1	0	-	-	-	-	0	650	620	-	680	643	-
Stage 2	0	-	-	-	-	0	647	643	-	643	618	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1184	-	-	293	358	676	337	357	723
Mov Cap-2 Maneuver	-	-	-	-	-	-	293	358	-	337	357	-
Stage 1	-	-	-	-	-	-	650	620	-	680	638	-
Stage 2	-	-	-	-	-	-	572	638	-	627	618	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0.2	13.2	20
HCM LOS			B	C

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	464	1184	-	-	-	337	723
HCM Lane V/C Ratio	0.056	0.007	-	-	-	0.466	0.11
HCM Control Delay (s)	13.2	8.1	-	-	-	24.7	10.6
HCM Lane LOS	B	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.2	0	-	-	-	2.4	0.4

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt					0.992	
Flt Protected				0.971		
Satd. Flow (prot)	1863	0	0	1809	1848	0
Flt Permitted				0.971		
Satd. Flow (perm)	1863	0	0	1809	1848	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	112			181	2481	
Travel Time (s)	2.5			4.1	56.4	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Traffic Volume (vph)	0	0	270	183	48	3
Future Volume (vph)	0	0	270	183	48	3
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.48	0.48	0.48	0.48	0.48	0.48
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	0	0	563	381	100	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	944	106	0

Intersection Summary

Intersection	
Int Delay, s/veh	4.8

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	0	0	270	183	48	3
Future Vol, veh/h	0	0	270	183	48	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	48	48	48	48	48	48
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	563	381	100	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1610	103	106	0	-	0
Stage 1	103	-	-	-	-	-
Stage 2	1507	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	115	952	1485	-	-	-
Stage 1	921	-	-	-	-	-
Stage 2	202	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	60	952	1485	-	-	-
Mov Cap-2 Maneuver	60	-	-	-	-	-
Stage 1	478	-	-	-	-	-
Stage 2	202	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	0	5.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1485	-	-	-	-
HCM Lane V/C Ratio	0.379	-	-	-	-
HCM Control Delay (s)	8.9	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	1.8	-	-	-	-

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.865		
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	0	1611	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	0	1611	1770	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		340	1045		2657	
Travel Time (s)		7.7	23.8		60.4	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Traffic Volume (vph)	0	0	0	61	49	0
Future Volume (vph)	0	0	0	61	49	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	0	0	74	60	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	74	60	0

Intersection Summary

Intersection	
Intersection Delay, s/veh	7.1
Intersection LOS	A

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	61	49	0
Future Vol, veh/h	0	0	0	61	49	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	74	60	0
Number of Lanes	0	1	0	1	1	0

Approach	SE	NW	SW
Opposing Approach	NW	SE	
Opposing Lanes	1	1	0
Conflicting Approach Left	SW		NW
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SW	SE
Conflicting Lanes Right	0	1	1
HCM Control Delay	0	6.7	7.6
HCM LOS	-	A	A

Lane	NWLn1	SELn1	SWLn1
Vol Left, %	0%	0%	100%
Vol Thru, %	0%	100%	0%
Vol Right, %	100%	0%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	61	0	49
LT Vol	0	0	49
Through Vol	0	0	0
RT Vol	61	0	0
Lane Flow Rate	74	0	60
Geometry Grp	1	1	1
Degree of Util (X)	0.071	0	0.071
Departure Headway (Hd)	3.438	4.095	4.264
Convergence, Y/N	Yes	Yes	Yes
Cap	1038	0	843
Service Time	1.473	2.135	2.274
HCM Lane V/C Ratio	0.071	0	0.071
HCM Control Delay	6.7	7.1	7.6
HCM Lane LOS	A	N	A
HCM 95th-tile Q	0.2	0	0.2

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	60			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.920			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1863	1714	0	1770	0
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1863	1714	0	1770	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		237	1361		181	
Travel Time (s)		5.4	30.9		4.1	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Traffic Volume (vph)	22	73	33	48	2	0
Future Volume (vph)	22	73	33	48	2	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	27	89	40	59	2	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	89	99	0	2	0

Intersection Summary

Intersection	
Int Delay, s/veh	1

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	22	73	33	48	2	0
Future Vol, veh/h	22	73	33	48	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	60	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	89	40	59	2	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	99	0	-	0	213	70
Stage 1	-	-	-	-	70	-
Stage 2	-	-	-	-	143	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1494	-	-	-	775	993
Stage 1	-	-	-	-	953	-
Stage 2	-	-	-	-	884	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1494	-	-	-	761	993
Mov Cap-2 Maneuver	-	-	-	-	761	-
Stage 1	-	-	-	-	936	-
Stage 2	-	-	-	-	884	-

Approach	SE	NW	SW
HCM Control Delay, s	1.7	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	1494	-	761
HCM Lane V/C Ratio	-	-	0.018	-	0.003
HCM Control Delay (s)	-	-	7.5	-	9.7
HCM Lane LOS	-	-	A	-	A
HCM 95th %tile Q(veh)	-	-	0.1	-	0

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	120	0	100			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	1863	1863	1583
Link Speed (mph)	30			30	30	
Link Distance (ft)	1361			666	2655	
Travel Time (s)	30.9			15.1	60.3	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Traffic Volume (vph)	77	3	2	21	21	111
Future Volume (vph)	77	3	2	21	21	111
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	100	4	3	27	27	144
Shared Lane Traffic (%)						
Lane Group Flow (vph)	100	4	3	27	27	144

Intersection Summary

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	77	3	2	21	21	111
Future Vol, veh/h	77	3	2	21	21	111
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	100	4	3	27	27	144
Number of Lanes	1	1	1	1	1	1

Approach	SE	NE	SW
Opposing Approach		SW	NE
Opposing Lanes	0	2	2
Conflicting Approach Left	SW	SE	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NE		SE
Conflicting Lanes Right	2	0	2
HCM Control Delay	9.1	7.9	7.7
HCM LOS	A	A	A

Lane	NELn1	NELn2	SELn1	SELn2	SWLn1	SWLn2
Vol Left, %	100%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	2	21	77	3	21	111
LT Vol	2	0	77	0	0	0
Through Vol	0	21	0	0	21	0
RT Vol	0	0	0	3	0	111
Lane Flow Rate	3	27	100	4	27	144
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.004	0.038	0.152	0.005	0.037	0.167
Departure Headway (Hd)	5.467	4.965	5.475	4.273	4.862	4.16
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	657	724	657	839	740	866
Service Time	3.178	2.676	3.192	1.989	2.57	1.867
HCM Lane V/C Ratio	0.005	0.037	0.152	0.005	0.036	0.166
HCM Control Delay	8.2	7.9	9.2	7	7.8	7.7
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0	0.1	0.5	0	0.1	0.6

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	85		0	150		0	150		0	250		100
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.992				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3511	0	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3511	0	1770	1863	1583	1770	1863	1583	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				143			213			205
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1461			2630			1510			1533	
Travel Time (s)		33.2			59.8			34.3			34.8	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	57	224	12	285	495	118	16	87	202	123	247	178
Future Volume (vph)	57	224	12	285	495	118	16	87	202	123	247	178
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	60	236	13	300	521	124	17	92	213	129	260	187
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	249	0	300	521	124	17	92	213	129	260	187

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	57	224	285	495	118	16	87	202	123	247	178
Future Volume (vph)	57	224	285	495	118	16	87	202	123	247	178
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	5	2		7	4	5	3	8	
Permitted Phases					2			4			8
Detector Phase	1	6	5	2	2	7	4	5	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5	9.5	22.5	22.5
Total Split (s)	9.5	23.5	21.0	35.0	35.0	9.5	22.5	21.0	13.0	26.0	26.0
Total Split (%)	11.9%	29.4%	26.3%	43.8%	43.8%	11.9%	28.1%	26.3%	16.3%	32.5%	32.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	5.1	19.6	15.2	32.1	32.1	5.1	10.6	15.2	8.2	18.7	18.7
Actuated g/C Ratio	0.07	0.28	0.22	0.47	0.47	0.07	0.15	0.22	0.12	0.27	0.27
v/c Ratio	0.46	0.25	0.77	0.60	0.15	0.13	0.32	0.41	0.61	0.51	0.32
Control Delay	46.7	21.5	42.2	20.3	2.9	35.9	30.7	7.0	46.0	25.7	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.7	21.5	42.2	20.3	2.9	35.9	30.7	7.0	46.0	25.7	4.6
LOS	D	C	D	C	A	D	C	A	D	C	A
Approach Delay		26.4		25.0			15.3			23.4	
Approach LOS		C		C			B			C	

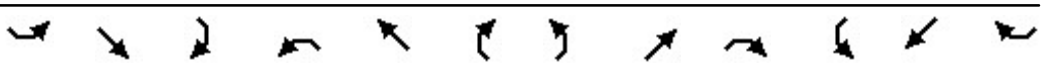
Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 68.9	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 23.3	Intersection LOS: C
Intersection Capacity Utilization 55.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 4: Calle Del Oso Oro/Nutmeg Street & Washington Avenue

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Group Flow (vph)	60	249	300	521	124	17	92	213	129	260	187
v/c Ratio	0.46	0.25	0.77	0.60	0.15	0.13	0.32	0.41	0.61	0.51	0.32
Control Delay	46.7	21.5	42.2	20.3	2.9	35.9	30.7	7.0	46.0	25.7	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.7	21.5	42.2	20.3	2.9	35.9	30.7	7.0	46.0	25.7	4.6
Queue Length 50th (ft)	26	43	121	172	0	7	38	0	54	90	0
Queue Length 95th (ft)	#80	84	#274	336	25	28	77	54	#143	182	39
Internal Link Dist (ft)		1381		2550			1430			1453	
Turn Bay Length (ft)	85		150			150			250		100
Base Capacity (vph)	131	1003	432	869	814	131	496	547	222	602	651
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.25	0.69	0.60	0.15	0.13	0.19	0.39	0.58	0.43	0.29

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	57	224	12	285	495	118	16	87	202	123	247	178
Future Volume (veh/h)	57	224	12	285	495	118	16	87	202	123	247	178
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	60	236	13	300	521	124	17	92	213	129	260	187
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	88	1031	56	349	836	711	36	268	539	164	402	342
Arrive On Green	0.05	0.30	0.30	0.20	0.45	0.45	0.02	0.14	0.14	0.09	0.22	0.22
Sat Flow, veh/h	1774	3412	187	1774	1863	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	60	122	127	300	521	124	17	92	213	129	260	187
Grp Sat Flow(s),veh/h/ln	1774	1770	1830	1774	1863	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	2.3	3.5	3.5	11.1	14.5	3.2	0.6	3.0	7.0	4.8	8.6	7.1
Cycle Q Clear(g_c), s	2.3	3.5	3.5	11.1	14.5	3.2	0.6	3.0	7.0	4.8	8.6	7.1
Prop In Lane	1.00		0.10	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	88	534	553	349	836	711	36	268	539	164	402	342
V/C Ratio(X)	0.68	0.23	0.23	0.86	0.62	0.17	0.47	0.34	0.39	0.79	0.65	0.55
Avail Cap(c_a), veh/h	131	534	553	431	836	711	131	494	731	222	589	501
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.7	17.8	17.8	26.4	14.3	11.2	32.9	26.2	17.1	30.2	24.3	23.7
Incr Delay (d2), s/veh	8.7	1.0	1.0	13.6	3.5	0.5	9.4	0.8	0.5	12.3	1.7	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.8	1.9	6.7	8.2	1.5	0.4	1.6	3.1	2.9	4.6	3.2
LnGrp Delay(d),s/veh	40.5	18.8	18.8	40.0	17.8	11.7	42.3	27.0	17.5	42.5	26.0	25.0
LnGrp LOS	D	B	B	D	B	B	D	C	B	D	C	C
Approach Vol, veh/h		309			945			322			576	
Approach Delay, s/veh		23.0			24.0			21.5			29.4	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	35.0	10.8	14.3	17.9	25.0	5.9	19.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	30.5	8.5	18.0	16.5	19.0	5.0	21.5
Max Q Clear Time (g_c+I1), s	4.3	16.5	6.8	9.0	13.1	5.5	2.6	10.6
Green Ext Time (p_c), s	0.0	3.3	0.0	0.8	0.3	1.1	0.0	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	24.9
HCM 2010 LOS	C

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		280	300		0	350		0	150		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor												
Frt			0.850		0.998			0.933			0.912	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3532	0	1770	1738	0	1770	3228	0
Flt Permitted	0.950			0.950			0.477			0.694		
Satd. Flow (perm)	1770	3539	1583	1770	3532	0	889	1738	0	1293	3228	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			176		2			44			75	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2630			1335			2657			1296	
Travel Time (s)		59.8			30.3			60.4			29.5	

Intersection Summary	
Area Type:	Other

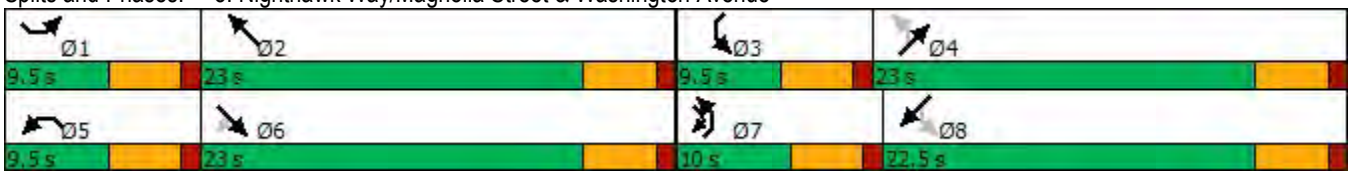
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	36	422	107	54	533	8	105	51	42	9	50	71
Future Volume (vph)	36	422	107	54	533	8	105	51	42	9	50	71
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	38	444	113	57	561	8	111	54	44	9	53	75
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	444	113	57	569	0	111	98	0	9	128	0

Intersection Summary

Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Configurations									
Traffic Volume (vph)	36	422	107	54	533	105	51	9	50
Future Volume (vph)	36	422	107	54	533	105	51	9	50
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	7	5	2	7	4	3	8
Permitted Phases			6			4		8	
Detector Phase	1	6	7	5	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	9.5	23.0	10.0	9.5	23.0	10.0	23.0	9.5	22.5
Total Split (%)	14.6%	35.4%	15.4%	14.6%	35.4%	15.4%	35.4%	14.6%	34.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	Max	None	None	None	None
Act Effct Green (s)	5.1	24.0	5.6	5.1	25.7	13.7	12.8	10.5	6.8
Actuated g/C Ratio	0.10	0.49	0.11	0.10	0.52	0.28	0.26	0.21	0.14
v/c Ratio	0.21	0.26	0.34	0.31	0.31	0.32	0.20	0.03	0.25
Control Delay	26.1	12.4	4.6	28.0	11.5	15.7	11.8	13.0	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.1	12.4	4.6	28.0	11.5	15.7	11.8	13.0	12.0
LOS	C	B	A	C	B	B	B	B	B
Approach Delay		11.8			13.0		13.9		12.1
Approach LOS		B			B		B		B

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 49	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.34	
Intersection Signal Delay: 12.6	Intersection LOS: B
Intersection Capacity Utilization 44.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 5: Nighthawk Way/Magnolia Street & Washington Avenue



Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	38	444	113	57	569	111	98	9	128
v/c Ratio	0.21	0.26	0.34	0.31	0.31	0.32	0.20	0.03	0.25
Control Delay	26.1	12.4	4.6	28.0	11.5	15.7	11.8	13.0	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.1	12.4	4.6	28.0	11.5	15.7	11.8	13.0	12.0
Queue Length 50th (ft)	11	53	0	17	47	26	12	2	7
Queue Length 95th (ft)	36	93	17	48	120	55	50	10	27
Internal Link Dist (ft)		2550			1255		2577		1216
Turn Bay Length (ft)	150		280	300		350		150	
Base Capacity (vph)	184	1731	337	184	1854	350	698	326	1260
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.26	0.34	0.31	0.31	0.32	0.14	0.03	0.10

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	36	422	107	54	533	8	105	51	42	9	50	71
Future Volume (veh/h)	36	422	107	54	533	8	105	51	42	9	50	71
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	38	444	113	57	561	8	111	54	44	9	53	75
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	1370	741	99	1433	20	363	161	131	301	177	158
Arrive On Green	0.04	0.39	0.39	0.06	0.40	0.40	0.08	0.17	0.17	0.01	0.10	0.10
Sat Flow, veh/h	1774	3539	1583	1774	3572	51	1774	951	775	1774	1770	1583
Grp Volume(v), veh/h	38	444	113	57	278	291	111	0	98	9	53	75
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1854	1774	0	1726	1774	1770	1583
Q Serve(g_s), s	1.0	4.2	2.0	1.5	5.3	5.3	2.6	0.0	2.4	0.2	1.3	2.1
Cycle Q Clear(g_c), s	1.0	4.2	2.0	1.5	5.3	5.3	2.6	0.0	2.4	0.2	1.3	2.1
Prop In Lane	1.00		1.00	1.00		0.03	1.00		0.45	1.00		1.00
Lane Grp Cap(c), veh/h	74	1370	741	99	710	744	363	0	291	301	177	158
V/C Ratio(X)	0.52	0.32	0.15	0.58	0.39	0.39	0.31	0.00	0.34	0.03	0.30	0.47
Avail Cap(c_a), veh/h	186	1370	741	186	710	744	424	0	668	465	667	596
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.4	10.3	7.3	22.0	10.2	10.2	16.5	0.0	17.5	18.9	20.0	20.3
Incr Delay (d2), s/veh	5.5	0.6	0.4	5.3	1.6	1.5	0.5	0.0	0.7	0.0	0.9	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.2	0.9	0.9	2.9	3.0	1.3	0.0	1.2	0.1	0.7	1.0
LnGrp Delay(d),s/veh	28.0	10.9	7.7	27.3	11.8	11.7	17.0	0.0	18.2	19.0	20.9	22.5
LnGrp LOS	C	B	A	C	B	B	B		B	B	C	C
Approach Vol, veh/h		595			626			209			137	
Approach Delay, s/veh		11.4			13.2			17.5			21.6	
Approach LOS		B			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.5	23.7	5.1	12.6	7.2	23.0	8.4	9.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.5	5.0	18.5	5.0	18.5	5.5	18.0
Max Q Clear Time (g_c+I1), s	3.0	7.3	2.2	4.4	3.5	6.2	4.6	4.1
Green Ext Time (p_c), s	0.0	2.6	0.0	0.4	0.0	2.7	0.0	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	13.8
HCM 2010 LOS	B

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		170	150		0	80		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850			0.850		0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	1863	1583	1770	1583	0	1770	1583	0
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	1770	3539	1583	1770	1863	1583	1863	1583	0	1863	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109			109		363			307	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1335			1310			2481			639	
Travel Time (s)		30.3			29.8			56.4			14.5	

Intersection Summary	
Area Type:	Other

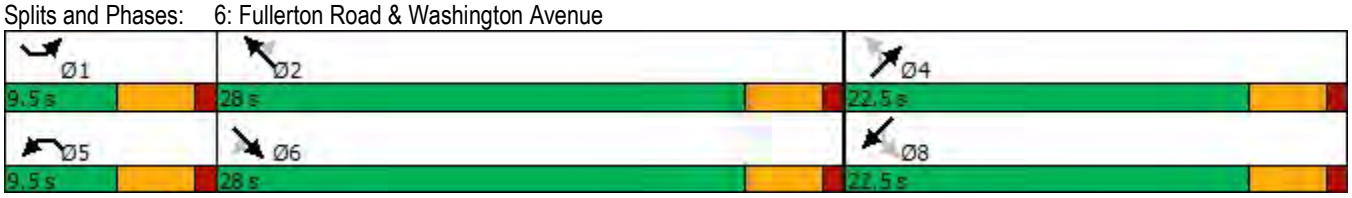
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	3	476	10	6	585	1	10	0	3	1	0	4
Future Volume (vph)	3	476	10	6	585	1	10	0	3	1	0	4
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	3	496	10	6	609	1	10	0	3	1	0	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	496	10	6	609	1	10	3	0	1	4	0

Intersection Summary

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Configurations										
Traffic Volume (vph)	3	476	10	6	585	1	10	0	1	0
Future Volume (vph)	3	476	10	6	585	1	10	0	1	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			4		8
Permitted Phases			6			2	4		8	
Detector Phase	1	6	6	5	2	2	4	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	28.0	28.0	9.5	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	46.7%	46.7%	15.8%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	5.0	39.6	39.6	5.0	39.6	39.6	5.9	5.9	5.8	5.8
Actuated g/C Ratio	0.11	0.90	0.90	0.11	0.90	0.90	0.13	0.13	0.13	0.13
v/c Ratio	0.01	0.16	0.01	0.03	0.36	0.00	0.04	0.01	0.00	0.01
Control Delay	18.7	2.6	0.0	19.0	4.2	0.0	17.8	0.0	18.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.7	2.6	0.0	19.0	4.2	0.0	17.8	0.0	18.0	0.0
LOS	B	A	A	B	A	A	B	A	B	A
Approach Delay		2.6			4.4			13.7		3.6
Approach LOS		A			A			B		A

Intersection Summary		
Cycle Length: 60		
Actuated Cycle Length: 44.2		
Natural Cycle: 60		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.36		
Intersection Signal Delay: 3.7	Intersection LOS: A	
Intersection Capacity Utilization 45.5%	ICU Level of Service A	
Analysis Period (min) 15		

Splits and Phases: 6: Fullerton Road & Washington Avenue



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Group Flow (vph)	3	496	10	6	609	1	10	3	1	4
v/c Ratio	0.01	0.16	0.01	0.03	0.36	0.00	0.04	0.01	0.00	0.01
Control Delay	18.7	2.6	0.0	19.0	4.2	0.0	17.8	0.0	18.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.7	2.6	0.0	19.0	4.2	0.0	17.8	0.0	18.0	0.0
Queue Length 50th (ft)	1	0	0	1	0	0	2	0	0	0
Queue Length 95th (ft)	6	65	0	10	215	0	13	0	4	0
Internal Link Dist (ft)		1255			1230			2401		559
Turn Bay Length (ft)			170	150			80			
Base Capacity (vph)	200	3172	1430	200	1670	1430	761	861	761	828
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.16	0.01	0.03	0.36	0.00	0.01	0.00	0.00	0.00

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	3	476	10	6	585	1	10	0	3	1	0	4
Future Volume (veh/h)	3	476	10	6	585	1	10	0	3	1	0	4
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	3	496	10	6	609	1	10	0	3	1	0	4
Adj No. of Lanes	1	2	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	7	2179	975	14	1154	981	217	0	36	218	0	36
Arrive On Green	0.00	0.62	0.62	0.01	0.62	0.62	0.02	0.00	0.02	0.02	0.00	0.02
Sat Flow, veh/h	1774	3539	1583	1774	1863	1583	1407	0	1583	1408	0	1583
Grp Volume(v), veh/h	3	496	10	6	609	1	10	0	3	1	0	4
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1863	1583	1407	0	1583	1408	0	1583
Q Serve(g_s), s	0.1	2.4	0.1	0.1	7.1	0.0	0.3	0.0	0.1	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.1	2.4	0.1	0.1	7.1	0.0	0.4	0.0	0.1	0.1	0.0	0.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	7	2179	975	14	1154	981	217	0	36	218	0	36
V/C Ratio(X)	0.41	0.23	0.01	0.42	0.53	0.00	0.05	0.00	0.08	0.00	0.00	0.11
Avail Cap(c_a), veh/h	232	2179	975	232	1154	981	848	0	747	850	0	747
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.0	3.3	2.8	18.8	4.1	2.8	18.5	0.0	18.3	18.3	0.0	18.3
Incr Delay (d2), s/veh	33.3	0.2	0.0	18.3	1.7	0.0	0.1	0.0	1.0	0.0	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.2	0.0	0.1	4.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1
LnGrp Delay(d),s/veh	52.3	3.5	2.9	37.1	5.8	2.8	18.5	0.0	19.2	18.3	0.0	19.6
LnGrp LOS	D	A	A	D	A	A	B		B	B		B
Approach Vol, veh/h		509			616			13			5	
Approach Delay, s/veh		3.8			6.1			18.7			19.4	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.7	28.2		5.4	4.8	28.0		5.4
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	23.5		18.0	5.0	23.5		18.0
Max Q Clear Time (g_c+I1), s	2.1	9.1		2.4	2.1	4.4		2.1
Green Ext Time (p_c), s	0.0	3.6		0.0	0.0	3.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	5.3
HCM 2010 LOS	A

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	255		0	160		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.990			0.997			0.873			0.935	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3504	0	1770	3529	0	1770	1626	0	1770	1742	0
Flt Permitted	0.950			0.950			0.715			0.714		
Satd. Flow (perm)	1770	3504	0	1770	3529	0	1332	1626	0	1330	1742	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			4			100			28	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1310			2652			2655			1165	
Travel Time (s)		29.8			60.3			60.3			26.5	

Intersection Summary	
Area Type:	Other

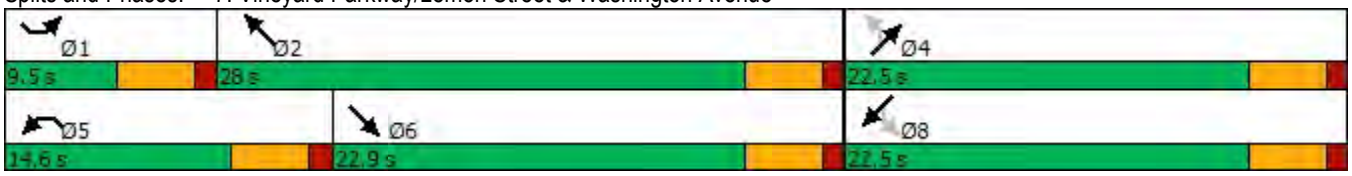
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	13	446	33	127	551	11	29	17	94	10	35	26
Future Volume (vph)	13	446	33	127	551	11	29	17	94	10	35	26
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	14	474	35	135	586	12	31	18	100	11	37	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	509	0	135	598	0	31	118	0	11	65	0

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Configurations								
Traffic Volume (vph)	13	446	127	551	29	17	10	35
Future Volume (vph)	13	446	127	551	29	17	10	35
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	1	6	5	2		4		8
Permitted Phases					4		8	
Detector Phase	1	6	5	2	4	4	8	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	22.9	14.6	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	38.2%	24.3%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	None	Max	None	None	None	None
Act Effct Green (s)	5.0	23.9	8.4	32.8	6.8	6.8	6.8	6.8
Actuated g/C Ratio	0.11	0.51	0.18	0.69	0.14	0.14	0.14	0.14
v/c Ratio	0.07	0.29	0.43	0.24	0.16	0.37	0.06	0.24
Control Delay	21.6	10.5	22.2	5.0	20.1	10.2	18.4	14.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	10.5	22.2	5.0	20.1	10.2	18.4	14.5
LOS	C	B	C	A	C	B	B	B
Approach Delay		10.8		8.2		12.3		15.0
Approach LOS		B		A		B		B

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 47.2	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.43	
Intersection Signal Delay: 9.9	Intersection LOS: A
Intersection Capacity Utilization 39.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 7: Vineyard Parkway/Lemon Street & Washington Avenue



Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	14	509	135	598	31	118	11	65
v/c Ratio	0.07	0.29	0.43	0.24	0.16	0.37	0.06	0.24
Control Delay	21.6	10.5	22.2	5.0	20.1	10.2	18.4	14.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	10.5	22.2	5.0	20.1	10.2	18.4	14.5
Queue Length 50th (ft)	4	48	33	24	8	4	3	9
Queue Length 95th (ft)	17	90	77	88	26	38	13	35
Internal Link Dist (ft)		1230		2572		2575		1085
Turn Bay Length (ft)	150		255		160		150	
Base Capacity (vph)	188	1778	380	2451	509	684	508	684
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.29	0.36	0.24	0.06	0.17	0.02	0.10

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	13	446	33	127	551	11	29	17	94	10	35	26
Future Volume (veh/h)	13	446	33	127	551	11	29	17	94	10	35	26
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	14	474	35	135	586	12	31	18	100	11	37	28
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	32	1559	115	176	1942	40	282	30	165	232	118	90
Arrive On Green	0.02	0.47	0.47	0.10	0.55	0.55	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1774	3343	246	1774	3547	73	1331	247	1373	1269	985	746
Grp Volume(v), veh/h	14	250	259	135	292	306	31	0	118	11	0	65
Grp Sat Flow(s),veh/h/ln	1774	1770	1819	1774	1770	1850	1331	0	1620	1269	0	1731
Q Serve(g_s), s	0.3	3.8	3.8	3.2	3.8	3.8	0.9	0.0	3.0	0.4	0.0	1.5
Cycle Q Clear(g_c), s	0.3	3.8	3.8	3.2	3.8	3.8	2.4	0.0	3.0	3.3	0.0	1.5
Prop In Lane	1.00		0.14	1.00		0.04	1.00		0.85	1.00		0.43
Lane Grp Cap(c), veh/h	32	825	848	176	969	1013	282	0	195	232	0	208
V/C Ratio(X)	0.44	0.30	0.30	0.77	0.30	0.30	0.11	0.00	0.61	0.05	0.00	0.31
Avail Cap(c_a), veh/h	207	825	848	417	969	1013	680	0	679	612	0	726
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.9	7.1	7.1	18.9	5.3	5.3	18.4	0.0	17.9	19.5	0.0	17.3
Incr Delay (d2), s/veh	9.3	0.9	0.9	6.9	0.8	0.8	0.2	0.0	3.0	0.1	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.0	2.1	1.9	2.1	2.2	0.4	0.0	1.5	0.1	0.0	0.8
LnGrp Delay(d),s/veh	30.2	8.1	8.1	25.7	6.1	6.0	18.5	0.0	20.9	19.6	0.0	18.1
LnGrp LOS	C	A	A	C	A	A	B		C	B		B
Approach Vol, veh/h		523			733			149			76	
Approach Delay, s/veh		8.7			9.7			20.4			18.3	
Approach LOS		A			A			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.3	28.0		9.7	8.8	24.5		9.7
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	23.5		18.0	10.1	18.4		18.0
Max Q Clear Time (g_c+I1), s	2.3	5.8		5.0	5.2	5.8		5.3
Green Ext Time (p_c), s	0.0	3.4		0.5	0.1	2.5		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	10.8
HCM 2010 LOS	B

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	200		0	100		100	105		0	150		150
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.981				0.850		0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1827	0	1770	1863	1583	1770	1835	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1827	0	1770	1863	1583	1770	1835	0	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12				164		8				473
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2652			1695			1544			1371	
Travel Time (s)		60.3			38.5			35.1			31.2	

Intersection Summary	
Area Type:	Other

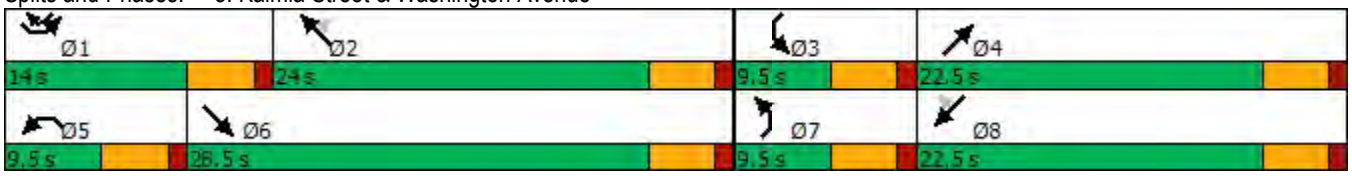
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	405	179	26	5	284	99	44	72	8	79	49	464
Future Volume (vph)	405	179	26	5	284	99	44	72	8	79	49	464
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	413	183	27	5	290	101	45	73	8	81	50	473
Shared Lane Traffic (%)												
Lane Group Flow (vph)	413	210	0	5	290	101	45	81	0	81	50	473

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	405	179	5	284	99	44	72	79	49	464
Future Volume (vph)	405	179	5	284	99	44	72	79	49	464
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	1	6	5	2		7	4	3	8	1
Permitted Phases					2					8
Detector Phase	1	6	5	2	2	7	4	3	8	1
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5
Total Split (s)	14.0	28.5	9.5	24.0	24.0	9.5	22.5	9.5	22.5	14.0
Total Split (%)	20.0%	40.7%	13.6%	34.3%	34.3%	13.6%	32.1%	13.6%	32.1%	20.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	9.7	34.2	5.2	20.3	20.3	5.2	7.8	5.2	9.6	9.7
Actuated g/C Ratio	0.17	0.61	0.09	0.36	0.36	0.09	0.14	0.09	0.17	0.17
v/c Ratio	0.70	0.19	0.03	0.43	0.15	0.27	0.31	0.49	0.16	0.71
Control Delay	31.9	9.1	26.6	18.6	1.5	31.1	24.8	39.8	23.6	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.9	9.1	26.6	18.6	1.5	31.1	24.8	39.8	23.6	10.3
LOS	C	A	C	B	A	C	C	D	C	B
Approach Delay		24.2		14.4			27.0		15.4	
Approach LOS		C		B			C		B	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 55.8	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 19.1	Intersection LOS: B
Intersection Capacity Utilization 59.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Kalmia Street & Washington Avenue



Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Group Flow (vph)	413	210	5	290	101	45	81	81	50	473
v/c Ratio	0.70	0.19	0.03	0.43	0.15	0.27	0.31	0.49	0.16	0.71
Control Delay	31.9	9.1	26.6	18.6	1.5	31.1	24.8	39.8	23.6	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.9	9.1	26.6	18.6	1.5	31.1	24.8	39.8	23.6	10.3
Queue Length 50th (ft)	74	31	2	82	0	16	24	29	16	0
Queue Length 95th (ft)	#142	94	11	154	10	44	58	#84	43	#111
Internal Link Dist (ft)		2572		1615			1464		1291	
Turn Bay Length (ft)	200		100		100	105		150		150
Base Capacity (vph)	607	1125	164	676	679	164	620	164	624	669
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.19	0.03	0.43	0.15	0.27	0.13	0.49	0.08	0.71

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	405	179	26	5	284	99	44	72	8	79	49	464
Future Volume (veh/h)	405	179	26	5	284	99	44	72	8	79	49	464
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	413	183	27	5	290	101	45	73	8	81	50	473
Adj No. of Lanes	2	1	0	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	482	668	99	12	535	455	75	411	45	103	494	642
Arrive On Green	0.14	0.42	0.42	0.01	0.29	0.29	0.04	0.25	0.25	0.06	0.27	0.27
Sat Flow, veh/h	3442	1587	234	1774	1863	1583	1774	1650	181	1774	1863	1583
Grp Volume(v), veh/h	413	0	210	5	290	101	45	0	81	81	50	473
Grp Sat Flow(s),veh/h/ln	1721	0	1821	1774	1863	1583	1774	0	1831	1774	1863	1583
Q Serve(g_s), s	8.0	0.0	5.1	0.2	8.9	3.3	1.7	0.0	2.4	3.1	1.4	17.2
Cycle Q Clear(g_c), s	8.0	0.0	5.1	0.2	8.9	3.3	1.7	0.0	2.4	3.1	1.4	17.2
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	482	0	766	12	535	455	75	0	456	103	494	642
V/C Ratio(X)	0.86	0.00	0.27	0.43	0.54	0.22	0.60	0.00	0.18	0.78	0.10	0.74
Avail Cap(c_a), veh/h	482	0	766	131	535	455	131	0	486	131	494	642
HCM 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
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.5	0.0	12.9	33.6	20.4	18.4	31.9	0.0	20.0	31.5	18.8	17.1
Incr Delay (d2), s/veh	14.2	0.0	0.9	22.5	3.9	1.1	7.6	0.0	0.2	20.8	0.1	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.0	2.8	0.2	5.2	1.6	1.0	0.0	1.2	2.1	0.7	8.2
LnGrp Delay(d),s/veh	42.8	0.0	13.8	56.1	24.3	19.5	39.5	0.0	20.2	52.4	18.9	21.6
LnGrp LOS	D		B	E	C	B	D		C	D	B	C
Approach Vol, veh/h		623			396			126			604	
Approach Delay, s/veh		33.0			23.5			27.1			25.5	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	24.0	8.5	21.4	4.9	33.1	7.4	22.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.5	19.5	5.0	18.0	5.0	24.0	5.0	18.0
Max Q Clear Time (g_c+I1), s	10.0	10.9	5.1	4.4	2.2	7.1	3.7	19.2
Green Ext Time (p_c), s	0.0	1.3	0.0	0.3	0.0	1.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	27.8
HCM 2010 LOS	C

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	60		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor												
Frt		0.986						0.932				0.850
Flt Protected				0.950				0.976			0.950	
Satd. Flow (prot)	0	1837	0	1770	1863	0	0	1694	0	0	1770	1583
Flt Permitted				0.950				0.976			0.950	
Satd. Flow (perm)	0	1837	0	1770	1863	0	0	1694	0	0	1770	1583
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1045			237			351			183	
Travel Time (s)		23.8			5.4			8.0			4.2	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	0	40	5	8	24	0	5	0	5	48	0	29
Future Volume (vph)	0	40	5	8	24	0	5	0	5	48	0	29
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	51	6	10	30	0	6	0	6	61	0	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	57	0	10	30	0	0	12	0	0	61	37

Intersection Summary

Intersection	
Int Delay, s/veh	5.2

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	40	5	8	24	0	5	0	5	48	0	29
Future Vol, veh/h	0	40	5	8	24	0	5	0	5	48	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	60	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	51	6	10	30	0	6	0	6	61	0	37

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	57	0	0	123	104	54	107	107	30
Stage 1	-	-	-	-	-	-	54	54	-	50	50	-
Stage 2	-	-	-	-	-	-	69	50	-	57	57	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1547	-	0	852	786	1013	872	783	1044
Stage 1	0	-	-	-	-	0	958	850	-	963	853	-
Stage 2	0	-	-	-	-	0	941	853	-	955	847	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1547	-	-	818	781	1013	862	778	1044
Mov Cap-2 Maneuver	-	-	-	-	-	-	818	781	-	862	778	-
Stage 1	-	-	-	-	-	-	958	850	-	963	848	-
Stage 2	-	-	-	-	-	-	902	848	-	949	847	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	1.8	9	9.2
HCM LOS			A	A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	905	1547	-	-	-	862	1044
HCM Lane V/C Ratio	0.014	0.007	-	-	-	0.07	0.035
HCM Control Delay (s)	9	7.3	-	-	-	9.5	8.6
HCM Lane LOS	A	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	0	-	-	-	0.2	0.1

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.865					
Flt Protected				0.950		
Satd. Flow (prot)	1611	0	0	1770	1863	0
Flt Permitted				0.950		
Satd. Flow (perm)	1611	0	0	1770	1863	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	112			181	2481	
Travel Time (s)	2.5			4.1	56.4	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Traffic Volume (vph)	0	2	69	0	0	0
Future Volume (vph)	0	2	69	0	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	0	2	85	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	0	0	85	0	0

Intersection Summary

Intersection	
Int Delay, s/veh	7.2

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	0	2	69	0	0	0
Future Vol, veh/h	0	2	69	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	2	85	0	0	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	171	1	1	0	-	0
Stage 1	1	-	-	-	-	-
Stage 2	170	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	819	1084	1622	-	-	-
Stage 1	1022	-	-	-	-	-
Stage 2	860	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	776	1084	1622	-	-	-
Mov Cap-2 Maneuver	776	-	-	-	-	-
Stage 1	969	-	-	-	-	-
Stage 2	860	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	8.3	7.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1622	-	1084	-	-
HCM Lane V/C Ratio	0.053	-	0.002	-	-
HCM Control Delay (s)	7.3	0	8.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0	-	-

Appendix E

MUTCD Signal Warrant Analysis Worksheets

WARRANT 3, PEAK HOUR
(Urban Areas)

Traffic Conditions = **Existing Conditions - AM**

Major Street Name = **Vineyard Parkway**

Total of Both Approaches (VPH) = **341**

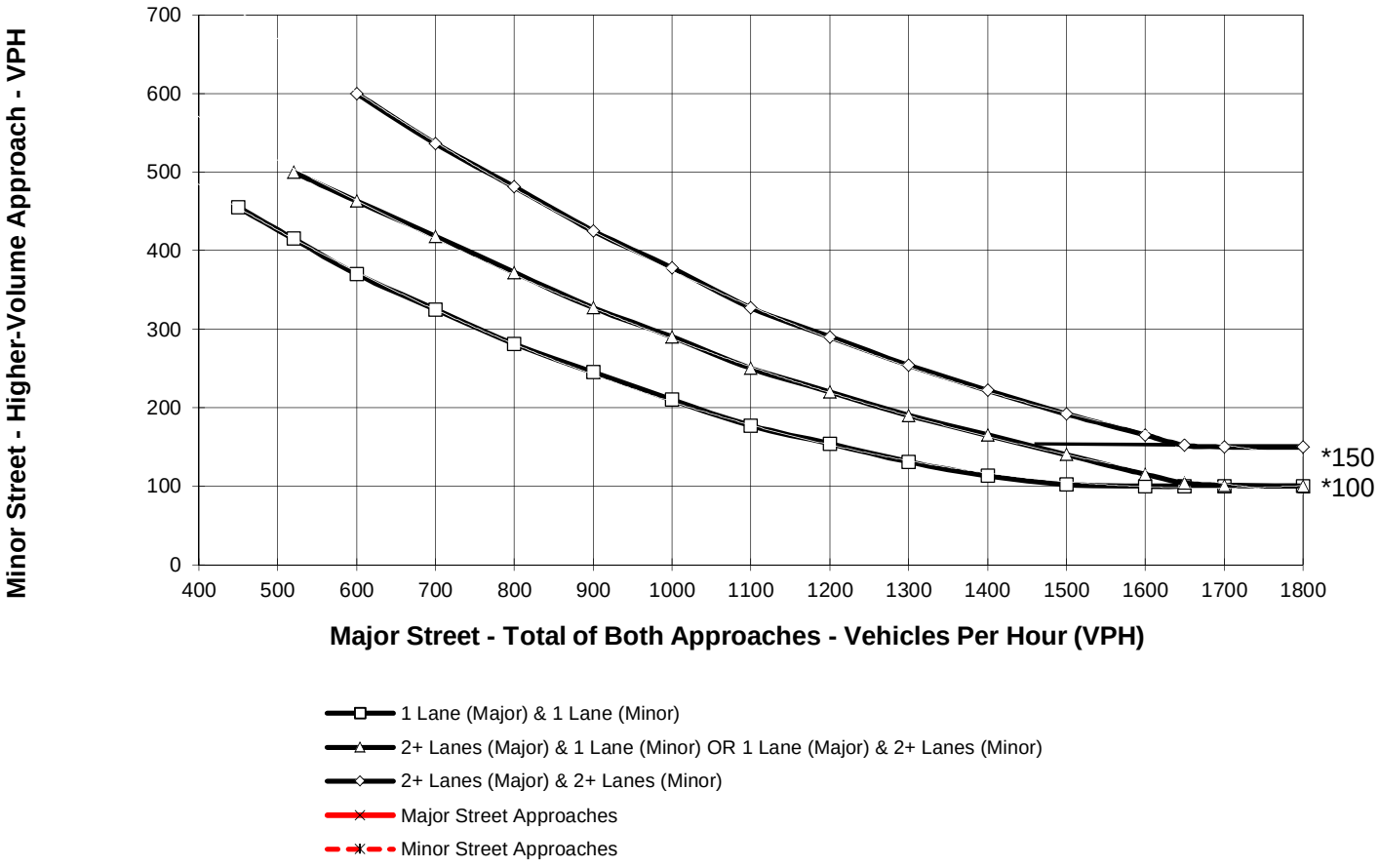
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Hayes Avenue**

High Volume Approach (VPH) = **314**

Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT 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.

2014 Edition

WARRANT 3, PEAK HOUR
(Urban Areas)

Traffic Conditions = **Existing Conditions - PM**

Major Street Name = **Vineyard Parkway**

Total of Both Approaches (VPH) = **121**

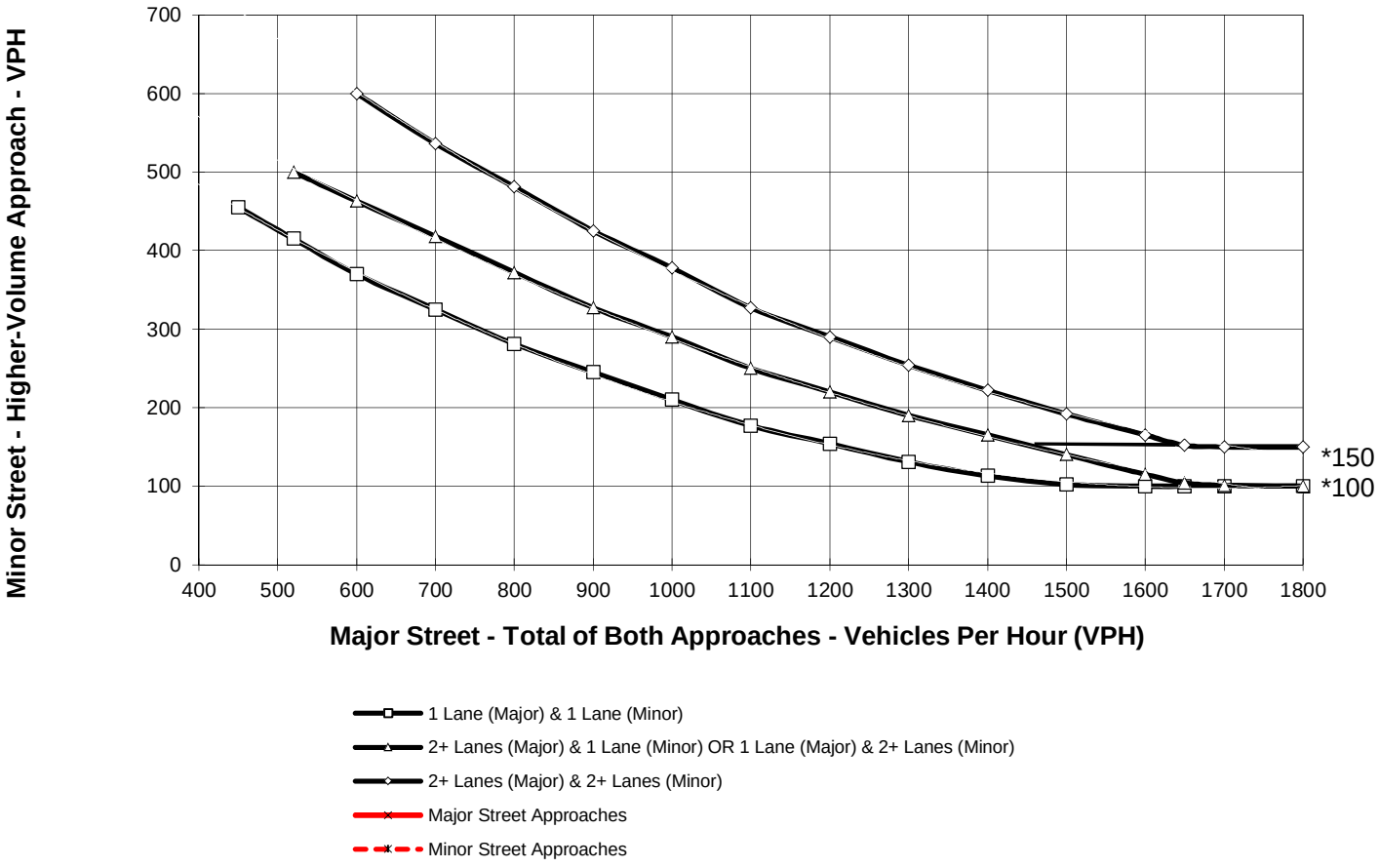
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Hayes Avenue**

High Volume Approach (VPH) = **49**

Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT 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.

2014 Edition

WARRANT 3, PEAK HOUR
(Urban Areas)

Traffic Conditions = **Existing Plus Project - AM**

Major Street Name = **Vineyard Parkway**

Total of Both Approaches (VPH) = **490**

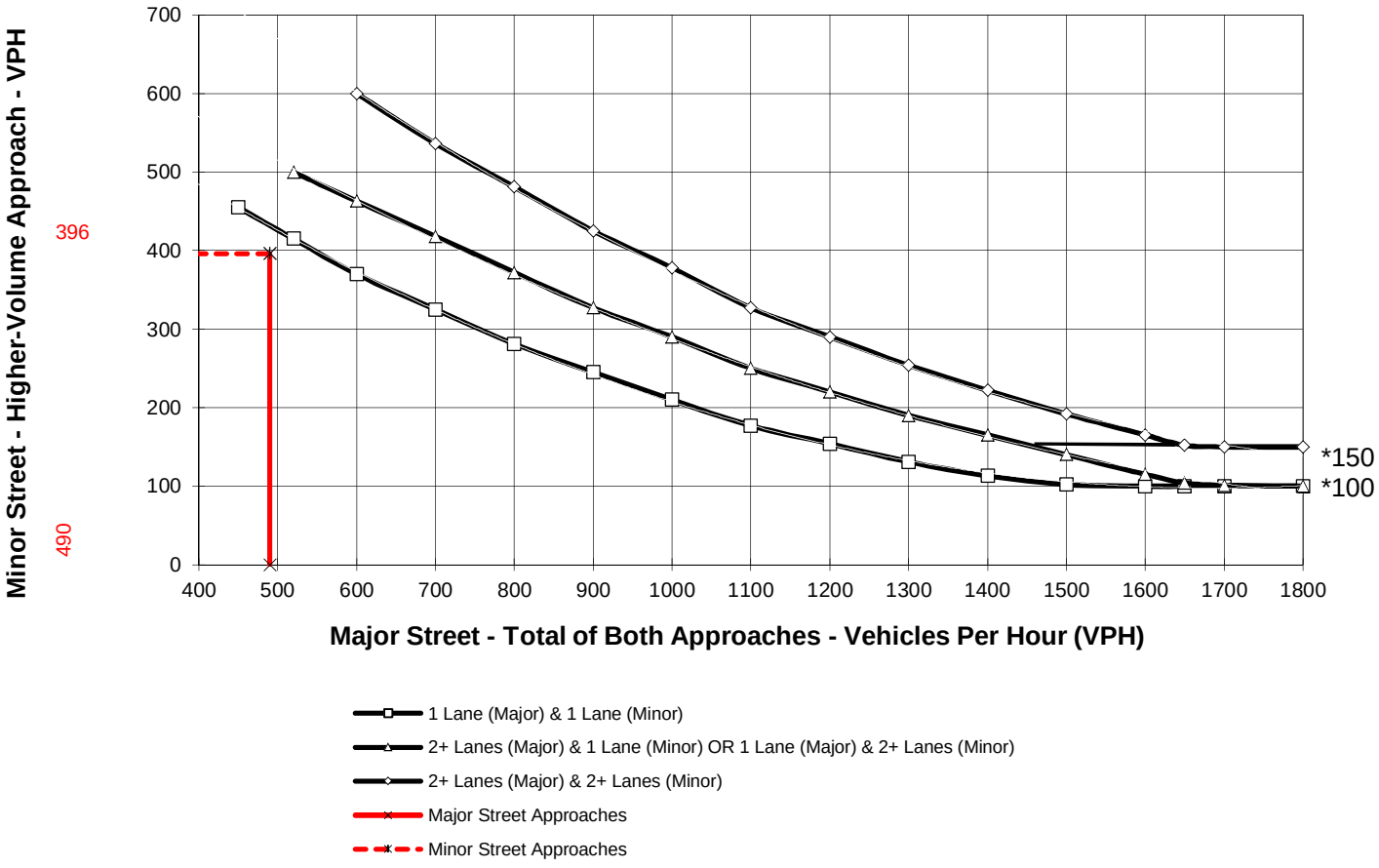
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Hayes Avenue**

High Volume Approach (VPH) = **396**

Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT 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.

WARRANT 3, PEAK HOUR
(Urban Areas)

Traffic Conditions = **Existing Plus Project - PM**

Major Street Name = **Vineyard Parkway**

Total of Both Approaches (VPH) = **155**

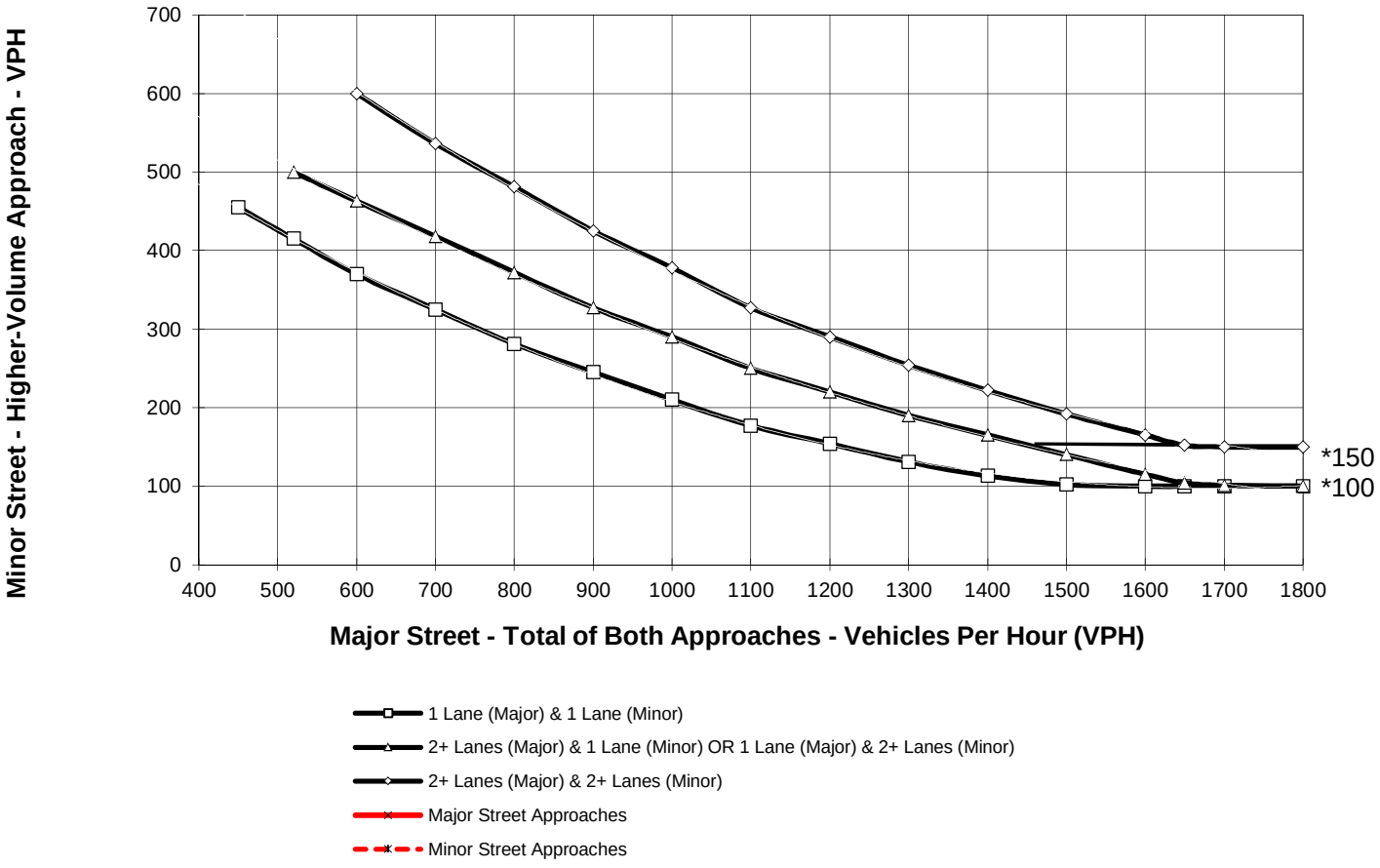
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Hayes Avenue**

High Volume Approach (VPH) = **80**

Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT 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.

2014 Edition

WARRANT 3, PEAK HOUR
(Urban Areas)

Traffic Conditions = **Buildout Year Plus Project - AM**

Major Street Name = **Vineyard Parkway**

Total of Both Approaches (VPH) = **517**

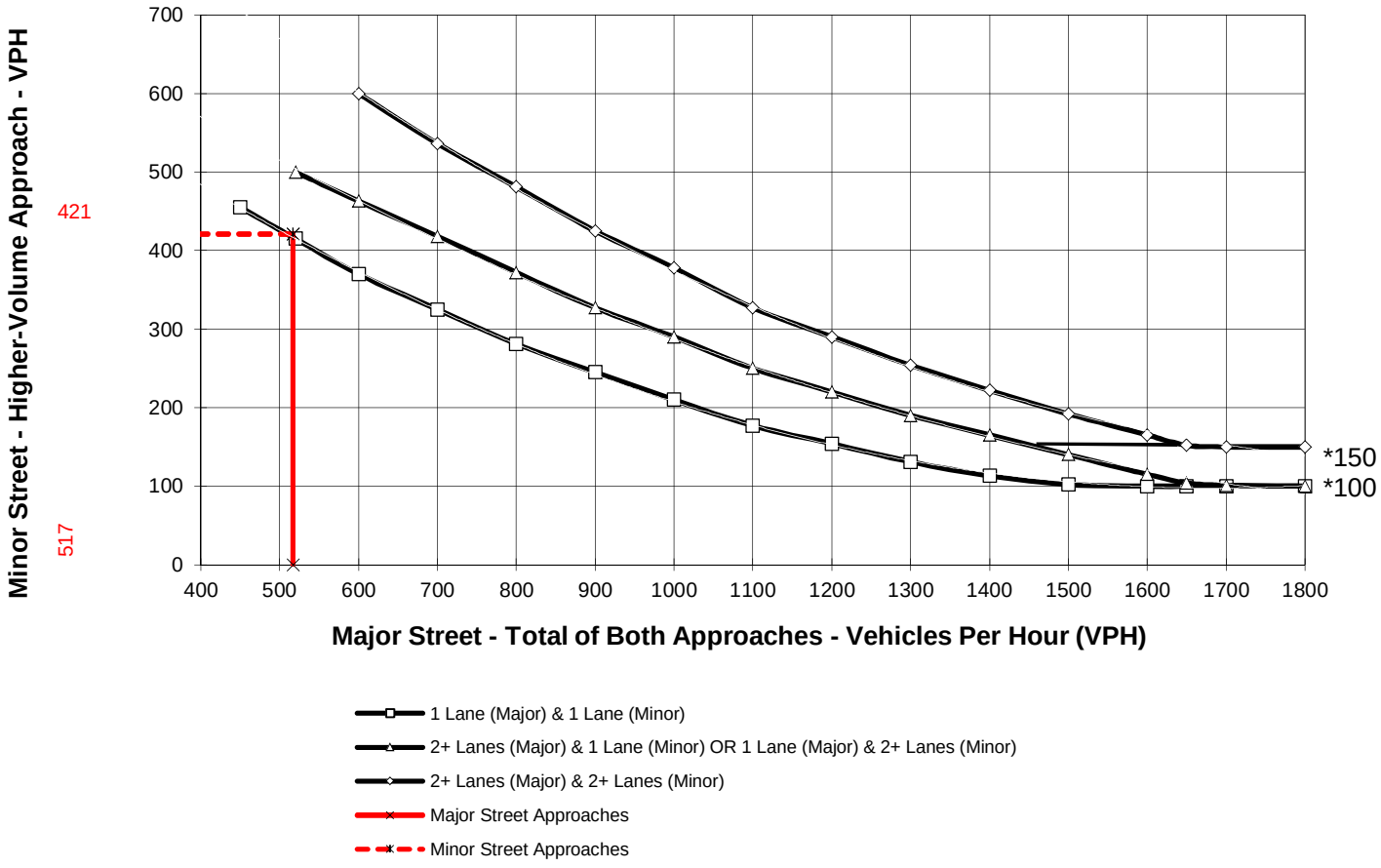
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Hayes Avenue**

High Volume Approach (VPH) = **421**

Number of Approach Lanes On Minor Street = **1**

WARRANTED FOR A SIGNAL



* 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.

WARRANT 3, PEAK HOUR
(Urban Areas)

Traffic Conditions = **Buildout Year Plus Project - PM**

Major Street Name = **Vineyard Parkway**

Total of Both Approaches (VPH) = **165**

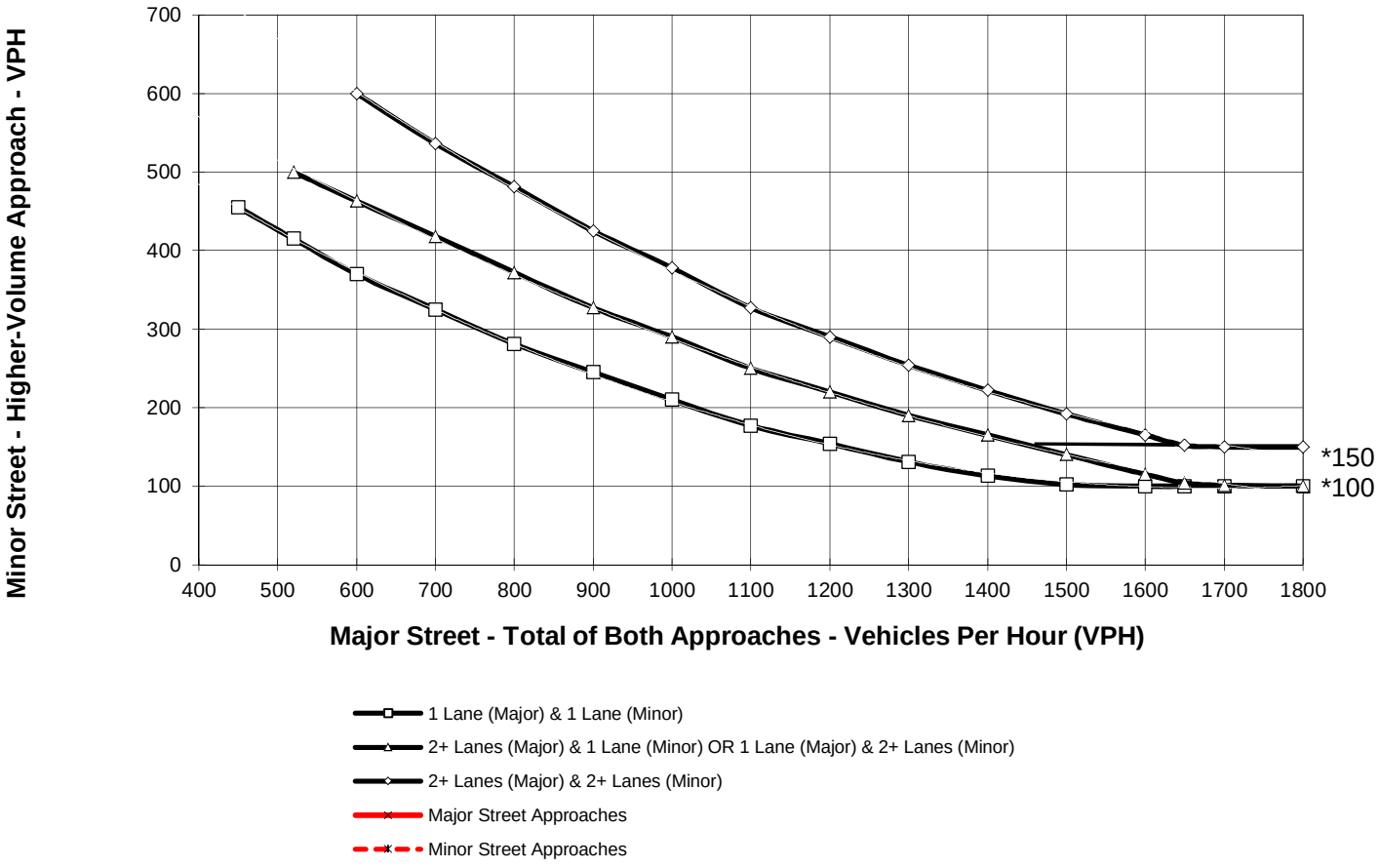
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Hayes Avenue**

High Volume Approach (VPH) = **84**

Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT 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.

2014 Edition

WARRANT 3, PEAK HOUR
(Urban Areas)

Traffic Conditions = **Buildout Year With Cuml. - AM**

Major Street Name = **Vineyard Parkway**

Total of Both Approaches (VPH) = **1068**

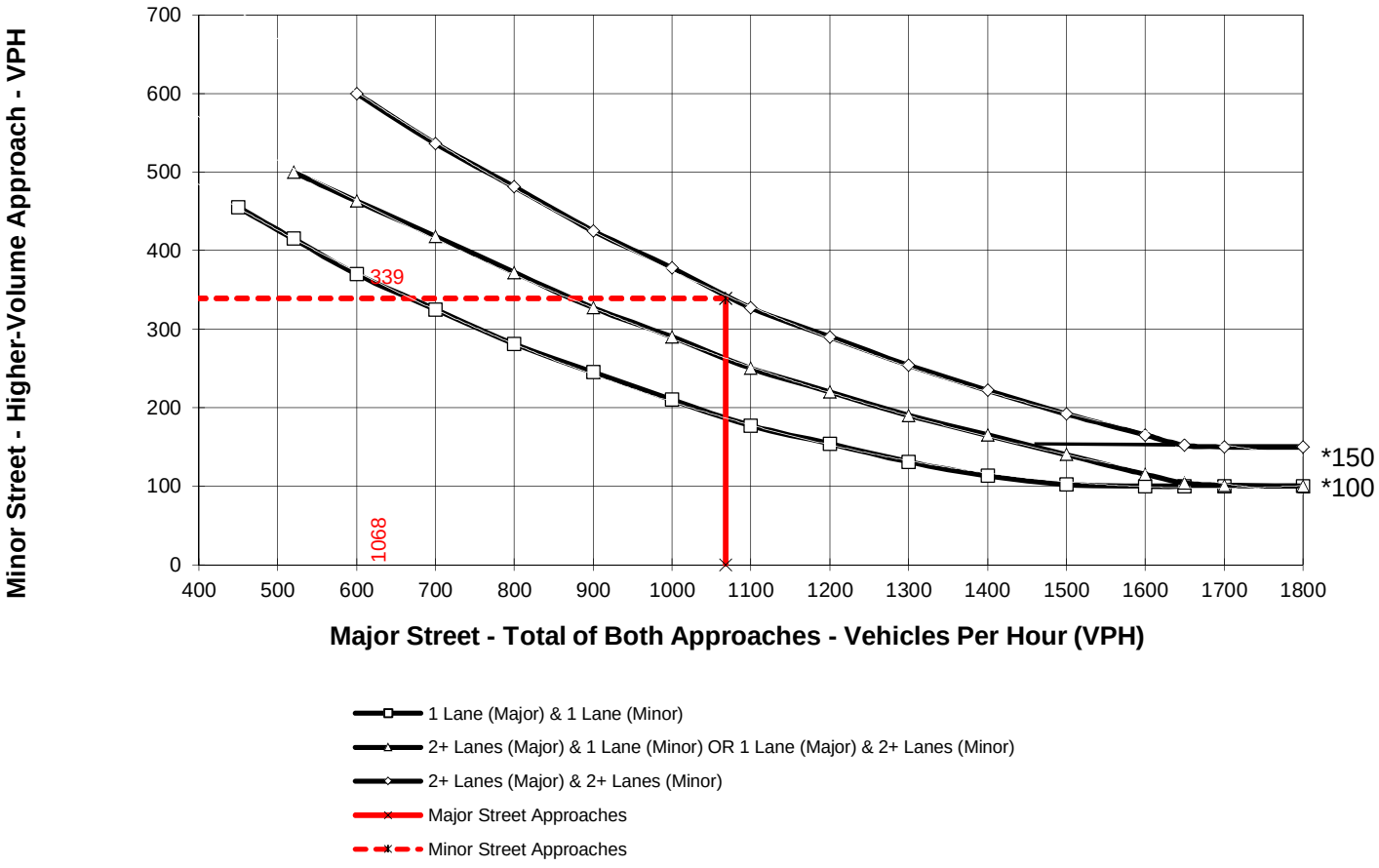
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Hayes Avenue**

High Volume Approach (VPH) = **339**

Number of Approach Lanes On Minor Street = **1**

WARRANTED FOR A SIGNAL



* 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.

2014 Edition

WARRANT 3, PEAK HOUR
(Urban Areas)

Traffic Conditions = **Buildout Year With Cuml. - PM**

Major Street Name = **Vineyard Parkway**

Total of Both Approaches (VPH) = **932**

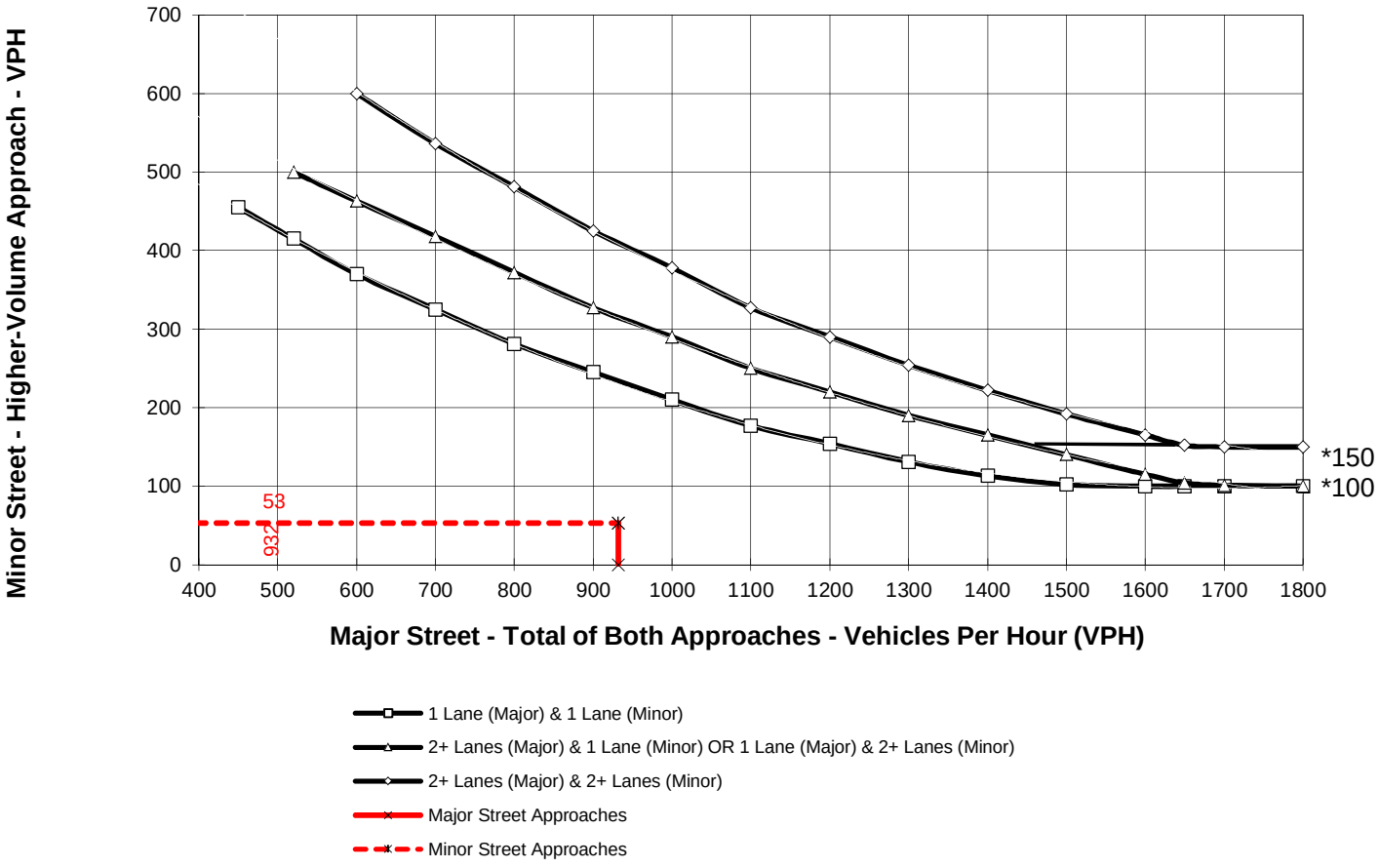
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Hayes Avenue**

High Volume Approach (VPH) = **53**

Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT 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.

2014 Edition

WARRANT 3, PEAK HOUR
(Urban Areas)

Traffic Conditions = **Buildout Year With Cuml. Plus Project - AM**

Major Street Name = **Vineyard Parkway**

Total of Both Approaches (VPH) = **1217**

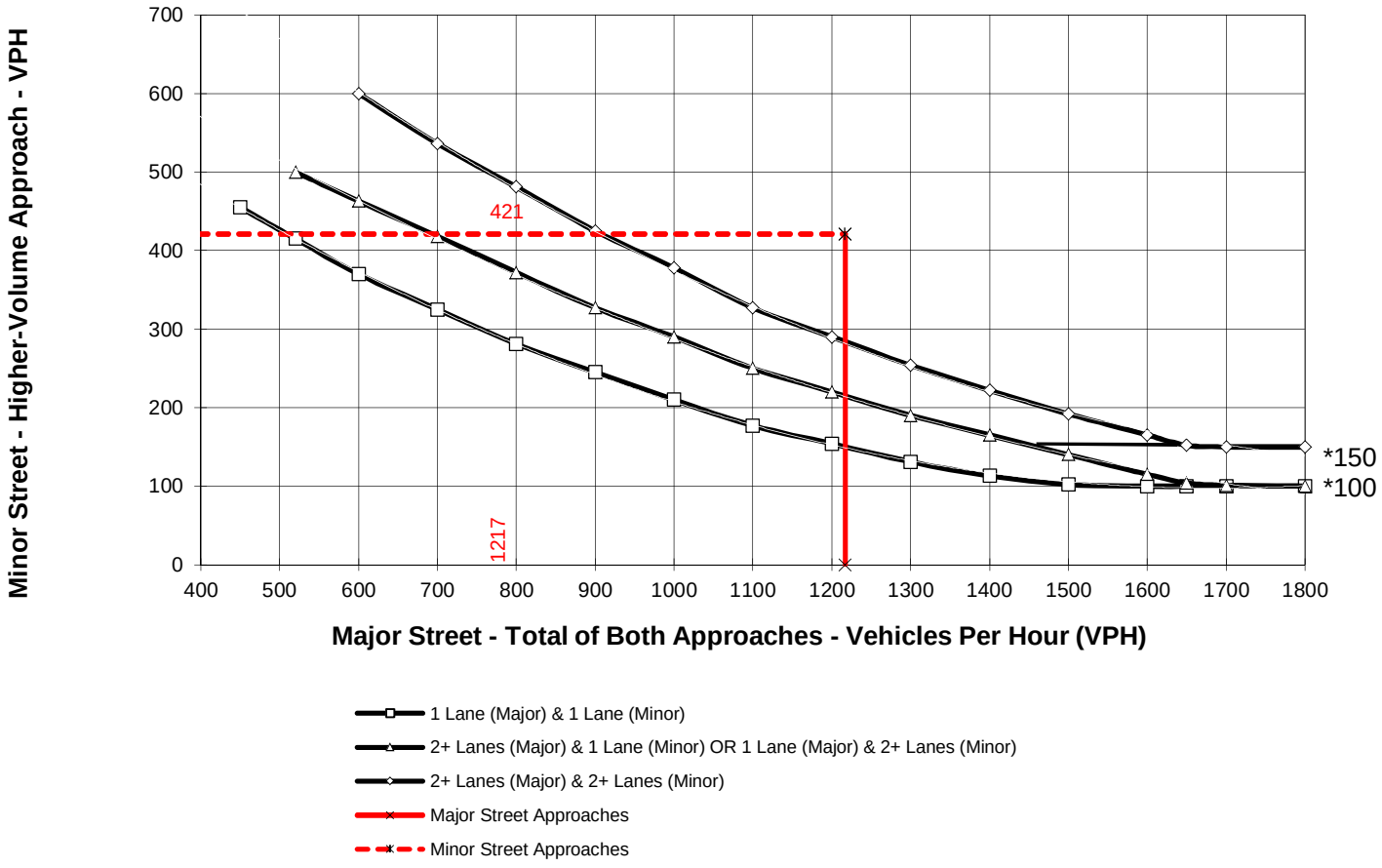
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Hayes Avenue**

High Volume Approach (VPH) = **421**

Number of Approach Lanes On Minor Street = **1**

WARRANTED FOR A SIGNAL



* 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.

2014 Edition

WARRANT 3, PEAK HOUR
(Urban Areas)

Traffic Conditions = **Buildout Year With Cuml. Plus Project - PM**

Major Street Name = **Vineyard Parkway**

Total of Both Approaches (VPH) = **966**

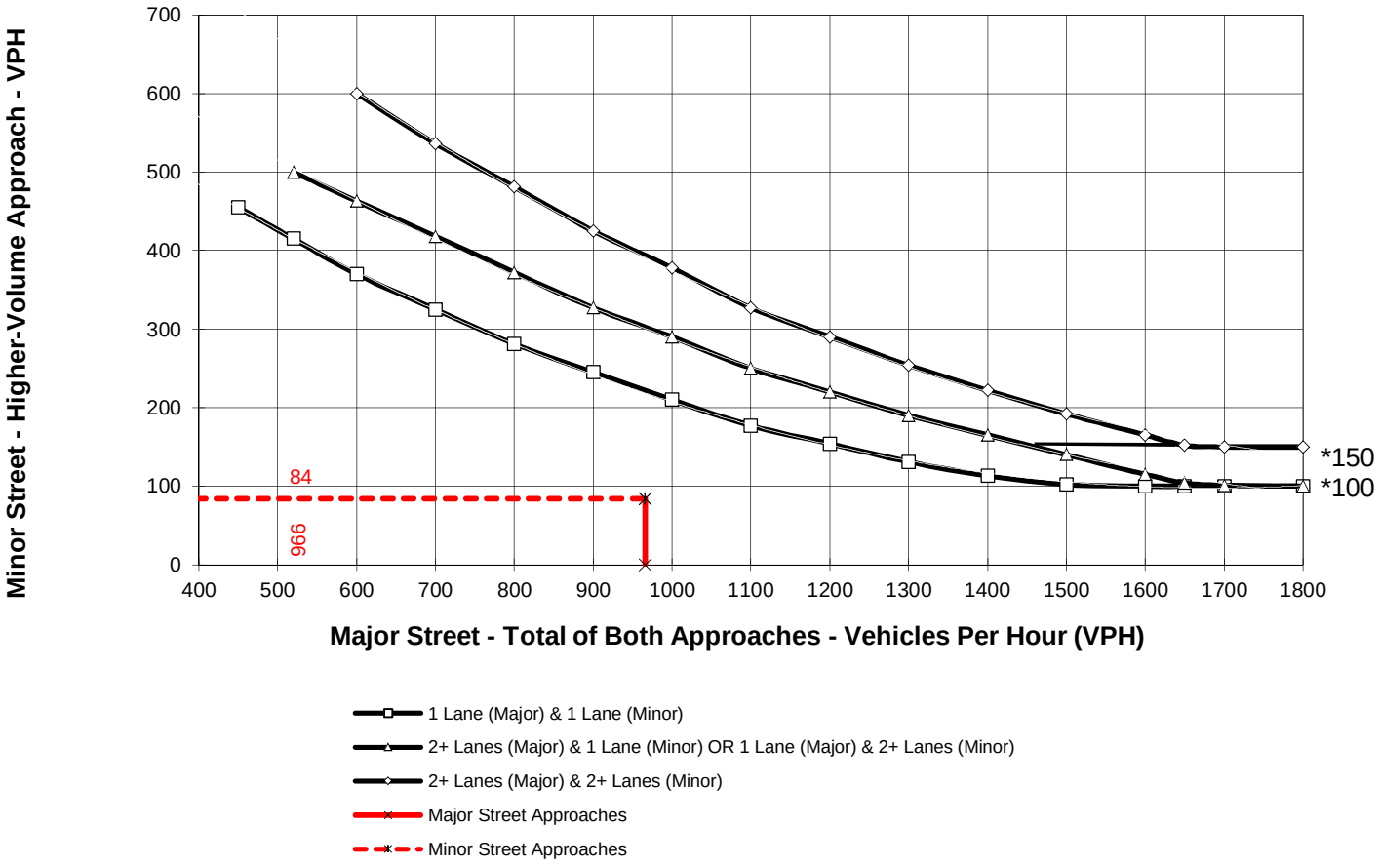
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Hayes Avenue**

High Volume Approach (VPH) = **84**

Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT 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.

Appendix F

Project Buildout Year With Ambient Growth
Plus Project Conditions
Intersection Analysis

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.865		
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	0	1611	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	0	1611	1770	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		340	1045		2657	
Travel Time (s)		7.7	23.8		60.4	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Traffic Volume (vph)	0	0	0	290	321	0
Future Volume (vph)	0	0	0	290	321	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	0	0	420	465	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	420	465	0

Intersection Summary

Intersection	
Intersection Delay, s/veh	15.3
Intersection LOS	C

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	290	321	0
Future Vol, veh/h	0	0	0	290	321	0
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	420	465	0
Number of Lanes	0	1	0	1	1	0

Approach	SE	NW	SW
Opposing Approach	NW	SE	
Opposing Lanes	1	1	0
Conflicting Approach Left	SW		NW
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SW	SE
Conflicting Lanes Right	0	1	1
HCM Control Delay	0	12.8	17.5
HCM LOS	-	B	C

Lane	NWLn1	SELn1	SWLn1
Vol Left, %	0%	0%	100%
Vol Thru, %	0%	100%	0%
Vol Right, %	100%	0%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	290	0	321
LT Vol	0	0	321
Through Vol	0	0	0
RT Vol	290	0	0
Lane Flow Rate	420	0	465
Geometry Grp	1	1	1
Degree of Util (X)	0.533	0	0.657
Departure Headway (Hd)	4.564	5.824	5.087
Convergence, Y/N	Yes	Yes	Yes
Cap	786	0	702
Service Time	2.619	3.824	3.184
HCM Lane V/C Ratio	0.534	0	0.662
HCM Control Delay	12.8	8.8	17.5
HCM Lane LOS	B	N	C
HCM 95th-tile Q	3.2	0	4.9

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	60			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.908		0.936	
Flt Protected	0.950				0.974	
Satd. Flow (prot)	1770	1863	1691	0	1698	0
Flt Permitted	0.950				0.974	
Satd. Flow (perm)	1770	1863	1691	0	1698	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		237	1361		181	
Travel Time (s)		5.4	30.9		4.1	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Traffic Volume (vph)	84	231	181	391	27	25
Future Volume (vph)	84	231	181	391	27	25
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	129	355	278	602	42	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	129	355	880	0	80	0

Intersection Summary

Intersection	
Int Delay, s/veh	2.4

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	84	231	181	391	27	25
Future Vol, veh/h	84	231	181	391	27	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	60	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	129	355	278	602	42	38

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	880	0	-	0	1192	579
Stage 1	-	-	-	-	579	-
Stage 2	-	-	-	-	613	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	768	-	-	-	207	515
Stage 1	-	-	-	-	560	-
Stage 2	-	-	-	-	541	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	768	-	-	-	172	515
Mov Cap-2 Maneuver	-	-	-	-	172	-
Stage 1	-	-	-	-	466	-
Stage 2	-	-	-	-	541	-

Approach	SE	NW	SW
HCM Control Delay, s	2.8	0	25.7
HCM LOS			D

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	768	-	253
HCM Lane V/C Ratio	-	-	0.168	-	0.316
HCM Control Delay (s)	-	-	10.6	-	25.7
HCM Lane LOS	-	-	B	-	D
HCM 95th %tile Q(veh)	-	-	0.6	-	1.3

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	120	0	100			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	1863	1863	1583
Link Speed (mph)	30			30	30	
Link Distance (ft)	1361			666	2655	
Travel Time (s)	30.9			15.1	60.3	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Traffic Volume (vph)	415	6	6	19	19	473
Future Volume (vph)	415	6	6	19	19	473
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	500	7	7	23	23	570
Shared Lane Traffic (%)						
Lane Group Flow (vph)	500	7	7	23	23	570

Intersection Summary

Intersection	
Intersection Delay, s/veh	44.3
Intersection LOS	E

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	415	6	6	19	19	473
Future Vol, veh/h	415	6	6	19	19	473
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	500	7	7	23	23	570
Number of Lanes	1	1	1	1	1	1

Approach	SE	NE	SW
Opposing Approach		SW	NE
Opposing Lanes	0	2	2
Conflicting Approach Left	SW	SE	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NE		SE
Conflicting Lanes Right	2	0	2
HCM Control Delay	52.9	10.7	38.6
HCM LOS	F	B	E

Lane	NELn1	NELn2	SELn1	SELn2	SWLn1	SWLn2
Vol Left, %	100%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	6	19	415	6	19	473
LT Vol	6	0	415	0	0	0
Through Vol	0	19	0	0	19	0
RT Vol	0	0	0	6	0	473
Lane Flow Rate	7	23	500	7	23	570
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.016	0.048	0.949	0.011	0.041	0.903
Departure Headway (Hd)	8.076	7.559	6.831	5.622	6.416	5.704
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	446	477	530	635	555	633
Service Time	5.776	5.259	4.581	3.372	4.193	3.48
HCM Lane V/C Ratio	0.016	0.048	0.943	0.011	0.041	0.9
HCM Control Delay	10.9	10.6	53.5	8.4	9.5	39.8
HCM Lane LOS	B	B	F	A	A	E
HCM 95th-tile Q	0	0.2	12.1	0	0.1	11.2

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	85		0	150		0	150		0	250		100
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.981				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3472	0	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3472	0	1770	1863	1583	1770	1863	1583	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18				143			122			205
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1461			2630			1510			1533	
Travel Time (s)		33.2			59.8			34.3			34.8	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	83	354	50	273	313	115	45	252	504	181	170	61
Future Volume (vph)	83	354	50	273	313	115	45	252	504	181	170	61
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	93	398	56	307	352	129	51	283	566	203	191	69
Shared Lane Traffic (%)												
Lane Group Flow (vph)	93	454	0	307	352	129	51	283	566	203	191	69

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	83	354	273	313	115	45	252	504	181	170	61
Future Volume (vph)	83	354	273	313	115	45	252	504	181	170	61
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	5	2		7	4	5	3	8	
Permitted Phases					2			4			8
Detector Phase	1	6	5	2	2	7	4	5	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5	9.5	22.5	22.5
Total Split (s)	11.4	23.4	19.4	31.4	31.4	11.1	22.5	19.4	14.7	26.1	26.1
Total Split (%)	14.3%	29.3%	24.3%	39.3%	39.3%	13.9%	28.1%	24.3%	18.4%	32.6%	32.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	6.7	18.9	14.9	29.4	29.4	6.4	15.5	35.0	10.2	23.8	23.8
Actuated g/C Ratio	0.09	0.24	0.19	0.38	0.38	0.08	0.20	0.45	0.13	0.31	0.31
v/c Ratio	0.61	0.53	0.90	0.50	0.19	0.35	0.76	0.73	0.88	0.34	0.11
Control Delay	53.3	27.5	63.6	23.4	3.8	41.7	43.2	19.6	70.5	24.4	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.3	27.5	63.6	23.4	3.8	41.7	43.2	19.6	70.5	24.4	0.4
LOS	D	C	E	C	A	D	D	B	E	C	A
Approach Delay		31.9		35.8			28.3			41.0	
Approach LOS		C		D			C			D	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 77.6	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 33.4	Intersection LOS: C
Intersection Capacity Utilization 64.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 4: Calle Del Oso Oro/Nutmeg Street & Washington Avenue

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Group Flow (vph)	93	454	307	352	129	51	283	566	203	191	69
v/c Ratio	0.61	0.53	0.90	0.50	0.19	0.35	0.76	0.73	0.88	0.34	0.11
Control Delay	53.3	27.5	63.6	23.4	3.8	41.7	43.2	19.6	70.5	24.4	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.3	27.5	63.6	23.4	3.8	41.7	43.2	19.6	70.5	24.4	0.4
Queue Length 50th (ft)	45	98	150	139	0	24	130	168	100	77	0
Queue Length 95th (ft)	#106	145	#296	222	29	58	209	284	#219	133	0
Internal Link Dist (ft)		1381		2550			1430			1453	
Turn Bay Length (ft)	85		150			150			250		100
Base Capacity (vph)	157	860	340	704	687	150	432	780	232	575	630
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.53	0.90	0.50	0.19	0.34	0.66	0.73	0.88	0.33	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	83	354	50	273	313	115	45	252	504	181	170	61
Future Volume (veh/h)	83	354	50	273	313	115	45	252	504	181	170	61
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	93	398	56	307	352	129	51	283	566	203	191	69
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	119	737	103	330	662	563	75	419	651	226	578	491
Arrive On Green	0.07	0.24	0.24	0.19	0.36	0.36	0.04	0.22	0.22	0.13	0.31	0.31
Sat Flow, veh/h	1774	3119	436	1774	1863	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	93	225	229	307	352	129	51	283	566	203	191	69
Grp Sat Flow(s),veh/h/ln	1774	1770	1786	1774	1863	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	4.1	8.9	9.0	13.6	12.0	4.6	2.3	11.1	18.0	9.0	6.3	2.5
Cycle Q Clear(g_c), s	4.1	8.9	9.0	13.6	12.0	4.6	2.3	11.1	18.0	9.0	6.3	2.5
Prop In Lane	1.00		0.24	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	119	418	422	330	662	563	75	419	651	226	578	491
V/C Ratio(X)	0.78	0.54	0.54	0.93	0.53	0.23	0.68	0.68	0.87	0.90	0.33	0.14
Avail Cap(c_a), veh/h	153	418	422	330	662	563	146	419	651	226	578	491
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.7	26.7	26.8	32.0	20.5	18.1	37.8	28.3	21.6	34.4	21.2	19.9
Incr Delay (d2), s/veh	17.7	4.9	5.0	31.8	3.0	0.9	10.2	4.3	12.1	33.8	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	4.9	5.0	9.6	6.7	2.1	1.3	6.2	13.5	6.5	3.3	1.1
LnGrp Delay(d),s/veh	54.4	31.6	31.7	63.8	23.5	19.0	48.0	32.6	33.7	68.1	21.5	20.0
LnGrp LOS	D	C	C	E	C	B	D	C	C	E	C	C
Approach Vol, veh/h		547			788			900			463	
Approach Delay, s/veh		35.5			38.5			34.2			41.8	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	32.9	14.7	22.5	19.4	23.4	7.9	29.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.9	26.9	10.2	18.0	14.9	18.9	6.6	21.6
Max Q Clear Time (g_c+I1), s	6.1	14.0	11.0	20.0	15.6	11.0	4.3	8.3
Green Ext Time (p_c), s	0.0	2.1	0.0	0.0	0.0	1.7	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	37.0
HCM 2010 LOS	D

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		280	300		0	350		0	150		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor												
Frt			0.850		0.979			0.939			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3465	0	1770	1749	0	1770	3514	0
Flt Permitted	0.950			0.950			0.177			0.467		
Satd. Flow (perm)	1770	3539	1583	1770	3465	0	330	1749	0	870	3514	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			73		18			49			5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2630			1335			2657			1296	
Travel Time (s)		59.8			30.3			60.4			29.5	

Intersection Summary	
Area Type:	Other

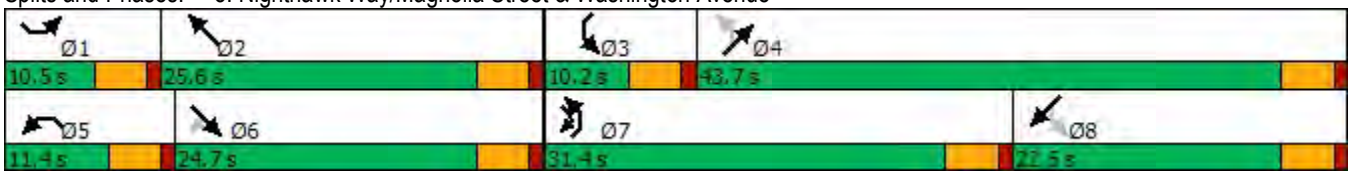
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	24	509	592	82	227	36	375	213	147	55	366	19
Future Volume (vph)	24	509	592	82	227	36	375	213	147	55	366	19
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	35	749	871	121	334	53	551	313	216	81	538	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	35	749	871	121	387	0	551	529	0	81	566	0

Intersection Summary

Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Configurations									
Traffic Volume (vph)	24	509	592	82	227	375	213	55	366
Future Volume (vph)	24	509	592	82	227	375	213	55	366
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	7	5	2	7	4	3	8
Permitted Phases			6			4		8	
Detector Phase	1	6	7	5	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	10.5	24.7	31.4	11.4	25.6	31.4	43.7	10.2	22.5
Total Split (%)	11.7%	27.4%	34.9%	12.7%	28.4%	34.9%	48.6%	11.3%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	Max	None	None	None	None
Act Effct Green (s)	5.9	20.2	51.5	6.9	25.4	48.5	40.4	22.8	17.2
Actuated g/C Ratio	0.07	0.23	0.58	0.08	0.29	0.54	0.45	0.26	0.19
v/c Ratio	0.30	0.93	0.92	0.89	0.39	0.90	0.65	0.29	0.83
Control Delay	47.0	54.4	32.9	95.5	27.3	40.8	22.1	16.6	46.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	54.4	32.9	95.5	27.3	40.8	22.1	16.6	46.2
LOS	D	D	C	F	C	D	C	B	D
Approach Delay		42.9			43.5		31.6		42.5
Approach LOS		D			D		C		D

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 89.1	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 39.8	Intersection LOS: D
Intersection Capacity Utilization 65.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 5: Nighthawk Way/Magnolia Street & Washington Avenue



Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	35	749	871	121	387	551	529	81	566
v/c Ratio	0.30	0.93	0.92	0.89	0.39	0.90	0.65	0.29	0.83
Control Delay	47.0	54.4	32.9	95.5	27.3	40.8	22.1	16.6	46.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	54.4	32.9	95.5	27.3	40.8	22.1	16.6	46.2
Queue Length 50th (ft)	19	221	393	70	95	243	211	20	161
Queue Length 95th (ft)	37	204	326	#110	99	235	207	31	157
Internal Link Dist (ft)		2550			1255		2577		1216
Turn Bay Length (ft)	150		280	300		350		150	
Base Capacity (vph)	119	802	947	136	999	614	819	281	713
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.93	0.92	0.89	0.39	0.90	0.65	0.29	0.79

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	24	509	592	82	227	36	375	213	147	55	366	19
Future Volume (veh/h)	24	509	592	82	227	36	375	213	147	55	366	19
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	35	749	871	121	334	53	551	313	216	81	538	28
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	2	0
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	859	811	147	896	141	596	418	289	306	647	34
Arrive On Green	0.03	0.24	0.24	0.08	0.29	0.29	0.27	0.41	0.41	0.05	0.19	0.19
Sat Flow, veh/h	1774	3539	1583	1774	3066	482	1774	1028	709	1774	3423	178
Grp Volume(v), veh/h	35	749	871	121	191	196	551	0	529	81	278	288
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1778	1774	0	1738	1774	1770	1831
Q Serve(g_s), s	1.6	16.9	20.2	5.6	7.1	7.3	19.4	0.0	21.6	3.0	12.6	12.6
Cycle Q Clear(g_c), s	1.6	16.9	20.2	5.6	7.1	7.3	19.4	0.0	21.6	3.0	12.6	12.6
Prop In Lane	1.00		1.00	1.00		0.27	1.00		0.41	1.00		0.10
Lane Grp Cap(c), veh/h	59	859	811	147	517	519	596	0	707	306	334	346
V/C Ratio(X)	0.59	0.87	1.07	0.82	0.37	0.38	0.92	0.00	0.75	0.26	0.83	0.83
Avail Cap(c_a), veh/h	128	859	811	147	517	519	691	0	818	336	383	396
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.7	30.3	20.3	37.6	23.4	23.4	18.0	0.0	21.0	25.3	32.5	32.5
Incr Delay (d2), s/veh	9.1	11.9	53.5	29.9	2.0	2.1	16.9	0.0	3.3	0.5	12.9	12.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	9.6	30.4	3.9	3.8	3.9	12.1	0.0	10.9	1.5	7.3	7.6
LnGrp Delay(d),s/veh	48.8	42.1	73.8	67.5	25.4	25.5	34.9	0.0	24.3	25.7	45.4	45.3
LnGrp LOS	D	D	F	E	C	C	C		C	C	D	D
Approach Vol, veh/h		1655			508			1080			647	
Approach Delay, s/veh		59.0			35.5			29.7			42.9	
Approach LOS		E			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	28.8	8.8	38.4	11.4	24.7	26.9	20.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.0	21.1	5.7	39.2	6.9	20.2	26.9	18.0
Max Q Clear Time (g_c+I1), s	3.6	9.3	5.0	23.6	7.6	22.2	21.4	14.6
Green Ext Time (p_c), s	0.0	1.7	0.0	3.2	0.0	0.0	1.0	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	45.1
HCM 2010 LOS	D

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		170	150		0	80		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850			0.850		0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	1863	1583	1770	1583	0	1770	1583	0
Flt Permitted	0.950			0.950			0.744			0.679		
Satd. Flow (perm)	1770	3539	1583	1770	1863	1583	1386	1583	0	1265	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			366			109		299			483	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1335			1310			2481			639	
Travel Time (s)		30.3			29.8			56.4			14.5	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	13	467	223	148	224	1	104	0	74	2	0	12
Future Volume (vph)	13	467	223	148	224	1	104	0	74	2	0	12
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	21	766	366	243	367	2	170	0	121	3	0	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	766	366	243	367	2	170	121	0	3	20	0

Intersection Summary

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Configurations										
Traffic Volume (vph)	13	467	223	148	224	1	104	0	2	0
Future Volume (vph)	13	467	223	148	224	1	104	0	2	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			4		8
Permitted Phases			6			2	4		8	
Detector Phase	1	6	6	5	2	2	4	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	22.5	22.5	15.0	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	37.5%	37.5%	25.0%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	5.1	19.2	19.2	10.1	33.5	33.5	11.7	11.7	11.4	11.4
Actuated g/C Ratio	0.10	0.37	0.37	0.19	0.65	0.65	0.23	0.23	0.22	0.22
v/c Ratio	0.12	0.59	0.45	0.70	0.30	0.00	0.54	0.21	0.01	0.03
Control Delay	26.2	17.6	4.3	35.6	8.8	0.0	25.3	0.8	15.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.2	17.6	4.3	35.6	8.8	0.0	25.3	0.8	15.5	0.1
LOS	C	B	A	D	A	A	C	A	B	A
Approach Delay		13.5			19.4			15.1		2.1
Approach LOS		B			B			B		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 51.8	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 15.3	Intersection LOS: B
Intersection Capacity Utilization 44.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: Fullerton Road & Washington Avenue

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Group Flow (vph)	21	766	366	243	367	2	170	121	3	20
v/c Ratio	0.12	0.59	0.45	0.70	0.30	0.00	0.54	0.21	0.01	0.03
Control Delay	26.2	17.6	4.3	35.6	8.8	0.0	25.3	0.8	15.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.2	17.6	4.3	35.6	8.8	0.0	25.3	0.8	15.5	0.1
Queue Length 50th (ft)	6	106	0	73	47	0	49	0	1	0
Queue Length 95th (ft)	17	111	2	96	99	0	60	0	4	0
Internal Link Dist (ft)		1255			1230			2401		559
Turn Bay Length (ft)			170	150			80			
Base Capacity (vph)	175	1309	816	368	1205	1062	494	757	451	875
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.59	0.45	0.66	0.30	0.00	0.34	0.16	0.01	0.02

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	13	467	223	148	224	1	104	0	74	2	0	12
Future Volume (veh/h)	13	467	223	148	224	1	104	0	74	2	0	12
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	21	766	366	243	367	2	170	0	121	3	0	20
Adj No. of Lanes	1	2	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	45	1311	587	301	959	815	386	0	288	293	0	288
Arrive On Green	0.03	0.37	0.37	0.17	0.51	0.51	0.18	0.00	0.18	0.18	0.00	0.18
Sat Flow, veh/h	1774	3539	1583	1774	1863	1583	1386	0	1583	1265	0	1583
Grp Volume(v), veh/h	21	766	366	243	367	2	170	0	121	3	0	20
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1863	1583	1386	0	1583	1265	0	1583
Q Serve(g_s), s	0.6	8.4	9.2	6.4	5.8	0.0	5.6	0.0	3.3	0.1	0.0	0.5
Cycle Q Clear(g_c), s	0.6	8.4	9.2	6.4	5.8	0.0	6.1	0.0	3.3	3.4	0.0	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	45	1311	587	301	959	815	386	0	288	293	0	288
V/C Ratio(X)	0.47	0.58	0.62	0.81	0.38	0.00	0.44	0.00	0.42	0.01	0.00	0.07
Avail Cap(c_a), veh/h	183	1311	587	383	959	815	647	0	587	531	0	587
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.3	12.3	12.5	19.4	7.1	5.7	19.0	0.0	17.6	19.1	0.0	16.5
Incr Delay (d2), s/veh	7.3	1.9	4.9	9.7	1.2	0.0	0.8	0.0	1.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	4.4	4.8	3.9	3.3	0.0	2.2	0.0	1.5	0.0	0.0	0.2
LnGrp Delay(d),s/veh	30.7	14.2	17.5	29.1	8.3	5.7	19.8	0.0	18.6	19.1	0.0	16.6
LnGrp LOS	C	B	B	C	A	A	B		B	B		B
Approach Vol, veh/h		1153			612			291			23	
Approach Delay, s/veh		15.5			16.5			19.3			16.9	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	29.5		13.3	12.7	22.5		13.3
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	23.5		18.0	10.5	18.0		18.0
Max Q Clear Time (g_c+I1), s	2.6	7.8		8.1	8.4	11.2		5.4
Green Ext Time (p_c), s	0.0	2.0		0.8	0.2	3.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	16.4
HCM 2010 LOS	B

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	255		0	160		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.990			0.995			0.876			0.967	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3504	0	1770	3522	0	1770	1632	0	1770	1801	0
Flt Permitted	0.950			0.950			0.679			0.345		
Satd. Flow (perm)	1770	3504	0	1770	3522	0	1265	1632	0	643	1801	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			7			329			20	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1310			2652			2655			1165	
Travel Time (s)		29.8			60.3			60.3			26.5	

Intersection Summary	
Area Type:	Other

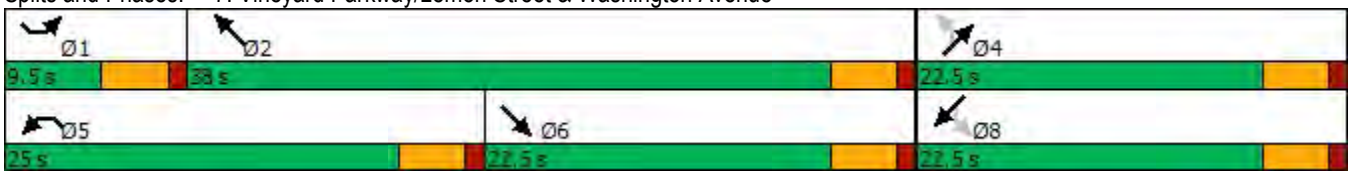
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	13	610	44	379	297	11	43	74	350	14	87	25
Future Volume (vph)	13	610	44	379	297	11	43	74	350	14	87	25
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	14	663	48	412	323	12	47	80	380	15	95	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	711	0	412	335	0	47	460	0	15	122	0

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Configurations								
Traffic Volume (vph)	13	610	379	297	43	74	14	87
Future Volume (vph)	13	610	379	297	43	74	14	87
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	1	6	5	2		4		8
Permitted Phases					4		8	
Detector Phase	1	6	5	2	4	4	8	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	22.5	25.0	38.0	22.5	22.5	22.5	22.5
Total Split (%)	13.6%	32.1%	35.7%	54.3%	32.1%	32.1%	32.1%	32.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	None	Max	None	None	None	None
Act Effct Green (s)	5.1	18.4	17.8	39.1	11.6	11.6	11.6	11.6
Actuated g/C Ratio	0.08	0.30	0.29	0.63	0.19	0.19	0.19	0.19
v/c Ratio	0.10	0.68	0.80	0.15	0.20	0.80	0.12	0.34
Control Delay	31.5	24.6	35.3	6.2	23.0	18.8	23.0	21.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.5	24.6	35.3	6.2	23.0	18.8	23.0	21.3
LOS	C	C	D	A	C	B	C	C
Approach Delay		24.8		22.3		19.2		21.5
Approach LOS		C		C		B		C

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 61.6	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 22.3	Intersection LOS: C
Intersection Capacity Utilization 76.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 7: Vineyard Parkway/Lemon Street & Washington Avenue



Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	14	711	412	335	47	460	15	122
v/c Ratio	0.10	0.68	0.80	0.15	0.20	0.80	0.12	0.34
Control Delay	31.5	24.6	35.3	6.2	23.0	18.8	23.0	21.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.5	24.6	35.3	6.2	23.0	18.8	23.0	21.3
Queue Length 50th (ft)	5	130	142	20	16	46	5	35
Queue Length 95th (ft)	22	#213	#300	63	40	142	19	75
Internal Link Dist (ft)		1230		2572		2575		1085
Turn Bay Length (ft)	150		255		160		150	
Base Capacity (vph)	146	1051	600	2238	377	717	191	550
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.68	0.69	0.15	0.12	0.64	0.08	0.22

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	13	610	44	379	297	11	43	74	350	14	87	25
Future Volume (veh/h)	13	610	44	379	297	11	43	74	350	14	87	25
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	14	663	48	412	323	12	47	80	380	15	95	27
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	30	900	65	463	1784	66	380	76	361	108	375	107
Arrive On Green	0.02	0.27	0.27	0.26	0.51	0.51	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1774	3347	242	1774	3481	129	1264	283	1343	928	1396	397
Grp Volume(v), veh/h	14	350	361	412	164	171	47	0	460	15	0	122
Grp Sat Flow(s),veh/h/ln	1774	1770	1820	1774	1770	1840	1264	0	1626	928	0	1793
Q Serve(g_s), s	0.5	12.1	12.1	15.0	3.3	3.3	2.0	0.0	18.0	0.0	0.0	3.6
Cycle Q Clear(g_c), s	0.5	12.1	12.1	15.0	3.3	3.3	5.6	0.0	18.0	18.0	0.0	3.6
Prop In Lane	1.00		0.13	1.00		0.07	1.00		0.83	1.00		0.22
Lane Grp Cap(c), veh/h	30	476	489	463	907	943	380	0	437	108	0	482
V/C Ratio(X)	0.46	0.74	0.74	0.89	0.18	0.18	0.12	0.00	1.05	0.14	0.00	0.25
Avail Cap(c_a), veh/h	132	476	489	543	907	943	380	0	437	108	0	482
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.6	22.3	22.3	23.8	8.8	8.8	21.4	0.0	24.5	33.5	0.0	19.2
Incr Delay (d2), s/veh	10.5	9.8	9.6	15.1	0.4	0.4	0.1	0.0	57.5	0.6	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	7.1	7.3	9.3	1.7	1.8	0.7	0.0	15.0	0.3	0.0	1.8
LnGrp Delay(d),s/veh	43.1	32.1	31.9	38.9	9.2	9.2	21.5	0.0	82.0	34.1	0.0	19.5
LnGrp LOS	D	C	C	D	A	A	C		F	C		B
Approach Vol, veh/h		725			747			507			137	
Approach Delay, s/veh		32.2			25.6			76.4			21.1	
Approach LOS		C			C			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.6	38.8		22.5	22.0	22.5		22.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	33.5		18.0	20.5	18.0		18.0
Max Q Clear Time (g_c+I1), s	2.5	5.3		20.0	17.0	14.1		20.0
Green Ext Time (p_c), s	0.0	2.0		0.0	0.5	1.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	39.7
HCM 2010 LOS	D

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	200		0	100		100	105		0	150		150
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.980				0.850		0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1825	0	1770	1863	1583	1770	1835	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1825	0	1770	1863	1583	1770	1835	0	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12				182		5				187
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2652			1695			1544			1371	
Travel Time (s)		60.3			38.5			35.1			31.2	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	776	267	40	3	287	70	63	55	6	64	51	409
Future Volume (vph)	776	267	40	3	287	70	63	55	6	64	51	409
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	913	314	47	4	338	82	74	65	7	75	60	481
Shared Lane Traffic (%)												
Lane Group Flow (vph)	913	361	0	4	338	82	74	72	0	75	60	481

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	776	267	3	287	70	63	55	64	51	409
Future Volume (vph)	776	267	3	287	70	63	55	64	51	409
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	1	6	5	2		7	4	3	8	1
Permitted Phases					2					8
Detector Phase	1	6	5	2	2	7	4	3	8	1
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5
Total Split (s)	31.0	48.0	9.5	26.5	26.5	10.0	22.5	10.0	22.5	31.0
Total Split (%)	34.4%	53.3%	10.6%	29.4%	29.4%	11.1%	25.0%	11.1%	25.0%	34.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	24.5	52.2	5.2	23.3	23.3	5.8	8.4	5.8	8.4	34.5
Actuated g/C Ratio	0.33	0.70	0.07	0.31	0.31	0.08	0.11	0.08	0.11	0.46
v/c Ratio	0.81	0.28	0.03	0.58	0.13	0.54	0.34	0.55	0.29	0.58
Control Delay	30.9	7.9	37.3	30.2	0.4	54.0	36.1	54.5	36.8	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.9	7.9	37.3	30.2	0.4	54.0	36.1	54.5	36.8	11.3
LOS	C	A	D	C	A	D	D	D	D	B
Approach Delay		24.4		24.5			45.1		19.1	
Approach LOS		C		C			D		B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 74.5	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 24.3	Intersection LOS: C
Intersection Capacity Utilization 58.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Kalmia Street & Washington Avenue

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Group Flow (vph)	913	361	4	338	82	74	72	75	60	481
v/c Ratio	0.81	0.28	0.03	0.58	0.13	0.54	0.34	0.55	0.29	0.58
Control Delay	30.9	7.9	37.3	30.2	0.4	54.0	36.1	54.5	36.8	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.9	7.9	37.3	30.2	0.4	54.0	36.1	54.5	36.8	11.3
Queue Length 50th (ft)	212	64	2	150	0	37	32	37	28	92
Queue Length 95th (ft)	277	150	11	232	0	#92	66	#95	60	155
Internal Link Dist (ft)		2572		1615			1464		1291	
Turn Bay Length (ft)	200		100		100	105		150		150
Base Capacity (vph)	1277	1281	124	581	619	136	467	136	470	892
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.28	0.03	0.58	0.13	0.54	0.15	0.55	0.13	0.54

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	776	267	40	3	287	70	63	55	6	64	51	409
Future Volume (veh/h)	776	267	40	3	287	70	63	55	6	64	51	409
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	913	314	47	4	338	82	74	65	7	75	60	481
Adj No. of Lanes	2	1	0	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	993	844	126	9	465	395	95	336	36	96	380	780
Arrive On Green	0.29	0.53	0.53	0.01	0.25	0.25	0.05	0.20	0.20	0.05	0.20	0.20
Sat Flow, veh/h	3442	1584	237	1774	1863	1583	1774	1653	178	1774	1863	1583
Grp Volume(v), veh/h	913	0	361	4	338	82	74	0	72	75	60	481
Grp Sat Flow(s),veh/h/ln	1721	0	1821	1774	1863	1583	1774	0	1831	1774	1863	1583
Q Serve(g_s), s	22.6	0.0	10.2	0.2	14.7	3.6	3.6	0.0	2.9	3.7	2.3	18.0
Cycle Q Clear(g_c), s	22.6	0.0	10.2	0.2	14.7	3.6	3.6	0.0	2.9	3.7	2.3	18.0
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	993	0	970	9	465	395	95	0	373	96	380	780
V/C Ratio(X)	0.92	0.00	0.37	0.43	0.73	0.21	0.78	0.00	0.19	0.78	0.16	0.62
Avail Cap(c_a), veh/h	1035	0	970	101	465	395	111	0	374	111	380	780
HCM 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
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.4	0.0	12.0	43.7	30.3	26.2	41.2	0.0	29.1	41.2	28.8	16.3
Incr Delay (d2), s/veh	12.5	0.0	1.1	27.8	9.6	1.2	25.7	0.0	0.2	26.1	0.2	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.5	0.0	5.4	0.2	8.7	1.7	2.5	0.0	1.5	2.5	1.2	8.8
LnGrp Delay(d),s/veh	42.9	0.0	13.1	71.5	39.9	27.4	66.9	0.0	29.4	67.2	29.0	17.8
LnGrp LOS	D		B	E	D	C	E		C	E	C	B
Approach Vol, veh/h		1274			424			146			616	
Approach Delay, s/veh		34.4			37.8			48.4			24.9	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.9	26.5	9.3	22.4	5.0	51.5	9.2	22.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	26.5	22.0	5.5	18.0	5.0	43.5	5.5	18.0
Max Q Clear Time (g_c+I1), s	24.6	16.7	5.7	4.9	2.2	12.2	5.6	20.0
Green Ext Time (p_c), s	0.8	1.1	0.0	0.2	0.0	2.4	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	33.4
HCM 2010 LOS	C

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	60		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor												
Frt		0.997						0.913				0.850
Flt Protected				0.950				0.982			0.950	
Satd. Flow (prot)	0	1857	0	1770	1863	0	0	1670	0	0	1770	1583
Flt Permitted				0.950				0.982			0.950	
Satd. Flow (perm)	0	1857	0	1770	1863	0	0	1670	0	0	1770	1583
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1045			237			351			183	
Travel Time (s)		23.8			5.4			8.0			4.2	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	0	302	6	6	265	0	8	0	14	124	0	62
Future Volume (vph)	0	302	6	6	265	0	8	0	14	124	0	62
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	392	8	8	344	0	10	0	18	161	0	81
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	400	0	8	344	0	0	28	0	0	161	81

Intersection Summary

Intersection	
Int Delay, s/veh	5.8

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	302	6	6	265	0	8	0	14	124	0	62
Future Vol, veh/h	0	302	6	6	265	0	8	0	14	124	0	62
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	60	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	392	8	8	344	0	10	0	18	161	0	81

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	400	0	0	797	756	396	765	760	344
Stage 1	-	-	-	-	-	-	396	396	-	360	360	-
Stage 2	-	-	-	-	-	-	401	360	-	405	400	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1159	-	0	305	337	653	320	336	699
Stage 1	0	-	-	-	-	0	629	604	-	658	626	-
Stage 2	0	-	-	-	-	0	626	626	-	622	602	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1159	-	-	268	335	653	309	334	699
Mov Cap-2 Maneuver	-	-	-	-	-	-	268	335	-	309	334	-
Stage 1	-	-	-	-	-	-	629	604	-	658	622	-
Stage 2	-	-	-	-	-	-	550	622	-	605	602	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0.2	14	22.7
HCM LOS			B	C

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	429	1159	-	-	-	309	699
HCM Lane V/C Ratio	0.067	0.007	-	-	-	0.521	0.115
HCM Control Delay (s)	14	8.1	-	-	-	28.7	10.8
HCM Lane LOS	B	A	-	-	-	D	B
HCM 95th %tile Q(veh)	0.2	0	-	-	-	2.8	0.4

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt					0.993	
Flt Protected				0.972		
Satd. Flow (prot)	1863	0	0	1811	1850	0
Flt Permitted				0.972		
Satd. Flow (perm)	1863	0	0	1811	1850	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	112			181	2481	
Travel Time (s)	2.5			4.1	56.4	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Traffic Volume (vph)	0	0	277	198	52	3
Future Volume (vph)	0	0	277	198	52	3
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.48	0.48	0.48	0.48	0.48	0.48
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	0	0	577	413	108	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	990	114	0

Intersection Summary

Intersection	
Int Delay, s/veh	4.7

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	0	0	277	198	52	3
Future Vol, veh/h	0	0	277	198	52	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	48	48	48	48	48	48
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	577	413	108	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1678	111	114	0	-	0
Stage 1	111	-	-	-	-	-
Stage 2	1567	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	104	942	1475	-	-	-
Stage 1	914	-	-	-	-	-
Stage 2	189	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	51	942	1475	-	-	-
Mov Cap-2 Maneuver	51	-	-	-	-	-
Stage 1	451	-	-	-	-	-
Stage 2	189	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	0	5.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1475	-	-	-	-
HCM Lane V/C Ratio	0.391	-	-	-	-
HCM Control Delay (s)	9	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	1.9	-	-	-	-

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.865		
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	0	1611	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	0	1611	1770	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		340	1045		2657	
Travel Time (s)		7.7	23.8		60.4	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Traffic Volume (vph)	0	0	0	65	52	0
Future Volume (vph)	0	0	0	65	52	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	0	0	79	63	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	79	63	0

Intersection Summary

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	65	52	0
Future Vol, veh/h	0	0	0	65	52	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	79	63	0
Number of Lanes	0	1	0	1	1	0

Approach	SE	NW	SW
Opposing Approach	NW	SE	
Opposing Lanes	1	1	0
Conflicting Approach Left	SW		NW
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SW	SE
Conflicting Lanes Right	0	1	1
HCM Control Delay	0	6.8	7.6
HCM LOS	-	A	A

Lane	NWLn1	SELn1	SWLn1
Vol Left, %	0%	0%	100%
Vol Thru, %	0%	100%	0%
Vol Right, %	100%	0%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	65	0	52
LT Vol	0	0	52
Through Vol	0	0	0
RT Vol	65	0	0
Lane Flow Rate	79	0	63
Geometry Grp	1	1	1
Degree of Util (X)	0.076	0	0.075
Departure Headway (Hd)	3.444	4.104	4.272
Convergence, Y/N	Yes	Yes	Yes
Cap	1035	0	842
Service Time	1.481	2.148	2.284
HCM Lane V/C Ratio	0.076	0	0.075
HCM Control Delay	6.8	7.1	7.6
HCM Lane LOS	A	N	A
HCM 95th-tile Q	0.2	0	0.2

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	60			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.922			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1863	1717	0	1770	0
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1863	1717	0	1770	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		237	1361		181	
Travel Time (s)		5.4	30.9		4.1	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Traffic Volume (vph)	23	76	36	49	2	0
Future Volume (vph)	23	76	36	49	2	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	28	93	44	60	2	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	28	93	104	0	2	0

Intersection Summary

Intersection	
Int Delay, s/veh	1

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	23	76	36	49	2	0
Future Vol, veh/h	23	76	36	49	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	60	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	93	44	60	2	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	104	0	-	0	223	74
Stage 1	-	-	-	-	74	-
Stage 2	-	-	-	-	149	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1488	-	-	-	765	988
Stage 1	-	-	-	-	949	-
Stage 2	-	-	-	-	879	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1488	-	-	-	750	988
Mov Cap-2 Maneuver	-	-	-	-	750	-
Stage 1	-	-	-	-	931	-
Stage 2	-	-	-	-	879	-

Approach	SE	NW	SW
HCM Control Delay, s	1.7	0	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	1488	-	750
HCM Lane V/C Ratio	-	-	0.019	-	0.003
HCM Control Delay (s)	-	-	7.5	-	9.8
HCM Lane LOS	-	-	A	-	A
HCM 95th %tile Q(veh)	-	-	0.1	-	0

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	120	0	100			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	1863	1863	1583
Link Speed (mph)	30			30	30	
Link Distance (ft)	1361			666	2655	
Travel Time (s)	30.9			15.1	60.3	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Traffic Volume (vph)	81	3	2	23	23	117
Future Volume (vph)	81	3	2	23	23	117
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	105	4	3	30	30	152
Shared Lane Traffic (%)						
Lane Group Flow (vph)	105	4	3	30	30	152

Intersection Summary

Intersection	
Intersection Delay, s/veh	8.3
Intersection LOS	A

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	81	3	2	23	23	117
Future Vol, veh/h	81	3	2	23	23	117
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	105	4	3	30	30	152
Number of Lanes	1	1	1	1	1	1

Approach	SE	NE	SW
Opposing Approach		SW	NE
Opposing Lanes	0	2	2
Conflicting Approach Left	SW	SE	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NE		SE
Conflicting Lanes Right	2	0	2
HCM Control Delay	9.2	7.9	7.8
HCM LOS	A	A	A

Lane	NELn1	NELn2	SELn1	SELn2	SWLn1	SWLn2
Vol Left, %	100%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	2	23	81	3	23	117
LT Vol	2	0	81	0	0	0
Through Vol	0	23	0	0	23	0
RT Vol	0	0	0	3	0	117
Lane Flow Rate	3	30	105	4	30	152
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.004	0.041	0.161	0.005	0.041	0.176
Departure Headway (Hd)	5.495	4.993	5.506	4.304	4.883	4.181
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	654	720	653	834	737	862
Service Time	3.206	2.704	3.22	2.018	2.59	1.887
HCM Lane V/C Ratio	0.005	0.042	0.161	0.005	0.041	0.176
HCM Control Delay	8.2	7.9	9.3	7	7.8	7.8
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0	0.1	0.6	0	0.1	0.6

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	85		0	150		0	150		0	250		100
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.992				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3511	0	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3511	0	1770	1863	1583	1770	1863	1583	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				143			229			205
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1461			2630			1510			1533	
Travel Time (s)		33.2			59.8			34.3			34.8	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	62	242	13	308	535	127	17	94	218	133	267	193
Future Volume (vph)	62	242	13	308	535	127	17	94	218	133	267	193
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	65	255	14	324	563	134	18	99	229	140	281	203
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	269	0	324	563	134	18	99	229	140	281	203

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	62	242	308	535	127	17	94	218	133	267	193
Future Volume (vph)	62	242	308	535	127	17	94	218	133	267	193
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	5	2		7	4	5	3	8	
Permitted Phases					2			4			8
Detector Phase	1	6	5	2	2	7	4	5	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5	9.5	22.5	22.5
Total Split (s)	9.6	24.5	21.0	35.9	35.9	9.5	22.5	21.0	12.0	25.0	25.0
Total Split (%)	12.0%	30.6%	26.3%	44.9%	44.9%	11.9%	28.1%	26.3%	15.0%	31.3%	31.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	5.2	20.4	15.8	33.5	33.5	5.1	11.3	15.8	8.1	18.0	18.0
Actuated g/C Ratio	0.07	0.29	0.22	0.47	0.47	0.07	0.16	0.22	0.11	0.25	0.25
v/c Ratio	0.51	0.27	0.83	0.64	0.16	0.14	0.34	0.43	0.69	0.60	0.37
Control Delay	50.5	22.1	48.1	22.1	3.4	37.5	30.1	7.1	54.9	30.2	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.5	22.1	48.1	22.1	3.4	37.5	30.1	7.1	54.9	30.2	6.0
LOS	D	C	D	C	A	D	C	A	D	C	A
Approach Delay		27.6		27.9			15.2			27.9	
Approach LOS		C		C			B			C	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 71.3	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 26.0	Intersection LOS: C
Intersection Capacity Utilization 57.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Calle Del Oso Oro/Nutmeg Street & Washington Avenue

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Group Flow (vph)	65	269	324	563	134	18	99	229	140	281	203
v/c Ratio	0.51	0.27	0.83	0.64	0.16	0.14	0.34	0.43	0.69	0.60	0.37
Control Delay	50.5	22.1	48.1	22.1	3.4	37.5	30.1	7.1	54.9	30.2	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.5	22.1	48.1	22.1	3.4	37.5	30.1	7.1	54.9	30.2	6.0
Queue Length 50th (ft)	28	46	134	189	0	8	41	0	61	101	0
Queue Length 95th (ft)	#87	88	#305	#376	29	29	81	55	#170	201	48
Internal Link Dist (ft)		1381		2550			1430			1453	
Turn Bay Length (ft)	85		150			150			250		100
Base Capacity (vph)	128	1007	417	874	818	126	479	548	202	548	610
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.27	0.78	0.64	0.16	0.14	0.21	0.42	0.69	0.51	0.33

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	62	242	13	308	535	127	17	94	218	133	267	193
Future Volume (veh/h)	62	242	13	308	535	127	17	94	218	133	267	193
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	65	255	14	324	563	134	18	99	229	140	281	203
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	91	985	54	369	830	706	37	278	566	175	422	359
Arrive On Green	0.05	0.29	0.29	0.21	0.45	0.45	0.02	0.15	0.15	0.10	0.23	0.23
Sat Flow, veh/h	1774	3413	186	1774	1863	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	65	132	137	324	563	134	18	99	229	140	281	203
Grp Sat Flow(s),veh/h/ln	1774	1770	1830	1774	1863	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	2.5	4.0	4.1	12.5	16.9	3.6	0.7	3.4	7.7	5.4	9.7	8.0
Cycle Q Clear(g_c), s	2.5	4.0	4.1	12.5	16.9	3.6	0.7	3.4	7.7	5.4	9.7	8.0
Prop In Lane	1.00		0.10	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	91	511	528	369	830	706	37	278	566	175	422	359
V/C Ratio(X)	0.72	0.26	0.26	0.88	0.68	0.19	0.48	0.36	0.40	0.80	0.67	0.57
Avail Cap(c_a), veh/h	128	511	528	415	830	706	126	476	734	189	542	461
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.9	19.3	19.3	27.0	15.5	11.8	34.1	26.9	17.0	31.1	24.8	24.2
Incr Delay (d2), s/veh	10.5	1.2	1.2	17.4	4.4	0.6	9.3	0.8	0.5	19.9	2.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	2.1	2.2	7.9	9.6	1.7	0.4	1.8	3.4	3.6	5.2	3.6
LnGrp Delay(d),s/veh	43.4	20.5	20.5	44.4	20.0	12.4	43.4	27.7	17.5	50.9	26.9	25.6
LnGrp LOS	D	C	C	D	B	B	D	C	B	D	C	C
Approach Vol, veh/h		334			1021			346			624	
Approach Delay, s/veh		24.9			26.7			21.8			31.8	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.1	35.9	11.5	15.0	19.2	24.8	6.0	20.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.1	31.4	7.5	18.0	16.5	20.0	5.0	20.5
Max Q Clear Time (g_c+I1), s	4.5	18.9	7.4	9.7	14.5	6.1	2.7	11.7
Green Ext Time (p_c), s	0.0	3.4	0.0	0.8	0.2	1.2	0.0	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	27.1
HCM 2010 LOS	C

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		280	300		0	350		0	150		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor												
Frt			0.850		0.998			0.933			0.912	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3532	0	1770	1738	0	1770	3228	0
Flt Permitted	0.950			0.950			0.488			0.689		
Satd. Flow (perm)	1770	3539	1583	1770	3532	0	909	1738	0	1283	3228	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			121		2			47			81	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2630			1335			2657			1296	
Travel Time (s)		59.8			30.3			60.4			29.5	

Intersection Summary	
Area Type:	Other

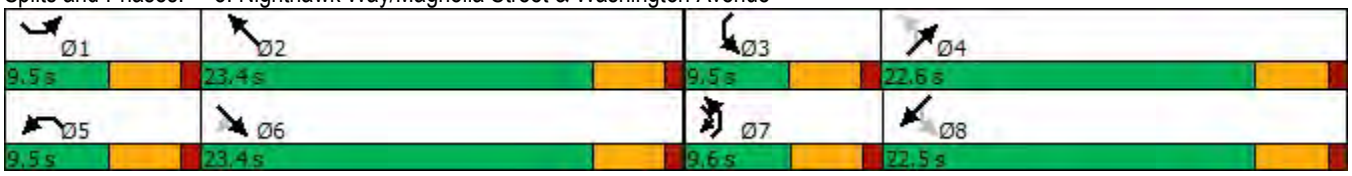
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	39	457	115	58	577	9	112	55	45	10	54	77
Future Volume (vph)	39	457	115	58	577	9	112	55	45	10	54	77
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	41	481	121	61	607	9	118	58	47	11	57	81
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	481	121	61	616	0	118	105	0	11	138	0

Intersection Summary

Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Configurations									
Traffic Volume (vph)	39	457	115	58	577	112	55	10	54
Future Volume (vph)	39	457	115	58	577	112	55	10	54
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	7	5	2	7	4	3	8
Permitted Phases			6			4		8	
Detector Phase	1	6	7	5	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	9.5	23.4	9.6	9.5	23.4	9.6	22.6	9.5	22.5
Total Split (%)	14.6%	36.0%	14.8%	14.6%	36.0%	14.8%	34.8%	14.6%	34.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	Max	None	None	None	None
Act Effct Green (s)	5.1	24.4	31.7	5.1	26.1	13.5	12.7	10.7	7.0
Actuated g/C Ratio	0.10	0.49	0.64	0.10	0.53	0.27	0.26	0.22	0.14
v/c Ratio	0.22	0.28	0.11	0.33	0.33	0.35	0.22	0.03	0.26
Control Delay	26.6	12.4	2.2	28.8	11.5	16.6	12.0	13.1	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.6	12.4	2.2	28.8	11.5	16.6	12.0	13.1	11.8
LOS	C	B	A	C	B	B	B	B	B
Approach Delay		11.4			13.1		14.4		11.9
Approach LOS		B			B		B		B

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 49.3	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.35	
Intersection Signal Delay: 12.5	Intersection LOS: B
Intersection Capacity Utilization 45.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 5: Nighthawk Way/Magnolia Street & Washington Avenue



Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	41	481	121	61	616	118	105	11	138
v/c Ratio	0.22	0.28	0.11	0.33	0.33	0.35	0.22	0.03	0.26
Control Delay	26.6	12.4	2.2	28.8	11.5	16.6	12.0	13.1	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.6	12.4	2.2	28.8	11.5	16.6	12.0	13.1	11.8
Queue Length 50th (ft)	12	57	0	19	51	28	13	2	8
Queue Length 95th (ft)	39	102	20	52	131	59	53	11	28
Internal Link Dist (ft)		2550			1255		2577		1216
Turn Bay Length (ft)	150		280	300		350		150	
Base Capacity (vph)	183	1749	1062	183	1872	339	683	328	1257
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.28	0.11	0.33	0.33	0.35	0.15	0.03	0.11

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	39	457	115	58	577	9	112	55	45	10	54	77
Future Volume (veh/h)	39	457	115	58	577	9	112	55	45	10	54	77
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	41	481	121	61	607	9	118	58	47	11	57	81
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	1379	747	102	1441	21	358	160	129	302	176	158
Arrive On Green	0.04	0.39	0.39	0.06	0.40	0.40	0.08	0.17	0.17	0.01	0.10	0.10
Sat Flow, veh/h	1774	3539	1583	1774	3570	53	1774	954	773	1774	1770	1583
Grp Volume(v), veh/h	41	481	121	61	301	315	118	0	105	11	57	81
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1853	1774	0	1726	1774	1770	1583
Q Serve(g_s), s	1.1	4.7	2.1	1.6	5.9	5.9	2.8	0.0	2.6	0.3	1.5	2.4
Cycle Q Clear(g_c), s	1.1	4.7	2.1	1.6	5.9	5.9	2.8	0.0	2.6	0.3	1.5	2.4
Prop In Lane	1.00		1.00	1.00		0.03	1.00		0.45	1.00		1.00
Lane Grp Cap(c), veh/h	78	1379	747	102	714	748	358	0	289	302	176	158
V/C Ratio(X)	0.53	0.35	0.16	0.60	0.42	0.42	0.33	0.00	0.36	0.04	0.32	0.51
Avail Cap(c_a), veh/h	183	1379	747	183	714	748	399	0	644	459	656	587
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.7	10.5	7.3	22.3	10.4	10.4	16.8	0.0	17.9	19.2	20.3	20.7
Incr Delay (d2), s/veh	5.5	0.7	0.5	5.4	1.8	1.7	0.5	0.0	0.8	0.0	1.0	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	2.4	1.0	1.0	3.2	3.3	1.4	0.0	1.3	0.1	0.8	1.1
LnGrp Delay(d),s/veh	28.2	11.2	7.8	27.7	12.2	12.1	17.4	0.0	18.7	19.2	21.4	23.3
LnGrp LOS	C	B	A	C	B	B	B		B	B	C	C
Approach Vol, veh/h		643			677			223			149	
Approach Delay, s/veh		11.6			13.6			18.0			22.3	
Approach LOS		B			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.6	24.1	5.2	12.6	7.3	23.4	8.5	9.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.9	5.0	18.1	5.0	18.9	5.1	18.0
Max Q Clear Time (g_c+I1), s	3.1	7.9	2.3	4.6	3.6	6.7	4.8	4.4
Green Ext Time (p_c), s	0.0	2.8	0.0	0.4	0.0	2.9	0.0	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	14.2
HCM 2010 LOS	B

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		170	150		0	80		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850			0.850		0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	1863	1583	1770	1583	0	1770	1583	0
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	1770	3539	1583	1770	1863	1583	1863	1583	0	1863	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109			109		341			289	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1335			1310			2481			639	
Travel Time (s)		30.3			29.8			56.4			14.5	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	3	515	11	6	633	1	11	0	3	1	0	4
Future Volume (vph)	3	515	11	6	633	1	11	0	3	1	0	4
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	3	536	11	6	659	1	11	0	3	1	0	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	536	11	6	659	1	11	3	0	1	4	0

Intersection Summary

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Configurations										
Traffic Volume (vph)	3	515	11	6	633	1	11	0	1	0
Future Volume (vph)	3	515	11	6	633	1	11	0	1	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			4		8
Permitted Phases			6			2	4		8	
Detector Phase	1	6	6	5	2	2	4	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	28.0	28.0	9.5	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	46.7%	46.7%	15.8%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	5.0	39.6	39.6	5.0	39.6	39.6	6.0	6.0	5.8	5.8
Actuated g/C Ratio	0.11	0.90	0.90	0.11	0.90	0.90	0.14	0.14	0.13	0.13
v/c Ratio	0.01	0.17	0.01	0.03	0.39	0.00	0.04	0.01	0.00	0.01
Control Delay	19.0	2.6	0.0	19.0	5.0	0.0	17.7	0.0	17.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.0	2.6	0.0	19.0	5.0	0.0	17.7	0.0	17.0	0.0
LOS	B	A	A	B	A	A	B	A	B	A
Approach Delay		2.7			5.1			13.9		3.4
Approach LOS		A			A			B		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 44.2	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.39	
Intersection Signal Delay: 4.1	Intersection LOS: A
Intersection Capacity Utilization 48.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: Fullerton Road & Washington Avenue

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Group Flow (vph)	3	536	11	6	659	1	11	3	1	4
v/c Ratio	0.01	0.17	0.01	0.03	0.39	0.00	0.04	0.01	0.00	0.01
Control Delay	19.0	2.6	0.0	19.0	5.0	0.0	17.7	0.0	17.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.0	2.6	0.0	19.0	5.0	0.0	17.7	0.0	17.0	0.0
Queue Length 50th (ft)	1	0	0	1	0	0	2	0	0	0
Queue Length 95th (ft)	6	70	0	10	#258	0	13	0	4	0
Internal Link Dist (ft)		1255			1230			2401		559
Turn Bay Length (ft)			170	150			80			
Base Capacity (vph)	200	3171	1430	200	1669	1430	760	848	760	817
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.17	0.01	0.03	0.39	0.00	0.01	0.00	0.00	0.00

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	3	515	11	6	633	1	11	0	3	1	0	4
Future Volume (veh/h)	3	515	11	6	633	1	11	0	3	1	0	4
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	3	536	11	6	659	1	11	0	3	1	0	4
Adj No. of Lanes	1	2	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	7	2176	973	14	1153	980	219	0	38	219	0	38
Arrive On Green	0.00	0.61	0.61	0.01	0.62	0.62	0.02	0.00	0.02	0.02	0.00	0.02
Sat Flow, veh/h	1774	3539	1583	1774	1863	1583	1407	0	1583	1408	0	1583
Grp Volume(v), veh/h	3	536	11	6	659	1	11	0	3	1	0	4
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1863	1583	1407	0	1583	1408	0	1583
Q Serve(g_s), s	0.1	2.6	0.1	0.1	8.0	0.0	0.3	0.0	0.1	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.1	2.6	0.1	0.1	8.0	0.0	0.4	0.0	0.1	0.1	0.0	0.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	7	2176	973	14	1153	980	219	0	38	219	0	38
V/C Ratio(X)	0.41	0.25	0.01	0.42	0.57	0.00	0.05	0.00	0.08	0.00	0.00	0.11
Avail Cap(c_a), veh/h	232	2176	973	232	1153	980	847	0	746	849	0	746
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.0	3.3	2.9	18.9	4.3	2.8	18.4	0.0	18.2	18.3	0.0	18.3
Incr Delay (d2), s/veh	33.3	0.3	0.0	18.3	2.1	0.0	0.1	0.0	0.9	0.0	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.3	0.0	0.1	4.7	0.0	0.1	0.0	0.0	0.0	0.0	0.1
LnGrp Delay(d),s/veh	52.3	3.6	2.9	37.2	6.4	2.8	18.5	0.0	19.1	18.3	0.0	19.5
LnGrp LOS	D	A	A	D	A	A	B		B	B		B
Approach Vol, veh/h		550			666			14			5	
Approach Delay, s/veh		3.9			6.6			18.7			19.2	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.7	28.2		5.4	4.8	28.0		5.4
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	23.5		18.0	5.0	23.5		18.0
Max Q Clear Time (g_c+I1), s	2.1	10.0		2.4	2.1	4.6		2.1
Green Ext Time (p_c), s	0.0	3.8		0.0	0.0	3.5		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	5.6
HCM 2010 LOS	A

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	255		0	160		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.990			0.997			0.873			0.936	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3504	0	1770	3529	0	1770	1626	0	1770	1744	0
Flt Permitted	0.950			0.950			0.711			0.702		
Satd. Flow (perm)	1770	3504	0	1770	3529	0	1324	1626	0	1308	1744	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			4			105			30	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1310			2652			2655			1165	
Travel Time (s)		29.8			60.3			60.3			26.5	

Intersection Summary	
Area Type:	Other

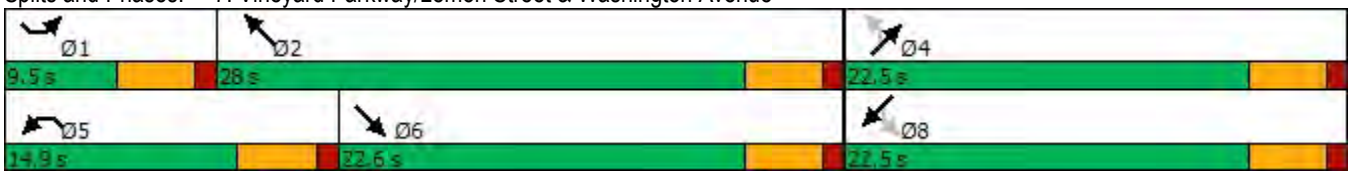
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	14	483	36	135	596	12	31	18	99	11	38	28
Future Volume (vph)	14	483	36	135	596	12	31	18	99	11	38	28
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	15	514	38	144	634	13	33	19	105	12	40	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	552	0	144	647	0	33	124	0	12	70	0

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Configurations								
Traffic Volume (vph)	14	483	135	596	31	18	11	38
Future Volume (vph)	14	483	135	596	31	18	11	38
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	1	6	5	2		4		8
Permitted Phases					4		8	
Detector Phase	1	6	5	2	4	4	8	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	22.6	14.9	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	37.7%	24.8%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	None	Max	None	None	None	None
Act Effct Green (s)	5.0	23.7	8.6	32.8	6.9	6.9	6.9	6.9
Actuated g/C Ratio	0.11	0.50	0.18	0.69	0.15	0.15	0.15	0.15
v/c Ratio	0.08	0.31	0.45	0.26	0.17	0.38	0.06	0.25
Control Delay	21.7	11.0	22.3	5.1	20.3	10.2	18.5	14.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.7	11.0	22.3	5.1	20.3	10.2	18.5	14.5
LOS	C	B	C	A	C	B	B	B
Approach Delay		11.2		8.3		12.3		15.1
Approach LOS		B		A		B		B

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 47.3	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.45	
Intersection Signal Delay: 10.1	Intersection LOS: B
Intersection Capacity Utilization 41.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 7: Vineyard Parkway/Lemon Street & Washington Avenue



Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	15	552	144	647	33	124	12	70
v/c Ratio	0.08	0.31	0.45	0.26	0.17	0.38	0.06	0.25
Control Delay	21.7	11.0	22.3	5.1	20.3	10.2	18.5	14.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.7	11.0	22.3	5.1	20.3	10.2	18.5	14.5
Queue Length 50th (ft)	4	54	35	27	8	5	3	10
Queue Length 95th (ft)	18	100	81	96	27	40	14	37
Internal Link Dist (ft)		1230		2572		2575		1085
Turn Bay Length (ft)	150		255		160		150	
Base Capacity (vph)	187	1758	390	2446	505	686	499	685
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.31	0.37	0.26	0.07	0.18	0.02	0.10

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	14	483	36	135	596	12	31	18	99	11	38	28
Future Volume (veh/h)	14	483	36	135	596	12	31	18	99	11	38	28
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	15	514	38	144	634	13	33	19	105	12	40	30
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	34	1526	113	188	1927	39	284	31	172	234	124	93
Arrive On Green	0.02	0.46	0.46	0.11	0.54	0.54	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1774	3342	247	1774	3547	73	1325	248	1372	1262	990	742
Grp Volume(v), veh/h	15	272	280	144	316	331	33	0	124	12	0	70
Grp Sat Flow(s),veh/h/ln	1774	1770	1819	1774	1770	1850	1325	0	1621	1262	0	1732
Q Serve(g_s), s	0.4	4.3	4.3	3.4	4.3	4.3	1.0	0.0	3.1	0.4	0.0	1.6
Cycle Q Clear(g_c), s	0.4	4.3	4.3	3.4	4.3	4.3	2.6	0.0	3.1	3.5	0.0	1.6
Prop In Lane	1.00		0.14	1.00		0.04	1.00		0.85	1.00		0.43
Lane Grp Cap(c), veh/h	34	808	830	188	961	1005	284	0	204	234	0	218
V/C Ratio(X)	0.44	0.34	0.34	0.77	0.33	0.33	0.12	0.00	0.61	0.05	0.00	0.32
Avail Cap(c_a), veh/h	205	808	830	426	961	1005	669	0	674	600	0	721
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.0	7.5	7.6	18.8	5.5	5.5	18.4	0.0	17.9	19.6	0.0	17.2
Incr Delay (d2), s/veh	8.9	1.1	1.1	6.4	0.9	0.9	0.2	0.0	2.9	0.1	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.3	2.4	2.0	2.3	2.4	0.4	0.0	1.5	0.1	0.0	0.8
LnGrp Delay(d),s/veh	29.8	8.7	8.7	25.3	6.4	6.4	18.6	0.0	20.8	19.7	0.0	18.1
LnGrp LOS	C	A	A	C	A	A	B		C	B		B
Approach Vol, veh/h		567			791			157			82	
Approach Delay, s/veh		9.2			9.8			20.4			18.3	
Approach LOS		A			A			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.3	28.0		9.9	9.1	24.2		9.9
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	23.5		18.0	10.4	18.1		18.0
Max Q Clear Time (g_c+I1), s	2.4	6.3		5.1	5.4	6.3		5.5
Green Ext Time (p_c), s	0.0	3.7		0.6	0.1	2.6		0.2

Intersection Summary		
HCM 2010 Ctrl Delay		11.1
HCM 2010 LOS		B

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	200		0	100		100	105		0	150		150
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.981				0.850		0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1827	0	1770	1863	1583	1770	1835	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1827	0	1770	1863	1583	1770	1835	0	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12				234		8				511
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2652			1695			1544			1371	
Travel Time (s)		60.3			38.5			35.1			31.2	

Intersection Summary	
Area Type:	Other

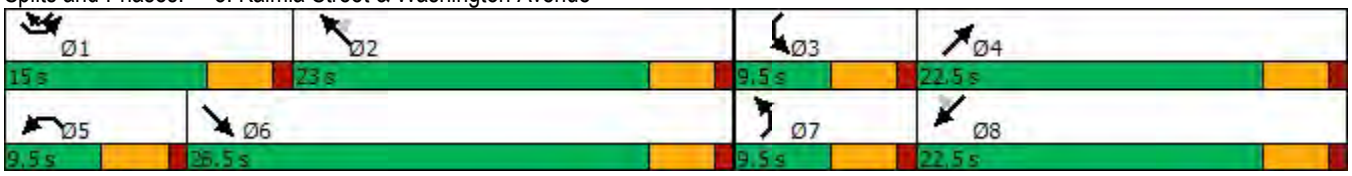
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	437	193	28	5	306	107	48	78	9	86	53	501
Future Volume (vph)	437	193	28	5	306	107	48	78	9	86	53	501
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	446	197	29	5	312	109	49	80	9	88	54	511
Shared Lane Traffic (%)												
Lane Group Flow (vph)	446	226	0	5	312	109	49	89	0	88	54	511

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	437	193	5	306	107	48	78	86	53	501
Future Volume (vph)	437	193	5	306	107	48	78	86	53	501
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	1	6	5	2		7	4	3	8	1
Permitted Phases					2					8
Detector Phase	1	6	5	2	2	7	4	3	8	1
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5
Total Split (s)	15.0	28.5	9.5	23.0	23.0	9.5	22.5	9.5	22.5	15.0
Total Split (%)	21.4%	40.7%	13.6%	32.9%	32.9%	13.6%	32.1%	13.6%	32.1%	21.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	10.4	34.2	5.2	19.3	19.3	5.2	8.1	5.2	9.9	10.4
Actuated g/C Ratio	0.19	0.61	0.09	0.35	0.35	0.09	0.14	0.09	0.18	0.19
v/c Ratio	0.70	0.20	0.03	0.48	0.16	0.30	0.33	0.53	0.16	0.72
Control Delay	30.7	9.3	26.8	20.4	0.5	31.9	25.1	42.3	23.5	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.7	9.3	26.8	20.4	0.5	31.9	25.1	42.3	23.5	9.9
LOS	C	A	C	C	A	C	C	D	C	A
Approach Delay		23.5		15.4			27.5		15.4	
Approach LOS		C		B			C		B	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 55.9	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 19.2	Intersection LOS: B
Intersection Capacity Utilization 62.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Kalmia Street & Washington Avenue



Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Group Flow (vph)	446	226	5	312	109	49	89	88	54	511
v/c Ratio	0.70	0.20	0.03	0.48	0.16	0.30	0.33	0.53	0.16	0.72
Control Delay	30.7	9.3	26.8	20.4	0.5	31.9	25.1	42.3	23.5	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.7	9.3	26.8	20.4	0.5	31.9	25.1	42.3	23.5	9.9
Queue Length 50th (ft)	79	35	2	92	0	17	27	32	18	0
Queue Length 95th (ft)	#148	103	11	173	0	47	63	#94	45	#99
Internal Link Dist (ft)		2572		1615			1464		1291	
Turn Bay Length (ft)	200		100		100	105		150		150
Base Capacity (vph)	673	1121	165	644	700	165	622	165	626	721
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.20	0.03	0.48	0.16	0.30	0.14	0.53	0.09	0.71

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	437	193	28	5	306	107	48	78	9	86	53	501
Future Volume (veh/h)	437	193	28	5	306	107	48	78	9	86	53	501
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	446	197	29	5	312	109	49	80	9	88	54	511
Adj No. of Lanes	2	1	0	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	531	666	98	12	507	431	79	404	45	113	493	663
Arrive On Green	0.15	0.42	0.42	0.01	0.27	0.27	0.04	0.25	0.25	0.06	0.26	0.26
Sat Flow, veh/h	3442	1588	234	1774	1863	1583	1774	1645	185	1774	1863	1583
Grp Volume(v), veh/h	446	0	226	5	312	109	49	0	89	88	54	511
Grp Sat Flow(s),veh/h/ln	1721	0	1821	1774	1863	1583	1774	0	1830	1774	1863	1583
Q Serve(g_s), s	8.6	0.0	5.6	0.2	10.0	3.7	1.8	0.0	2.6	3.3	1.5	18.0
Cycle Q Clear(g_c), s	8.6	0.0	5.6	0.2	10.0	3.7	1.8	0.0	2.6	3.3	1.5	18.0
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	531	0	765	12	507	431	79	0	449	113	493	663
V/C Ratio(X)	0.84	0.00	0.30	0.43	0.62	0.25	0.62	0.00	0.20	0.78	0.11	0.77
Avail Cap(c_a), veh/h	531	0	765	130	507	431	130	0	484	130	493	663
HCM 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
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.9	0.0	13.1	33.7	21.7	19.4	31.9	0.0	20.3	31.4	18.9	17.0
Incr Delay (d2), s/veh	11.4	0.0	1.0	22.5	5.5	1.4	7.8	0.0	0.2	22.8	0.1	5.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.0	3.0	0.2	5.9	1.8	1.1	0.0	1.3	2.4	0.8	9.2
LnGrp Delay(d),s/veh	39.4	0.0	14.1	56.2	27.2	20.8	39.7	0.0	20.6	54.2	19.0	22.5
LnGrp LOS	D		B	E	C	C	D		C	D	B	C
Approach Vol, veh/h		672			426			138			653	
Approach Delay, s/veh		30.9			25.9			27.4			26.5	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	23.0	8.8	21.2	5.0	33.0	7.5	22.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	18.5	5.0	18.0	5.0	24.0	5.0	18.0
Max Q Clear Time (g_c+I1), s	10.6	12.0	5.3	4.6	2.2	7.6	3.8	20.0
Green Ext Time (p_c), s	0.0	1.2	0.0	0.3	0.0	1.1	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	28.0
HCM 2010 LOS	C

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	60		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor												
Frt		0.986						0.932				0.850
Flt Protected				0.950				0.976			0.950	
Satd. Flow (prot)	0	1837	0	1770	1863	0	0	1694	0	0	1770	1583
Flt Permitted				0.950				0.976			0.950	
Satd. Flow (perm)	0	1837	0	1770	1863	0	0	1694	0	0	1770	1583
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1045			237			351			183	
Travel Time (s)		23.8			5.4			8.0			4.2	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	0	43	5	9	26	0	5	0	5	49	0	30
Future Volume (vph)	0	43	5	9	26	0	5	0	5	49	0	30
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	54	6	11	33	0	6	0	6	62	0	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	60	0	11	33	0	0	12	0	0	62	38

Intersection Summary

Intersection	
Int Delay, s/veh	5.1

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	43	5	9	26	0	5	0	5	49	0	30
Future Vol, veh/h	0	43	5	9	26	0	5	0	5	49	0	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	60	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	54	6	11	33	0	6	0	6	62	0	38

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	60	0	0	131	112	57	115	115	33
Stage 1	-	-	-	-	-	-	57	57	-	55	55	-
Stage 2	-	-	-	-	-	-	74	55	-	60	60	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1544	-	0	841	778	1009	862	775	1041
Stage 1	0	-	-	-	-	0	955	847	-	957	849	-
Stage 2	0	-	-	-	-	0	935	849	-	951	845	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1544	-	-	806	773	1009	852	770	1041
Mov Cap-2 Maneuver	-	-	-	-	-	-	806	773	-	852	770	-
Stage 1	-	-	-	-	-	-	955	847	-	957	843	-
Stage 2	-	-	-	-	-	-	894	843	-	945	845	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	1.9	9.1	9.2
HCM LOS			A	A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	896	1544	-	-	-	852	1041
HCM Lane V/C Ratio	0.014	0.007	-	-	-	0.073	0.036
HCM Control Delay (s)	9.1	7.3	-	-	-	9.6	8.6
HCM Lane LOS	A	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	0	-	-	-	0.2	0.1

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected				0.950		
Satd. Flow (prot)	1863	0	0	1770	1863	0
Flt Permitted				0.950		
Satd. Flow (perm)	1863	0	0	1770	1863	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	112			181	2481	
Travel Time (s)	2.5			4.1	56.4	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Traffic Volume (vph)	0	0	71	0	0	0
Future Volume (vph)	0	0	71	0	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	0	0	88	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	88	0	0

Intersection Summary

Intersection	
Int Delay, s/veh	7.2

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	0	0	71	0	0	0
Future Vol, veh/h	0	0	71	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	88	0	0	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	177	1	1	0	-	0
Stage 1	1	-	-	-	-	-
Stage 2	176	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	813	1084	1622	-	-	-
Stage 1	1022	-	-	-	-	-
Stage 2	855	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	769	1084	1622	-	-	-
Mov Cap-2 Maneuver	769	-	-	-	-	-
Stage 1	967	-	-	-	-	-
Stage 2	855	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	0	7.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1622	-	-	-	-
HCM Lane V/C Ratio	0.054	-	-	-	-
HCM Control Delay (s)	7.3	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-	-

Appendix G

Project Buildout Year With Ambient Growth
With Cumulative Projects Conditions
Intersection Analysis

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.865		
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	0	1611	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	0	1611	1770	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		340	1045		2657	
Travel Time (s)		7.7	23.8		60.4	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Traffic Volume (vph)	0	0	0	246	284	0
Future Volume (vph)	0	0	0	246	284	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	0	0	357	412	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	357	412	0

Intersection Summary

Intersection	
Intersection Delay, s/veh	12.6
Intersection LOS	B

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	246	284	0
Future Vol, veh/h	0	0	0	246	284	0
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	357	412	0
Number of Lanes	0	1	0	1	1	0

Approach	SE	NW	SW
Opposing Approach	NW	SE	
Opposing Lanes	1	1	0
Conflicting Approach Left	SW		NW
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SW	SE
Conflicting Lanes Right	0	1	1
HCM Control Delay	0	10.8	14.2
HCM LOS	-	B	B

Lane	NWLn1	SELn1	SWLn1
Vol Left, %	0%	0%	100%
Vol Thru, %	0%	100%	0%
Vol Right, %	100%	0%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	246	0	284
LT Vol	0	0	284
Through Vol	0	0	0
RT Vol	246	0	0
Lane Flow Rate	357	0	412
Geometry Grp	1	1	1
Degree of Util (X)	0.436	0	0.563
Departure Headway (Hd)	4.398	5.434	4.924
Convergence, Y/N	Yes	Yes	Yes
Cap	816	0	729
Service Time	2.435	3.513	2.993
HCM Lane V/C Ratio	0.438	0	0.565
HCM Control Delay	10.8	8.5	14.2
HCM Lane LOS	B	N	B
HCM 95th-tile Q	2.2	0	3.5

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	60			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.923		0.936	
Flt Protected	0.950				0.974	
Satd. Flow (prot)	1770	1863	1719	0	1698	0
Flt Permitted	0.950				0.974	
Satd. Flow (perm)	1770	1863	1719	0	1698	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		237	1361		181	
Travel Time (s)		5.4	30.9		4.1	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Traffic Volume (vph)	47	149	181	242	27	25
Future Volume (vph)	47	149	181	242	27	25
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	72	229	278	372	42	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	72	229	650	0	80	0

Intersection Summary

Intersection	
Int Delay, s/veh	1.9

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	47	149	181	242	27	25
Future Vol, veh/h	47	149	181	242	27	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	60	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	72	229	278	372	42	38

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	650	0	-	0	837	464
Stage 1	-	-	-	-	464	-
Stage 2	-	-	-	-	373	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	936	-	-	-	337	598
Stage 1	-	-	-	-	633	-
Stage 2	-	-	-	-	696	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	936	-	-	-	311	598
Mov Cap-2 Maneuver	-	-	-	-	311	-
Stage 1	-	-	-	-	584	-
Stage 2	-	-	-	-	696	-

Approach	SE	NW	SW
HCM Control Delay, s	2.2	0	16.1
HCM LOS			C

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	936	-	404
HCM Lane V/C Ratio	-	-	0.077	-	0.198
HCM Control Delay (s)	-	-	9.2	-	16.1
HCM Lane LOS	-	-	A	-	C
HCM 95th %tile Q(veh)	-	-	0.3	-	0.7

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	120	0	100			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	1863	1863	1583
Link Speed (mph)	30			30	30	
Link Distance (ft)	1361			666	2655	
Travel Time (s)	30.9			15.1	60.3	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Traffic Volume (vph)	333	6	6	500	238	324
Future Volume (vph)	333	6	6	500	238	324
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	401	7	7	602	287	390
Shared Lane Traffic (%)						
Lane Group Flow (vph)	401	7	7	602	287	390

Intersection Summary

Intersection	
Intersection Delay, s/veh	75.8
Intersection LOS	F

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	333	6	6	500	238	324
Future Vol, veh/h	333	6	6	500	238	324
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	401	7	7	602	287	390
Number of Lanes	1	1	1	1	1	1

Approach	SE	NE	SW
Opposing Approach		SW	NE
Opposing Lanes	0	2	2
Conflicting Approach Left	SW	SE	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NE		SE
Conflicting Lanes Right	2	0	2
HCM Control Delay	50.5	150.4	23.9
HCM LOS	F	F	C

Lane	NELn1	NELn2	SELn1	SELn2	SWLn1	SWLn2
Vol Left, %	100%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	6	500	333	6	238	324
LT Vol	6	0	333	0	0	0
Through Vol	0	500	0	0	238	0
RT Vol	0	0	0	6	0	324
Lane Flow Rate	7	602	401	7	287	390
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.016	1.249	0.898	0.014	0.586	0.722
Departure Headway (Hd)	7.982	7.467	8.512	7.272	7.831	7.105
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	448	488	429	495	465	511
Service Time	5.737	5.221	6.212	4.972	5.531	4.805
HCM Lane V/C Ratio	0.016	1.234	0.935	0.014	0.617	0.763
HCM Control Delay	10.9	152.1	51.2	10.1	21	26.1
HCM Lane LOS	B	F	F	B	C	D
HCM 95th-tile Q	0	24.2	9.5	0	3.7	5.8

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	85		0	150		0	150		0	250		100
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.957				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3387	0	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3387	0	1770	1863	1583	1770	1863	1583	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		61				182			94			236
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1461			2630			1510			1533	
Travel Time (s)		33.2			59.8			34.3			34.8	

Intersection Summary

Area Type: Other

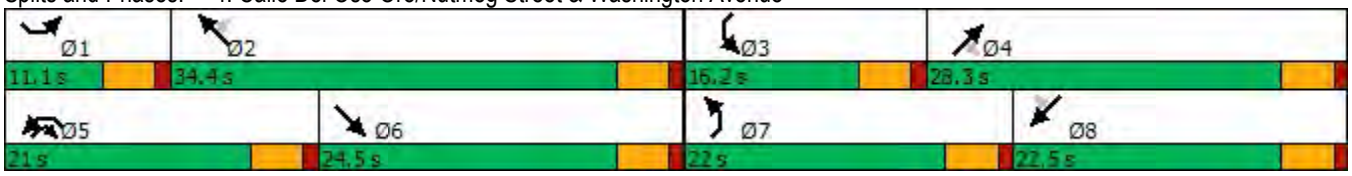
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	98	400	160	263	408	135	285	337	501	188	208	95
Future Volume (vph)	98	400	160	263	408	135	285	337	501	188	208	95
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	110	449	180	296	458	152	320	379	563	211	234	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	110	629	0	296	458	152	320	379	563	211	234	107

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	98	400	263	408	135	285	337	501	188	208	95
Future Volume (vph)	98	400	263	408	135	285	337	501	188	208	95
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	5	2		7	4	5	3	8	
Permitted Phases					2			4			8
Detector Phase	1	6	5	2	2	7	4	5	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5	9.5	22.5	22.5
Total Split (s)	11.1	24.5	21.0	34.4	34.4	22.0	28.3	21.0	16.2	22.5	22.5
Total Split (%)	12.3%	27.2%	23.3%	38.2%	38.2%	24.4%	31.4%	23.3%	18.0%	25.0%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	6.6	20.3	16.2	29.9	29.9	17.3	21.2	42.0	11.7	15.6	15.6
Actuated g/C Ratio	0.08	0.23	0.19	0.34	0.34	0.20	0.24	0.48	0.13	0.18	0.18
v/c Ratio	0.83	0.76	0.90	0.72	0.23	0.91	0.84	0.70	0.89	0.70	0.22
Control Delay	85.6	35.5	67.5	33.4	3.1	67.6	49.2	19.8	76.2	46.0	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.6	35.5	67.5	33.4	3.1	67.6	49.2	19.8	76.2	46.0	1.1
LOS	F	D	E	C	A	E	D	B	E	D	A
Approach Delay		43.0		39.5			40.7			48.8	
Approach LOS		D		D			D			D	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 87.5	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 42.2	Intersection LOS: D
Intersection Capacity Utilization 73.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Calle Del Oso Oro/Nutmeg Street & Washington Avenue



Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Group Flow (vph)	110	629	296	458	152	320	379	563	211	234	107
v/c Ratio	0.83	0.76	0.90	0.72	0.23	0.91	0.84	0.70	0.89	0.70	0.22
Control Delay	85.6	35.5	67.5	33.4	3.1	67.6	49.2	19.8	76.2	46.0	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.6	35.5	67.5	33.4	3.1	67.6	49.2	19.8	76.2	46.0	1.1
Queue Length 50th (ft)	63	161	166	228	0	180	199	192	120	123	0
Queue Length 95th (ft)	#156	221	#312	337	26	#332	#325	306	#247	198	0
Internal Link Dist (ft)		1381		2550			1430			1453	
Turn Bay Length (ft)	85		150			150			250		100
Base Capacity (vph)	133	832	334	637	661	354	507	813	237	383	513
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.76	0.89	0.72	0.23	0.90	0.75	0.69	0.89	0.61	0.21

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	98	400	160	263	408	135	285	337	501	188	208	95
Future Volume (veh/h)	98	400	160	263	408	135	285	337	501	188	208	95
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	110	449	180	296	458	152	320	379	563	211	234	107
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	130	550	219	325	619	526	345	493	709	231	373	317
Arrive On Green	0.07	0.22	0.22	0.18	0.33	0.33	0.19	0.26	0.26	0.13	0.20	0.20
Sat Flow, veh/h	1774	2475	984	1774	1863	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	110	320	309	296	458	152	320	379	563	211	234	107
Grp Sat Flow(s),veh/h/ln	1774	1770	1689	1774	1863	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	5.5	15.5	15.7	14.7	19.6	6.4	16.0	16.9	23.8	10.6	10.3	5.2
Cycle Q Clear(g_c), s	5.5	15.5	15.7	14.7	19.6	6.4	16.0	16.9	23.8	10.6	10.3	5.2
Prop In Lane	1.00		0.58	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	130	393	375	325	619	526	345	493	709	231	373	317
V/C Ratio(X)	0.85	0.81	0.82	0.91	0.74	0.29	0.93	0.77	0.79	0.91	0.63	0.34
Avail Cap(c_a), veh/h	130	393	375	325	619	526	345	493	709	231	373	317
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.2	33.2	33.3	36.0	26.6	22.2	35.6	30.6	21.3	38.7	32.9	30.9
Incr Delay (d2), s/veh	37.3	16.7	18.2	28.3	7.8	1.4	30.6	7.3	6.2	37.0	3.3	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	9.4	9.2	9.8	11.4	3.0	10.8	9.6	13.1	7.5	5.7	2.3
LnGrp Delay(d),s/veh	78.5	49.9	51.5	64.3	34.4	23.6	66.2	37.8	27.5	75.6	36.3	31.5
LnGrp LOS	E	D	D	E	C	C	E	D	C	E	D	C
Approach Vol, veh/h		739			906			1262			552	
Approach Delay, s/veh		54.8			42.4			40.4			50.4	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	34.4	16.2	28.3	21.0	24.5	22.0	22.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.6	29.9	11.7	23.8	16.5	20.0	17.5	18.0
Max Q Clear Time (g_c+I1), s	7.5	21.6	12.6	25.8	16.7	17.7	18.0	12.3
Green Ext Time (p_c), s	0.0	2.2	0.0	0.0	0.0	0.9	0.0	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	45.6
HCM 2010 LOS	D

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		280	300		0	350		0	150		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor												
Frt			0.850		0.987			0.937			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3493	0	1770	1745	0	1770	3511	0
Flt Permitted	0.950			0.950			0.177			0.471		
Satd. Flow (perm)	1770	3539	1583	1770	3493	0	330	1745	0	877	3511	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			73		11			47			5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2630			1335			2657			1296	
Travel Time (s)		59.8			30.3			60.4			29.5	

Intersection Summary	
Area Type:	Other

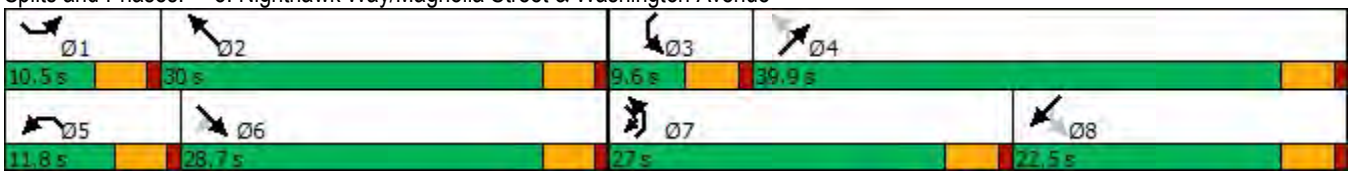
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	24	589	564	86	372	36	337	207	148	55	357	19
Future Volume (vph)	24	589	564	86	372	36	337	207	148	55	357	19
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	35	866	829	126	547	53	496	304	218	81	525	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	35	866	829	126	600	0	496	522	0	81	553	0

Intersection Summary

Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Configurations									
Traffic Volume (vph)	24	589	564	86	372	337	207	55	357
Future Volume (vph)	24	589	564	86	372	337	207	55	357
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	7	5	2	7	4	3	8
Permitted Phases			6			4		8	
Detector Phase	1	6	7	5	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	10.5	28.7	27.0	11.8	30.0	27.0	39.9	9.6	22.5
Total Split (%)	11.7%	31.9%	30.0%	13.1%	33.3%	30.0%	44.3%	10.7%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	Max	None	None	None	None
Act Effct Green (s)	5.9	24.2	51.2	7.3	29.8	44.2	36.6	22.3	17.2
Actuated g/C Ratio	0.07	0.27	0.57	0.08	0.33	0.50	0.41	0.25	0.19
v/c Ratio	0.30	0.90	0.88	0.88	0.51	0.94	0.70	0.30	0.81
Control Delay	47.0	45.8	28.4	90.5	26.6	51.0	26.6	17.9	44.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	45.8	28.4	90.5	26.6	51.0	26.6	17.9	44.9
LOS	D	D	C	F	C	D	C	B	D
Approach Delay		37.4			37.7		38.5		41.5
Approach LOS		D			D		D		D

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 89.2	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 38.4	Intersection LOS: D
Intersection Capacity Utilization 65.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 5: Nighthawk Way/Magnolia Street & Washington Avenue



Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	35	866	829	126	600	496	522	81	553
v/c Ratio	0.30	0.90	0.88	0.88	0.51	0.94	0.70	0.30	0.81
Control Delay	47.0	45.8	28.4	90.5	26.6	51.0	26.6	17.9	44.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	45.8	28.4	90.5	26.6	51.0	26.6	17.9	44.9
Queue Length 50th (ft)	19	251	355	72	152	223	226	23	156
Queue Length 95th (ft)	37	225	302	#111	145	222	223	35	153
Internal Link Dist (ft)		2550			1255		2577		1216
Turn Bay Length (ft)	150		280	300		350		150	
Base Capacity (vph)	119	960	940	144	1172	527	742	269	712
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.90	0.88	0.88	0.51	0.94	0.70	0.30	0.78

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	24	589	564	86	372	36	337	207	148	55	357	19
Future Volume (veh/h)	24	589	564	86	372	36	337	207	148	55	357	19
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	35	866	829	126	547	53	496	304	218	81	525	28
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	2	0
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	58	994	828	150	1085	105	543	378	271	266	628	33
Arrive On Green	0.03	0.28	0.28	0.08	0.33	0.33	0.24	0.37	0.37	0.05	0.18	0.18
Sat Flow, veh/h	1774	3539	1583	1774	3261	315	1774	1010	725	1774	3418	182
Grp Volume(v), veh/h	35	866	829	126	296	304	496	0	522	81	271	282
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1807	1774	0	1735	1774	1770	1831
Q Serve(g_s), s	1.7	20.1	24.2	6.0	11.6	11.6	18.4	0.0	23.2	3.2	12.7	12.8
Cycle Q Clear(g_c), s	1.7	20.1	24.2	6.0	11.6	11.6	18.4	0.0	23.2	3.2	12.7	12.8
Prop In Lane	1.00		1.00	1.00		0.17	1.00		0.42	1.00		0.10
Lane Grp Cap(c), veh/h	58	994	828	150	589	601	543	0	649	266	325	336
V/C Ratio(X)	0.60	0.87	1.00	0.84	0.50	0.51	0.91	0.00	0.80	0.30	0.84	0.84
Avail Cap(c_a), veh/h	124	994	828	150	589	601	577	0	713	281	370	382
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.1	29.5	20.6	38.9	23.0	23.1	19.9	0.0	24.1	26.7	33.9	33.9
Incr Delay (d2), s/veh	9.5	10.4	31.7	32.1	3.1	3.0	18.6	0.0	6.2	0.6	13.8	13.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	11.2	26.6	4.3	6.1	6.2	11.8	0.0	12.1	1.6	7.4	7.8
LnGrp Delay(d),s/veh	50.6	39.9	52.2	71.0	26.1	26.1	38.5	0.0	30.3	27.4	47.7	47.6
LnGrp LOS	D	D	F	E	C	C	D		C	C	D	D
Approach Vol, veh/h		1730			726			1018			634	
Approach Delay, s/veh		46.0			33.9			34.3			45.1	
Approach LOS		D			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	33.2	8.9	36.8	11.8	28.7	25.3	20.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.0	25.5	5.1	35.4	7.3	24.2	22.5	18.0
Max Q Clear Time (g_c+I1), s	3.7	13.6	5.2	25.2	8.0	26.2	20.4	14.8
Green Ext Time (p_c), s	0.0	2.9	0.0	2.5	0.0	0.0	0.4	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	40.8
HCM 2010 LOS	D

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		170	150		0	80		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850			0.850		0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	1863	1583	1770	1583	0	1770	1583	0
Flt Permitted	0.950			0.950			0.744			0.679		
Satd. Flow (perm)	1770	3539	1583	1770	1863	1583	1386	1583	0	1265	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			372			109		241			355	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1335			1310			2481			639	
Travel Time (s)		30.3			29.8			56.4			14.5	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	13	589	227	148	348	1	105	0	74	2	0	12
Future Volume (vph)	13	589	227	148	348	1	105	0	74	2	0	12
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	21	966	372	243	570	2	172	0	121	3	0	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	966	372	243	570	2	172	121	0	3	20	0

Intersection Summary

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Configurations										
Traffic Volume (vph)	13	589	227	148	348	1	105	0	2	0
Future Volume (vph)	13	589	227	148	348	1	105	0	2	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			4		8
Permitted Phases			6			2	4		8	
Detector Phase	1	6	6	5	2	2	4	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	23.5	23.5	14.0	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	39.2%	39.2%	23.3%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	5.1	19.9	19.9	9.6	33.7	33.7	11.7	11.7	11.4	11.4
Actuated g/C Ratio	0.10	0.38	0.38	0.18	0.65	0.65	0.22	0.22	0.22	0.22
v/c Ratio	0.12	0.71	0.45	0.75	0.47	0.00	0.55	0.22	0.01	0.03
Control Delay	26.2	20.2	4.1	40.7	11.5	0.0	25.6	0.9	15.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.2	20.2	4.1	40.7	11.5	0.0	25.6	0.9	15.5	0.1
LOS	C	C	A	D	B	A	C	A	B	A
Approach Delay		15.9			20.2			15.4		2.1
Approach LOS		B			C			B		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 52.1	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 17.1	Intersection LOS: B
Intersection Capacity Utilization 48.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: Fullerton Road & Washington Avenue

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Group Flow (vph)	21	966	372	243	570	2	172	121	3	20
v/c Ratio	0.12	0.71	0.45	0.75	0.47	0.00	0.55	0.22	0.01	0.03
Control Delay	26.2	20.2	4.1	40.7	11.5	0.0	25.6	0.9	15.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.2	20.2	4.1	40.7	11.5	0.0	25.6	0.9	15.5	0.1
Queue Length 50th (ft)	6	140	0	75	85	0	49	0	1	0
Queue Length 95th (ft)	17	138	1	98	158	0	61	0	4	0
Internal Link Dist (ft)		1255			1230			2401		559
Turn Bay Length (ft)			170	150			80			
Base Capacity (vph)	173	1354	835	330	1204	1062	489	715	447	789
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.71	0.45	0.74	0.47	0.00	0.35	0.17	0.01	0.03

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	13	589	227	148	348	1	105	0	74	2	0	12
Future Volume (veh/h)	13	589	227	148	348	1	105	0	74	2	0	12
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	21	966	372	243	570	2	172	0	121	3	0	20
Adj No. of Lanes	1	2	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	45	1345	602	297	973	827	382	0	289	289	0	289
Arrive On Green	0.03	0.38	0.38	0.17	0.52	0.52	0.18	0.00	0.18	0.18	0.00	0.18
Sat Flow, veh/h	1774	3539	1583	1774	1863	1583	1386	0	1583	1265	0	1583
Grp Volume(v), veh/h	21	966	372	243	570	2	172	0	121	3	0	20
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1863	1583	1386	0	1583	1265	0	1583
Q Serve(g_s), s	0.6	11.6	9.5	6.6	10.5	0.0	5.9	0.0	3.4	0.1	0.0	0.5
Cycle Q Clear(g_c), s	0.6	11.6	9.5	6.6	10.5	0.0	6.4	0.0	3.4	3.5	0.0	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	45	1345	602	297	973	827	382	0	289	289	0	289
V/C Ratio(X)	0.47	0.72	0.62	0.82	0.59	0.00	0.45	0.00	0.42	0.01	0.00	0.07
Avail Cap(c_a), veh/h	177	1345	602	337	973	827	629	0	570	514	0	570
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.0	13.2	12.6	20.1	8.2	5.7	19.6	0.0	18.1	19.6	0.0	16.9
Incr Delay (d2), s/veh	7.4	3.3	4.7	13.1	2.6	0.0	0.8	0.0	1.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	6.3	4.9	4.3	5.9	0.0	2.3	0.0	1.6	0.0	0.0	0.2
LnGrp Delay(d),s/veh	31.4	16.5	17.3	33.2	10.8	5.7	20.4	0.0	19.1	19.7	0.0	17.0
LnGrp LOS	C	B	B	C	B	A	C		B	B		B
Approach Vol, veh/h		1359			815			293			23	
Approach Delay, s/veh		17.0			17.5			19.9			17.4	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.8	30.6		13.6	12.9	23.5		13.6
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	23.5		18.0	9.5	19.0		18.0
Max Q Clear Time (g_c+I1), s	2.6	12.5		8.4	8.6	13.6		5.5
Green Ext Time (p_c), s	0.0	2.8		0.8	0.1	3.5		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	17.5
HCM 2010 LOS	B

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	255		0	160		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.991			0.996			0.870			0.944	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3507	0	1770	3525	0	1770	1621	0	1770	1758	0
Flt Permitted	0.950			0.950			0.625			0.169		
Satd. Flow (perm)	1770	3507	0	1770	3525	0	1164	1621	0	315	1758	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			5			466			42	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1310			2652			2655			1165	
Travel Time (s)		29.8			60.3			60.3			26.5	

Intersection Summary	
Area Type:	Other

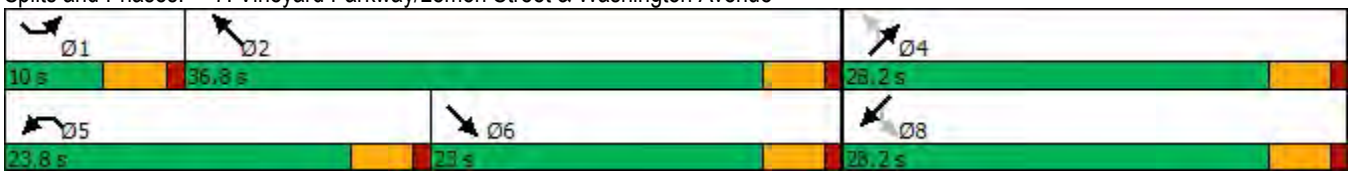
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	28	717	44	440	388	11	43	108	715	14	96	57
Future Volume (vph)	28	717	44	440	388	11	43	108	715	14	96	57
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	30	779	48	478	422	12	47	117	777	15	104	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	827	0	478	434	0	47	894	0	15	166	0

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Configurations								
Traffic Volume (vph)	28	717	440	388	43	108	14	96
Future Volume (vph)	28	717	440	388	43	108	14	96
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	1	6	5	2		4		8
Permitted Phases					4		8	
Detector Phase	1	6	5	2	4	4	8	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	10.0	23.0	23.8	36.8	28.2	28.2	28.2	28.2
Total Split (%)	13.3%	30.7%	31.7%	49.1%	37.6%	37.6%	37.6%	37.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	None	Max	None	None	None	None
Act Effct Green (s)	5.5	18.5	19.3	38.3	23.7	23.7	23.7	23.7
Actuated g/C Ratio	0.07	0.25	0.26	0.51	0.32	0.32	0.32	0.32
v/c Ratio	0.23	0.95	1.05	0.24	0.13	1.08	0.15	0.28
Control Delay	37.4	49.7	86.4	11.5	19.5	69.3	23.1	15.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	49.7	86.4	11.5	19.5	69.3	23.1	15.8
LOS	D	D	F	B	B	E	C	B
Approach Delay		49.3		50.8		66.8		16.4
Approach LOS		D		D		E		B

Intersection Summary	
Cycle Length: 75	
Actuated Cycle Length: 75	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.08	
Intersection Signal Delay: 53.4	Intersection LOS: D
Intersection Capacity Utilization 106.7%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 7: Vineyard Parkway/Lemon Street & Washington Avenue



Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	30	827	478	434	47	894	15	166
v/c Ratio	0.23	0.95	1.05	0.24	0.13	1.08	0.15	0.28
Control Delay	37.4	49.7	86.4	11.5	19.5	69.3	23.1	15.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	49.7	86.4	11.5	19.5	69.3	23.1	15.8
Queue Length 50th (ft)	13	197	~247	47	15	~308	5	42
Queue Length 95th (ft)	38	#314	#421	96	39	#529	20	88
Internal Link Dist (ft)		1230		2572		2575		1085
Turn Bay Length (ft)	150		255		160		150	
Base Capacity (vph)	129	871	455	1802	367	830	99	584
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.95	1.05	0.24	0.13	1.08	0.15	0.28

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	28	717	44	440	388	11	43	108	715	14	96	57
Future Volume (veh/h)	28	717	44	440	388	11	43	108	715	14	96	57
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	30	779	48	478	422	12	47	117	777	15	104	62
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	835	51	457	1663	47	393	67	444	96	346	206
Arrive On Green	0.03	0.25	0.25	0.26	0.47	0.47	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	1774	3387	209	1774	3515	100	1215	211	1404	620	1095	653
Grp Volume(v), veh/h	30	407	420	478	212	222	47	0	894	15	0	166
Grp Sat Flow(s),veh/h/ln	1774	1770	1826	1774	1770	1845	1215	0	1615	620	0	1748
Q Serve(g_s), s	1.3	16.9	16.9	19.3	5.4	5.4	2.3	0.0	23.7	0.0	0.0	5.4
Cycle Q Clear(g_c), s	1.3	16.9	16.9	19.3	5.4	5.4	7.7	0.0	23.7	23.7	0.0	5.4
Prop In Lane	1.00		0.11	1.00		0.05	1.00		0.87	1.00		0.37
Lane Grp Cap(c), veh/h	55	437	450	457	837	873	393	0	510	96	0	552
V/C Ratio(X)	0.55	0.93	0.93	1.05	0.25	0.25	0.12	0.00	1.75	0.16	0.00	0.30
Avail Cap(c_a), veh/h	130	437	450	457	837	873	393	0	510	96	0	552
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.8	27.6	27.6	27.8	11.8	11.8	22.3	0.0	25.7	37.5	0.0	19.4
Incr Delay (d2), s/veh	8.2	29.1	28.5	55.0	0.7	0.7	0.1	0.0	346.3	0.7	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	11.8	12.1	16.4	2.8	2.9	0.8	0.0	59.6	0.3	0.0	2.6
LnGrp Delay(d),s/veh	44.0	56.7	56.2	82.8	12.6	12.5	22.4	0.0	372.0	38.2	0.0	19.7
LnGrp LOS	D	E	E	F	B	B	C		F	D		B
Approach Vol, veh/h		857			912			941			181	
Approach Delay, s/veh		56.0			49.4			354.5			21.2	
Approach LOS		E			D			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.8	40.0		28.2	23.8	23.0		28.2
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.5	32.3		23.7	19.3	18.5		23.7
Max Q Clear Time (g_c+I1), s	3.3	7.4		25.7	21.3	18.9		25.7
Green Ext Time (p_c), s	0.0	2.6		0.0	0.0	0.0		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		148.9
HCM 2010 LOS		F

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	200		0	100		100	105		0	150		150
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.985				0.850		0.991				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1835	0	1770	1863	1583	1770	1846	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1835	0	1770	1863	1583	1770	1846	0	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8				149		2				131
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2652			1695			1544			1371	
Travel Time (s)		60.3			38.5			35.1			31.2	

Intersection Summary	
Area Type:	Other

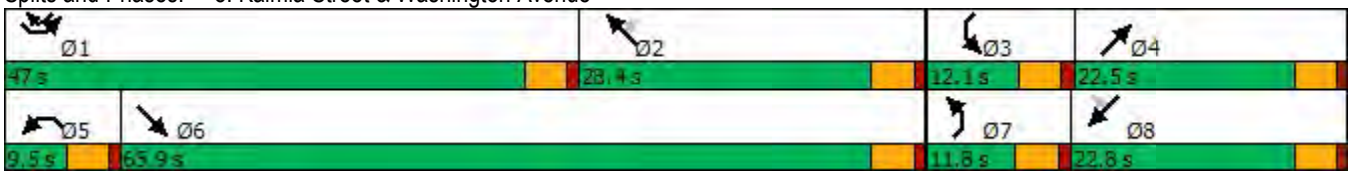
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	1155	367	40	3	339	125	64	111	7	94	69	511
Future Volume (vph)	1155	367	40	3	339	125	64	111	7	94	69	511
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	1359	432	47	4	399	147	75	131	8	111	81	601
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1359	479	0	4	399	147	75	139	0	111	81	601

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	1155	367	3	339	125	64	111	94	69	511
Future Volume (vph)	1155	367	3	339	125	64	111	94	69	511
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	1	6	5	2		7	4	3	8	1
Permitted Phases					2					8
Detector Phase	1	6	5	2	2	7	4	3	8	1
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5
Total Split (s)	47.0	65.9	9.5	28.4	28.4	11.8	22.5	12.1	22.8	47.0
Total Split (%)	42.7%	59.9%	8.6%	25.8%	25.8%	10.7%	20.5%	11.0%	20.7%	42.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	42.6	69.2	5.0	23.9	23.9	7.1	13.0	7.6	15.7	62.8
Actuated g/C Ratio	0.41	0.66	0.05	0.23	0.23	0.07	0.12	0.07	0.15	0.60
v/c Ratio	0.98	0.40	0.05	0.94	0.31	0.62	0.61	0.87	0.29	0.60
Control Delay	51.3	10.5	51.0	72.7	7.6	72.0	54.3	100.8	44.0	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.3	10.5	51.0	72.7	7.6	72.0	54.3	100.8	44.0	13.6
LOS	D	B	D	E	A	E	D	F	D	B
Approach Delay		40.6		55.1			60.5		28.9	
Approach LOS		D		E			E		C	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 105.1	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 41.5	Intersection LOS: D
Intersection Capacity Utilization 73.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 8: Kalmia Street & Washington Avenue



Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Group Flow (vph)	1359	479	4	399	147	75	139	111	81	601
v/c Ratio	0.98	0.40	0.05	0.94	0.31	0.62	0.61	0.87	0.29	0.60
Control Delay	51.3	10.5	51.0	72.7	7.6	72.0	54.3	100.8	44.0	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.3	10.5	51.0	72.7	7.6	72.0	54.3	100.8	44.0	13.6
Queue Length 50th (ft)	455	124	3	265	0	50	88	75	50	195
Queue Length 95th (ft)	#597	249	14	#437	43	#109	142	#174	91	270
Internal Link Dist (ft)		2572		1615			1464		1291	
Turn Bay Length (ft)	200		100		100	105		150		150
Base Capacity (vph)	1390	1210	84	424	475	123	318	128	331	998
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.40	0.05	0.94	0.31	0.61	0.44	0.87	0.24	0.60

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	1155	367	40	3	339	125	64	111	7	94	69	511
Future Volume (veh/h)	1155	367	40	3	339	125	64	111	7	94	69	511
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	1359	432	47	4	399	147	75	131	8	111	81	601
Adj No. of Lanes	2	1	0	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1347	1001	109	9	410	349	96	265	16	124	314	887
Arrive On Green	0.39	0.61	0.61	0.01	0.22	0.22	0.05	0.15	0.15	0.07	0.17	0.17
Sat Flow, veh/h	3442	1651	180	1774	1863	1583	1774	1738	106	1774	1863	1583
Grp Volume(v), veh/h	1359	0	479	4	399	147	75	0	139	111	81	601
Grp Sat Flow(s),veh/h/ln	1721	0	1831	1774	1863	1583	1774	0	1844	1774	1863	1583
Q Serve(g_s), s	42.5	0.0	15.1	0.2	23.1	8.7	4.5	0.0	7.5	6.7	4.1	18.3
Cycle Q Clear(g_c), s	42.5	0.0	15.1	0.2	23.1	8.7	4.5	0.0	7.5	6.7	4.1	18.3
Prop In Lane	1.00		0.10	1.00		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	1347	0	1110	9	410	349	96	0	281	124	314	887
V/C Ratio(X)	1.01	0.00	0.43	0.43	0.97	0.42	0.78	0.00	0.49	0.89	0.26	0.68
Avail Cap(c_a), veh/h	1347	0	1110	82	410	349	119	0	306	124	314	887
HCM 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
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.0	0.0	11.4	53.8	42.0	36.4	50.7	0.0	42.2	50.1	39.2	16.9
Incr Delay (d2), s/veh	26.6	0.0	1.2	28.5	38.2	3.7	22.9	0.0	1.3	49.8	0.4	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	25.0	0.0	8.0	0.2	16.2	4.1	2.8	0.0	3.9	5.0	2.2	13.2
LnGrp Delay(d),s/veh	59.7	0.0	12.6	82.4	80.2	40.1	73.7	0.0	43.5	99.9	39.7	19.0
LnGrp LOS	F		B	F	F	D	E		D	F	D	B
Approach Vol, veh/h		1838			550			214			793	
Approach Delay, s/veh		47.4			69.5			54.1			32.4	
Approach LOS		D			E			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	47.0	28.4	12.1	21.1	5.1	70.3	10.4	22.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	42.5	23.9	7.6	18.0	5.0	61.4	7.3	18.3
Max Q Clear Time (g_c+I1), s	44.5	25.1	8.7	9.5	2.2	17.1	6.5	20.3
Green Ext Time (p_c), s	0.0	0.0	0.0	0.4	0.0	3.5	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	47.9
HCM 2010 LOS	D

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	60		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor												
Frt		0.997						0.913				0.850
Flt Protected				0.950				0.982			0.950	
Satd. Flow (prot)	0	1857	0	1770	1863	0	0	1670	0	0	1770	1583
Flt Permitted				0.950				0.982			0.950	
Satd. Flow (perm)	0	1857	0	1770	1863	0	0	1670	0	0	1770	1583
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1045			237			351			183	
Travel Time (s)		23.8			5.4			8.0			4.2	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	0	265	6	6	265	0	8	0	14	42	0	18
Future Volume (vph)	0	265	6	6	265	0	8	0	14	42	0	18
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	344	8	8	344	0	10	0	18	55	0	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	352	0	8	344	0	0	28	0	0	55	23

Intersection Summary

Intersection	
Int Delay, s/veh	2

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	265	6	6	265	0	8	0	14	42	0	18
Future Vol, veh/h	0	265	6	6	265	0	8	0	14	42	0	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	60	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	344	8	8	344	0	10	0	18	55	0	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	352	0	0	720	708	348	717	712	344
Stage 1	-	-	-	-	-	-	348	348	-	360	360	-
Stage 2	-	-	-	-	-	-	372	360	-	357	352	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1207	-	0	343	360	695	345	358	699
Stage 1	0	-	-	-	-	0	668	634	-	658	626	-
Stage 2	0	-	-	-	-	0	648	626	-	661	632	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1207	-	-	330	357	695	334	355	699
Mov Cap-2 Maneuver	-	-	-	-	-	-	330	357	-	334	355	-
Stage 1	-	-	-	-	-	-	668	634	-	658	622	-
Stage 2	-	-	-	-	-	-	622	622	-	644	632	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0.2	12.7	15.6
HCM LOS			B	C

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	496	1207	-	-	-	334	699
HCM Lane V/C Ratio	0.058	0.006	-	-	-	0.163	0.033
HCM Control Delay (s)	12.7	8	-	-	-	17.9	10.3
HCM Lane LOS	B	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.2	0	-	-	-	0.6	0.1

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt					0.993	
Flt Protected				0.984		
Satd. Flow (prot)	1863	0	0	1833	1850	0
Flt Permitted				0.984		
Satd. Flow (perm)	1863	0	0	1833	1850	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	112			181	2481	
Travel Time (s)	2.5			4.1	56.4	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Traffic Volume (vph)	0	0	91	198	52	3
Future Volume (vph)	0	0	91	198	52	3
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.48	0.48	0.48	0.48	0.48	0.48
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	0	0	190	413	108	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	603	114	0

Intersection Summary

Intersection	
Int Delay, s/veh	2.1

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	0	0	91	198	52	3
Future Vol, veh/h	0	0	91	198	52	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	48	48	48	48	48	48
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	190	413	108	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	904	111	114	0	-	0
Stage 1	111	-	-	-	-	-
Stage 2	793	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	307	942	1475	-	-	-
Stage 1	914	-	-	-	-	-
Stage 2	446	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	256	942	1475	-	-	-
Mov Cap-2 Maneuver	256	-	-	-	-	-
Stage 1	761	-	-	-	-	-
Stage 2	446	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	0	2.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1475	-	-	-	-
HCM Lane V/C Ratio	0.129	-	-	-	-
HCM Control Delay (s)	7.8	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	-	-

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.865		
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	0	1611	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	0	1611	1770	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		340	1045		2657	
Travel Time (s)		7.7	23.8		60.4	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Traffic Volume (vph)	0	0	0	48	44	0
Future Volume (vph)	0	0	0	48	44	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	0	0	59	54	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	59	54	0

Intersection Summary

Intersection	
Intersection Delay, s/veh	7.1
Intersection LOS	A

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	48	44	0
Future Vol, veh/h	0	0	0	48	44	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	59	54	0
Number of Lanes	0	1	0	1	1	0

Approach	SE	NW	SW
Opposing Approach	NW	SE	
Opposing Lanes	1	1	0
Conflicting Approach Left	SW		NW
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SW	SE
Conflicting Lanes Right	0	1	1
HCM Control Delay	0	6.7	7.5
HCM LOS	-	A	A

Lane	NWLn1	SELn1	SWLn1
Vol Left, %	0%	0%	100%
Vol Thru, %	0%	100%	0%
Vol Right, %	100%	0%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	48	0	44
LT Vol	0	0	44
Through Vol	0	0	0
RT Vol	48	0	0
Lane Flow Rate	59	0	54
Geometry Grp	1	1	1
Degree of Util (X)	0.056	0	0.063
Departure Headway (Hd)	3.428	4.073	4.236
Convergence, Y/N	Yes	Yes	Yes
Cap	1042	0	849
Service Time	1.457	2.106	2.244
HCM Lane V/C Ratio	0.057	0	0.064
HCM Control Delay	6.7	7.1	7.5
HCM Lane LOS	A	N	A
HCM 95th-tile Q	0.2	0	0.2

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	60			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.961			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1863	1790	0	1770	0
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1863	1790	0	1770	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		237	1361		181	
Travel Time (s)		5.4	30.9		4.1	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Traffic Volume (vph)	15	45	36	15	2	0
Future Volume (vph)	15	45	36	15	2	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	18	55	44	18	2	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	55	62	0	2	0

Intersection Summary

Intersection	
Int Delay, s/veh	1.1

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	15	45	36	15	2	0
Future Vol, veh/h	15	45	36	15	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	60	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	55	44	18	2	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	62	0	-	0	144	53
Stage 1	-	-	-	-	53	-
Stage 2	-	-	-	-	91	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1541	-	-	-	849	1014
Stage 1	-	-	-	-	970	-
Stage 2	-	-	-	-	933	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1541	-	-	-	839	1014
Mov Cap-2 Maneuver	-	-	-	-	839	-
Stage 1	-	-	-	-	958	-
Stage 2	-	-	-	-	933	-

Approach	SE	NW	SW
HCM Control Delay, s	1.8	0	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	1541	-	839
HCM Lane V/C Ratio	-	-	0.012	-	0.003
HCM Control Delay (s)	-	-	7.4	-	9.3
HCM Lane LOS	-	-	A	-	A
HCM 95th %tile Q(veh)	-	-	0	-	0

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	120	0	100			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	1863	1863	1583
Link Speed (mph)	30			30	30	
Link Distance (ft)	1361			666	2655	
Travel Time (s)	30.9			15.1	60.3	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Traffic Volume (vph)	50	3	2	315	532	83
Future Volume (vph)	50	3	2	315	532	83
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	65	4	3	409	691	108
Shared Lane Traffic (%)						
Lane Group Flow (vph)	65	4	3	409	691	108

Intersection Summary

Intersection	
Intersection Delay, s/veh	35.8
Intersection LOS	E

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	50	3	2	315	532	83
Future Vol, veh/h	50	3	2	315	532	83
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	4	3	409	691	108
Number of Lanes	1	1	1	1	1	1

Approach	SE	NE	SW
Opposing Approach		SW	NE
Opposing Lanes	0	2	2
Conflicting Approach Left	SW	SE	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NE		SE
Conflicting Lanes Right	2	0	2
HCM Control Delay	11.7	17	47.5
HCM LOS	B	C	E

Lane	NELn1	NELn2	SELn1	SELn2	SWLn1	SWLn2
Vol Left, %	100%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	2	315	50	3	532	83
LT Vol	2	0	50	0	0	0
Through Vol	0	315	0	0	532	0
RT Vol	0	0	0	3	0	83
Lane Flow Rate	3	409	65	4	691	108
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.004	0.625	0.141	0.007	0.989	0.133
Departure Headway (Hd)	6.004	5.5	7.825	6.599	5.153	4.448
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	590	650	461	546	698	798
Service Time	3.798	3.293	5.525	4.299	2.925	2.22
HCM Lane V/C Ratio	0.005	0.629	0.141	0.007	0.99	0.135
HCM Control Delay	8.8	17.1	11.8	9.3	53.7	7.9
HCM Lane LOS	A	C	B	A	F	A
HCM 95th-tile Q	0	4.4	0.5	0	15.5	0.5

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	85		0	150		0	150		0	250		100
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.937				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3316	0	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3316	0	1770	1863	1583	1770	1863	1583	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		189				171			126			182
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1461			2630			1510			1533	
Travel Time (s)		33.2			59.8			34.3			34.8	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	101	367	267	318	618	162	163	150	229	182	363	219
Future Volume (vph)	101	367	267	318	618	162	163	150	229	182	363	219
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	106	386	281	335	651	171	172	158	241	192	382	231
Shared Lane Traffic (%)												
Lane Group Flow (vph)	106	667	0	335	651	171	172	158	241	192	382	231

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	101	367	318	618	162	163	150	229	182	363	219
Future Volume (vph)	101	367	318	618	162	163	150	229	182	363	219
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	5	2		7	4	5	3	8	
Permitted Phases					2			4			8
Detector Phase	1	6	5	2	2	7	4	5	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5	9.5	22.5	22.5
Total Split (s)	11.0	24.9	25.9	39.8	39.8	14.2	23.2	25.9	16.0	25.0	25.0
Total Split (%)	12.2%	27.7%	28.8%	44.2%	44.2%	15.8%	25.8%	28.8%	17.8%	27.8%	27.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	6.5	22.0	19.8	35.3	35.3	9.7	18.3	42.7	11.4	20.0	20.0
Actuated g/C Ratio	0.07	0.25	0.22	0.39	0.39	0.11	0.20	0.48	0.13	0.22	0.22
v/c Ratio	0.83	0.70	0.86	0.89	0.24	0.90	0.41	0.29	0.86	0.92	0.47
Control Delay	87.5	26.7	55.0	41.6	3.9	85.3	34.8	7.3	72.3	63.4	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.5	26.7	55.0	41.6	3.9	85.3	34.8	7.3	72.3	63.4	11.4
LOS	F	C	E	D	A	F	C	A	E	E	B
Approach Delay		35.1		39.9			38.4			50.6	
Approach LOS		D		D			D			D	

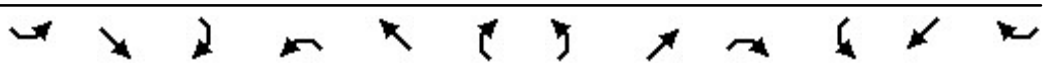
Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 89.5	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 41.1	Intersection LOS: D
Intersection Capacity Utilization 81.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Calle Del Oso Oro/Nutmeg Street & Washington Avenue

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Group Flow (vph)	106	667	335	651	171	172	158	241	192	382	231
v/c Ratio	0.83	0.70	0.86	0.89	0.24	0.90	0.41	0.29	0.86	0.92	0.47
Control Delay	87.5	26.7	55.0	41.6	3.9	85.3	34.8	7.3	72.3	63.4	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.5	26.7	55.0	41.6	3.9	85.3	34.8	7.3	72.3	63.4	11.4
Queue Length 50th (ft)	61	133	180	338	0	98	78	34	109	212	22
Queue Length 95th (ft)	#153	197	#314	#548	38	#217	137	77	#226	#376	85
Internal Link Dist (ft)		1381		2550			1430			1453	
Turn Bay Length (ft)	85		150			150			250		100
Base Capacity (vph)	128	957	422	734	727	191	389	846	227	426	503
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.70	0.79	0.89	0.24	0.90	0.41	0.28	0.85	0.90	0.46

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	101	367	267	318	618	162	163	150	229	182	363	219
Future Volume (veh/h)	101	367	267	318	618	162	163	150	229	182	363	219
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	106	386	281	335	651	171	172	158	241	192	382	231
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	129	505	363	372	734	624	192	383	658	226	418	356
Arrive On Green	0.07	0.26	0.26	0.21	0.39	0.39	0.11	0.21	0.21	0.13	0.22	0.22
Sat Flow, veh/h	1774	1967	1415	1774	1863	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	106	347	320	335	651	171	172	158	241	192	382	231
Grp Sat Flow(s),veh/h/ln	1774	1770	1613	1774	1863	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	5.3	16.2	16.5	16.5	29.2	6.6	8.6	6.6	9.4	9.5	17.9	11.9
Cycle Q Clear(g_c), s	5.3	16.2	16.5	16.5	29.2	6.6	8.6	6.6	9.4	9.5	17.9	11.9
Prop In Lane	1.00		0.88	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	129	454	414	372	734	624	192	383	658	226	418	356
V/C Ratio(X)	0.82	0.76	0.77	0.90	0.89	0.27	0.90	0.41	0.37	0.85	0.91	0.65
Avail Cap(c_a), veh/h	129	454	414	424	734	624	192	389	662	228	426	362
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.0	30.8	30.9	34.5	25.3	18.5	39.5	30.9	18.1	38.3	33.9	31.5
Incr Delay (d2), s/veh	33.4	11.6	13.2	20.2	14.9	1.1	37.5	0.7	0.3	25.0	23.6	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	9.4	8.8	10.2	18.1	3.1	6.2	3.5	4.2	6.2	12.0	5.6
LnGrp Delay(d),s/veh	74.4	42.4	44.1	54.7	40.3	19.6	77.0	31.6	18.4	63.3	57.5	35.5
LnGrp LOS	E	D	D	D	D	B	E	C	B	E	E	D
Approach Vol, veh/h		773			1157			571			805	
Approach Delay, s/veh		47.5			41.4			39.7			52.6	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	39.8	15.9	22.9	23.3	27.5	14.2	24.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.5	35.3	11.5	18.7	21.4	20.4	9.7	20.5
Max Q Clear Time (g_c+I1), s	7.3	31.2	11.5	11.4	18.5	18.5	10.6	19.9
Green Ext Time (p_c), s	0.0	1.9	0.0	1.0	0.3	0.8	0.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	45.2
HCM 2010 LOS	D

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		280	300		0	350		0	150		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor												
Frt			0.850		0.998			0.928			0.911	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3532	0	1770	1729	0	1770	3224	0
Flt Permitted	0.950			0.950			0.493			0.687		
Satd. Flow (perm)	1770	3539	1583	1770	3532	0	918	1729	0	1280	3224	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			115		2			52			81	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2630			1335			2657			1296	
Travel Time (s)		59.8			30.3			60.4			29.5	

Intersection Summary	
Area Type:	Other

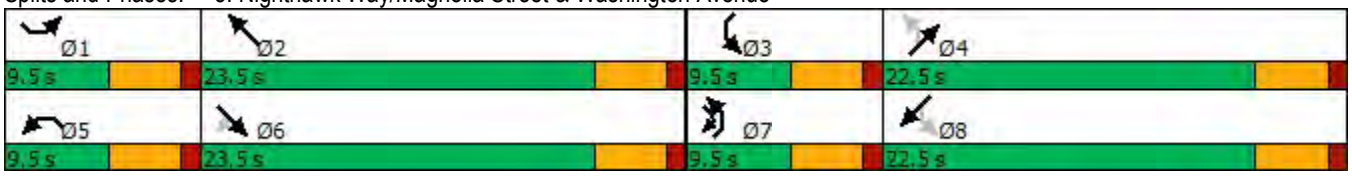
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	39	653	109	60	728	9	98	53	49	10	52	77
Future Volume (vph)	39	653	109	60	728	9	98	53	49	10	52	77
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	41	687	115	63	766	9	103	56	52	11	55	81
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	687	115	63	775	0	103	108	0	11	136	0

Intersection Summary

Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Configurations									
Traffic Volume (vph)	39	653	109	60	728	98	53	10	52
Future Volume (vph)	39	653	109	60	728	98	53	10	52
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	7	5	2	7	4	3	8
Permitted Phases			6			4		8	
Detector Phase	1	6	7	5	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	9.5	23.5	9.5	9.5	23.5	9.5	22.5	9.5	22.5
Total Split (%)	14.6%	36.2%	14.6%	14.6%	36.2%	14.6%	34.6%	14.6%	34.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	Max	None	None	None	None
Act Effct Green (s)	5.1	24.4	31.7	5.1	26.2	13.3	12.6	10.7	6.9
Actuated g/C Ratio	0.10	0.49	0.64	0.10	0.53	0.27	0.26	0.22	0.14
v/c Ratio	0.22	0.39	0.11	0.34	0.41	0.31	0.22	0.03	0.26
Control Delay	26.6	13.2	2.2	29.1	12.2	15.9	11.7	13.2	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.6	13.2	2.2	29.1	12.2	15.9	11.7	13.2	11.7
LOS	C	B	A	C	B	B	B	B	B
Approach Delay		12.4			13.5		13.7		11.8
Approach LOS		B			B		B		B

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 49.3	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.41	
Intersection Signal Delay: 12.9	Intersection LOS: B
Intersection Capacity Utilization 49.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 5: Nighthawk Way/Magnolia Street & Washington Avenue



Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	41	687	115	63	775	103	108	11	136
v/c Ratio	0.22	0.39	0.11	0.34	0.41	0.31	0.22	0.03	0.26
Control Delay	26.6	13.2	2.2	29.1	12.2	15.9	11.7	13.2	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.6	13.2	2.2	29.1	12.2	15.9	11.7	13.2	11.7
Queue Length 50th (ft)	12	88	0	19	68	24	13	2	8
Queue Length 95th (ft)	39	148	20	53	170	53	53	11	28
Internal Link Dist (ft)		2550			1255		2577		1216
Turn Bay Length (ft)	150		280	300		350		150	
Base Capacity (vph)	183	1754	1059	183	1878	336	678	327	1255
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.39	0.11	0.34	0.41	0.31	0.16	0.03	0.11

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	39	653	109	60	728	9	98	53	49	10	52	77
Future Volume (veh/h)	39	653	109	60	728	9	98	53	49	10	52	77
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	41	687	115	63	766	9	103	56	52	11	55	81
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	1388	744	105	1460	17	350	145	135	302	177	158
Arrive On Green	0.04	0.39	0.39	0.06	0.41	0.41	0.08	0.16	0.16	0.01	0.10	0.10
Sat Flow, veh/h	1774	3539	1583	1774	3583	42	1774	890	827	1774	1770	1583
Grp Volume(v), veh/h	41	687	115	63	378	397	103	0	108	11	55	81
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1855	1774	0	1717	1774	1770	1583
Q Serve(g_s), s	1.1	7.1	2.0	1.7	7.8	7.8	2.4	0.0	2.7	0.3	1.4	2.4
Cycle Q Clear(g_c), s	1.1	7.1	2.0	1.7	7.8	7.8	2.4	0.0	2.7	0.3	1.4	2.4
Prop In Lane	1.00		1.00	1.00		0.02	1.00		0.48	1.00		1.00
Lane Grp Cap(c), veh/h	78	1388	744	105	721	756	350	0	280	302	177	158
V/C Ratio(X)	0.53	0.49	0.15	0.60	0.52	0.52	0.29	0.00	0.39	0.04	0.31	0.51
Avail Cap(c_a), veh/h	183	1388	744	183	721	756	396	0	638	460	657	588
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.7	11.1	7.3	22.2	10.8	10.8	17.0	0.0	18.1	19.1	20.3	20.7
Incr Delay (d2), s/veh	5.5	1.3	0.4	5.5	2.7	2.6	0.5	0.0	0.9	0.0	1.0	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.7	0.9	1.0	4.3	4.5	1.2	0.0	1.4	0.1	0.7	1.1
LnGrp Delay(d),s/veh	28.1	12.4	7.8	27.7	13.5	13.4	17.5	0.0	19.0	19.2	21.2	23.2
LnGrp LOS	C	B	A	C	B	B	B		B	B	C	C
Approach Vol, veh/h		843			838			211			147	
Approach Delay, s/veh		12.5			14.5			18.2			22.2	
Approach LOS		B			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.6	24.2	5.2	12.4	7.4	23.5	8.2	9.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	5.0	19.0	5.0	18.0
Max Q Clear Time (g_c+I1), s	3.1	9.8	2.3	4.7	3.7	9.1	4.4	4.4
Green Ext Time (p_c), s	0.0	3.3	0.0	0.4	0.0	3.6	0.0	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	14.6
HCM 2010 LOS	B

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		170	150		0	80		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850			0.850		0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	1863	1583	1770	1583	0	1770	1583	0
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	1770	3539	1583	1770	1863	1583	1863	1583	0	1863	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			87			87		273			234	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1335			1310			2481			639	
Travel Time (s)		30.3			29.8			56.4			14.5	

Intersection Summary	
Area Type:	Other

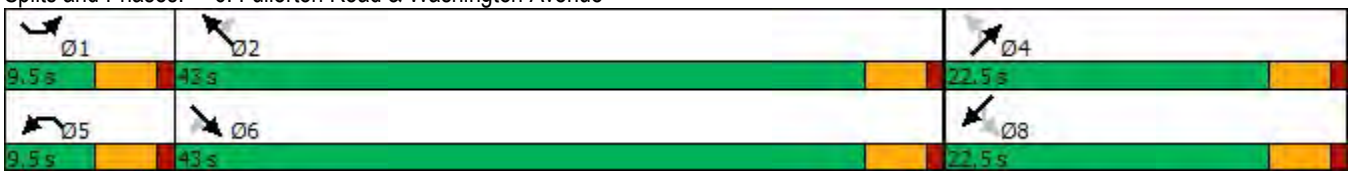
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	3	705	13	6	815	1	15	0	3	1	0	4
Future Volume (vph)	3	705	13	6	815	1	15	0	3	1	0	4
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	3	734	14	6	849	1	16	0	3	1	0	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	734	14	6	849	1	16	3	0	1	4	0

Intersection Summary

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Configurations										
Traffic Volume (vph)	3	705	13	6	815	1	15	0	1	0
Future Volume (vph)	3	705	13	6	815	1	15	0	1	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			4		8
Permitted Phases			6			2	4		8	
Detector Phase	1	6	6	5	2	2	4	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	43.0	43.0	9.5	43.0	43.0	22.5	22.5	22.5	22.5
Total Split (%)	12.7%	57.3%	57.3%	12.7%	57.3%	57.3%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	5.0	54.5	54.5	5.0	54.5	54.5	6.3	6.3	5.9	5.9
Actuated g/C Ratio	0.08	0.92	0.92	0.08	0.92	0.92	0.11	0.11	0.10	0.10
v/c Ratio	0.02	0.23	0.01	0.04	0.50	0.00	0.08	0.01	0.01	0.01
Control Delay	26.7	2.2	0.0	27.0	4.7	0.0	25.4	0.0	25.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.7	2.2	0.0	27.0	4.7	0.0	25.4	0.0	25.0	0.0
LOS	C	A	A	C	A	A	C	A	C	A
Approach Delay		2.2			4.9			21.4		5.0
Approach LOS		A			A			C		A

Intersection Summary	
Cycle Length: 75	
Actuated Cycle Length: 59.3	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.50	
Intersection Signal Delay: 3.9	Intersection LOS: A
Intersection Capacity Utilization 57.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 6: Fullerton Road & Washington Avenue



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Group Flow (vph)	3	734	14	6	849	1	16	3	1	4
v/c Ratio	0.02	0.23	0.01	0.04	0.50	0.00	0.08	0.01	0.01	0.01
Control Delay	26.7	2.2	0.0	27.0	4.7	0.0	25.4	0.0	25.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.7	2.2	0.0	27.0	4.7	0.0	25.4	0.0	25.0	0.0
Queue Length 50th (ft)	1	0	0	2	0	0	5	0	0	0
Queue Length 95th (ft)	8	97	0	12	366	0	22	0	4	0
Internal Link Dist (ft)		1255			1230			2401		559
Turn Bay Length (ft)			170	150			80			
Base Capacity (vph)	149	3252	1462	149	1712	1462	566	671	566	643
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.23	0.01	0.04	0.50	0.00	0.03	0.00	0.00	0.01

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	3	705	13	6	815	1	15	0	3	1	0	4
Future Volume (veh/h)	3	705	13	6	815	1	15	0	3	1	0	4
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	3	734	14	6	849	1	16	0	3	1	0	4
Adj No. of Lanes	1	2	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	7	2526	1130	14	1337	1136	169	0	44	170	0	44
Arrive On Green	0.00	0.71	0.71	0.01	0.72	0.72	0.03	0.00	0.03	0.03	0.00	0.03
Sat Flow, veh/h	1774	3539	1583	1774	1863	1583	1407	0	1583	1408	0	1583
Grp Volume(v), veh/h	3	734	14	6	849	1	16	0	3	1	0	4
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1863	1583	1407	0	1583	1408	0	1583
Q Serve(g_s), s	0.1	4.0	0.1	0.2	12.8	0.0	0.6	0.0	0.1	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.1	4.0	0.1	0.2	12.8	0.0	0.7	0.0	0.1	0.1	0.0	0.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	7	2526	1130	14	1337	1136	169	0	44	170	0	44
V/C Ratio(X)	0.42	0.29	0.01	0.42	0.64	0.00	0.09	0.00	0.07	0.01	0.00	0.09
Avail Cap(c_a), veh/h	164	2526	1130	164	1337	1136	599	0	528	601	0	528
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.8	2.8	2.2	26.6	4.0	2.2	25.9	0.0	25.5	25.6	0.0	25.5
Incr Delay (d2), s/veh	33.8	0.3	0.0	18.9	2.3	0.0	0.2	0.0	0.6	0.0	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.0	0.1	0.2	7.2	0.0	0.2	0.0	0.1	0.0	0.0	0.1
LnGrp Delay(d),s/veh	60.6	3.1	2.2	45.5	6.3	2.2	26.1	0.0	26.2	25.6	0.0	26.4
LnGrp LOS	E	A	A	D	A	A	C		C	C		C
Approach Vol, veh/h		751			856			19			5	
Approach Delay, s/veh		3.3			6.5			26.1			26.3	
Approach LOS		A			A			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.7	43.2		6.0	4.9	43.0		6.0
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	38.5		18.0	5.0	38.5		18.0
Max Q Clear Time (g_c+I1), s	2.1	14.8		2.7	2.2	6.0		2.1
Green Ext Time (p_c), s	0.0	7.0		0.0	0.0	5.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	5.3
HCM 2010 LOS	A

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	255		0	160		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.992			0.998			0.866			0.940	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3511	0	1770	3532	0	1770	1613	0	1770	1751	0
Flt Permitted	0.950			0.950			0.622			0.385		
Satd. Flow (perm)	1770	3511	0	1770	3532	0	1159	1613	0	717	1751	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			3			360			39	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1310			2652			2655			1165	
Travel Time (s)		29.8			60.3			60.3			26.5	

Intersection Summary	
Area Type:	Other

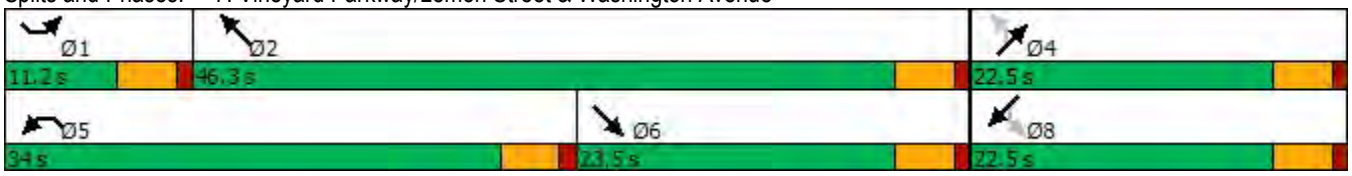
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	51	635	36	569	753	12	31	40	338	11	78	53
Future Volume (vph)	51	635	36	569	753	12	31	40	338	11	78	53
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	54	676	38	605	801	13	33	43	360	12	83	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	54	714	0	605	814	0	33	403	0	12	139	0

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Configurations								
Traffic Volume (vph)	51	635	569	753	31	40	11	78
Future Volume (vph)	51	635	569	753	31	40	11	78
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	1	6	5	2		4		8
Permitted Phases					4		8	
Detector Phase	1	6	5	2	4	4	8	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	11.2	23.5	34.0	46.3	22.5	22.5	22.5	22.5
Total Split (%)	14.0%	29.4%	42.5%	57.9%	28.1%	28.1%	28.1%	28.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	None	Max	None	None	None	None
Act Effct Green (s)	6.4	19.2	27.6	45.1	10.4	10.4	10.4	10.4
Actuated g/C Ratio	0.09	0.27	0.39	0.64	0.15	0.15	0.15	0.15
v/c Ratio	0.34	0.75	0.88	0.36	0.19	0.74	0.11	0.48
Control Delay	38.7	31.0	37.3	8.4	29.1	14.2	28.3	26.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.7	31.0	37.3	8.4	29.1	14.2	28.3	26.0
LOS	D	C	D	A	C	B	C	C
Approach Delay		31.5		20.7		15.4		26.2
Approach LOS		C		C		B		C

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 70.9	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 23.2	Intersection LOS: C
Intersection Capacity Utilization 87.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 7: Vineyard Parkway/Lemon Street & Washington Avenue



Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	54	714	605	814	33	403	12	139
v/c Ratio	0.34	0.75	0.88	0.36	0.19	0.74	0.11	0.48
Control Delay	38.7	31.0	37.3	8.4	29.1	14.2	28.3	26.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.7	31.0	37.3	8.4	29.1	14.2	28.3	26.0
Queue Length 50th (ft)	23	150	230	91	13	17	5	41
Queue Length 95th (ft)	61	#271	#488	167	36	99	19	90
Internal Link Dist (ft)		1230		2572		2575		1085
Turn Bay Length (ft)	150		255		160		150	
Base Capacity (vph)	168	955	744	2245	297	681	183	478
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.75	0.81	0.36	0.11	0.59	0.07	0.29

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	51	635	36	569	753	12	31	40	338	11	78	53
Future Volume (veh/h)	51	635	36	569	753	12	31	40	338	11	78	53
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	54	676	38	605	801	13	33	43	360	12	83	56
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	819	46	640	1986	32	291	39	328	91	237	160
Arrive On Green	0.04	0.24	0.24	0.36	0.56	0.56	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1774	3407	191	1774	3564	58	1245	172	1437	978	1038	701
Grp Volume(v), veh/h	54	351	363	605	398	416	33	0	403	12	0	139
Grp Sat Flow(s),veh/h/ln	1774	1770	1829	1774	1770	1853	1245	0	1609	978	0	1739
Q Serve(g_s), s	2.4	14.8	14.9	26.1	10.1	10.1	1.8	0.0	18.0	0.0	0.0	5.3
Cycle Q Clear(g_c), s	2.4	14.8	14.9	26.1	10.1	10.1	7.1	0.0	18.0	18.0	0.0	5.3
Prop In Lane	1.00		0.10	1.00		0.03	1.00		0.89	1.00		0.40
Lane Grp Cap(c), veh/h	78	426	440	640	986	1032	291	0	367	91	0	396
V/C Ratio(X)	0.69	0.82	0.83	0.95	0.40	0.40	0.11	0.00	1.10	0.13	0.00	0.35
Avail Cap(c_a), veh/h	150	426	440	662	986	1032	291	0	367	91	0	396
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.2	28.4	28.4	24.5	10.0	10.0	28.6	0.0	30.5	39.5	0.0	25.6
Incr Delay (d2), s/veh	10.5	16.4	16.1	22.1	1.2	1.2	0.2	0.0	76.4	0.6	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	9.2	9.4	16.7	5.2	5.4	0.6	0.0	15.7	0.3	0.0	2.6
LnGrp Delay(d),s/veh	47.7	44.9	44.5	46.6	11.2	11.2	28.7	0.0	106.9	40.1	0.0	26.1
LnGrp LOS	D	D	D	D	B	B	C		F	D		C
Approach Vol, veh/h		768			1419			436			151	
Approach Delay, s/veh		44.9			26.3			101.0			27.2	
Approach LOS		D			C			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.0	48.5		22.5	33.0	23.5		22.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	6.7	41.8		18.0	29.5	19.0		18.0
Max Q Clear Time (g_c+I1), s	4.4	12.1		20.0	28.1	16.9		20.0
Green Ext Time (p_c), s	0.0	5.8		0.0	0.4	0.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	43.2
HCM 2010 LOS	D

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	200		0	100		100	105		0	150		150
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.988				0.850		0.989				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1840	0	1770	1863	1583	1770	1842	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1840	0	1770	1863	1583	1770	1842	0	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				149		3				181
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2652			1695			1544			1371	
Travel Time (s)		60.3			38.5			35.1			31.2	

Intersection Summary	
Area Type:	Other

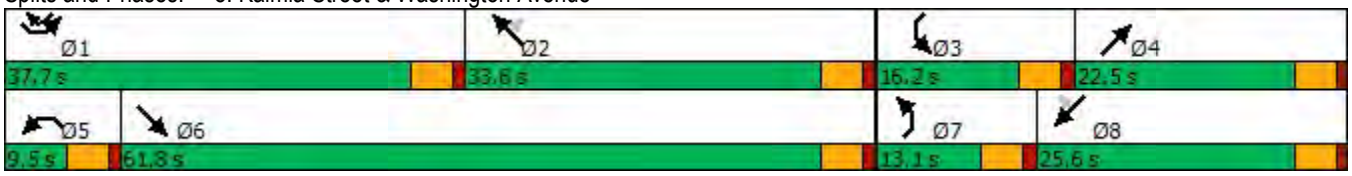
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	692	343	30	7	479	183	49	121	10	177	126	937
Future Volume (vph)	692	343	30	7	479	183	49	121	10	177	126	937
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	706	350	31	7	489	187	50	123	10	181	129	956
Shared Lane Traffic (%)												
Lane Group Flow (vph)	706	381	0	7	489	187	50	133	0	181	129	956

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	692	343	7	479	183	49	121	177	126	937
Future Volume (vph)	692	343	7	479	183	49	121	177	126	937
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	1	6	5	2		7	4	3	8	1
Permitted Phases					2					8
Detector Phase	1	6	5	2	2	7	4	3	8	1
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5
Total Split (s)	37.7	61.8	9.5	33.6	33.6	13.1	22.5	16.2	25.6	37.7
Total Split (%)	34.3%	56.2%	8.6%	30.5%	30.5%	11.9%	20.5%	14.7%	23.3%	34.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	33.2	65.1	5.0	29.1	29.1	7.6	12.7	11.7	18.9	56.6
Actuated g/C Ratio	0.32	0.62	0.05	0.28	0.28	0.07	0.12	0.11	0.18	0.54
v/c Ratio	0.65	0.33	0.08	0.94	0.34	0.39	0.59	0.92	0.39	1.02
Control Delay	34.6	11.5	51.7	66.6	10.3	56.3	53.5	93.7	42.9	55.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.6	11.5	51.7	66.6	10.3	56.3	53.5	93.7	42.9	55.9
LOS	C	B	D	E	B	E	D	F	D	E
Approach Delay		26.5		51.0			54.3		60.0	
Approach LOS		C		D			D		E	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 104.8	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 46.5	Intersection LOS: D
Intersection Capacity Utilization 98.6%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 8: Kalmia Street & Washington Avenue



Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Group Flow (vph)	706	381	7	489	187	50	133	181	129	956
v/c Ratio	0.65	0.33	0.08	0.94	0.34	0.39	0.59	0.92	0.39	1.02
Control Delay	34.6	11.5	51.7	66.6	10.3	56.3	53.5	93.7	42.9	55.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.6	11.5	51.7	66.6	10.3	56.3	53.5	93.7	42.9	55.9
Queue Length 50th (ft)	208	104	5	320	19	32	84	122	80	~644
Queue Length 95th (ft)	290	225	20	#561	78	74	145	#269	138	#908
Internal Link Dist (ft)		2572		1615			1464		1291	
Turn Bay Length (ft)	200		100		100	105		150		150
Base Capacity (vph)	1089	1145	84	518	547	145	319	197	386	938
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.33	0.08	0.94	0.34	0.34	0.42	0.92	0.33	1.02

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	692	343	30	7	479	183	49	121	10	177	126	937
Future Volume (veh/h)	692	343	30	7	479	183	49	121	10	177	126	937
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	706	350	31	7	489	187	50	123	10	181	129	956
Adj No. of Lanes	2	1	0	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	820	956	85	16	629	535	66	222	18	205	389	708
Arrive On Green	0.24	0.57	0.57	0.01	0.34	0.34	0.04	0.13	0.13	0.12	0.21	0.21
Sat Flow, veh/h	3442	1687	149	1774	1863	1583	1774	1700	138	1774	1863	1583
Grp Volume(v), veh/h	706	0	381	7	489	187	50	0	133	181	129	956
Grp Sat Flow(s),veh/h/ln	1721	0	1836	1774	1863	1583	1774	0	1838	1774	1863	1583
Q Serve(g_s), s	19.9	0.0	11.5	0.4	23.8	9.0	2.8	0.0	6.9	10.2	5.9	21.1
Cycle Q Clear(g_c), s	19.9	0.0	11.5	0.4	23.8	9.0	2.8	0.0	6.9	10.2	5.9	21.1
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	820	0	1041	16	629	535	66	0	240	205	389	708
V/C Ratio(X)	0.86	0.00	0.37	0.45	0.78	0.35	0.76	0.00	0.56	0.88	0.33	1.35
Avail Cap(c_a), veh/h	1131	0	1041	88	629	535	151	0	327	205	389	708
HCM 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
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.9	0.0	12.0	49.8	30.1	25.1	48.2	0.0	41.2	44.0	34.0	27.9
Incr Delay (d2), s/veh	5.2	0.0	1.0	18.7	9.2	1.8	15.8	0.0	2.0	32.8	0.5	167.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.0	0.0	6.1	0.3	13.8	4.2	1.7	0.0	3.6	6.8	3.1	52.5
LnGrp Delay(d),s/veh	42.1	0.0	13.0	68.5	39.2	26.9	64.0	0.0	43.2	76.8	34.5	195.1
LnGrp LOS	D		B	E	D	C	E		D	E	C	F
Approach Vol, veh/h		1087			683			183			1266	
Approach Delay, s/veh		31.9			36.2			48.9			161.8	
Approach LOS		C			D			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	28.6	38.6	16.2	17.7	5.4	61.8	8.3	25.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	33.2	29.1	11.7	18.0	5.0	57.3	8.6	21.1
Max Q Clear Time (g_c+I1), s	21.9	25.8	12.2	8.9	2.4	13.5	4.8	23.1
Green Ext Time (p_c), s	2.2	1.2	0.0	0.4	0.0	2.6	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	84.9
HCM 2010 LOS	F

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	60		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor												
Frt		0.984						0.932				0.850
Flt Protected				0.950				0.976			0.950	
Satd. Flow (prot)	0	1833	0	1770	1863	0	0	1694	0	0	1770	1583
Flt Permitted				0.950				0.976			0.950	
Satd. Flow (perm)	0	1833	0	1770	1863	0	0	1694	0	0	1770	1583
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1045			237			351			183	
Travel Time (s)		23.8			5.4			8.0			4.2	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	0	35	5	9	26	0	5	0	5	18	0	13
Future Volume (vph)	0	35	5	9	26	0	5	0	5	18	0	13
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	44	6	11	33	0	6	0	6	23	0	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	50	0	11	33	0	0	12	0	0	23	16

Intersection Summary

Intersection	
Int Delay, s/veh	3.7

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	35	5	9	26	0	5	0	5	18	0	13
Future Vol, veh/h	0	35	5	9	26	0	5	0	5	18	0	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	60	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	44	6	11	33	0	6	0	6	23	0	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	50	0	0	110	102	47	105	105	33
Stage 1	-	-	-	-	-	-	47	47	-	55	55	-
Stage 2	-	-	-	-	-	-	63	55	-	50	50	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1557	-	0	868	788	1022	875	785	1041
Stage 1	0	-	-	-	-	0	967	856	-	957	849	-
Stage 2	0	-	-	-	-	0	948	849	-	963	853	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1557	-	-	850	782	1022	865	780	1041
Mov Cap-2 Maneuver	-	-	-	-	-	-	850	782	-	865	780	-
Stage 1	-	-	-	-	-	-	967	856	-	957	843	-
Stage 2	-	-	-	-	-	-	926	843	-	957	853	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	1.9	8.9	9
HCM LOS			A	A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	928	1557	-	-	-	865	1041
HCM Lane V/C Ratio	0.014	0.007	-	-	-	0.026	0.016
HCM Control Delay (s)	8.9	7.3	-	-	-	9.3	8.5
HCM Lane LOS	A	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	0	-	-	-	0.1	0

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected				0.950		
Satd. Flow (prot)	1863	0	0	1770	1863	0
Flt Permitted				0.950		
Satd. Flow (perm)	1863	0	0	1770	1863	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	112			181	2481	
Travel Time (s)	2.5			4.1	56.4	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Traffic Volume (vph)	0	0	29	0	0	0
Future Volume (vph)	0	0	29	0	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	0	0	36	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	36	0	0

Intersection Summary

Intersection	
Int Delay, s/veh	7.1

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	0	0	29	0	0	0
Future Vol, veh/h	0	0	29	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	36	0	0	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	73	1	1	0	-	0
Stage 1	1	-	-	-	-	-
Stage 2	72	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	931	1084	1622	-	-	-
Stage 1	1022	-	-	-	-	-
Stage 2	951	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	911	1084	1622	-	-	-
Mov Cap-2 Maneuver	911	-	-	-	-	-
Stage 1	1000	-	-	-	-	-
Stage 2	951	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	0	7.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1622	-	-	-	-
HCM Lane V/C Ratio	0.022	-	-	-	-
HCM Control Delay (s)	7.3	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-	-

Appendix H

Project Buildout Year With Ambient Growth
With Cumulative Projects Plus Project Conditions
Intersection Analysis

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.865		
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	0	1611	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	0	1611	1770	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		340	1045		2657	
Travel Time (s)		7.7	23.8		60.4	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Traffic Volume (vph)	0	0	0	290	321	0
Future Volume (vph)	0	0	0	290	321	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	0	0	420	465	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	420	465	0

Intersection Summary

Intersection	
Intersection Delay, s/veh	15.3
Intersection LOS	C

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	290	321	0
Future Vol, veh/h	0	0	0	290	321	0
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	420	465	0
Number of Lanes	0	1	0	1	1	0

Approach	SE	NW	SW
Opposing Approach	NW	SE	
Opposing Lanes	1	1	0
Conflicting Approach Left	SW		NW
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SW	SE
Conflicting Lanes Right	0	1	1
HCM Control Delay	0	12.8	17.5
HCM LOS	-	B	C

Lane	NWLn1	SELn1	SWLn1
Vol Left, %	0%	0%	100%
Vol Thru, %	0%	100%	0%
Vol Right, %	100%	0%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	290	0	321
LT Vol	0	0	321
Through Vol	0	0	0
RT Vol	290	0	0
Lane Flow Rate	420	0	465
Geometry Grp	1	1	1
Degree of Util (X)	0.533	0	0.657
Departure Headway (Hd)	4.564	5.824	5.087
Convergence, Y/N	Yes	Yes	Yes
Cap	786	0	702
Service Time	2.619	3.824	3.184
HCM Lane V/C Ratio	0.534	0	0.662
HCM Control Delay	12.8	8.8	17.5
HCM Lane LOS	B	N	C
HCM 95th-tile Q	3.2	0	4.9

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	60			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.908		0.936	
Flt Protected	0.950				0.974	
Satd. Flow (prot)	1770	1863	1691	0	1698	0
Flt Permitted	0.950				0.974	
Satd. Flow (perm)	1770	1863	1691	0	1698	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		237	1361		181	
Travel Time (s)		5.4	30.9		4.1	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Traffic Volume (vph)	84	231	181	391	27	25
Future Volume (vph)	84	231	181	391	27	25
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	129	355	278	602	42	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	129	355	880	0	80	0

Intersection Summary

Intersection	
Int Delay, s/veh	2.4

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	84	231	181	391	27	25
Future Vol, veh/h	84	231	181	391	27	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	60	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	129	355	278	602	42	38

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	880	0	-	0	1192	579
Stage 1	-	-	-	-	579	-
Stage 2	-	-	-	-	613	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	768	-	-	-	207	515
Stage 1	-	-	-	-	560	-
Stage 2	-	-	-	-	541	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	768	-	-	-	172	515
Mov Cap-2 Maneuver	-	-	-	-	172	-
Stage 1	-	-	-	-	466	-
Stage 2	-	-	-	-	541	-

Approach	SE	NW	SW
HCM Control Delay, s	2.8	0	25.7
HCM LOS			D

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	768	-	253
HCM Lane V/C Ratio	-	-	0.168	-	0.316
HCM Control Delay (s)	-	-	10.6	-	25.7
HCM Lane LOS	-	-	B	-	D
HCM 95th %tile Q(veh)	-	-	0.6	-	1.3

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	120	0	100			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	1863	1863	1583
Link Speed (mph)	30			30	30	
Link Distance (ft)	1361			666	2655	
Travel Time (s)	30.9			15.1	60.3	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Traffic Volume (vph)	415	6	6	500	238	473
Future Volume (vph)	415	6	6	500	238	473
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	500	7	7	602	287	570
Shared Lane Traffic (%)						
Lane Group Flow (vph)	500	7	7	602	287	570

Intersection Summary

Intersection	
Intersection Delay, s/veh	115.3
Intersection LOS	F

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	415	6	6	500	238	473
Future Vol, veh/h	415	6	6	500	238	473
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	500	7	7	602	287	570
Number of Lanes	1	1	1	1	1	1

Approach	SE	NE	SW
Opposing Approach		SW	NE
Opposing Lanes	0	2	2
Conflicting Approach Left	SW	SE	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NE		SE
Conflicting Lanes Right	2	0	2
HCM Control Delay	117.9	172	73.5
HCM LOS	F	F	F

Lane	NELn1	NELn2	SELn1	SELn2	SWLn1	SWLn2
Vol Left, %	100%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	6	500	415	6	238	473
LT Vol	6	0	415	0	0	0
Through Vol	0	500	0	0	238	0
RT Vol	0	0	0	6	0	473
Lane Flow Rate	7	602	500	7	287	570
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.017	1.296	1.147	0.014	0.608	1.097
Departure Headway (Hd)	8.825	8.304	8.756	7.51	8.612	7.879
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	408	440	420	479	422	467
Service Time	6.525	6.004	6.456	5.21	6.312	5.579
HCM Lane V/C Ratio	0.017	1.368	1.19	0.015	0.68	1.221
HCM Control Delay	11.7	173.9	119.5	10.3	23.8	98.5
HCM Lane LOS	B	F	F	B	C	F
HCM 95th-tile Q	0.1	24.6	17.6	0	3.9	16.8

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	85		0	150		0	150		0	250		100
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.958				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3391	0	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3391	0	1770	1863	1583	1770	1863	1583	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		58				182			87			236
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1461			2630			1510			1533	
Travel Time (s)		33.2			59.8			34.3			34.8	

Intersection Summary	
Area Type:	Other

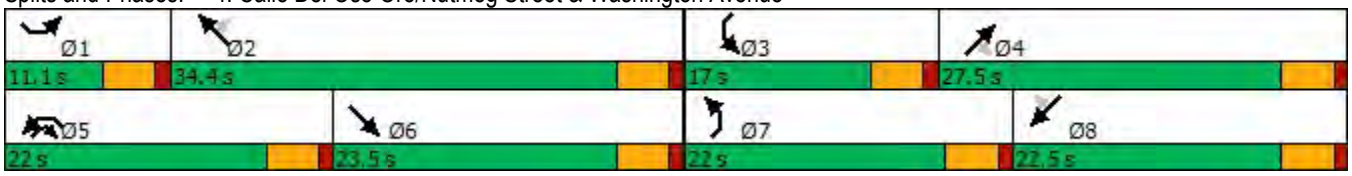
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	98	410	160	276	421	148	285	337	510	198	208	95
Future Volume (vph)	98	410	160	276	421	148	285	337	510	198	208	95
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	110	461	180	310	473	166	320	379	573	222	234	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	110	641	0	310	473	166	320	379	573	222	234	107

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	98	410	276	421	148	285	337	510	198	208	95
Future Volume (vph)	98	410	276	421	148	285	337	510	198	208	95
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	5	2		7	4	5	3	8	
Permitted Phases					2			4			8
Detector Phase	1	6	5	2	2	7	4	5	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5	9.5	22.5	22.5
Total Split (s)	11.1	23.5	22.0	34.4	34.4	22.0	27.5	22.0	17.0	22.5	22.5
Total Split (%)	12.3%	26.1%	24.4%	38.2%	38.2%	24.4%	30.6%	24.4%	18.9%	25.0%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	6.6	19.5	17.1	29.9	29.9	17.3	20.9	42.5	12.5	16.1	16.1
Actuated g/C Ratio	0.08	0.22	0.19	0.34	0.34	0.20	0.24	0.48	0.14	0.18	0.18
v/c Ratio	0.83	0.81	0.90	0.75	0.25	0.92	0.86	0.71	0.88	0.69	0.22
Control Delay	86.7	39.4	66.1	35.0	3.9	68.6	51.7	20.4	73.3	44.7	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.7	39.4	66.1	35.0	3.9	68.6	51.7	20.4	73.3	44.7	1.1
LOS	F	D	E	D	A	E	D	C	E	D	A
Approach Delay		46.3		39.7			41.9			47.7	
Approach LOS		D		D			D			D	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 88	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 43.2	Intersection LOS: D
Intersection Capacity Utilization 75.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Calle Del Oso Oro/Nutmeg Street & Washington Avenue



Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Group Flow (vph)	110	641	310	473	166	320	379	573	222	234	107
v/c Ratio	0.83	0.81	0.90	0.75	0.25	0.92	0.86	0.71	0.88	0.69	0.22
Control Delay	86.7	39.4	66.1	35.0	3.9	68.6	51.7	20.4	73.3	44.7	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.7	39.4	66.1	35.0	3.9	68.6	51.7	20.4	73.3	44.7	1.1
Queue Length 50th (ft)	63	169	174	238	0	181	202	201	126	123	0
Queue Length 95th (ft)	#156	#252	#319	#354	34	#332	#335	319	#255	198	0
Internal Link Dist (ft)		1381		2550			1430			1453	
Turn Bay Length (ft)	85		150			150			250		100
Base Capacity (vph)	132	795	352	633	658	352	487	817	251	381	511
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.81	0.88	0.75	0.25	0.91	0.78	0.70	0.88	0.61	0.21

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	98	410	160	276	421	148	285	337	510	198	208	95
Future Volume (veh/h)	98	410	160	276	421	148	285	337	510	198	208	95
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	110	461	180	310	473	166	320	379	573	222	234	107
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	130	530	205	343	619	526	345	476	710	246	373	317
Arrive On Green	0.07	0.21	0.21	0.19	0.33	0.33	0.19	0.26	0.26	0.14	0.20	0.20
Sat Flow, veh/h	1774	2495	967	1774	1863	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	110	326	315	310	473	166	320	379	573	222	234	107
Grp Sat Flow(s),veh/h/ln	1774	1770	1692	1774	1863	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	5.5	16.0	16.2	15.4	20.5	7.0	16.0	17.1	23.0	11.1	10.3	5.2
Cycle Q Clear(g_c), s	5.5	16.0	16.2	15.4	20.5	7.0	16.0	17.1	23.0	11.1	10.3	5.2
Prop In Lane	1.00		0.57	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	130	376	359	343	619	526	345	476	710	246	373	317
V/C Ratio(X)	0.85	0.87	0.88	0.90	0.76	0.32	0.93	0.80	0.81	0.90	0.63	0.34
Avail Cap(c_a), veh/h	130	376	359	345	619	526	345	476	710	246	373	317
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.2	34.2	34.3	35.5	26.9	22.4	35.6	31.3	21.4	38.1	32.9	30.9
Incr Delay (d2), s/veh	37.3	22.7	24.6	26.1	8.7	1.6	30.6	9.1	6.8	32.5	3.3	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	10.2	10.0	10.0	12.0	3.3	10.8	9.9	13.5	7.6	5.7	2.3
LnGrp Delay(d),s/veh	78.5	56.9	58.9	61.6	35.6	24.0	66.2	40.4	28.3	70.6	36.3	31.5
LnGrp LOS	E	E	E	E	D	C	E	D	C	E	D	C
Approach Vol, veh/h		751			949			1272			563	
Approach Delay, s/veh		60.9			42.1			41.4			48.9	
Approach LOS		E			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	34.4	17.0	27.5	21.9	23.6	22.0	22.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.6	29.9	12.5	23.0	17.5	19.0	17.5	18.0
Max Q Clear Time (g_c+I1), s	7.5	22.5	13.1	25.0	17.4	18.2	18.0	12.3
Green Ext Time (p_c), s	0.0	2.2	0.0	0.0	0.0	0.3	0.0	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	46.9
HCM 2010 LOS	D

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		280	300		0	350		0	150		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor												
Frt			0.850		0.987			0.938			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3493	0	1770	1747	0	1770	3514	0
Flt Permitted	0.950			0.950			0.176			0.467		
Satd. Flow (perm)	1770	3539	1583	1770	3493	0	328	1747	0	870	3514	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			73		11			47			5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2630			1335			2657			1296	
Travel Time (s)		59.8			30.3			60.4			29.5	

Intersection Summary	
Area Type:	Other

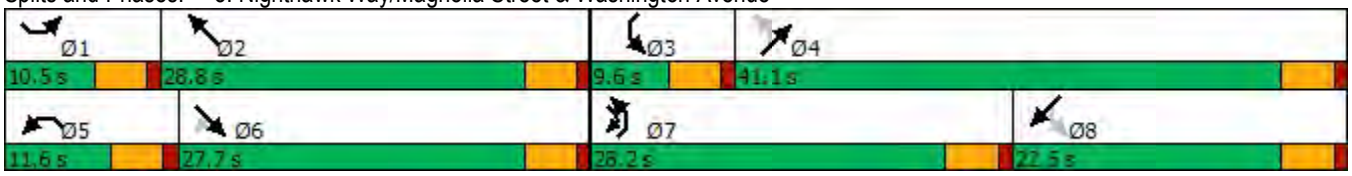
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	24	589	592	86	372	36	375	213	148	55	366	19
Future Volume (vph)	24	589	592	86	372	36	375	213	148	55	366	19
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	35	866	871	126	547	53	551	313	218	81	538	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	35	866	871	126	600	0	551	531	0	81	566	0

Intersection Summary

Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Configurations									
Traffic Volume (vph)	24	589	592	86	372	375	213	55	366
Future Volume (vph)	24	589	592	86	372	375	213	55	366
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	7	5	2	7	4	3	8
Permitted Phases			6			4		8	
Detector Phase	1	6	7	5	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	10.5	27.7	28.2	11.6	28.8	28.2	41.1	9.6	22.5
Total Split (%)	11.7%	30.8%	31.3%	12.9%	32.0%	31.3%	45.7%	10.7%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	Max	None	None	None	None
Act Effct Green (s)	5.9	23.2	51.4	7.1	28.5	45.5	37.9	22.4	17.3
Actuated g/C Ratio	0.07	0.26	0.58	0.08	0.32	0.51	0.42	0.25	0.19
v/c Ratio	0.30	0.94	0.92	0.90	0.53	1.00	0.69	0.30	0.83
Control Delay	47.0	52.3	33.6	96.7	27.9	64.2	25.4	17.6	45.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	52.3	33.6	96.7	27.9	64.2	25.4	17.6	45.9
LOS	D	D	C	F	C	E	C	B	D
Approach Delay		43.0			39.8		45.2		42.3
Approach LOS		D			D		D		D

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 89.3	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 42.9	Intersection LOS: D
Intersection Capacity Utilization 67.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 5: Nighthawk Way/Magnolia Street & Washington Avenue



Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	35	866	871	126	600	551	531	81	566
v/c Ratio	0.30	0.94	0.92	0.90	0.53	1.00	0.69	0.30	0.83
Control Delay	47.0	52.3	33.6	96.7	27.9	64.2	25.4	17.6	45.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	52.3	33.6	96.7	27.9	64.2	25.4	17.6	45.9
Queue Length 50th (ft)	19	254	395	72	154	~264	226	22	161
Queue Length 95th (ft)	37	228	328	#114	148	253	222	34	157
Internal Link Dist (ft)		2550			1255		2577		1216
Turn Bay Length (ft)	150		280	300		350		150	
Base Capacity (vph)	119	919	942	140	1124	550	768	269	712
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.94	0.92	0.90	0.53	1.00	0.69	0.30	0.79

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	24	589	592	86	372	36	375	213	148	55	366	19
Future Volume (veh/h)	24	589	592	86	372	36	375	213	148	55	366	19
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	35	866	871	126	547	53	551	313	218	81	538	28
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	2	0
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	58	934	838	143	1018	98	581	409	285	290	634	33
Arrive On Green	0.03	0.26	0.26	0.08	0.31	0.31	0.27	0.40	0.40	0.05	0.19	0.19
Sat Flow, veh/h	1774	3539	1583	1774	3261	315	1774	1024	713	1774	3423	178
Grp Volume(v), veh/h	35	866	871	126	296	304	551	0	531	81	278	288
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1807	1774	0	1737	1774	1770	1831
Q Serve(g_s), s	1.7	21.0	23.2	6.2	12.2	12.2	21.2	0.0	23.2	3.2	13.3	13.4
Cycle Q Clear(g_c), s	1.7	21.0	23.2	6.2	12.2	12.2	21.2	0.0	23.2	3.2	13.3	13.4
Prop In Lane	1.00		1.00	1.00		0.17	1.00		0.41	1.00		0.10
Lane Grp Cap(c), veh/h	58	934	838	143	552	564	581	0	694	290	328	339
V/C Ratio(X)	0.60	0.93	1.04	0.88	0.54	0.54	0.95	0.00	0.77	0.28	0.85	0.85
Avail Cap(c_a), veh/h	121	934	838	143	552	564	588	0	723	302	362	375
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.0	31.5	20.7	40.0	25.0	25.0	20.1	0.0	22.8	27.0	34.6	34.6
Incr Delay (d2), s/veh	9.7	16.4	41.7	41.9	3.7	3.7	25.0	0.0	4.7	0.5	15.8	15.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	12.3	29.8	4.7	6.5	6.7	17.0	0.0	12.0	1.6	7.9	8.2
LnGrp Delay(d),s/veh	51.6	47.9	62.4	81.9	28.7	28.7	45.1	0.0	27.6	27.5	50.4	50.3
LnGrp LOS	D	D	F	F	C	C	D		C	C	D	D
Approach Vol, veh/h		1772			726			1082			647	
Approach Delay, s/veh		55.1			37.9			36.5			47.5	
Approach LOS		E			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.4	31.9	9.0	39.6	11.6	27.7	27.8	20.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.0	24.3	5.1	36.6	7.1	23.2	23.7	18.0
Max Q Clear Time (g_c+I1), s	3.7	14.2	5.2	25.2	8.2	25.2	23.2	15.4
Green Ext Time (p_c), s	0.0	2.6	0.0	2.8	0.0	0.0	0.1	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	46.2
HCM 2010 LOS	D

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		170	150		0	80		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850			0.850		0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	1863	1583	1770	1583	0	1770	1583	0
Flt Permitted	0.950			0.950			0.744			0.679		
Satd. Flow (perm)	1770	3539	1583	1770	1863	1583	1386	1583	0	1265	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			372			109		241			355	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1335			1310			2481			639	
Travel Time (s)		30.3			29.8			56.4			14.5	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	13	589	227	148	348	1	105	0	74	2	0	12
Future Volume (vph)	13	589	227	148	348	1	105	0	74	2	0	12
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	21	966	372	243	570	2	172	0	121	3	0	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	966	372	243	570	2	172	121	0	3	20	0

Intersection Summary

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Configurations										
Traffic Volume (vph)	13	589	227	148	348	1	105	0	2	0
Future Volume (vph)	13	589	227	148	348	1	105	0	2	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			4		8
Permitted Phases			6			2	4		8	
Detector Phase	1	6	6	5	2	2	4	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	23.5	23.5	14.0	28.0	28.0	22.5	22.5	22.5	22.5
Total Split (%)	15.8%	39.2%	39.2%	23.3%	46.7%	46.7%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	5.1	19.9	19.9	9.6	33.7	33.7	11.7	11.7	11.4	11.4
Actuated g/C Ratio	0.10	0.38	0.38	0.18	0.65	0.65	0.22	0.22	0.22	0.22
v/c Ratio	0.12	0.71	0.45	0.75	0.47	0.00	0.55	0.22	0.01	0.03
Control Delay	26.2	20.2	4.1	40.7	11.5	0.0	25.6	0.9	15.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.2	20.2	4.1	40.7	11.5	0.0	25.6	0.9	15.5	0.1
LOS	C	C	A	D	B	A	C	A	B	A
Approach Delay		15.9			20.2			15.4		2.1
Approach LOS		B			C			B		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 52.1	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 17.1	Intersection LOS: B
Intersection Capacity Utilization 48.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: Fullerton Road & Washington Avenue

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Group Flow (vph)	21	966	372	243	570	2	172	121	3	20
v/c Ratio	0.12	0.71	0.45	0.75	0.47	0.00	0.55	0.22	0.01	0.03
Control Delay	26.2	20.2	4.1	40.7	11.5	0.0	25.6	0.9	15.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.2	20.2	4.1	40.7	11.5	0.0	25.6	0.9	15.5	0.1
Queue Length 50th (ft)	6	140	0	75	85	0	49	0	1	0
Queue Length 95th (ft)	17	138	1	98	158	0	61	0	4	0
Internal Link Dist (ft)		1255			1230			2401		559
Turn Bay Length (ft)			170	150			80			
Base Capacity (vph)	173	1354	835	330	1204	1062	489	715	447	789
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.71	0.45	0.74	0.47	0.00	0.35	0.17	0.01	0.03

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	13	589	227	148	348	1	105	0	74	2	0	12
Future Volume (veh/h)	13	589	227	148	348	1	105	0	74	2	0	12
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	21	966	372	243	570	2	172	0	121	3	0	20
Adj No. of Lanes	1	2	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	45	1345	602	297	973	827	382	0	289	289	0	289
Arrive On Green	0.03	0.38	0.38	0.17	0.52	0.52	0.18	0.00	0.18	0.18	0.00	0.18
Sat Flow, veh/h	1774	3539	1583	1774	1863	1583	1386	0	1583	1265	0	1583
Grp Volume(v), veh/h	21	966	372	243	570	2	172	0	121	3	0	20
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1863	1583	1386	0	1583	1265	0	1583
Q Serve(g_s), s	0.6	11.6	9.5	6.6	10.5	0.0	5.9	0.0	3.4	0.1	0.0	0.5
Cycle Q Clear(g_c), s	0.6	11.6	9.5	6.6	10.5	0.0	6.4	0.0	3.4	3.5	0.0	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	45	1345	602	297	973	827	382	0	289	289	0	289
V/C Ratio(X)	0.47	0.72	0.62	0.82	0.59	0.00	0.45	0.00	0.42	0.01	0.00	0.07
Avail Cap(c_a), veh/h	177	1345	602	337	973	827	629	0	570	514	0	570
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.0	13.2	12.6	20.1	8.2	5.7	19.6	0.0	18.1	19.6	0.0	16.9
Incr Delay (d2), s/veh	7.4	3.3	4.7	13.1	2.6	0.0	0.8	0.0	1.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	6.3	4.9	4.3	5.9	0.0	2.3	0.0	1.6	0.0	0.0	0.2
LnGrp Delay(d),s/veh	31.4	16.5	17.3	33.2	10.8	5.7	20.4	0.0	19.1	19.7	0.0	17.0
LnGrp LOS	C	B	B	C	B	A	C		B	B		B
Approach Vol, veh/h		1359			815			293			23	
Approach Delay, s/veh		17.0			17.5			19.9			17.4	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.8	30.6		13.6	12.9	23.5		13.6
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	23.5		18.0	9.5	19.0		18.0
Max Q Clear Time (g_c+I1), s	2.6	12.5		8.4	8.6	13.6		5.5
Green Ext Time (p_c), s	0.0	2.8		0.8	0.1	3.5		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	17.5
HCM 2010 LOS	B

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	255		0	160		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.991			0.996			0.869			0.947	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3507	0	1770	3525	0	1770	1619	0	1770	1764	0
Flt Permitted	0.950			0.950			0.597			0.163		
Satd. Flow (perm)	1770	3507	0	1770	3525	0	1112	1619	0	304	1764	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			5			449			35	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1310			2652			2655			1165	
Travel Time (s)		29.8			60.3			60.3			26.5	

Intersection Summary	
Area Type:	Other

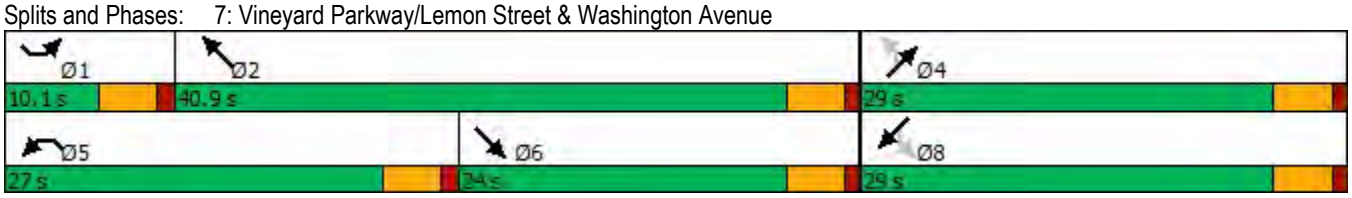
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	28	717	44	579	388	11	43	114	790	14	106	57
Future Volume (vph)	28	717	44	579	388	11	43	114	790	14	106	57
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	30	779	48	629	422	12	47	124	859	15	115	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	827	0	629	434	0	47	983	0	15	177	0

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Configurations								
Traffic Volume (vph)	28	717	579	388	43	114	14	106
Future Volume (vph)	28	717	579	388	43	114	14	106
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	1	6	5	2		4		8
Permitted Phases					4		8	
Detector Phase	1	6	5	2	4	4	8	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	10.1	24.0	27.0	40.9	29.0	29.0	29.0	29.0
Total Split (%)	12.6%	30.0%	33.8%	51.1%	36.3%	36.3%	36.3%	36.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	None	Max	None	None	None	None
Act Effct Green (s)	5.6	19.5	22.5	42.5	24.5	24.5	24.5	24.5
Actuated g/C Ratio	0.07	0.24	0.28	0.53	0.31	0.31	0.31	0.31
v/c Ratio	0.24	0.96	1.27	0.23	0.14	1.22	0.16	0.31
Control Delay	40.4	53.9	163.2	11.2	21.5	126.8	25.6	18.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.4	53.9	163.2	11.2	21.5	126.8	25.6	18.8
LOS	D	D	F	B	C	F	C	B
Approach Delay		53.5		101.1		122.0		19.3
Approach LOS		D		F		F		B

Intersection Summary			
Cycle Length: 80			
Actuated Cycle Length: 80			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.27			
Intersection Signal Delay: 90.0		Intersection LOS: F	
Intersection Capacity Utilization 119.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 7: Vineyard Parkway/Lemon Street & Washington Avenue



Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	30	827	629	434	47	983	15	177
v/c Ratio	0.24	0.96	1.27	0.23	0.14	1.22	0.16	0.31
Control Delay	40.4	53.9	163.2	11.2	21.5	126.8	25.6	18.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.4	53.9	163.2	11.2	21.5	126.8	25.6	18.8
Queue Length 50th (ft)	14	213	~401	48	17	~444	5	53
Queue Length 95th (ft)	40	#334	#598	97	42	#675	22	104
Internal Link Dist (ft)		1230		2572		2575		1085
Turn Bay Length (ft)	150		255		160		150	
Base Capacity (vph)	123	860	497	1873	340	807	93	564
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.96	1.27	0.23	0.14	1.22	0.16	0.31

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	28	717	44	579	388	11	43	114	790	14	106	57
Future Volume (veh/h)	28	717	44	579	388	11	43	114	790	14	106	57
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	30	779	48	629	422	12	47	124	859	15	115	62
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	54	826	51	499	1738	49	365	62	432	90	349	188
Arrive On Green	0.03	0.24	0.24	0.28	0.49	0.49	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1774	3387	209	1774	3515	100	1203	204	1410	570	1140	615
Grp Volume(v), veh/h	30	407	420	629	212	222	47	0	983	15	0	177
Grp Sat Flow(s),veh/h/ln	1774	1770	1826	1774	1770	1845	1203	0	1614	570	0	1754
Q Serve(g_s), s	1.3	18.1	18.1	22.5	5.5	5.5	2.5	0.0	24.5	0.0	0.0	6.2
Cycle Q Clear(g_c), s	1.3	18.1	18.1	22.5	5.5	5.5	8.7	0.0	24.5	24.5	0.0	6.2
Prop In Lane	1.00		0.11	1.00		0.05	1.00		0.87	1.00		0.35
Lane Grp Cap(c), veh/h	54	431	445	499	875	913	365	0	494	90	0	537
V/C Ratio(X)	0.56	0.94	0.94	1.26	0.24	0.24	0.13	0.00	1.99	0.17	0.00	0.33
Avail Cap(c_a), veh/h	124	431	445	499	875	913	365	0	494	90	0	537
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.3	29.7	29.7	28.8	11.6	11.6	24.8	0.0	27.8	40.0	0.0	21.4
Incr Delay (d2), s/veh	8.7	31.2	30.7	132.7	0.7	0.6	0.2	0.0	452.2	0.9	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	12.6	12.9	29.3	2.8	2.9	0.9	0.0	72.9	0.4	0.0	3.1
LnGrp Delay(d),s/veh	46.9	60.9	60.4	161.5	12.3	12.2	24.9	0.0	480.0	40.9	0.0	21.8
LnGrp LOS	D	E	E	F	B	B	C		F	D		C
Approach Vol, veh/h		857			1063			1030			192	
Approach Delay, s/veh		60.2			100.5			459.2			23.3	
Approach LOS		E			F			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.9	44.1		29.0	27.0	24.0		29.0
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.6	36.4		24.5	22.5	19.5		24.5
Max Q Clear Time (g_c+I1), s	3.3	7.5		26.5	24.5	20.1		26.5
Green Ext Time (p_c), s	0.0	2.7		0.0	0.0	0.0		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		202.4
HCM 2010 LOS		F

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	200		0	100		100	105		0	150		150
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.986				0.850		0.991				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1837	0	1770	1863	1583	1770	1846	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1837	0	1770	1863	1583	1770	1846	0	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8				136		2				99
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2652			1695			1544			1371	
Travel Time (s)		60.3			38.5			35.1			31.2	

Intersection Summary	
Area Type:	Other

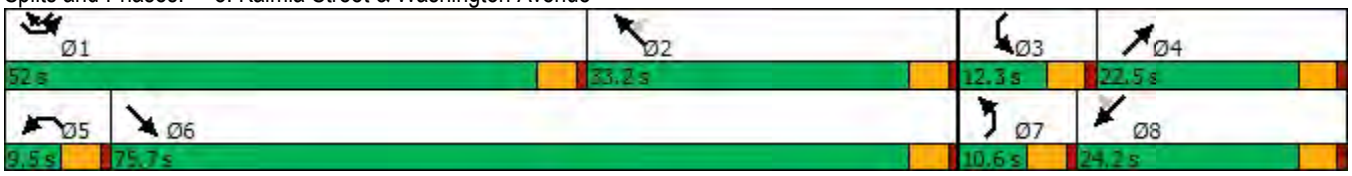
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	1206	392	40	3	386	125	64	111	7	94	69	604
Future Volume (vph)	1206	392	40	3	386	125	64	111	7	94	69	604
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	1419	461	47	4	454	147	75	131	8	111	81	711
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1419	508	0	4	454	147	75	139	0	111	81	711

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	1206	392	3	386	125	64	111	94	69	604
Future Volume (vph)	1206	392	3	386	125	64	111	94	69	604
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	1	6	5	2		7	4	3	8	1
Permitted Phases					2					8
Detector Phase	1	6	5	2	2	7	4	3	8	1
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5
Total Split (s)	52.0	75.7	9.5	33.2	33.2	10.6	22.5	12.3	24.2	52.0
Total Split (%)	43.3%	63.1%	7.9%	27.7%	27.7%	8.8%	18.8%	10.3%	20.2%	43.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	47.5	78.9	5.0	28.7	28.7	9.2	13.5	7.8	14.4	64.2
Actuated g/C Ratio	0.41	0.68	0.04	0.25	0.25	0.08	0.12	0.07	0.12	0.56
v/c Ratio	1.01	0.40	0.05	0.98	0.30	0.54	0.64	0.93	0.35	0.77
Control Delay	59.9	10.1	56.3	81.9	9.1	69.1	61.6	120.9	49.6	22.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.9	10.1	56.3	81.9	9.1	69.1	61.6	120.9	49.6	22.8
LOS	E	B	E	F	A	E	E	F	D	C
Approach Delay		46.8		64.0			64.2		37.3	
Approach LOS		D		E			E		D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 115.6	
Natural Cycle: 130	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 48.3	Intersection LOS: D
Intersection Capacity Utilization 77.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 8: Kalmia Street & Washington Avenue



Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Group Flow (vph)	1419	508	4	454	147	75	139	111	81	711
v/c Ratio	1.01	0.40	0.05	0.98	0.30	0.54	0.64	0.93	0.35	0.77
Control Delay	59.9	10.1	56.3	81.9	9.1	69.1	61.6	120.9	49.6	22.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.9	10.1	56.3	81.9	9.1	69.1	61.6	120.9	49.6	22.8
Queue Length 50th (ft)	~546	139	3	338	6	56	99	84	55	319
Queue Length 95th (ft)	#676	263	15	#526	51	#137	155	#189	98	417
Internal Link Dist (ft)		2572		1615			1464		1291	
Turn Bay Length (ft)	200		100		100	105		150		150
Base Capacity (vph)	1411	1256	76	462	495	140	289	119	317	923
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.40	0.05	0.98	0.30	0.54	0.48	0.93	0.26	0.77

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	1206	392	40	3	386	125	64	111	7	94	69	604
Future Volume (veh/h)	1206	392	40	3	386	125	64	111	7	94	69	604
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	1419	461	47	4	454	147	75	131	8	111	81	711
Adj No. of Lanes	2	1	0	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1362	1048	107	9	446	379	90	261	16	115	306	887
Arrive On Green	0.40	0.63	0.63	0.01	0.24	0.24	0.05	0.15	0.15	0.07	0.16	0.16
Sat Flow, veh/h	3442	1663	170	1774	1863	1583	1774	1738	106	1774	1863	1583
Grp Volume(v), veh/h	1419	0	508	4	454	147	75	0	139	111	81	711
Grp Sat Flow(s),veh/h/ln	1721	0	1833	1774	1863	1583	1774	0	1844	1774	1863	1583
Q Serve(g_s), s	47.5	0.0	17.0	0.3	28.7	9.3	5.0	0.0	8.3	7.5	4.6	19.7
Cycle Q Clear(g_c), s	47.5	0.0	17.0	0.3	28.7	9.3	5.0	0.0	8.3	7.5	4.6	19.7
Prop In Lane	1.00		0.09	1.00		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	1362	0	1154	9	446	379	90	0	277	115	306	887
V/C Ratio(X)	1.04	0.00	0.44	0.43	1.02	0.39	0.83	0.00	0.50	0.96	0.26	0.80
Avail Cap(c_a), veh/h	1362	0	1154	74	446	379	90	0	277	115	306	887
HCM 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
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	0.0	11.4	59.5	45.7	38.3	56.4	0.0	46.9	56.0	43.8	21.1
Incr Delay (d2), s/veh	36.0	0.0	1.2	29.0	47.5	3.0	45.4	0.0	1.4	71.8	0.5	5.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	29.3	0.0	9.0	0.2	20.6	4.4	3.6	0.0	4.4	6.0	2.4	20.0
LnGrp Delay(d),s/veh	72.2	0.0	12.6	88.5	93.2	41.3	101.8	0.0	48.3	127.8	44.3	26.4
LnGrp LOS	F		B	F	F	D	F		D	F	D	C
Approach Vol, veh/h		1927			605			214			903	
Approach Delay, s/veh		56.5			80.6			67.1			40.5	
Approach LOS		E			F			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	52.0	33.2	12.3	22.5	5.1	80.1	10.6	24.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	47.5	28.7	7.8	18.0	5.0	71.2	6.1	19.7
Max Q Clear Time (g_c+I1), s	49.5	30.7	9.5	10.3	2.3	19.0	7.0	21.7
Green Ext Time (p_c), s	0.0	0.0	0.0	0.4	0.0	3.8	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	57.1
HCM 2010 LOS	E

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	60		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor												
Frt		0.997						0.913				0.850
Flt Protected				0.950				0.982			0.950	
Satd. Flow (prot)	0	1857	0	1770	1863	0	0	1670	0	0	1770	1583
Flt Permitted				0.950				0.982			0.950	
Satd. Flow (perm)	0	1857	0	1770	1863	0	0	1670	0	0	1770	1583
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1045			237			351			183	
Travel Time (s)		23.8			5.4			8.0			4.2	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	0	302	6	6	265	0	8	0	14	124	0	62
Future Volume (vph)	0	302	6	6	265	0	8	0	14	124	0	62
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	392	8	8	344	0	10	0	18	161	0	81
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	400	0	8	344	0	0	28	0	0	161	81

Intersection Summary

Intersection	
Int Delay, s/veh	5.8

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	302	6	6	265	0	8	0	14	124	0	62
Future Vol, veh/h	0	302	6	6	265	0	8	0	14	124	0	62
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	60	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	392	8	8	344	0	10	0	18	161	0	81

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	400	0	0	797	756	396	765	760	344
Stage 1	-	-	-	-	-	-	396	396	-	360	360	-
Stage 2	-	-	-	-	-	-	401	360	-	405	400	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1159	-	0	305	337	653	320	336	699
Stage 1	0	-	-	-	-	0	629	604	-	658	626	-
Stage 2	0	-	-	-	-	0	626	626	-	622	602	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1159	-	-	268	335	653	309	334	699
Mov Cap-2 Maneuver	-	-	-	-	-	-	268	335	-	309	334	-
Stage 1	-	-	-	-	-	-	629	604	-	658	622	-
Stage 2	-	-	-	-	-	-	550	622	-	605	602	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0.2	14	22.7
HCM LOS			B	C

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	429	1159	-	-	-	309	699
HCM Lane V/C Ratio	0.067	0.007	-	-	-	0.521	0.115
HCM Control Delay (s)	14	8.1	-	-	-	28.7	10.8
HCM Lane LOS	B	A	-	-	-	D	B
HCM 95th %tile Q(veh)	0.2	0	-	-	-	2.8	0.4

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt					0.993	
Flt Protected				0.972		
Satd. Flow (prot)	1863	0	0	1811	1850	0
Flt Permitted				0.972		
Satd. Flow (perm)	1863	0	0	1811	1850	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	112			181	2481	
Travel Time (s)	2.5			4.1	56.4	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Traffic Volume (vph)	0	0	277	198	52	3
Future Volume (vph)	0	0	277	198	52	3
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.48	0.48	0.48	0.48	0.48	0.48
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	0	0	577	413	108	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	990	114	0

Intersection Summary

Intersection	
Int Delay, s/veh	4.7

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	0	0	277	198	52	3
Future Vol, veh/h	0	0	277	198	52	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	48	48	48	48	48	48
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	577	413	108	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1678	111	114	0	-	0
Stage 1	111	-	-	-	-	-
Stage 2	1567	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	104	942	1475	-	-	-
Stage 1	914	-	-	-	-	-
Stage 2	189	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	51	942	1475	-	-	-
Mov Cap-2 Maneuver	51	-	-	-	-	-
Stage 1	451	-	-	-	-	-
Stage 2	189	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	0	5.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1475	-	-	-	-
HCM Lane V/C Ratio	0.391	-	-	-	-
HCM Control Delay (s)	9	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	1.9	-	-	-	-

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.865		
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	0	1611	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	0	1611	1770	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		340	1045		2657	
Travel Time (s)		7.7	23.8		60.4	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Traffic Volume (vph)	0	0	0	65	52	0
Future Volume (vph)	0	0	0	65	52	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	0	0	79	63	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	79	63	0

Intersection Summary

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	65	52	0
Future Vol, veh/h	0	0	0	65	52	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	79	63	0
Number of Lanes	0	1	0	1	1	0

Approach	SE	NW	SW
Opposing Approach	NW	SE	
Opposing Lanes	1	1	0
Conflicting Approach Left	SW		NW
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SW	SE
Conflicting Lanes Right	0	1	1
HCM Control Delay	0	6.8	7.6
HCM LOS	-	A	A

Lane	NWLn1	SELn1	SWLn1
Vol Left, %	0%	0%	100%
Vol Thru, %	0%	100%	0%
Vol Right, %	100%	0%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	65	0	52
LT Vol	0	0	52
Through Vol	0	0	0
RT Vol	65	0	0
Lane Flow Rate	79	0	63
Geometry Grp	1	1	1
Degree of Util (X)	0.076	0	0.075
Departure Headway (Hd)	3.444	4.104	4.272
Convergence, Y/N	Yes	Yes	Yes
Cap	1035	0	842
Service Time	1.481	2.148	2.284
HCM Lane V/C Ratio	0.076	0	0.075
HCM Control Delay	6.8	7.1	7.6
HCM Lane LOS	A	N	A
HCM 95th-tile Q	0.2	0	0.2

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	60			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.922			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1863	1717	0	1770	0
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1863	1717	0	1770	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		237	1361		181	
Travel Time (s)		5.4	30.9		4.1	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Traffic Volume (vph)	23	76	36	49	2	0
Future Volume (vph)	23	76	36	49	2	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	28	93	44	60	2	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	28	93	104	0	2	0

Intersection Summary

Intersection	
Int Delay, s/veh	1

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	23	76	36	49	2	0
Future Vol, veh/h	23	76	36	49	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	60	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	93	44	60	2	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	104	0	-	0	223	74
Stage 1	-	-	-	-	74	-
Stage 2	-	-	-	-	149	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1488	-	-	-	765	988
Stage 1	-	-	-	-	949	-
Stage 2	-	-	-	-	879	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1488	-	-	-	750	988
Mov Cap-2 Maneuver	-	-	-	-	750	-
Stage 1	-	-	-	-	931	-
Stage 2	-	-	-	-	879	-

Approach	SE	NW	SW
HCM Control Delay, s	1.7	0	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	1488	-	750
HCM Lane V/C Ratio	-	-	0.019	-	0.003
HCM Control Delay (s)	-	-	7.5	-	9.8
HCM Lane LOS	-	-	A	-	A
HCM 95th %tile Q(veh)	-	-	0.1	-	0

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	120	0	100			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	1863	1863	1583
Link Speed (mph)	30			30	30	
Link Distance (ft)	1361			666	2655	
Travel Time (s)	30.9			15.1	60.3	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Traffic Volume (vph)	81	3	2	315	532	117
Future Volume (vph)	81	3	2	315	532	117
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	105	4	3	409	691	152
Shared Lane Traffic (%)						
Lane Group Flow (vph)	105	4	3	409	691	152

Intersection Summary

Intersection	
Intersection Delay, s/veh	43.4
Intersection LOS	E

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	81	3	2	315	532	117
Future Vol, veh/h	81	3	2	315	532	117
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	105	4	3	409	691	152
Number of Lanes	1	1	1	1	1	1

Approach	SE	NE	SW
Opposing Approach		SW	NE
Opposing Lanes	0	2	2
Conflicting Approach Left	SW	SE	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NE		SE
Conflicting Lanes Right	2	0	2
HCM Control Delay	12.9	19	59.3
HCM LOS	B	C	F

Lane	NELn1	NELn2	SELn1	SELn2	SWLn1	SWLn2
Vol Left, %	100%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	2	315	81	3	532	117
LT Vol	2	0	81	0	0	0
Through Vol	0	315	0	0	532	0
RT Vol	0	0	0	3	0	117
Lane Flow Rate	3	409	105	4	691	152
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.005	0.655	0.226	0.007	1.047	0.2
Departure Headway (Hd)	6.428	5.921	7.968	6.74	5.455	4.748
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	560	614	453	534	670	760
Service Time	4.128	3.621	5.668	4.44	3.155	2.448
HCM Lane V/C Ratio	0.005	0.666	0.232	0.007	1.031	0.2
HCM Control Delay	9.2	19.1	13	9.5	70.5	8.6
HCM Lane LOS	A	C	B	A	F	A
HCM 95th-tile Q	0	4.8	0.9	0	18.2	0.7

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	85		0	150		0	150		0	250		100
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.937				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3316	0	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3316	0	1770	1863	1583	1770	1863	1583	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		197				176			149			182
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1461			2630			1510			1533	
Travel Time (s)		33.2			59.8			34.3			34.8	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	101	369	267	323	623	167	163	150	231	184	363	219
Future Volume (vph)	101	369	267	323	623	167	163	150	231	184	363	219
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	106	388	281	340	656	176	172	158	243	194	382	231
Shared Lane Traffic (%)												
Lane Group Flow (vph)	106	669	0	340	656	176	172	158	243	194	382	231

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	101	369	323	623	167	163	150	231	184	363	219
Future Volume (vph)	101	369	323	623	167	163	150	231	184	363	219
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	5	2		7	4	5	3	8	
Permitted Phases					2			4			8
Detector Phase	1	6	5	2	2	7	4	5	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5	9.5	22.5	22.5
Total Split (s)	11.0	27.7	23.1	39.8	39.8	14.2	23.2	23.1	16.0	25.0	25.0
Total Split (%)	12.2%	30.8%	25.7%	44.2%	44.2%	15.8%	25.8%	25.7%	17.8%	27.8%	27.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	6.5	23.3	18.5	35.3	35.3	9.7	18.3	41.3	11.4	20.0	20.0
Actuated g/C Ratio	0.07	0.26	0.21	0.39	0.39	0.11	0.20	0.46	0.13	0.22	0.22
v/c Ratio	0.83	0.66	0.93	0.89	0.24	0.90	0.41	0.30	0.86	0.92	0.47
Control Delay	87.5	24.3	69.7	42.4	3.9	85.3	34.8	7.0	73.4	63.4	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.5	24.3	69.7	42.4	3.9	85.3	34.8	7.0	73.4	63.4	11.4
LOS	F	C	E	D	A	F	C	A	E	E	B
Approach Delay		32.9		44.5			38.1			50.9	
Approach LOS		C		D			D			D	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 89.5	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 42.3	Intersection LOS: D
Intersection Capacity Utilization 81.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Calle Del Oso Oro/Nutmeg Street & Washington Avenue

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Group Flow (vph)	106	669	340	656	176	172	158	243	194	382	231
v/c Ratio	0.83	0.66	0.93	0.89	0.24	0.90	0.41	0.30	0.86	0.92	0.47
Control Delay	87.5	24.3	69.7	42.4	3.9	85.3	34.8	7.0	73.4	63.4	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.5	24.3	69.7	42.4	3.9	85.3	34.8	7.0	73.4	63.4	11.4
Queue Length 50th (ft)	61	126	191	343	0	98	78	29	110	212	22
Queue Length 95th (ft)	#153	187	#354	#555	39	#217	137	74	#229	#376	85
Internal Link Dist (ft)		1381		2550			1430			1453	
Turn Bay Length (ft)	85		150			150			250		100
Base Capacity (vph)	128	1010	367	734	730	191	389	812	227	426	503
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.66	0.93	0.89	0.24	0.90	0.41	0.30	0.85	0.90	0.46

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	101	369	267	323	623	167	163	150	231	184	363	219
Future Volume (veh/h)	101	369	267	323	623	167	163	150	231	184	363	219
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	106	388	281	340	656	176	172	158	243	194	382	231
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	129	510	365	368	734	624	192	381	652	228	418	356
Arrive On Green	0.07	0.26	0.26	0.21	0.39	0.39	0.11	0.20	0.20	0.13	0.22	0.22
Sat Flow, veh/h	1774	1972	1411	1774	1863	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	106	348	321	340	656	176	172	158	243	194	382	231
Grp Sat Flow(s),veh/h/ln	1774	1770	1614	1774	1863	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	5.3	16.2	16.5	16.8	29.5	6.8	8.6	6.6	9.6	9.6	17.9	11.9
Cycle Q Clear(g_c), s	5.3	16.2	16.5	16.8	29.5	6.8	8.6	6.6	9.6	9.6	17.9	11.9
Prop In Lane	1.00		0.87	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	129	458	418	368	734	624	192	381	652	228	418	356
V/C Ratio(X)	0.82	0.76	0.77	0.92	0.89	0.28	0.90	0.41	0.37	0.85	0.91	0.65
Avail Cap(c_a), veh/h	129	458	418	368	734	624	192	389	659	228	426	362
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.0	30.6	30.7	34.8	25.4	18.5	39.5	31.0	18.3	38.2	33.9	31.5
Incr Delay (d2), s/veh	33.4	11.2	12.8	28.5	15.6	1.1	37.5	0.7	0.4	25.4	23.6	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	9.3	8.8	11.1	18.3	3.1	6.2	3.5	4.2	6.3	12.0	5.6
LnGrp Delay(d),s/veh	74.4	41.9	43.5	63.3	41.0	19.7	77.0	31.7	18.7	63.6	57.5	35.5
LnGrp LOS	E	D	D	E	D	B	E	C	B	E	E	D
Approach Vol, veh/h		775			1172			573			807	
Approach Delay, s/veh		47.0			44.3			39.8			52.7	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	39.8	16.0	22.8	23.1	27.7	14.2	24.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.5	35.3	11.5	18.7	18.6	23.2	9.7	20.5
Max Q Clear Time (g_c+I1), s	7.3	31.5	11.6	11.6	18.8	18.5	10.6	19.9
Green Ext Time (p_c), s	0.0	1.8	0.0	1.0	0.0	1.8	0.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	46.2
HCM 2010 LOS	D

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		280	300		0	350		0	150		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor												
Frt			0.850		0.998			0.929			0.912	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3532	0	1770	1730	0	1770	3228	0
Flt Permitted	0.950			0.950			0.492			0.686		
Satd. Flow (perm)	1770	3539	1583	1770	3532	0	916	1730	0	1278	3228	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			121		2			52			81	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2630			1335			2657			1296	
Travel Time (s)		59.8			30.3			60.4			29.5	

Intersection Summary	
Area Type:	Other

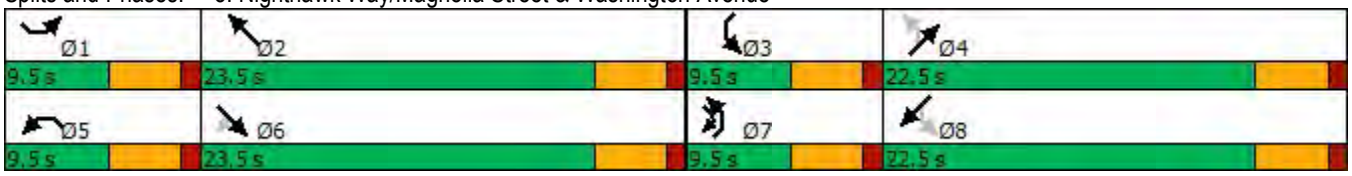
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	39	653	115	60	728	9	112	55	49	10	54	77
Future Volume (vph)	39	653	115	60	728	9	112	55	49	10	54	77
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	41	687	121	63	766	9	118	58	52	11	57	81
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	687	121	63	775	0	118	110	0	11	138	0

Intersection Summary

Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Configurations									
Traffic Volume (vph)	39	653	115	60	728	112	55	10	54
Future Volume (vph)	39	653	115	60	728	112	55	10	54
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	7	5	2	7	4	3	8
Permitted Phases			6			4		8	
Detector Phase	1	6	7	5	2	7	4	3	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	9.5	23.5	9.5	9.5	23.5	9.5	22.5	9.5	22.5
Total Split (%)	14.6%	36.2%	14.6%	14.6%	36.2%	14.6%	34.6%	14.6%	34.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	Max	None	None	None	None
Act Effct Green (s)	5.1	24.4	31.7	5.1	26.2	13.4	12.6	10.7	7.0
Actuated g/C Ratio	0.10	0.49	0.64	0.10	0.53	0.27	0.26	0.22	0.14
v/c Ratio	0.22	0.39	0.11	0.34	0.41	0.35	0.23	0.03	0.26
Control Delay	26.7	13.3	2.2	29.1	12.2	16.7	11.8	13.2	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.7	13.3	2.2	29.1	12.2	16.7	11.8	13.2	11.8
LOS	C	B	A	C	B	B	B	B	B
Approach Delay		12.4			13.5		14.3		11.9
Approach LOS		B			B		B		B

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 49.3	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.41	
Intersection Signal Delay: 13.0	Intersection LOS: B
Intersection Capacity Utilization 49.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 5: Nighthawk Way/Magnolia Street & Washington Avenue



Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	41	687	121	63	775	118	110	11	138
v/c Ratio	0.22	0.39	0.11	0.34	0.41	0.35	0.23	0.03	0.26
Control Delay	26.7	13.3	2.2	29.1	12.2	16.7	11.8	13.2	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.7	13.3	2.2	29.1	12.2	16.7	11.8	13.2	11.8
Queue Length 50th (ft)	12	88	0	19	68	28	13	2	8
Queue Length 95th (ft)	39	149	20	53	171	59	53	11	28
Internal Link Dist (ft)		2550			1255		2577		1216
Turn Bay Length (ft)	150		280	300		350		150	
Base Capacity (vph)	183	1753	1061	183	1876	336	678	327	1256
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.39	0.11	0.34	0.41	0.35	0.16	0.03	0.11

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	39	653	115	60	728	9	112	55	49	10	54	77
Future Volume (veh/h)	39	653	115	60	728	9	112	55	49	10	54	77
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	41	687	121	63	766	9	118	58	52	11	57	81
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	1381	747	104	1452	17	357	152	136	300	176	158
Arrive On Green	0.04	0.39	0.39	0.06	0.41	0.41	0.08	0.17	0.17	0.01	0.10	0.10
Sat Flow, veh/h	1774	3539	1583	1774	3583	42	1774	907	813	1774	1770	1583
Grp Volume(v), veh/h	41	687	121	63	378	397	118	0	110	11	57	81
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1855	1774	0	1719	1774	1770	1583
Q Serve(g_s), s	1.1	7.2	2.1	1.7	7.9	7.9	2.8	0.0	2.8	0.3	1.5	2.4
Cycle Q Clear(g_c), s	1.1	7.2	2.1	1.7	7.9	7.9	2.8	0.0	2.8	0.3	1.5	2.4
Prop In Lane	1.00		1.00	1.00		0.02	1.00		0.47	1.00		1.00
Lane Grp Cap(c), veh/h	78	1381	747	104	717	752	357	0	288	300	176	158
V/C Ratio(X)	0.53	0.50	0.16	0.60	0.53	0.53	0.33	0.00	0.38	0.04	0.32	0.51
Avail Cap(c_a), veh/h	182	1381	747	182	717	752	394	0	635	457	654	585
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.8	11.2	7.4	22.4	11.0	11.0	16.9	0.0	18.0	19.2	20.4	20.8
Incr Delay (d2), s/veh	5.5	1.3	0.5	5.5	2.8	2.6	0.5	0.0	0.8	0.0	1.1	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.7	1.0	1.0	4.3	4.5	1.4	0.0	1.4	0.1	0.8	1.1
LnGrp Delay(d),s/veh	28.3	12.5	7.8	27.9	13.7	13.6	17.4	0.0	18.9	19.3	21.5	23.4
LnGrp LOS	C	B	A	C	B	B	B		B	B	C	C
Approach Vol, veh/h		849			838			228			149	
Approach Delay, s/veh		12.6			14.7			18.1			22.3	
Approach LOS		B			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.6	24.2	5.2	12.6	7.4	23.5	8.5	9.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	5.0	19.0	5.0	18.0
Max Q Clear Time (g_c+I1), s	3.1	9.9	2.3	4.8	3.7	9.2	4.8	4.4
Green Ext Time (p_c), s	0.0	3.3	0.0	0.4	0.0	3.6	0.0	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	14.8
HCM 2010 LOS	B

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		170	150		0	80		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850			0.850		0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	1863	1583	1770	1583	0	1770	1583	0
Flt Permitted	0.950			0.950								
Satd. Flow (perm)	1770	3539	1583	1770	1863	1583	1863	1583	0	1863	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			87			87		273			234	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1335			1310			2481			639	
Travel Time (s)		30.3			29.8			56.4			14.5	

Intersection Summary	
Area Type:	Other

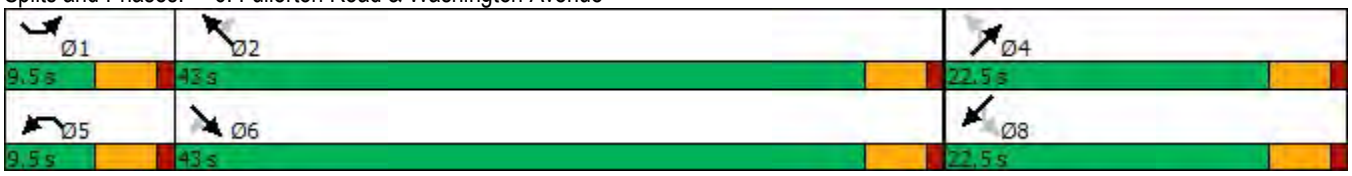
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	3	705	13	6	815	1	15	0	3	1	0	4
Future Volume (vph)	3	705	13	6	815	1	15	0	3	1	0	4
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	3	734	14	6	849	1	16	0	3	1	0	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	734	14	6	849	1	16	3	0	1	4	0

Intersection Summary

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Configurations										
Traffic Volume (vph)	3	705	13	6	815	1	15	0	1	0
Future Volume (vph)	3	705	13	6	815	1	15	0	1	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			4		8
Permitted Phases			6			2	4		8	
Detector Phase	1	6	6	5	2	2	4	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	43.0	43.0	9.5	43.0	43.0	22.5	22.5	22.5	22.5
Total Split (%)	12.7%	57.3%	57.3%	12.7%	57.3%	57.3%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	5.0	54.5	54.5	5.0	54.5	54.5	6.3	6.3	5.9	5.9
Actuated g/C Ratio	0.08	0.92	0.92	0.08	0.92	0.92	0.11	0.11	0.10	0.10
v/c Ratio	0.02	0.23	0.01	0.04	0.50	0.00	0.08	0.01	0.01	0.01
Control Delay	26.7	2.2	0.0	27.0	4.7	0.0	25.4	0.0	25.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.7	2.2	0.0	27.0	4.7	0.0	25.4	0.0	25.0	0.0
LOS	C	A	A	C	A	A	C	A	C	A
Approach Delay		2.2			4.9			21.4		5.0
Approach LOS		A			A			C		A

Intersection Summary	
Cycle Length: 75	
Actuated Cycle Length: 59.3	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.50	
Intersection Signal Delay: 3.9	Intersection LOS: A
Intersection Capacity Utilization 57.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 6: Fullerton Road & Washington Avenue



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Group Flow (vph)	3	734	14	6	849	1	16	3	1	4
v/c Ratio	0.02	0.23	0.01	0.04	0.50	0.00	0.08	0.01	0.01	0.01
Control Delay	26.7	2.2	0.0	27.0	4.7	0.0	25.4	0.0	25.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.7	2.2	0.0	27.0	4.7	0.0	25.4	0.0	25.0	0.0
Queue Length 50th (ft)	1	0	0	2	0	0	5	0	0	0
Queue Length 95th (ft)	8	97	0	12	366	0	22	0	4	0
Internal Link Dist (ft)		1255			1230			2401		559
Turn Bay Length (ft)			170	150			80			
Base Capacity (vph)	149	3252	1462	149	1712	1462	566	671	566	643
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.23	0.01	0.04	0.50	0.00	0.03	0.00	0.00	0.01

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	3	705	13	6	815	1	15	0	3	1	0	4
Future Volume (veh/h)	3	705	13	6	815	1	15	0	3	1	0	4
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	3	734	14	6	849	1	16	0	3	1	0	4
Adj No. of Lanes	1	2	1	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	7	2526	1130	14	1337	1136	169	0	44	170	0	44
Arrive On Green	0.00	0.71	0.71	0.01	0.72	0.72	0.03	0.00	0.03	0.03	0.00	0.03
Sat Flow, veh/h	1774	3539	1583	1774	1863	1583	1407	0	1583	1408	0	1583
Grp Volume(v), veh/h	3	734	14	6	849	1	16	0	3	1	0	4
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1863	1583	1407	0	1583	1408	0	1583
Q Serve(g_s), s	0.1	4.0	0.1	0.2	12.8	0.0	0.6	0.0	0.1	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.1	4.0	0.1	0.2	12.8	0.0	0.7	0.0	0.1	0.1	0.0	0.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	7	2526	1130	14	1337	1136	169	0	44	170	0	44
V/C Ratio(X)	0.42	0.29	0.01	0.42	0.64	0.00	0.09	0.00	0.07	0.01	0.00	0.09
Avail Cap(c_a), veh/h	164	2526	1130	164	1337	1136	599	0	528	601	0	528
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.8	2.8	2.2	26.6	4.0	2.2	25.9	0.0	25.5	25.6	0.0	25.5
Incr Delay (d2), s/veh	33.8	0.3	0.0	18.9	2.3	0.0	0.2	0.0	0.6	0.0	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.0	0.1	0.2	7.2	0.0	0.2	0.0	0.1	0.0	0.0	0.1
LnGrp Delay(d),s/veh	60.6	3.1	2.2	45.5	6.3	2.2	26.1	0.0	26.2	25.6	0.0	26.4
LnGrp LOS	E	A	A	D	A	A	C		C	C		C
Approach Vol, veh/h		751			856			19			5	
Approach Delay, s/veh		3.3			6.5			26.1			26.3	
Approach LOS		A			A			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.7	43.2		6.0	4.9	43.0		6.0
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	38.5		18.0	5.0	38.5		18.0
Max Q Clear Time (g_c+I1), s	2.1	14.8		2.7	2.2	6.0		2.1
Green Ext Time (p_c), s	0.0	7.0		0.0	0.0	5.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	5.3
HCM 2010 LOS	A

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	255		0	160		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.992			0.998			0.866			0.941	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3511	0	1770	3532	0	1770	1613	0	1770	1753	0
Flt Permitted	0.950			0.950			0.573			0.360		
Satd. Flow (perm)	1770	3511	0	1770	3532	0	1067	1613	0	671	1753	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			3			390			33	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1310			2652			2655			1165	
Travel Time (s)		29.8			60.3			60.3			26.5	

Intersection Summary	
Area Type:	Other

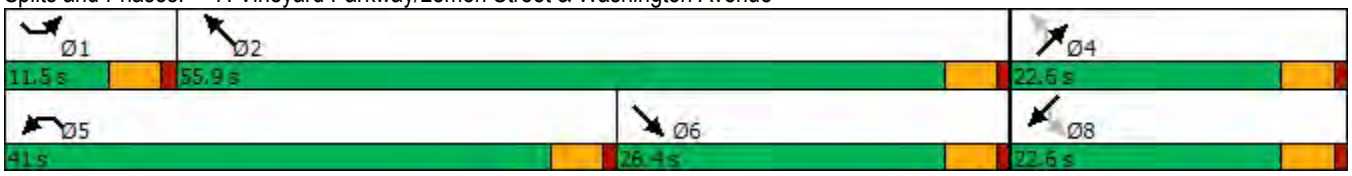
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	51	635	36	601	753	12	31	43	367	11	81	53
Future Volume (vph)	51	635	36	601	753	12	31	43	367	11	81	53
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	54	676	38	639	801	13	33	46	390	12	86	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	54	714	0	639	814	0	33	436	0	12	142	0

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Configurations								
Traffic Volume (vph)	51	635	601	753	31	43	11	81
Future Volume (vph)	51	635	601	753	31	43	11	81
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	1	6	5	2		4		8
Permitted Phases					4		8	
Detector Phase	1	6	5	2	4	4	8	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	11.5	26.4	41.0	55.9	22.6	22.6	22.6	22.6
Total Split (%)	12.8%	29.3%	45.6%	62.1%	25.1%	25.1%	25.1%	25.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	None	Max	None	None	None	None
Act Effct Green (s)	6.7	22.7	32.4	53.2	11.1	11.1	11.1	11.1
Actuated g/C Ratio	0.08	0.28	0.41	0.67	0.14	0.14	0.14	0.14
v/c Ratio	0.37	0.71	0.89	0.35	0.22	0.78	0.13	0.52
Control Delay	45.0	32.2	39.4	7.8	34.8	16.3	33.8	32.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.0	32.2	39.4	7.8	34.8	16.3	33.8	32.0
LOS	D	C	D	A	C	B	C	C
Approach Delay		33.1		21.7		17.6		32.1
Approach LOS		C		C		B		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 79.9	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 24.7	Intersection LOS: C
Intersection Capacity Utilization 89.0%	ICU Level of Service E
Analysis Period (min) 15	

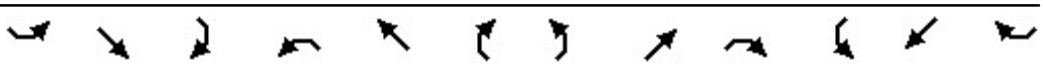
Splits and Phases: 7: Vineyard Parkway/Lemon Street & Washington Avenue



Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	54	714	639	814	33	436	12	142
v/c Ratio	0.37	0.71	0.89	0.35	0.22	0.78	0.13	0.52
Control Delay	45.0	32.2	39.4	7.8	34.8	16.3	33.8	32.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.0	32.2	39.4	7.8	34.8	16.3	33.8	32.0
Queue Length 50th (ft)	27	176	278	96	16	22	6	53
Queue Length 95th (ft)	67	#290	#542	165	42	117	21	108
Internal Link Dist (ft)		1230		2572		2575		1085
Turn Bay Length (ft)	150		255		160		150	
Base Capacity (vph)	156	1003	817	2354	244	670	153	426
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.71	0.78	0.35	0.14	0.65	0.08	0.33

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	51	635	36	601	753	12	31	43	367	11	81	53
Future Volume (veh/h)	51	635	36	601	753	12	31	43	367	11	81	53
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	54	676	38	639	801	13	33	46	390	12	86	56
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	861	48	679	2115	34	255	35	301	83	220	143
Arrive On Green	0.04	0.25	0.25	0.38	0.59	0.59	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	1774	3407	191	1774	3564	58	1241	170	1439	949	1055	687
Grp Volume(v), veh/h	54	351	363	639	398	416	33	0	436	12	0	142
Grp Sat Flow(s),veh/h/ln	1774	1770	1829	1774	1770	1853	1241	0	1609	949	0	1742
Q Serve(g_s), s	2.6	16.0	16.0	30.1	10.2	10.2	2.0	0.0	18.1	0.0	0.0	6.1
Cycle Q Clear(g_c), s	2.6	16.0	16.0	30.1	10.2	10.2	8.1	0.0	18.1	18.1	0.0	6.1
Prop In Lane	1.00		0.10	1.00		0.03	1.00		0.89	1.00		0.39
Lane Grp Cap(c), veh/h	74	447	462	679	1050	1099	255	0	336	83	0	364
V/C Ratio(X)	0.73	0.78	0.79	0.94	0.38	0.38	0.13	0.00	1.30	0.14	0.00	0.39
Avail Cap(c_a), veh/h	143	447	462	747	1050	1099	255	0	336	83	0	364
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.0	30.2	30.2	25.8	9.2	9.2	33.0	0.0	34.3	43.3	0.0	29.5
Incr Delay (d2), s/veh	12.5	12.9	12.6	19.1	1.0	1.0	0.2	0.0	154.2	0.8	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	9.4	9.7	18.3	5.3	5.5	0.7	0.0	22.3	0.3	0.0	3.0
LnGrp Delay(d),s/veh	53.5	43.1	42.8	44.9	10.3	10.2	33.3	0.0	188.5	44.1	0.0	30.2
LnGrp LOS	D	D	D	D	B	B	C		F	D		C
Approach Vol, veh/h		768			1453			469			154	
Approach Delay, s/veh		43.7			25.5			177.6			31.3	
Approach LOS		D			C			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.1	55.9		22.6	37.7	26.4		22.6
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	7.0	51.4		18.1	36.5	21.9		18.1
Max Q Clear Time (g_c+I1), s	4.6	12.2		20.1	32.1	18.0		20.1
Green Ext Time (p_c), s	0.0	6.0		0.0	1.0	1.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	55.8
HCM 2010 LOS	E

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	200		0	100		100	105		0	150		150
Storage Lanes	2		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.988				0.850		0.989				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1840	0	1770	1863	1583	1770	1842	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1840	0	1770	1863	1583	1770	1842	0	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				136		3				171
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2652			1695			1544			1371	
Travel Time (s)		60.3			38.5			35.1			31.2	

Intersection Summary	
Area Type:	Other

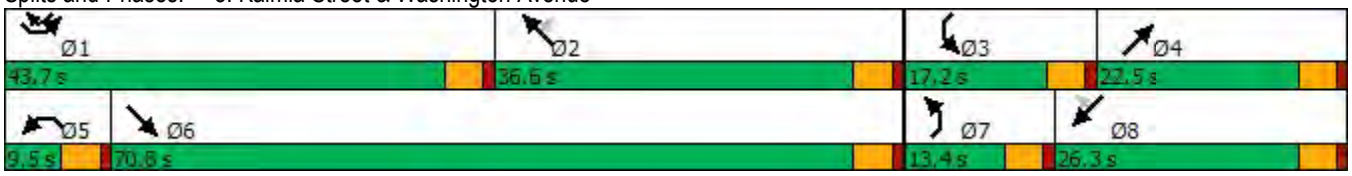
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	712	353	30	7	489	183	49	121	10	177	126	958
Future Volume (vph)	712	353	30	7	489	183	49	121	10	177	126	958
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	727	360	31	7	499	187	50	123	10	181	129	978
Shared Lane Traffic (%)												
Lane Group Flow (vph)	727	391	0	7	499	187	50	133	0	181	129	978

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	712	353	7	489	183	49	121	177	126	958
Future Volume (vph)	712	353	7	489	183	49	121	177	126	958
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	1	6	5	2		7	4	3	8	1
Permitted Phases					2					8
Detector Phase	1	6	5	2	2	7	4	3	8	1
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5
Total Split (s)	43.7	70.8	9.5	36.6	36.6	13.4	22.5	17.2	26.3	43.7
Total Split (%)	36.4%	59.0%	7.9%	30.5%	30.5%	11.2%	18.8%	14.3%	21.9%	36.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	39.2	74.0	5.0	32.1	32.1	7.8	13.2	12.7	20.2	64.0
Actuated g/C Ratio	0.34	0.64	0.04	0.28	0.28	0.07	0.11	0.11	0.18	0.56
v/c Ratio	0.62	0.33	0.09	0.96	0.35	0.42	0.62	0.93	0.40	1.03
Control Delay	35.1	11.2	57.4	73.2	12.7	63.1	60.5	100.5	47.5	58.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.1	11.2	57.4	73.2	12.7	63.1	60.5	100.5	47.5	58.8
LOS	D	B	E	E	B	E	E	F	D	E
Approach Delay		26.8		56.8			61.2		63.5	
Approach LOS		C		E			E		E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 115.3	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 49.4	Intersection LOS: D
Intersection Capacity Utilization 100.5%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 8: Kalmia Street & Washington Avenue



Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Group Flow (vph)	727	391	7	499	187	50	133	181	129	978
v/c Ratio	0.62	0.33	0.09	0.96	0.35	0.42	0.62	0.93	0.40	1.03
Control Delay	35.1	11.2	57.4	73.2	12.7	63.1	60.5	100.5	47.5	58.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.1	11.2	57.4	73.2	12.7	63.1	60.5	100.5	47.5	58.8
Queue Length 50th (ft)	231	114	5	366	28	36	93	135	89	~739
Queue Length 95th (ft)	313	232	22	#614	92	80	158	#288	150	#1009
Internal Link Dist (ft)		2572		1615			1464		1291	
Turn Bay Length (ft)	200		100		100	105		150		150
Base Capacity (vph)	1168	1183	76	519	539	136	290	195	364	953
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.33	0.09	0.96	0.35	0.37	0.46	0.93	0.35	1.03

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	712	353	30	7	489	183	49	121	10	177	126	958
Future Volume (veh/h)	712	353	30	7	489	183	49	121	10	177	126	958
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	727	360	31	7	499	187	50	123	10	181	129	978
Adj No. of Lanes	2	1	0	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	837	1009	87	16	675	573	64	201	16	203	365	696
Arrive On Green	0.24	0.60	0.60	0.01	0.36	0.36	0.04	0.12	0.12	0.11	0.20	0.20
Sat Flow, veh/h	3442	1691	146	1774	1863	1583	1774	1700	138	1774	1863	1583
Grp Volume(v), veh/h	727	0	391	7	499	187	50	0	133	181	129	978
Grp Sat Flow(s),veh/h/ln	1721	0	1837	1774	1863	1583	1774	0	1838	1774	1863	1583
Q Serve(g_s), s	22.5	0.0	12.1	0.4	25.9	9.5	3.1	0.0	7.6	11.2	6.6	21.8
Cycle Q Clear(g_c), s	22.5	0.0	12.1	0.4	25.9	9.5	3.1	0.0	7.6	11.2	6.6	21.8
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	837	0	1096	16	675	573	64	0	217	203	365	696
V/C Ratio(X)	0.87	0.00	0.36	0.45	0.74	0.33	0.78	0.00	0.61	0.89	0.35	1.41
Avail Cap(c_a), veh/h	1214	0	1096	80	675	573	142	0	298	203	365	696
HCM 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
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.3	0.0	11.5	54.8	30.9	25.6	53.1	0.0	46.6	48.5	38.6	31.1
Incr Delay (d2), s/veh	4.8	0.0	0.9	19.1	7.1	1.5	17.8	0.0	2.8	35.4	0.6	190.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.3	0.0	6.4	0.3	14.6	4.4	1.8	0.0	4.0	7.5	3.5	58.2
LnGrp Delay(d),s/veh	45.2	0.0	12.4	73.9	38.0	27.1	70.9	0.0	49.3	83.9	39.1	222.1
LnGrp LOS	D		B	E	D	C	E		D	F	D	F
Approach Vol, veh/h		1118			693			183			1288	
Approach Delay, s/veh		33.7			35.4			55.2			184.3	
Approach LOS		C			D			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.5	44.7	17.2	17.6	5.5	70.8	8.5	26.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	39.2	32.1	12.7	18.0	5.0	66.3	8.9	21.8
Max Q Clear Time (g_c+I1), s	24.5	27.9	13.2	9.6	2.4	14.1	5.1	23.8
Green Ext Time (p_c), s	2.5	1.5	0.0	0.4	0.0	2.7	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	94.4
HCM 2010 LOS	F

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	60		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor												
Frt		0.986						0.932				0.850
Flt Protected				0.950				0.976			0.950	
Satd. Flow (prot)	0	1837	0	1770	1863	0	0	1694	0	0	1770	1583
Flt Permitted				0.950				0.976			0.950	
Satd. Flow (perm)	0	1837	0	1770	1863	0	0	1694	0	0	1770	1583
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1045			237			351			183	
Travel Time (s)		23.8			5.4			8.0			4.2	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	0	43	5	9	26	0	5	0	5	49	0	30
Future Volume (vph)	0	43	5	9	26	0	5	0	5	49	0	30
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	54	6	11	33	0	6	0	6	62	0	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	60	0	11	33	0	0	12	0	0	62	38

Intersection Summary

Intersection	
Int Delay, s/veh	5.1

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	43	5	9	26	0	5	0	5	49	0	30
Future Vol, veh/h	0	43	5	9	26	0	5	0	5	49	0	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	60	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	54	6	11	33	0	6	0	6	62	0	38

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	60	0	0	131	112	57	115	115	33
Stage 1	-	-	-	-	-	-	57	57	-	55	55	-
Stage 2	-	-	-	-	-	-	74	55	-	60	60	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1544	-	0	841	778	1009	862	775	1041
Stage 1	0	-	-	-	-	0	955	847	-	957	849	-
Stage 2	0	-	-	-	-	0	935	849	-	951	845	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1544	-	-	806	773	1009	852	770	1041
Mov Cap-2 Maneuver	-	-	-	-	-	-	806	773	-	852	770	-
Stage 1	-	-	-	-	-	-	955	847	-	957	843	-
Stage 2	-	-	-	-	-	-	894	843	-	945	845	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	1.9	9.1	9.2
HCM LOS			A	A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	896	1544	-	-	-	852	1041
HCM Lane V/C Ratio	0.014	0.007	-	-	-	0.073	0.036
HCM Control Delay (s)	9.1	7.3	-	-	-	9.6	8.6
HCM Lane LOS	A	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	0	-	-	-	0.2	0.1

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected				0.950		
Satd. Flow (prot)	1863	0	0	1770	1863	0
Flt Permitted				0.950		
Satd. Flow (perm)	1863	0	0	1770	1863	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	112			181	2481	
Travel Time (s)	2.5			4.1	56.4	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Traffic Volume (vph)	0	0	71	0	0	0
Future Volume (vph)	0	0	71	0	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	0	0	88	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	88	0	0

Intersection Summary

Intersection	
Int Delay, s/veh	7.2

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	0	0	71	0	0	0
Future Vol, veh/h	0	0	71	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	88	0	0	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	177	1	1	0	-	0
Stage 1	1	-	-	-	-	-
Stage 2	176	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	813	1084	1622	-	-	-
Stage 1	1022	-	-	-	-	-
Stage 2	855	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	769	1084	1622	-	-	-
Mov Cap-2 Maneuver	769	-	-	-	-	-
Stage 1	967	-	-	-	-	-
Stage 2	855	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	0	7.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR
Capacity (veh/h)	1622	-	-	-	-
HCM Lane V/C Ratio	0.054	-	-	-	-
HCM Control Delay (s)	7.3	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-	-

Appendix I

Mitigated Project Buildout Year With Ambient Growth
Plus Project Conditions
Intersection Analysis

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	120	0	100			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.742			
Satd. Flow (perm)	1770	1583	1382	1863	1863	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		7				570
Link Speed (mph)	30			30	30	
Link Distance (ft)	1361			666	2655	
Travel Time (s)	30.9			15.1	60.3	

Intersection Summary	
Area Type:	Other

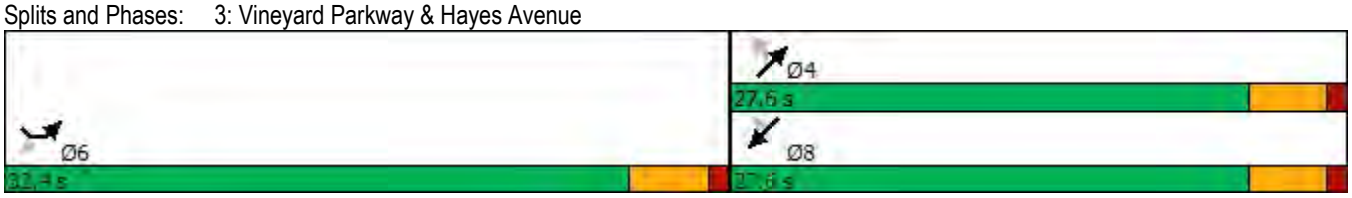
Lane Group	SEL	SER	NEL	NET	SWT	SWR
Traffic Volume (vph)	415	6	6	19	19	473
Future Volume (vph)	415	6	6	19	19	473
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	500	7	7	23	23	570
Shared Lane Traffic (%)						
Lane Group Flow (vph)	500	7	7	23	23	570

Intersection Summary

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	415	6	6	19	19	473
Future Volume (vph)	415	6	6	19	19	473
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	6			4	8	
Permitted Phases		6	4			8
Detector Phase	6	6	4	4	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	32.4	32.4	27.6	27.6	27.6	27.6
Total Split (%)	54.0%	54.0%	46.0%	46.0%	46.0%	46.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Min	Min	None	None	None	None
Act Effct Green (s)	15.0	15.0	9.5	9.5	9.5	9.5
Actuated g/C Ratio	0.43	0.43	0.28	0.28	0.28	0.28
v/c Ratio	0.65	0.01	0.02	0.04	0.04	0.67
Control Delay	12.7	4.7	10.8	10.8	10.8	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.7	4.7	10.8	10.8	10.8	6.0
LOS	B	A	B	B	B	A
Approach Delay	12.6			10.8	6.2	
Approach LOS	B			B	A	

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 34.5	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 9.2	Intersection LOS: A
Intersection Capacity Utilization 41.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Vineyard Parkway & Hayes Avenue



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Group Flow (vph)	500	7	7	23	23	570
v/c Ratio	0.65	0.01	0.02	0.04	0.04	0.67
Control Delay	12.7	4.7	10.8	10.8	10.8	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.7	4.7	10.8	10.8	10.8	6.0
Queue Length 50th (ft)	48	0	1	3	3	0
Queue Length 95th (ft)	171	5	8	16	16	39
Internal Link Dist (ft)	1281			586	2575	
Turn Bay Length (ft)	120		100			
Base Capacity (vph)	1493	1336	1025	1382	1382	1321
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.01	0.01	0.02	0.02	0.43

Intersection Summary

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	415	6	6	19	19	473
Future Volume (veh/h)	415	6	6	19	19	473
Number	1	16	7	4	8	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	500	7	7	23	23	570
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	616	550	525	782	782	665
Arrive On Green	0.35	0.35	0.42	0.42	0.42	0.42
Sat Flow, veh/h	1774	1583	821	1863	1863	1583
Grp Volume(v), veh/h	500	7	7	23	23	570
Grp Sat Flow(s),veh/h/ln	1774	1583	821	1863	1863	1583
Q Serve(g_s), s	9.9	0.1	0.2	0.3	0.3	12.6
Cycle Q Clear(g_c), s	9.9	0.1	0.5	0.3	0.3	12.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	616	550	525	782	782	665
V/C Ratio(X)	0.81	0.01	0.01	0.03	0.03	0.86
Avail Cap(c_a), veh/h	1280	1143	671	1113	1113	946
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.5	8.3	6.7	6.6	6.6	10.2
Incr Delay (d2), s/veh	2.6	0.0	0.0	0.0	0.0	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.1	0.0	0.1	0.1	6.4
LnGrp Delay(d),s/veh	14.1	8.3	6.7	6.6	6.6	15.8
LnGrp LOS	B	A	A	A	A	B
Approach Vol, veh/h	507			30	593	
Approach Delay, s/veh	14.0			6.6	15.5	
Approach LOS	B			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				20.7		17.9		20.7
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				23.1		27.9		23.1
Max Q Clear Time (g_c+I1), s				2.5		11.9		14.6
Green Ext Time (p_c), s				0.1		1.5		1.6

Intersection Summary	
HCM 2010 Ctrl Delay	14.6
HCM 2010 LOS	B

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	255		0	160		0	150		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.990			0.995				0.850		0.967	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3504	0	1770	3522	0	1770	1863	1583	1770	1801	0
Flt Permitted	0.950			0.950			0.679			0.705		
Satd. Flow (perm)	1770	3504	0	1770	3522	0	1265	1863	1583	1313	1801	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			7				34		20	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1310			2652			2655			1165	
Travel Time (s)		29.8			60.3			60.3			26.5	

Intersection Summary	
Area Type:	Other

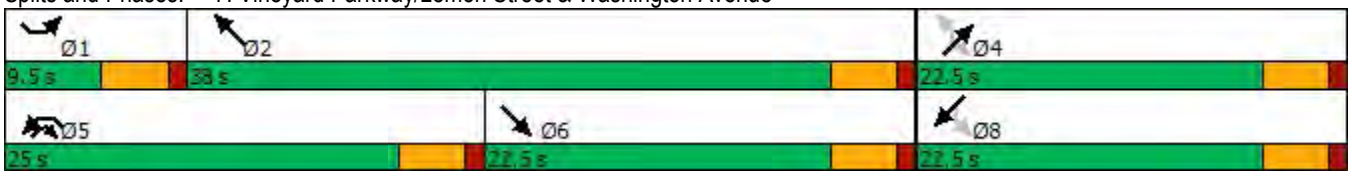
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	13	610	44	379	297	11	43	74	350	14	87	25
Future Volume (vph)	13	610	44	379	297	11	43	74	350	14	87	25
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	14	663	48	412	323	12	47	80	380	15	95	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	711	0	412	335	0	47	80	380	15	122	0

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NEL	NET	NER	SWL	SWT
Lane Configurations									
Traffic Volume (vph)	13	610	379	297	43	74	350	14	87
Future Volume (vph)	13	610	379	297	43	74	350	14	87
Turn Type	Prot	NA	Prot	NA	Perm	NA	pm+ov	Perm	NA
Protected Phases	1	6	5	2		4	5		8
Permitted Phases					4		4	8	
Detector Phase	1	6	5	2	4	4	5	8	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	22.5	25.0	38.0	22.5	22.5	25.0	22.5	22.5
Total Split (%)	13.6%	32.1%	35.7%	54.3%	32.1%	32.1%	35.7%	32.1%	32.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	Max	None	Max	None	None	None	None	None
Act Effct Green (s)	5.2	18.8	17.5	40.6	8.8	8.8	28.0	8.8	8.8
Actuated g/C Ratio	0.09	0.34	0.31	0.72	0.16	0.16	0.50	0.16	0.16
v/c Ratio	0.09	0.60	0.75	0.13	0.24	0.28	0.47	0.07	0.41
Control Delay	28.4	20.3	28.4	4.6	25.7	25.2	9.5	22.7	24.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.4	20.3	28.4	4.6	25.7	25.2	9.5	22.7	24.4
LOS	C	C	C	A	C	C	A	C	C
Approach Delay		20.4		17.7		13.5			24.2
Approach LOS		C		B		B			C

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 56.1	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 18.1	Intersection LOS: B
Intersection Capacity Utilization 59.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 7: Vineyard Parkway/Lemon Street & Washington Avenue



Lane Group	SEL	SET	NWL	NWT	NEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	14	711	412	335	47	80	380	15	122
v/c Ratio	0.09	0.60	0.75	0.13	0.24	0.28	0.47	0.07	0.41
Control Delay	28.4	20.3	28.4	4.6	25.7	25.2	9.5	22.7	24.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.4	20.3	28.4	4.6	25.7	25.2	9.5	22.7	24.4
Queue Length 50th (ft)	5	117	128	15	16	27	65	5	35
Queue Length 95th (ft)	21	186	#264	53	42	60	116	19	77
Internal Link Dist (ft)		1230		2572		2575			1085
Turn Bay Length (ft)	150		255		160			150	
Base Capacity (vph)	163	1179	671	2552	421	620	911	437	613
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.60	0.61	0.13	0.11	0.13	0.42	0.03	0.20

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	13	610	44	379	297	11	43	74	350	14	87	25
Future Volume (veh/h)	13	610	44	379	297	11	43	74	350	14	87	25
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	14	663	48	412	323	12	47	80	380	15	95	27
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	31	1003	73	470	1905	71	317	400	760	284	300	85
Arrive On Green	0.02	0.30	0.30	0.27	0.55	0.55	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	1774	3347	242	1774	3481	129	1264	1863	1583	928	1396	397
Grp Volume(v), veh/h	14	350	361	412	164	171	47	80	380	15	0	122
Grp Sat Flow(s),veh/h/ln	1774	1770	1820	1774	1770	1840	1264	1863	1583	928	0	1793
Q Serve(g_s), s	0.5	10.6	10.6	13.6	2.8	2.8	2.0	2.2	10.1	0.8	0.0	3.5
Cycle Q Clear(g_c), s	0.5	10.6	10.6	13.6	2.8	2.8	5.5	2.2	10.1	3.0	0.0	3.5
Prop In Lane	1.00		0.13	1.00		0.07	1.00		1.00	1.00		0.22
Lane Grp Cap(c), veh/h	31	530	545	470	969	1007	317	400	760	284	0	385
V/C Ratio(X)	0.46	0.66	0.66	0.88	0.17	0.17	0.15	0.20	0.50	0.05	0.00	0.32
Avail Cap(c_a), veh/h	145	530	545	594	969	1007	417	548	885	358	0	527
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.8	18.7	18.7	21.5	6.9	6.9	22.6	19.7	10.9	20.9	0.0	20.2
Incr Delay (d2), s/veh	10.2	6.3	6.2	11.6	0.4	0.4	0.2	0.2	0.5	0.1	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	6.1	6.3	8.2	1.5	1.5	0.7	1.1	4.4	0.2	0.0	1.8
LnGrp Delay(d),s/veh	40.0	25.1	24.9	33.2	7.3	7.3	22.8	20.0	11.4	21.0	0.0	20.7
LnGrp LOS	D	C	C	C	A	A	C	B	B	C		C
Approach Vol, veh/h		725			747			507			137	
Approach Delay, s/veh		25.3			21.5			13.8			20.7	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.6	38.0		17.6	20.7	22.8		17.6
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	33.5		18.0	20.5	18.0		18.0
Max Q Clear Time (g_c+I1), s	2.5	4.8		12.1	15.6	12.6		5.5
Green Ext Time (p_c), s	0.0	2.0		1.1	0.6	2.1		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	20.9
HCM 2010 LOS	C

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	200		0	100		100	105		0	150		150
Storage Lanes	2		0	1		1	1		0	1		2
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88
Ped Bike Factor												
Frt		0.980				0.850		0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1825	0	1770	1863	1583	1770	1835	0	1770	1863	2787
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1825	0	1770	1863	1583	1770	1835	0	1770	1863	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12				182		5				329
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2652			1695			1544			1371	
Travel Time (s)		60.3			38.5			35.1			31.2	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	776	267	40	3	287	70	63	55	6	64	51	409
Future Volume (vph)	776	267	40	3	287	70	63	55	6	64	51	409
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	913	314	47	4	338	82	74	65	7	75	60	481
Shared Lane Traffic (%)												
Lane Group Flow (vph)	913	361	0	4	338	82	74	72	0	75	60	481

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	776	267	3	287	70	63	55	64	51	409
Future Volume (vph)	776	267	3	287	70	63	55	64	51	409
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	1	6	5	2		7	4	3	8	1
Permitted Phases					2					8
Detector Phase	1	6	5	2	2	7	4	3	8	1
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5
Total Split (s)	31.0	48.0	9.5	26.5	26.5	10.0	22.5	10.0	22.5	31.0
Total Split (%)	34.4%	53.3%	10.6%	29.4%	29.4%	11.1%	25.0%	11.1%	25.0%	34.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	24.5	52.2	5.2	23.3	23.3	5.8	8.4	5.8	8.4	34.5
Actuated g/C Ratio	0.33	0.70	0.07	0.31	0.31	0.08	0.11	0.08	0.11	0.46
v/c Ratio	0.81	0.28	0.03	0.58	0.13	0.54	0.34	0.55	0.29	0.33
Control Delay	30.9	7.9	37.3	30.2	0.4	54.0	36.1	54.5	36.8	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.9	7.9	37.3	30.2	0.4	54.0	36.1	54.5	36.8	4.5
LOS	C	A	D	C	A	D	D	D	D	A
Approach Delay		24.4		24.5			45.1		13.7	
Approach LOS		C		C			D		B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 74.5	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 23.0	Intersection LOS: C
Intersection Capacity Utilization 58.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Kalmia Street & Washington Avenue

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Group Flow (vph)	913	361	4	338	82	74	72	75	60	481
v/c Ratio	0.81	0.28	0.03	0.58	0.13	0.54	0.34	0.55	0.29	0.33
Control Delay	30.9	7.9	37.3	30.2	0.4	54.0	36.1	54.5	36.8	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.9	7.9	37.3	30.2	0.4	54.0	36.1	54.5	36.8	4.5
Queue Length 50th (ft)	212	64	2	150	0	37	32	37	28	22
Queue Length 95th (ft)	277	150	11	232	0	#92	66	#95	60	43
Internal Link Dist (ft)		2572		1615			1464		1291	
Turn Bay Length (ft)	200		100		100	105		150		150
Base Capacity (vph)	1277	1281	124	581	619	136	467	136	470	1571
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.28	0.03	0.58	0.13	0.54	0.15	0.55	0.13	0.31

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	776	267	40	3	287	70	63	55	6	64	51	409
Future Volume (veh/h)	776	267	40	3	287	70	63	55	6	64	51	409
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	913	314	47	4	338	82	74	65	7	75	60	481
Adj No. of Lanes	2	1	0	1	1	1	1	1	0	1	1	2
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1023	892	134	9	506	430	95	256	28	96	290	1262
Arrive On Green	0.30	0.56	0.56	0.01	0.27	0.27	0.05	0.16	0.16	0.05	0.16	0.16
Sat Flow, veh/h	3442	1584	237	1774	1863	1583	1774	1653	178	1774	1863	2787
Grp Volume(v), veh/h	913	0	361	4	338	82	74	0	72	75	60	481
Grp Sat Flow(s),veh/h/ln	1721	0	1821	1774	1863	1583	1774	0	1831	1774	1863	1393
Q Serve(g_s), s	20.6	0.0	8.8	0.2	13.1	3.2	3.3	0.0	2.8	3.4	2.3	9.2
Cycle Q Clear(g_c), s	20.6	0.0	8.8	0.2	13.1	3.2	3.3	0.0	2.8	3.4	2.3	9.2
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	1023	0	1026	9	506	430	95	0	284	96	290	1262
V/C Ratio(X)	0.89	0.00	0.35	0.42	0.67	0.19	0.78	0.00	0.25	0.78	0.21	0.38
Avail Cap(c_a), veh/h	1126	0	1026	109	506	430	120	0	407	120	414	1447
HCM 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
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.2	0.0	9.6	40.2	26.3	22.7	37.9	0.0	30.1	37.8	29.8	14.7
Incr Delay (d2), s/veh	8.7	0.0	0.9	27.5	6.9	1.0	21.9	0.0	0.5	22.2	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.0	0.0	4.6	0.2	7.6	1.5	2.2	0.0	1.5	2.3	1.2	3.6
LnGrp Delay(d),s/veh	36.0	0.0	10.6	67.7	33.1	23.7	59.7	0.0	30.6	60.1	30.2	14.8
LnGrp LOS	D		B	E	C	C	E		C	E	C	B
Approach Vol, veh/h		1274			424			146			616	
Approach Delay, s/veh		28.8			31.6			45.4			21.8	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	28.6	26.5	8.9	17.1	4.9	50.1	8.8	17.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	26.5	22.0	5.5	18.0	5.0	43.5	5.5	18.0
Max Q Clear Time (g_c+I1), s	22.6	15.1	5.4	4.8	2.2	10.8	5.3	11.2
Green Ext Time (p_c), s	1.5	1.3	0.0	0.2	0.0	2.4	0.0	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	28.5
HCM 2010 LOS	C

Notes

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	120	0	100			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.784			
Satd. Flow (perm)	1770	1583	1460	1863	1863	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		4				152
Link Speed (mph)	30			30	30	
Link Distance (ft)	1361			666	2655	
Travel Time (s)	30.9			15.1	60.3	

Intersection Summary	
Area Type:	Other

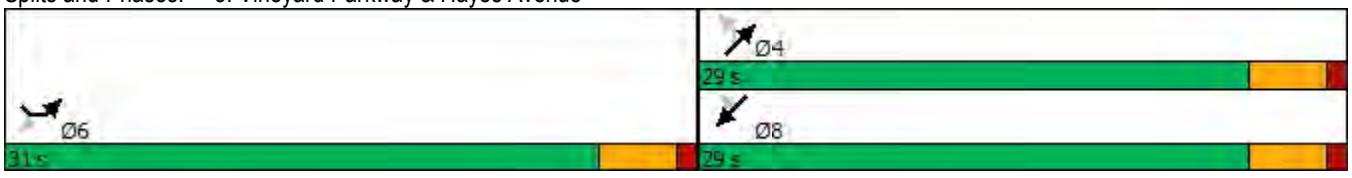
Lane Group	SEL	SER	NEL	NET	SWT	SWR
Traffic Volume (vph)	81	3	2	23	23	117
Future Volume (vph)	81	3	2	23	23	117
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	105	4	3	30	30	152
Shared Lane Traffic (%)						
Lane Group Flow (vph)	105	4	3	30	30	152

Intersection Summary

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	81	3	2	23	23	117
Future Volume (vph)	81	3	2	23	23	117
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	6			4	8	
Permitted Phases		6	4			8
Detector Phase	6	6	4	4	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	31.0	31.0	29.0	29.0	29.0	29.0
Total Split (%)	51.7%	51.7%	48.3%	48.3%	48.3%	48.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Min	Min	None	None	None	None
Act Effct Green (s)	12.7	12.7	6.2	6.2	6.2	6.2
Actuated g/C Ratio	0.50	0.50	0.25	0.25	0.25	0.25
v/c Ratio	0.12	0.00	0.01	0.07	0.07	0.30
Control Delay	5.9	4.0	6.0	6.5	6.5	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.9	4.0	6.0	6.5	6.5	3.3
LOS	A	A	A	A	A	A
Approach Delay	5.8			6.5	3.9	
Approach LOS	A			A	A	

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 25.2	
Natural Cycle: 45	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.30	
Intersection Signal Delay: 4.8	Intersection LOS: A
Intersection Capacity Utilization 18.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Vineyard Parkway & Hayes Avenue



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Group Flow (vph)	105	4	3	30	30	152
v/c Ratio	0.12	0.00	0.01	0.07	0.07	0.30
Control Delay	5.9	4.0	6.0	6.5	6.5	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.9	4.0	6.0	6.5	6.5	3.3
Queue Length 50th (ft)	7	0	0	2	2	0
Queue Length 95th (ft)	17	2	2	7	7	9
Internal Link Dist (ft)	1281			586	2575	
Turn Bay Length (ft)	120		100			
Base Capacity (vph)	1714	1533	1387	1769	1769	1511
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.00	0.00	0.02	0.02	0.10

Intersection Summary

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	81	3	2	23	23	117
Future Volume (veh/h)	81	3	2	23	23	117
Number	1	16	7	4	8	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	105	4	3	30	30	152
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	515	460	626	348	348	295
Arrive On Green	0.29	0.29	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1774	1583	1197	1863	1863	1583
Grp Volume(v), veh/h	105	4	3	30	30	152
Grp Sat Flow(s),veh/h/ln	1774	1583	1197	1863	1863	1583
Q Serve(g_s), s	0.8	0.0	0.0	0.2	0.2	1.5
Cycle Q Clear(g_c), s	0.8	0.0	0.3	0.2	0.2	1.5
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	515	460	626	348	348	295
V/C Ratio(X)	0.20	0.01	0.00	0.09	0.09	0.51
Avail Cap(c_a), veh/h	2731	2438	2106	2652	2652	2254
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	4.6	4.3	5.9	5.8	5.8	6.3
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.1	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	0.1	0.1	0.7
LnGrp Delay(d),s/veh	4.8	4.4	5.9	5.9	5.9	7.7
LnGrp LOS	A	A	A	A	A	A
Approach Vol, veh/h	109			33	182	
Approach Delay, s/veh	4.8			5.9	7.4	
Approach LOS	A			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				7.7		9.5		7.7
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				24.5		26.5		24.5
Max Q Clear Time (g_c+I1), s				2.3		2.8		3.5
Green Ext Time (p_c), s				0.1		0.3		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	6.4
HCM 2010 LOS	A

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	255		0	160		0	150		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.990			0.997				0.850		0.936	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3504	0	1770	3529	0	1770	1863	1583	1770	1744	0
Flt Permitted	0.950			0.950			0.952			0.952		
Satd. Flow (perm)	1770	3504	0	1770	3529	0	1773	1863	1583	1773	1744	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			4				105		30	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1310			2652			2655			1165	
Travel Time (s)		29.8			60.3			60.3			26.5	

Intersection Summary	
Area Type:	Other

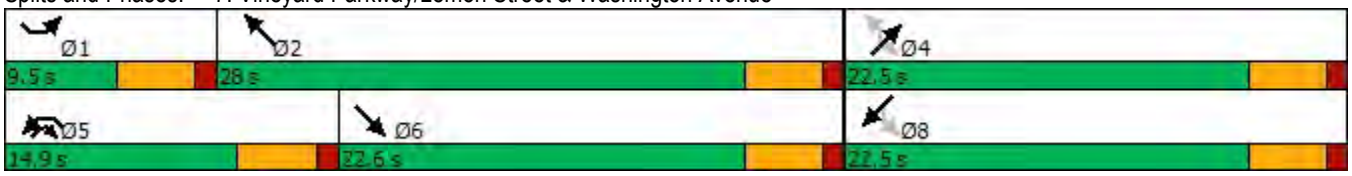
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	14	483	36	135	596	12	31	18	99	11	38	28
Future Volume (vph)	14	483	36	135	596	12	31	18	99	11	38	28
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	15	514	38	144	634	13	33	19	105	12	40	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	552	0	144	647	0	33	19	105	12	70	0

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NEL	NET	NER	SWL	SWT
Lane Configurations									
Traffic Volume (vph)	14	483	135	596	31	18	99	11	38
Future Volume (vph)	14	483	135	596	31	18	99	11	38
Turn Type	Prot	NA	Prot	NA	Perm	NA	pm+ov	Perm	NA
Protected Phases	1	6	5	2		4	5		8
Permitted Phases					4		4	8	
Detector Phase	1	6	5	2	4	4	5	8	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	22.6	14.9	28.0	22.5	22.5	14.9	22.5	22.5
Total Split (%)	15.8%	37.7%	24.8%	46.7%	37.5%	37.5%	24.8%	37.5%	37.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	Max	None	Max	None	None	None	None	None
Act Effct Green (s)	5.1	23.7	8.6	34.2	6.8	6.8	15.2	6.8	6.8
Actuated g/C Ratio	0.11	0.53	0.19	0.76	0.15	0.15	0.34	0.15	0.15
v/c Ratio	0.07	0.30	0.43	0.24	0.12	0.07	0.17	0.04	0.24
Control Delay	21.4	10.0	21.1	4.5	19.0	18.4	2.9	18.2	14.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.4	10.0	21.1	4.5	19.0	18.4	2.9	18.2	14.5
LOS	C	B	C	A	B	B	A	B	B
Approach Delay		10.3		7.5		8.2			15.1
Approach LOS		B		A		A			B

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 45	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.43	
Intersection Signal Delay: 9.0	Intersection LOS: A
Intersection Capacity Utilization 41.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 7: Vineyard Parkway/Lemon Street & Washington Avenue



Lane Group	SEL	SET	NWL	NWT	NEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	15	552	144	647	33	19	105	12	70
v/c Ratio	0.07	0.30	0.43	0.24	0.12	0.07	0.17	0.04	0.24
Control Delay	21.4	10.0	21.1	4.5	19.0	18.4	2.9	18.2	14.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.4	10.0	21.1	4.5	19.0	18.4	2.9	18.2	14.5
Queue Length 50th (ft)	4	54	35	27	8	5	0	3	10
Queue Length 95th (ft)	18	97	79	94	27	19	19	14	37
Internal Link Dist (ft)		1230		2572		2575			1085
Turn Bay Length (ft)	150		255		160			150	
Base Capacity (vph)	200	1851	417	2682	724	760	672	724	730
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.30	0.35	0.24	0.05	0.03	0.16	0.02	0.10

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	14	483	36	135	596	12	31	18	99	11	38	28
Future Volume (veh/h)	14	483	36	135	596	12	31	18	99	11	38	28
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	15	514	38	144	634	13	33	19	105	12	40	30
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	34	1557	115	188	1961	40	266	206	343	297	109	82
Arrive On Green	0.02	0.47	0.47	0.11	0.55	0.55	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1774	3342	247	1774	3547	73	1325	1863	1583	1262	990	742
Grp Volume(v), veh/h	15	272	280	144	316	331	33	19	105	12	0	70
Grp Sat Flow(s),veh/h/ln	1774	1770	1819	1774	1770	1850	1325	1863	1583	1262	0	1732
Q Serve(g_s), s	0.4	4.1	4.1	3.4	4.1	4.1	1.0	0.4	2.4	0.4	0.0	1.6
Cycle Q Clear(g_c), s	0.4	4.1	4.1	3.4	4.1	4.1	2.6	0.4	2.4	0.8	0.0	1.6
Prop In Lane	1.00		0.14	1.00		0.04	1.00		1.00	1.00		0.43
Lane Grp Cap(c), veh/h	34	825	848	188	978	1023	266	206	343	297	0	192
V/C Ratio(X)	0.44	0.33	0.33	0.77	0.32	0.32	0.12	0.09	0.31	0.04	0.00	0.37
Avail Cap(c_a), veh/h	209	825	848	434	978	1023	681	789	838	692	0	733
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.6	7.2	7.2	18.5	5.2	5.2	18.7	17.0	14.0	17.3	0.0	17.5
Incr Delay (d2), s/veh	8.8	1.1	1.0	6.4	0.9	0.8	0.2	0.2	0.5	0.1	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.2	2.3	2.0	2.3	2.4	0.4	0.2	1.1	0.1	0.0	0.8
LnGrp Delay(d),s/veh	29.4	8.2	8.2	24.9	6.1	6.0	18.9	17.2	14.5	17.4	0.0	18.7
LnGrp LOS	C	A	A	C	A	A	B	B	B	B		B
Approach Vol, veh/h		567			791			157			82	
Approach Delay, s/veh		8.8			9.5			15.7			18.5	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.3	28.0		9.2	9.0	24.3		9.2
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.0	23.5		18.0	10.4	18.1		18.0
Max Q Clear Time (g_c+I1), s	2.4	6.1		4.6	5.4	6.1		3.6
Green Ext Time (p_c), s	0.0	3.7		0.4	0.1	2.6		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	10.3
HCM 2010 LOS	B

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	200		0	100		100	105		0	150		150
Storage Lanes	2		0	1		1	1		0	1		2
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88
Ped Bike Factor												
Frt		0.981				0.850		0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1827	0	1770	1863	1583	1770	1835	0	1770	1863	2787
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1827	0	1770	1863	1583	1770	1835	0	1770	1863	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12				234		8				492
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2652			1695			1544			1371	
Travel Time (s)		60.3			38.5			35.1			31.2	

Intersection Summary	
Area Type:	Other

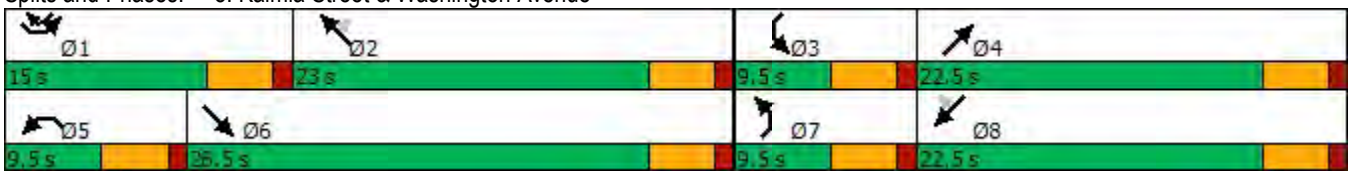
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	437	193	28	5	306	107	48	78	9	86	53	501
Future Volume (vph)	437	193	28	5	306	107	48	78	9	86	53	501
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	446	197	29	5	312	109	49	80	9	88	54	511
Shared Lane Traffic (%)												
Lane Group Flow (vph)	446	226	0	5	312	109	49	89	0	88	54	511

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	437	193	5	306	107	48	78	86	53	501
Future Volume (vph)	437	193	5	306	107	48	78	86	53	501
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	1	6	5	2		7	4	3	8	1
Permitted Phases					2					8
Detector Phase	1	6	5	2	2	7	4	3	8	1
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5
Total Split (s)	15.0	28.5	9.5	23.0	23.0	9.5	22.5	9.5	22.5	15.0
Total Split (%)	21.4%	40.7%	13.6%	32.9%	32.9%	13.6%	32.1%	13.6%	32.1%	21.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	10.4	34.2	5.2	19.3	19.3	5.2	8.1	5.2	9.9	22.0
Actuated g/C Ratio	0.19	0.61	0.09	0.35	0.35	0.09	0.14	0.09	0.18	0.39
v/c Ratio	0.70	0.20	0.03	0.48	0.16	0.30	0.33	0.53	0.16	0.37
Control Delay	30.7	9.3	26.8	20.4	0.5	31.9	25.1	42.3	23.5	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.7	9.3	26.8	20.4	0.5	31.9	25.1	42.3	23.5	2.5
LOS	C	A	C	C	A	C	C	D	C	A
Approach Delay		23.5		15.4			27.5		9.6	
Approach LOS		C		B			C		A	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 55.9	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 17.2	Intersection LOS: B
Intersection Capacity Utilization 51.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: Kalmia Street & Washington Avenue



Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Group Flow (vph)	446	226	5	312	109	49	89	88	54	511
v/c Ratio	0.70	0.20	0.03	0.48	0.16	0.30	0.33	0.53	0.16	0.37
Control Delay	30.7	9.3	26.8	20.4	0.5	31.9	25.1	42.3	23.5	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.7	9.3	26.8	20.4	0.5	31.9	25.1	42.3	23.5	2.5
Queue Length 50th (ft)	79	35	2	92	0	17	27	32	18	2
Queue Length 95th (ft)	#148	103	11	173	0	47	63	#94	45	29
Internal Link Dist (ft)		2572		1615			1464		1291	
Turn Bay Length (ft)	200		100		100	105		150		150
Base Capacity (vph)	673	1121	165	644	700	165	622	165	626	1415
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.20	0.03	0.48	0.16	0.30	0.14	0.53	0.09	0.36

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	437	193	28	5	306	107	48	78	9	86	53	501
Future Volume (veh/h)	437	193	28	5	306	107	48	78	9	86	53	501
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	446	197	29	5	312	109	49	80	9	88	54	511
Adj No. of Lanes	2	1	0	1	1	1	1	1	0	1	1	2
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	551	721	106	12	560	476	82	301	34	112	373	1005
Arrive On Green	0.16	0.45	0.45	0.01	0.30	0.30	0.05	0.18	0.18	0.06	0.20	0.20
Sat Flow, veh/h	3442	1588	234	1774	1863	1583	1774	1645	185	1774	1863	2787
Grp Volume(v), veh/h	446	0	226	5	312	109	49	0	89	88	54	511
Grp Sat Flow(s),veh/h/ln	1721	0	1821	1774	1863	1583	1774	0	1830	1774	1863	1393
Q Serve(g_s), s	7.7	0.0	4.8	0.2	8.7	3.2	1.7	0.0	2.6	3.0	1.5	8.8
Cycle Q Clear(g_c), s	7.7	0.0	4.8	0.2	8.7	3.2	1.7	0.0	2.6	3.0	1.5	8.8
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	551	0	827	12	560	476	82	0	335	112	373	1005
V/C Ratio(X)	0.81	0.00	0.27	0.42	0.56	0.23	0.60	0.00	0.27	0.78	0.14	0.51
Avail Cap(c_a), veh/h	587	0	827	144	560	476	144	0	535	144	545	1262
HCM 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
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.9	0.0	10.5	30.4	18.1	16.2	28.8	0.0	21.6	28.4	20.3	15.4
Incr Delay (d2), s/veh	7.9	0.0	0.8	22.3	4.0	1.1	6.8	0.0	0.4	18.9	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	0.0	2.6	0.2	5.0	1.5	1.0	0.0	1.3	2.1	0.8	3.4
LnGrp Delay(d),s/veh	32.8	0.0	11.3	52.7	22.0	17.3	35.6	0.0	22.0	47.3	20.4	15.8
LnGrp LOS	C		B	D	C	B	D		C	D	C	B
Approach Vol, veh/h		672			426			138			653	
Approach Delay, s/veh		25.6			21.2			26.8			20.4	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.4	23.0	8.4	15.8	4.9	32.4	7.3	16.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	18.5	5.0	18.0	5.0	24.0	5.0	18.0
Max Q Clear Time (g_c+I1), s	9.7	10.7	5.0	4.6	2.2	6.8	3.7	10.8
Green Ext Time (p_c), s	0.2	1.4	0.0	0.3	0.0	1.1	0.0	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	22.9
HCM 2010 LOS	C

Notes

Appendix J

Mitigated Project Buildout Year With Ambient Growth
With Cumulative Projects Plus Project Conditions
Intersection Analysis

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	120	0	100			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.564			
Satd. Flow (perm)	1770	1583	1051	1863	1863	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		7				570
Link Speed (mph)	30			30	30	
Link Distance (ft)	1361			666	2655	
Travel Time (s)	30.9			15.1	60.3	

Intersection Summary	
Area Type:	Other

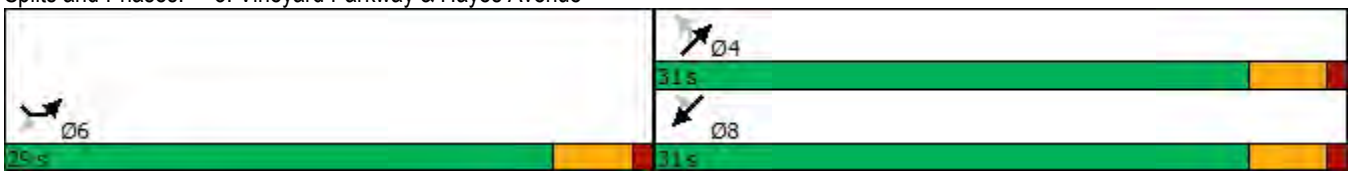
Lane Group	SEL	SER	NEL	NET	SWT	SWR
Traffic Volume (vph)	415	6	6	500	238	473
Future Volume (vph)	415	6	6	500	238	473
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	500	7	7	602	287	570
Shared Lane Traffic (%)						
Lane Group Flow (vph)	500	7	7	602	287	570

Intersection Summary

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	415	6	6	500	238	473
Future Volume (vph)	415	6	6	500	238	473
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	6			4	8	
Permitted Phases		6	4			8
Detector Phase	6	6	4	4	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	29.0	29.0	31.0	31.0	31.0	31.0
Total Split (%)	48.3%	48.3%	51.7%	51.7%	51.7%	51.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Min	Min	None	None	None	None
Act Effct Green (s)	18.4	18.4	20.4	20.4	20.4	20.4
Actuated g/C Ratio	0.38	0.38	0.42	0.42	0.42	0.42
v/c Ratio	0.74	0.01	0.02	0.77	0.37	0.57
Control Delay	21.6	6.8	9.5	20.5	11.8	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	6.8	9.5	20.5	11.8	3.8
LOS	C	A	A	C	B	A
Approach Delay	21.4			20.4	6.5	
Approach LOS	C			C	A	

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 48.4	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 14.6	Intersection LOS: B
Intersection Capacity Utilization 56.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: Vineyard Parkway & Hayes Avenue



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Group Flow (vph)	500	7	7	602	287	570
v/c Ratio	0.74	0.01	0.02	0.77	0.37	0.57
Control Delay	21.6	6.8	9.5	20.5	11.8	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	6.8	9.5	20.5	11.8	3.8
Queue Length 50th (ft)	121	0	1	139	53	0
Queue Length 95th (ft)	212	6	7	245	103	33
Internal Link Dist (ft)	1281			586	2575	
Turn Bay Length (ft)	120		100			
Base Capacity (vph)	954	857	613	1086	1086	1161
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.01	0.01	0.55	0.26	0.49

Intersection Summary

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	415	6	6	500	238	473
Future Volume (veh/h)	415	6	6	500	238	473
Number	1	16	7	4	8	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	500	7	7	602	287	570
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	604	539	392	821	821	698
Arrive On Green	0.34	0.34	0.44	0.44	0.44	0.44
Sat Flow, veh/h	1774	1583	642	1863	1863	1583
Grp Volume(v), veh/h	500	7	7	602	287	570
Grp Sat Flow(s),veh/h/ln	1774	1583	642	1863	1863	1583
Q Serve(g_s), s	10.7	0.1	0.3	11.0	4.2	13.0
Cycle Q Clear(g_c), s	10.7	0.1	4.5	11.0	4.2	13.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	604	539	392	821	821	698
V/C Ratio(X)	0.83	0.01	0.02	0.73	0.35	0.82
Avail Cap(c_a), veh/h	1055	941	522	1198	1198	1018
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.5	9.0	9.1	9.5	7.6	10.1
Incr Delay (d2), s/veh	3.0	0.0	0.0	1.3	0.3	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	0.1	0.1	5.8	2.2	6.2
LnGrp Delay(d),s/veh	15.4	9.0	9.1	10.8	7.9	13.5
LnGrp LOS	B	A	A	B	A	B
Approach Vol, veh/h	507			609	857	
Approach Delay, s/veh	15.4			10.8	11.6	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				22.7		18.5		22.7
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				26.5		24.5		26.5
Max Q Clear Time (g_c+I1), s				13.0		12.7		15.0
Green Ext Time (p_c), s				3.4		1.4		3.2

Intersection Summary	
HCM 2010 Ctrl Delay	12.3
HCM 2010 LOS	B

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	255		0	160		0	150		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.991			0.996				0.850		0.947	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3507	0	1770	3525	0	1770	1863	1583	1770	1764	0
Flt Permitted	0.950			0.950			0.463			0.626		
Satd. Flow (perm)	1770	3507	0	1770	3525	0	862	1863	1583	1166	1764	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			5				20		27	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1310			2652			2655			1165	
Travel Time (s)		29.8			60.3			60.3			26.5	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	28	717	44	579	388	11	43	114	790	14	106	57
Future Volume (vph)	28	717	44	579	388	11	43	114	790	14	106	57
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	30	779	48	629	422	12	47	124	859	15	115	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	827	0	629	434	0	47	124	859	15	177	0

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NEL	NET	NER	SWL	SWT
Lane Configurations									
Traffic Volume (vph)	28	717	579	388	43	114	790	14	106
Future Volume (vph)	28	717	579	388	43	114	790	14	106
Turn Type	Prot	NA	Prot	NA	Perm	NA	pm+ov	Perm	NA
Protected Phases	1	6	5	2		4	5		8
Permitted Phases					4		4	8	
Detector Phase	1	6	5	2	4	4	5	8	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	10.3	28.5	39.0	57.2	22.5	22.5	39.0	22.5	22.5
Total Split (%)	11.4%	31.7%	43.3%	63.6%	25.0%	25.0%	43.3%	25.0%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	Max	None	Max	None	None	None	None	None
Act Effct Green (s)	5.8	24.1	33.0	57.8	12.4	12.4	49.9	12.4	12.4
Actuated g/C Ratio	0.07	0.29	0.40	0.70	0.15	0.15	0.60	0.15	0.15
v/c Ratio	0.25	0.81	0.89	0.18	0.37	0.45	0.90	0.09	0.62
Control Delay	44.1	35.8	41.8	5.8	40.5	37.8	27.8	31.4	38.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.1	35.8	41.8	5.8	40.5	37.8	27.8	31.4	38.1
LOS	D	D	D	A	D	D	C	C	D
Approach Delay		36.1		27.1		29.6			37.6
Approach LOS		D		C		C			D

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 83.1	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 31.0	Intersection LOS: C
Intersection Capacity Utilization 85.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 7: Vineyard Parkway/Lemon Street & Washington Avenue

Lane Group	SEL	SET	NWL	NWT	NEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	30	827	629	434	47	124	859	15	177
v/c Ratio	0.25	0.81	0.89	0.18	0.37	0.45	0.90	0.09	0.62
Control Delay	44.1	35.8	41.8	5.8	40.5	37.8	27.8	31.4	38.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.1	35.8	41.8	5.8	40.5	37.8	27.8	31.4	38.1
Queue Length 50th (ft)	15	213	298	27	23	61	342	7	75
Queue Length 95th (ft)	44	#341	#552	79	55	112	#646	24	139
Internal Link Dist (ft)		1230		2572		2575			1085
Turn Bay Length (ft)	150		255		160			150	
Base Capacity (vph)	124	1023	739	2453	187	405	990	254	405
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.81	0.85	0.18	0.25	0.31	0.87	0.06	0.44

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	28	717	44	579	388	11	43	114	790	14	106	57
Future Volume (veh/h)	28	717	44	579	388	11	43	114	790	14	106	57
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	30	779	48	629	422	12	47	124	859	15	115	62
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	52	918	57	662	2161	61	218	379	913	165	232	125
Arrive On Green	0.03	0.27	0.27	0.37	0.61	0.61	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	1774	3387	209	1774	3515	100	1203	1863	1583	570	1140	615
Grp Volume(v), veh/h	30	407	420	629	212	222	47	124	859	15	0	177
Grp Sat Flow(s),veh/h/ln	1774	1770	1826	1774	1770	1845	1203	1863	1583	570	0	1754
Q Serve(g_s), s	1.5	19.3	19.3	30.5	4.6	4.7	3.2	5.0	18.0	2.0	0.0	7.9
Cycle Q Clear(g_c), s	1.5	19.3	19.3	30.5	4.6	4.7	11.1	5.0	18.0	7.1	0.0	7.9
Prop In Lane	1.00		0.11	1.00		0.05	1.00		1.00	1.00		0.35
Lane Grp Cap(c), veh/h	52	480	495	662	1088	1134	218	379	913	165	0	357
V/C Ratio(X)	0.57	0.85	0.85	0.95	0.20	0.20	0.22	0.33	0.94	0.09	0.00	0.50
Avail Cap(c_a), veh/h	116	480	495	691	1088	1134	218	379	913	165	0	357
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.4	30.5	30.5	27.0	7.5	7.5	36.2	30.1	17.4	33.1	0.0	31.2
Incr Delay (d2), s/veh	9.5	16.8	16.4	22.3	0.4	0.4	0.5	0.5	17.3	0.2	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	11.6	11.9	19.0	2.4	2.5	1.1	2.6	23.6	0.3	0.0	3.9
LnGrp Delay(d),s/veh	52.0	47.4	47.0	49.3	7.9	7.9	36.7	30.6	34.7	33.4	0.0	32.3
LnGrp LOS	D	D	D	D	A	A	D	C	C	C		C
Approach Vol, veh/h		857			1063			1030			192	
Approach Delay, s/veh		47.3			32.4			34.3			32.4	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.1	58.9		22.5	37.5	28.5		22.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.8	52.7		18.0	34.5	24.0		18.0
Max Q Clear Time (g_c+I1), s	3.5	6.7		20.0	32.5	21.3		9.9
Green Ext Time (p_c), s	0.0	2.8		0.0	0.5	1.4		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	37.1
HCM 2010 LOS	D

Notes

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	200		0	100		100	105		0	150		150
Storage Lanes	2		0	1		1	1		0	1		2
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88
Ped Bike Factor												
Frt		0.986				0.850		0.991				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1837	0	1770	1863	1583	1770	1846	0	1770	1863	2787
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1837	0	1770	1863	1583	1770	1846	0	1770	1863	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8				136		2				163
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2652			1695			1544			1371	
Travel Time (s)		60.3			38.5			35.1			31.2	

Intersection Summary	
Area Type:	Other

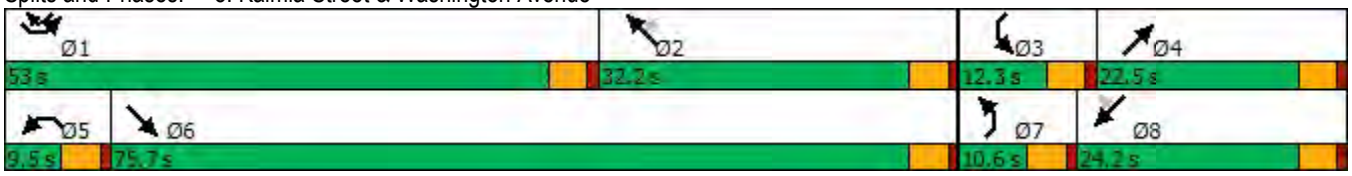
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	1206	392	40	3	386	125	64	111	7	94	69	604
Future Volume (vph)	1206	392	40	3	386	125	64	111	7	94	69	604
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	1419	461	47	4	454	147	75	131	8	111	81	711
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1419	508	0	4	454	147	75	139	0	111	81	711

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	1206	392	3	386	125	64	111	94	69	604
Future Volume (vph)	1206	392	3	386	125	64	111	94	69	604
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	1	6	5	2		7	4	3	8	1
Permitted Phases					2					8
Detector Phase	1	6	5	2	2	7	4	3	8	1
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5
Total Split (s)	53.0	75.7	9.5	32.2	32.2	10.6	22.5	12.3	24.2	53.0
Total Split (%)	44.2%	63.1%	7.9%	26.8%	26.8%	8.8%	18.8%	10.3%	20.2%	44.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	48.5	78.9	5.0	27.7	27.7	9.2	13.5	7.8	14.4	65.2
Actuated g/C Ratio	0.42	0.68	0.04	0.24	0.24	0.08	0.12	0.07	0.12	0.56
v/c Ratio	0.98	0.40	0.05	1.02	0.30	0.54	0.64	0.93	0.35	0.43
Control Delay	54.3	10.1	56.3	91.4	9.4	69.1	61.6	120.9	49.6	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.3	10.1	56.3	91.4	9.4	69.1	61.6	120.9	49.6	11.2
LOS	D	B	E	F	A	E	E	F	D	B
Approach Delay		42.6		71.2			64.2		28.1	
Approach LOS		D		E			E		C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 115.6	
Natural Cycle: 130	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 45.0	Intersection LOS: D
Intersection Capacity Utilization 77.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 8: Kalmia Street & Washington Avenue



Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Group Flow (vph)	1419	508	4	454	147	75	139	111	81	711
v/c Ratio	0.98	0.40	0.05	1.02	0.30	0.54	0.64	0.93	0.35	0.43
Control Delay	54.3	10.1	56.3	91.4	9.4	69.1	61.6	120.9	49.6	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.3	10.1	56.3	91.4	9.4	69.1	61.6	120.9	49.6	11.2
Queue Length 50th (ft)	530	139	3	~351	6	56	99	84	55	114
Queue Length 95th (ft)	#664	263	15	#538	52	#137	155	#189	98	142
Internal Link Dist (ft)		2572		1615			1464		1291	
Turn Bay Length (ft)	200		100		100	105		150		150
Base Capacity (vph)	1441	1256	76	446	483	140	289	119	317	1642
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.40	0.05	1.02	0.30	0.54	0.48	0.93	0.26	0.43

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	1206	392	40	3	386	125	64	111	7	94	69	604
Future Volume (veh/h)	1206	392	40	3	386	125	64	111	7	94	69	604
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	1419	461	47	4	454	147	75	131	8	111	81	711
Adj No. of Lanes	2	1	0	1	1	1	1	1	0	1	1	2
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1391	1048	107	9	430	365	90	261	16	115	306	1584
Arrive On Green	0.40	0.63	0.63	0.01	0.23	0.23	0.05	0.15	0.15	0.07	0.16	0.16
Sat Flow, veh/h	3442	1663	170	1774	1863	1583	1774	1738	106	1774	1863	2787
Grp Volume(v), veh/h	1419	0	508	4	454	147	75	0	139	111	81	711
Grp Sat Flow(s),veh/h/ln	1721	0	1833	1774	1863	1583	1774	0	1844	1774	1863	1393
Q Serve(g_s), s	48.5	0.0	17.0	0.3	27.7	9.4	5.0	0.0	8.3	7.5	4.6	17.7
Cycle Q Clear(g_c), s	48.5	0.0	17.0	0.3	27.7	9.4	5.0	0.0	8.3	7.5	4.6	17.7
Prop In Lane	1.00		0.09	1.00		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	1391	0	1154	9	430	365	90	0	277	115	306	1584
V/C Ratio(X)	1.02	0.00	0.44	0.43	1.06	0.40	0.83	0.00	0.50	0.96	0.26	0.45
Avail Cap(c_a), veh/h	1391	0	1154	74	430	365	90	0	277	115	306	1584
HCM 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
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	0.0	11.4	59.5	46.1	39.1	56.4	0.0	46.9	56.0	43.8	15.0
Incr Delay (d2), s/veh	29.3	0.0	1.2	29.0	58.9	3.3	45.4	0.0	1.4	71.8	0.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	28.7	0.0	9.0	0.2	21.2	4.5	3.6	0.0	4.4	6.0	2.4	6.8
LnGrp Delay(d),s/veh	65.1	0.0	12.6	88.5	105.1	42.4	101.8	0.0	48.3	127.8	44.3	15.2
LnGrp LOS	F		B	F	F	D	F		D	F	D	B
Approach Vol, veh/h		1927			605			214			903	
Approach Delay, s/veh		51.2			89.7			67.1			31.7	
Approach LOS		D			F			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	53.0	32.2	12.3	22.5	5.1	80.1	10.6	24.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	48.5	27.7	7.8	18.0	5.0	71.2	6.1	19.7
Max Q Clear Time (g_c+I1), s	50.5	29.7	9.5	10.3	2.3	19.0	7.0	19.7
Green Ext Time (p_c), s	0.0	0.0	0.0	0.4	0.0	3.8	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	53.7
HCM 2010 LOS	D

Notes

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	120	0	100			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.280			
Satd. Flow (perm)	1770	1583	522	1863	1863	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		4				152
Link Speed (mph)	30			30	30	
Link Distance (ft)	1361			666	2655	
Travel Time (s)	30.9			15.1	60.3	

Intersection Summary	
Area Type:	Other

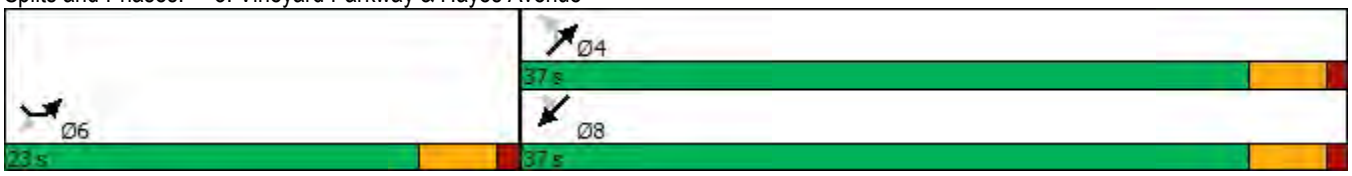
Lane Group	SEL	SER	NEL	NET	SWT	SWR
Traffic Volume (vph)	81	3	2	315	532	117
Future Volume (vph)	81	3	2	315	532	117
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	105	4	3	409	691	152
Shared Lane Traffic (%)						
Lane Group Flow (vph)	105	4	3	409	691	152

Intersection Summary

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	81	3	2	315	532	117
Future Volume (vph)	81	3	2	315	532	117
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	6			4	8	
Permitted Phases		6	4			8
Detector Phase	6	6	4	4	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	23.0	23.0	37.0	37.0	37.0	37.0
Total Split (%)	38.3%	38.3%	61.7%	61.7%	61.7%	61.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Min	Min	None	None	None	None
Act Effct Green (s)	8.2	8.2	20.4	20.4	20.4	20.4
Actuated g/C Ratio	0.21	0.21	0.53	0.53	0.53	0.53
v/c Ratio	0.28	0.01	0.01	0.41	0.69	0.17
Control Delay	17.2	11.3	4.0	6.5	10.6	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.2	11.3	4.0	6.5	10.6	1.5
LOS	B	B	A	A	B	A
Approach Delay	17.0			6.4	9.0	
Approach LOS	B			A	A	

Intersection Summary			
Cycle Length: 60			
Actuated Cycle Length: 38.2			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 8.9		Intersection LOS: A	
Intersection Capacity Utilization 40.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Vineyard Parkway & Hayes Avenue



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Group Flow (vph)	105	4	3	409	691	152
v/c Ratio	0.28	0.01	0.01	0.41	0.69	0.17
Control Delay	17.2	11.3	4.0	6.5	10.6	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.2	11.3	4.0	6.5	10.6	1.5
Queue Length 50th (ft)	18	0	0	39	83	0
Queue Length 95th (ft)	52	5	2	73	142	10
Internal Link Dist (ft)	1281			586	2575	
Turn Bay Length (ft)	120		100			
Base Capacity (vph)	916	821	441	1574	1574	1361
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.00	0.01	0.26	0.44	0.11

Intersection Summary

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	81	3	2	315	532	117
Future Volume (veh/h)	81	3	2	315	532	117
Number	1	16	7	4	8	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	105	4	3	409	691	152
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	297	265	407	989	989	841
Arrive On Green	0.17	0.17	0.53	0.53	0.53	0.53
Sat Flow, veh/h	1774	1583	650	1863	1863	1583
Grp Volume(v), veh/h	105	4	3	409	691	152
Grp Sat Flow(s),veh/h/ln	1774	1583	650	1863	1863	1583
Q Serve(g_s), s	1.6	0.1	0.1	3.9	8.3	1.5
Cycle Q Clear(g_c), s	1.6	0.1	8.4	3.9	8.3	1.5
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	297	265	407	989	989	841
V/C Ratio(X)	0.35	0.02	0.01	0.41	0.70	0.18
Avail Cap(c_a), veh/h	1099	981	769	2028	2028	1724
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.0	10.4	8.3	4.2	5.2	3.6
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.3	0.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	2.0	4.3	0.7
LnGrp Delay(d),s/veh	11.7	10.4	8.3	4.5	6.1	3.7
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	109			412	843	
Approach Delay, s/veh	11.7			4.5	5.7	
Approach LOS	B			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				20.4		9.5		20.4
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				32.5		18.5		32.5
Max Q Clear Time (g_c+I1), s				10.4		3.6		10.3
Green Ext Time (p_c), s				2.6		0.2		5.6

Intersection Summary	
HCM 2010 Ctrl Delay	5.8
HCM 2010 LOS	A

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	150		0	255		0	160		0	150		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.992			0.998				0.850		0.941	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3511	0	1770	3532	0	1770	1863	1583	1770	1753	0
Flt Permitted	0.950			0.950			0.566			0.727		
Satd. Flow (perm)	1770	3511	0	1770	3532	0	1054	1863	1583	1354	1753	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			3				26		33	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1310			2652			2655			1165	
Travel Time (s)		29.8			60.3			60.3			26.5	

Intersection Summary	
Area Type:	Other

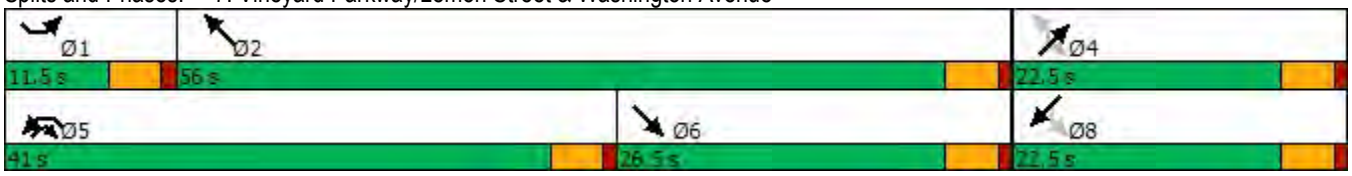
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	51	635	36	601	753	12	31	43	367	11	81	53
Future Volume (vph)	51	635	36	601	753	12	31	43	367	11	81	53
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	54	676	38	639	801	13	33	46	390	12	86	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	54	714	0	639	814	0	33	46	390	12	142	0

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NEL	NET	NER	SWL	SWT
Lane Configurations									
Traffic Volume (vph)	51	635	601	753	31	43	367	11	81
Future Volume (vph)	51	635	601	753	31	43	367	11	81
Turn Type	Prot	NA	Prot	NA	Perm	NA	pm+ov	Perm	NA
Protected Phases	1	6	5	2		4	5		8
Permitted Phases					4		4	8	
Detector Phase	1	6	5	2	4	4	5	8	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	11.5	26.5	41.0	56.0	22.5	22.5	41.0	22.5	22.5
Total Split (%)	12.8%	29.4%	45.6%	62.2%	25.0%	25.0%	45.6%	25.0%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	Max	None	Max	None	None	None	None	None
Act Effct Green (s)	6.7	22.8	32.5	53.4	10.4	10.4	47.5	10.4	10.4
Actuated g/C Ratio	0.08	0.29	0.41	0.67	0.13	0.13	0.60	0.13	0.13
v/c Ratio	0.36	0.71	0.88	0.34	0.24	0.19	0.41	0.07	0.55
Control Delay	44.1	31.4	37.5	7.3	36.1	33.2	8.8	31.6	33.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.1	31.4	37.5	7.3	36.1	33.2	8.8	31.6	33.7
LOS	D	C	D	A	D	C	A	C	C
Approach Delay		32.3		20.6		13.1			33.5
Approach LOS		C		C		B			C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 79.3	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 23.2	Intersection LOS: C
Intersection Capacity Utilization 78.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 7: Vineyard Parkway/Lemon Street & Washington Avenue



Lane Group	SEL	SET	NWL	NWT	NEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	54	714	639	814	33	46	390	12	142
v/c Ratio	0.36	0.71	0.88	0.34	0.24	0.19	0.41	0.07	0.55
Control Delay	44.1	31.4	37.5	7.3	36.1	33.2	8.8	31.6	33.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.1	31.4	37.5	7.3	36.1	33.2	8.8	31.6	33.7
Queue Length 50th (ft)	27	176	278	96	16	22	83	6	53
Queue Length 95th (ft)	66	#264	#518	153	42	52	133	21	109
Internal Link Dist (ft)		1230		2572		2575			1085
Turn Bay Length (ft)	150		255		160			150	
Base Capacity (vph)	157	1011	822	2377	241	426	1042	310	427
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.71	0.78	0.34	0.14	0.11	0.37	0.04	0.33

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	51	635	36	601	753	12	31	43	367	11	81	53
Future Volume (veh/h)	51	635	36	601	753	12	31	43	367	11	81	53
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	54	676	38	639	801	13	33	46	390	12	86	56
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	76	942	53	683	2205	36	215	328	889	234	186	121
Arrive On Green	0.04	0.28	0.28	0.39	0.62	0.62	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1774	3407	191	1774	3564	58	1241	1863	1583	949	1055	687
Grp Volume(v), veh/h	54	351	363	639	398	416	33	46	390	12	0	142
Grp Sat Flow(s),veh/h/ln	1774	1770	1829	1774	1770	1853	1241	1863	1583	949	0	1742
Q Serve(g_s), s	2.5	14.9	14.9	28.8	9.2	9.2	2.0	1.7	11.9	0.9	0.0	6.1
Cycle Q Clear(g_c), s	2.5	14.9	14.9	28.8	9.2	9.2	8.1	1.7	11.9	2.6	0.0	6.1
Prop In Lane	1.00		0.10	1.00		0.03	1.00		1.00	1.00		0.39
Lane Grp Cap(c), veh/h	76	489	505	683	1095	1146	215	328	889	234	0	307
V/C Ratio(X)	0.71	0.72	0.72	0.94	0.36	0.36	0.15	0.14	0.44	0.05	0.00	0.46
Avail Cap(c_a), veh/h	149	489	505	778	1095	1146	264	403	952	272	0	377
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.3	27.2	27.2	24.6	7.8	7.8	34.4	29.0	10.6	30.1	0.0	30.7
Incr Delay (d2), s/veh	11.5	8.7	8.5	17.2	0.9	0.9	0.3	0.2	0.3	0.1	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	8.4	8.7	17.3	4.7	4.9	0.7	0.9	5.2	0.2	0.0	3.0
LnGrp Delay(d),s/veh	50.9	35.9	35.7	41.8	8.7	8.7	34.7	29.1	11.0	30.2	0.0	31.8
LnGrp LOS	D	D	D	D	A	A	C	C	B	C		C
Approach Vol, veh/h		768			1453			469			154	
Approach Delay, s/veh		36.9			23.3			14.4			31.7	
Approach LOS		D			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.1	56.0		19.2	36.6	27.5		19.2
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	7.0	51.5		18.0	36.5	22.0		18.0
Max Q Clear Time (g_c+I1), s	4.5	11.2		13.9	30.8	16.9		8.1
Green Ext Time (p_c), s	0.0	6.0		0.7	1.3	2.0		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	25.9
HCM 2010 LOS	C

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	200		0	100		100	105		0	150		150
Storage Lanes	2		0	1		1	1		0	1		2
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88
Ped Bike Factor												
Frt		0.988				0.850		0.989				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1840	0	1770	1863	1583	1770	1842	0	1770	1863	2787
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1840	0	1770	1863	1583	1770	1842	0	1770	1863	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				182		4				312
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2652			1695			1544			1371	
Travel Time (s)		60.3			38.5			35.1			31.2	

Intersection Summary	
Area Type:	Other

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Traffic Volume (vph)	712	353	30	7	489	183	49	121	10	177	126	958
Future Volume (vph)	712	353	30	7	489	183	49	121	10	177	126	958
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	727	360	31	7	499	187	50	123	10	181	129	978
Shared Lane Traffic (%)												
Lane Group Flow (vph)	727	391	0	7	499	187	50	133	0	181	129	978

Intersection Summary

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	712	353	7	489	183	49	121	177	126	958
Future Volume (vph)	712	353	7	489	183	49	121	177	126	958
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	1	6	5	2		7	4	3	8	1
Permitted Phases					2					8
Detector Phase	1	6	5	2	2	7	4	3	8	1
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5
Total Split (s)	24.0	43.8	9.5	29.3	29.3	11.3	22.5	14.2	25.4	24.0
Total Split (%)	26.7%	48.7%	10.6%	32.6%	32.6%	12.6%	25.0%	15.8%	28.2%	26.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	19.5	47.1	5.0	24.8	24.8	6.5	11.1	9.7	18.7	42.7
Actuated g/C Ratio	0.23	0.57	0.06	0.30	0.30	0.08	0.13	0.12	0.22	0.51
v/c Ratio	0.90	0.37	0.07	0.90	0.31	0.36	0.53	0.88	0.31	0.62
Control Delay	48.0	12.5	39.9	50.3	5.8	45.2	40.6	77.0	31.0	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.0	12.5	39.9	50.3	5.8	45.2	40.6	77.0	31.0	12.1
LOS	D	B	D	D	A	D	D	E	C	B
Approach Delay		35.6		38.2			41.8		23.1	
Approach LOS		D		D			D		C	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 83.2	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 31.6	Intersection LOS: C
Intersection Capacity Utilization 77.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 8: Kalmia Street & Washington Avenue

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Group Flow (vph)	727	391	7	499	187	50	133	181	129	978
v/c Ratio	0.90	0.37	0.07	0.90	0.31	0.36	0.53	0.88	0.31	0.62
Control Delay	48.0	12.5	39.9	50.3	5.8	45.2	40.6	77.0	31.0	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.0	12.5	39.9	50.3	5.8	45.2	40.6	77.0	31.0	12.1
Queue Length 50th (ft)	190	96	4	248	2	25	64	94	61	147
Queue Length 95th (ft)	#317	222	17	#462	50	63	118	#225	112	218
Internal Link Dist (ft)		2572		1615			1464		1291	
Turn Bay Length (ft)	200		100		100	105		150		150
Base Capacity (vph)	805	1043	106	556	600	144	402	206	481	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.37	0.07	0.90	0.31	0.35	0.33	0.88	0.27	0.62

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	712	353	30	7	489	183	49	121	10	177	126	958
Future Volume (veh/h)	712	353	30	7	489	183	49	121	10	177	126	958
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	727	360	31	7	499	187	50	123	10	181	129	978
Adj No. of Lanes	2	1	0	1	1	1	1	1	0	1	1	2
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	774	849	73	16	533	453	72	288	23	198	449	1299
Arrive On Green	0.22	0.50	0.50	0.01	0.29	0.29	0.04	0.17	0.17	0.11	0.24	0.24
Sat Flow, veh/h	3442	1691	146	1774	1863	1583	1774	1700	138	1774	1863	2787
Grp Volume(v), veh/h	727	0	391	7	499	187	50	0	133	181	129	978
Grp Sat Flow(s),veh/h/ln	1721	0	1837	1774	1863	1583	1774	0	1838	1774	1863	1393
Q Serve(g_s), s	18.0	0.0	11.7	0.3	22.6	8.3	2.4	0.0	5.6	8.7	4.9	20.9
Cycle Q Clear(g_c), s	18.0	0.0	11.7	0.3	22.6	8.3	2.4	0.0	5.6	8.7	4.9	20.9
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	774	0	922	16	533	453	72	0	312	198	449	1299
V/C Ratio(X)	0.94	0.00	0.42	0.44	0.94	0.41	0.70	0.00	0.43	0.91	0.29	0.75
Avail Cap(c_a), veh/h	774	0	922	102	533	453	139	0	382	198	449	1299
HCM 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
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.0	0.0	13.7	42.7	30.2	25.1	41.1	0.0	32.2	38.1	26.8	19.0
Incr Delay (d2), s/veh	19.1	0.0	1.4	18.0	26.1	2.8	11.6	0.0	0.9	40.2	0.3	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.6	0.0	6.2	0.2	15.5	4.0	1.4	0.0	2.9	6.5	2.6	10.0
LnGrp Delay(d),s/veh	52.1	0.0	15.1	60.8	56.2	27.8	52.6	0.0	33.2	78.3	27.2	21.6
LnGrp LOS	D		B	E	E	C	D		C	E	C	C
Approach Vol, veh/h		1118			693			183			1288	
Approach Delay, s/veh		39.2			48.6			38.5			30.1	
Approach LOS		D			D			D			C	

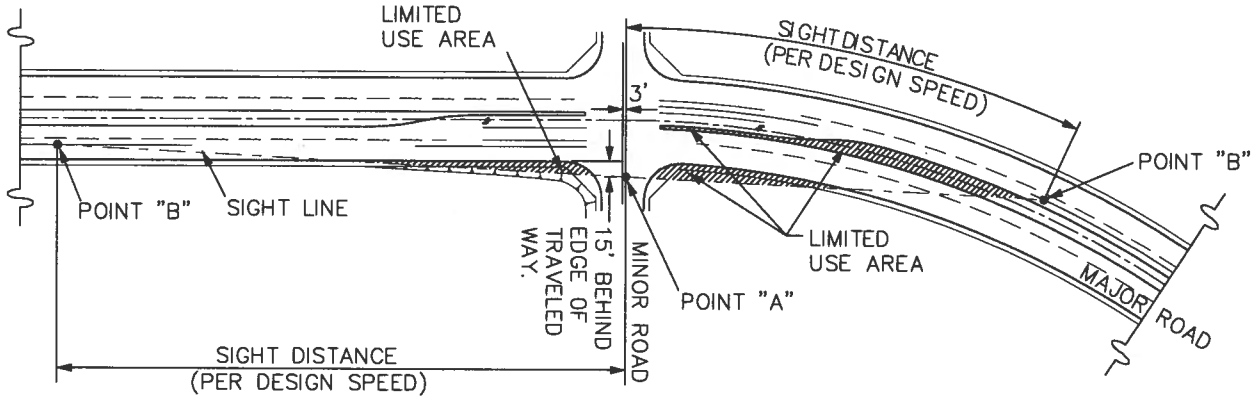
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.0	29.3	14.2	19.2	5.3	48.0	8.0	25.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	19.5	24.8	9.7	18.0	5.0	39.3	6.8	20.9
Max Q Clear Time (g_c+I1), s	20.0	24.6	10.7	7.6	2.3	13.7	4.4	22.9
Green Ext Time (p_c), s	0.0	0.1	0.0	0.4	0.0	2.5	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	37.6
HCM 2010 LOS	D

Notes

Appendix K

City of Murrieta Sight Distance Standards



LEGEND:

- LIMITED USE AREA
- SIGHT LINE
- CENTERLINE OF ROADWAY
- CENTERLINE OF TRAFFIC LANE

POINT "A": DRIVER'S VANTAGE POINT.

POINT "B": THE REQUIRED SIGHT DISTANCE POINT, MEASURED ALONG THE CENTERLINE OF THE NEAREST LANE OF APPROACHING TRAFFIC.

DESIGN SPEED (M.P.H.)	CORNER SIGHT DIST. (FT.)	STOPPING SIGHT DIST. (FT.)
25	275	150
30	330	200
35	385	250
40	440	300
45	495	360
50	550	430
55	605	500
60	660	580

NOTES: NOT TO SCALE

1. THE LIMITED USE AREA IS DETERMINED BY THE GRAPHICAL METHOD. IT SHALL BE USED FOR THE PURPOSE OF PROHIBITING OR CLEARING OBSTRUCTIONS TO MAINTAIN ADEQUATE SIGHT DISTANCE AT INTERSECTIONS.
2. LIMITED USE AREA TO BE KEPT CLEAR OF ALL OBSTRUCTIONS OVER 30 INCHES HIGH, INCLUDING VEGETATION.
3. NO TREES, WALLS, OR ANY OBSTRUCTIONS SHALL BE ALLOWED IN THE LIMITED USE AREA.
4. THE TOE OF SLOPE SHALL NOT ENCROACH INTO THE LIMITED USE AREA
5. THE SIGHT DISTANCE SHALL BE MEASURED ALONG THE CENTERLINE OF THE ROAD.
6. POINT "A" IS THE LOCATION OF THE DRIVER'S EYE, MEASURED 15 FEET BACK FROM THE EDGE OF THE TRAVELED WAY. (6 FEET FROM ETW, 1 FOOT STOP BAR, AND 8 FEET FROM FRONT BUMPER TO DRIVER.) IF THE STOP BAR IS MORE THAN 6 FEET FROM THE ETW, ADDITIONAL ALLOWANCE SHOULD BE CONSIDERED.
7. POINT "B" IS THE REQUIRED SIGHT DISTANCE POINT LOCATED ALONG THE CENTER OF THE NEAREST TRAFFIC LANE.
8. THE LINE OF SIGHT SHALL BE SHOWN AT INTERSECTIONS ON TENTATIVE MAPS, SITE PLANS, GRADING PLANS, STREET PLANS, AND LANDSCAPE PLANS.
9. CORNER SIGHT DISTANCE IS MEASURED FROM A 3.5 FOOT HEIGHT AT THE LOCATION OF THE DRIVER'S EYE ON THE MINOR ROAD, TO A 4.25 FOOT OBJECT HEIGHT IN THE CENTER OF THE NEAREST TRAFFIC LANE OF THE MAJOR ROAD.
10. WHEN AN INTERSECTION IS LOCATED ON A VERTICAL CURVE, A PROFILE OF THE SIGHT LINE SHALL BE PROVIDED.
11. IF DESIGNING A MINOR ROAD OR DRIVEWAY FOR TRUCK TRAFFIC, OR DOWNGRADES STEEPER THAN 3% AND LONGER THAN 1 MILE, ADDITIONAL SIGHT DISTANCE MAY BE REQUIRED AS DETERMINED BY THE CITY ENGINEER.

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS
5/92

APPROVED 1/14/10

INTERSECTION SIGHT DISTANCE

STD. NO.
214