HEXAGON TRANSPORTATION CONSULTANTS, INC.

Memorandum

Date: April 25, 2018

To: Mr. Matt Nelson

From: Brett Walinski, T.E.
Eric Tse, P.E.

Subject: Traffic Impact Analysis for 6455 Owens Drive Retail/Restaurant Development

Introduction

Hexagon Transportation Consultants, Inc. has completed this supplemental traffic impact analysis for the proposed restaurant and retail development located at 6455 Owens Drive in Pleasanton, California. The project site was previously occupied by a Denny's restaurant which is currently closed. In April 2016, Hexagon prepared a traffic analysis for a previously proposed coffee shop and retail project at the subject site. Since that analysis was completed, a new project has been proposed at the same site which would construct a mixed-use building comprising 6,000 square feet of retail space and 4,980 square feet of restaurant. Primary access to the project site would be provided via Johnson Court and an existing Larkspur Landing Driveway approximately 250 feet to the west on Owens Drive. The project location and study intersections are shown on Figure 1, and the project site plan is shown on Figure 2.

Scope of Study

This study was conducted for the purpose of identifying the potential off-site traffic impacts and potential impacts to onsite access and circulation. The potential impacts of the project were evaluated in accordance with the standards set forth by the City of Pleasanton. Two signalized intersections and two unsignalized intersections were evaluated. The study intersections are identified below.

1. Johnson Drive and Owens Drive South (Signalized)
2. Owens Drive and Larkspur Landing Driveway (Unsignalized)
3. Owens Drive and Johnson Court (Unsignalized)
4. Hopyard Road and Owens Drive (Signalized)

Traffic conditions at the study intersections were analyzed for the weekday AM and PM peak hours of traffic. The AM peak hour is typically between 7:00 and 9:00 AM and the PM peak hour is typically between 4:00 and 6:00 PM. It is during these periods that the most congested traffic conditions occur on an average day. The operations of the study intersections were evaluated for the following scenarios:

Scenario 1: *Existing Conditions.* Existing traffic volumes for the study intersections are based on traffic counts collected in April 2018, with the exception of the traffic counts for the intersection at Hopyard Road and Owens Drive, which were supplied by the City of Pleasanton and were collected in March 2017.

Scenario 2: *Existing Plus Project Conditions.* Existing plus project conditions were estimated by adding to existing traffic volumes the additional traffic generated by the project. Pass-by trips were assigned to and from Hopyard Road at the study intersections to account for trips that already exist on the roadway network but would stop at the project site on route to another destination. Existing plus project conditions were evaluated relative to existing conditions in order to determine potential project impacts.

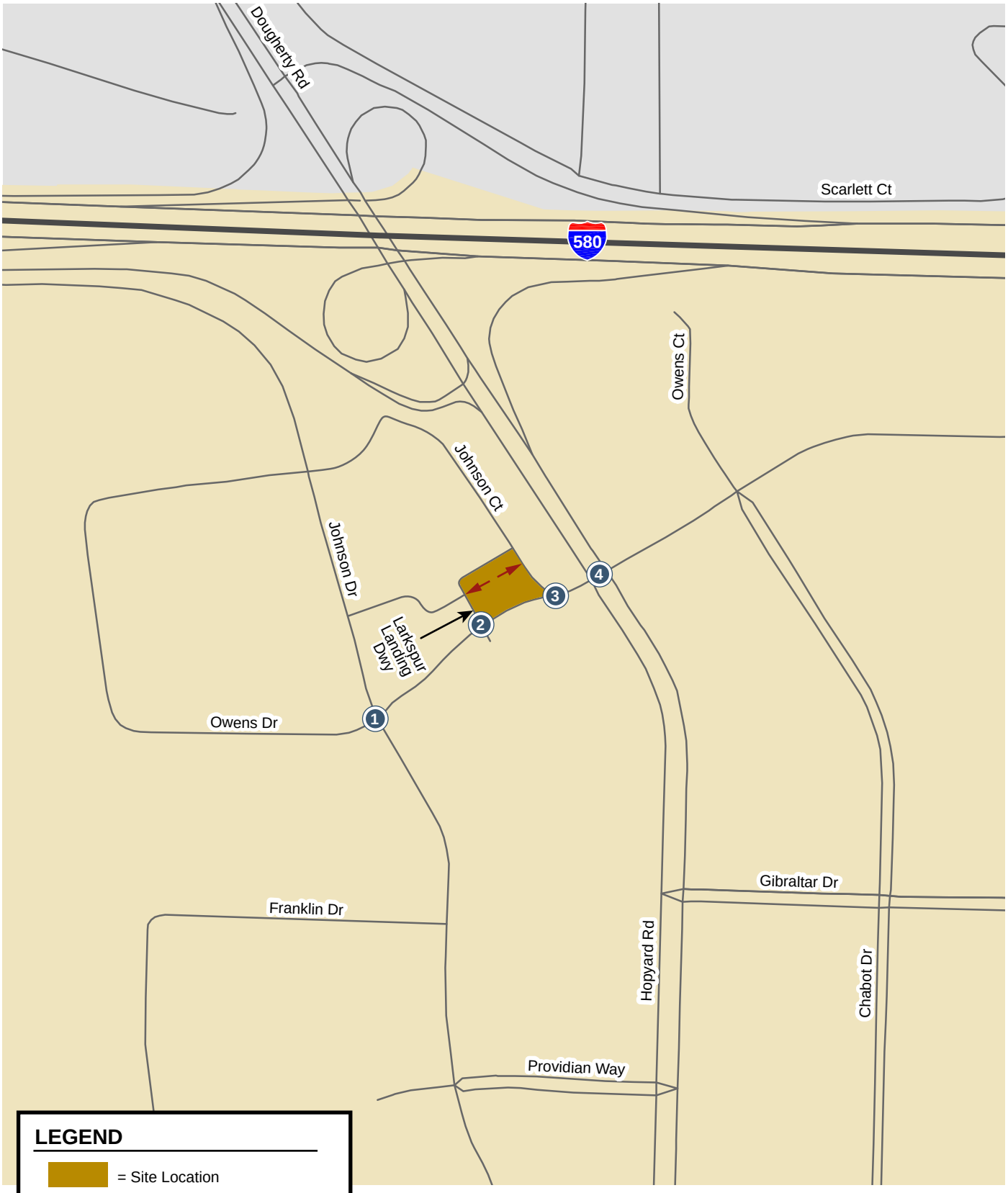


Figure 1
Site Location and Study Intersections

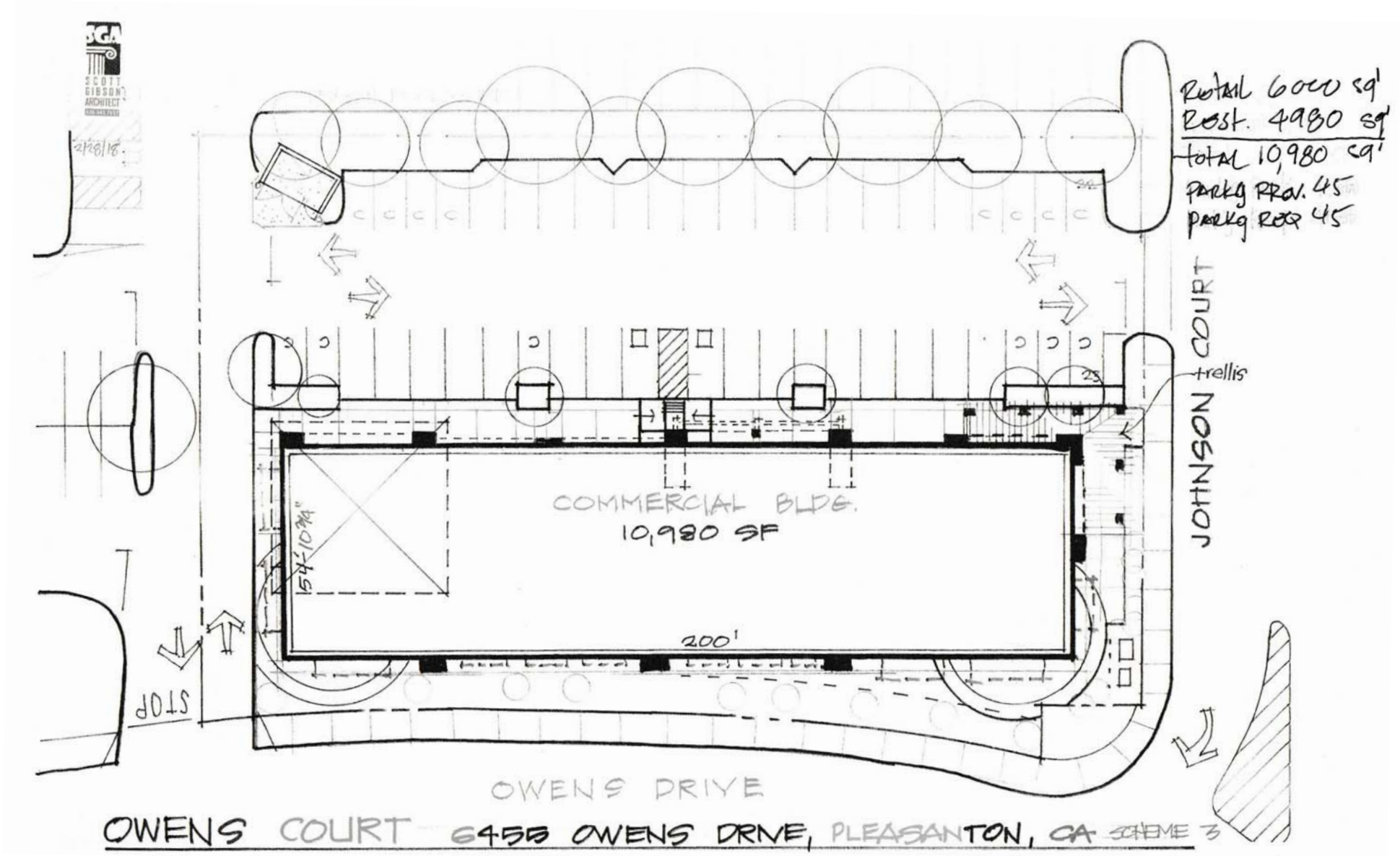


Figure 2
Site Plan

NORTH
Not to Scale

Scenario 3: *Background Conditions*. Traffic volumes were estimated using 2018 traffic counts plus the incremental near-term growth from the City's Synchro database, including all approved development and assuming the construction of the Economic Development Zone (EDZ). In addition, traffic generated from the previous Denny's restaurant at the project site was estimated using ITE Trip Generation rates and also included as part of the approved trips. The near-term project conditions were estimated by adding the traffic generated by the project, minus the trips generated by Denny's, to the background traffic volumes. Pass-by trips were assigned at the study intersections as described previously. Background with project conditions were evaluated relative to background without project conditions in order to determine potential near-term project impacts.

Scenario 4: *Cumulative Conditions.* Traffic volumes for cumulative conditions were provided in the City's Synchro database, and include the buildout of the City's General Plan and the EDZ. The cumulative with project conditions were estimated by adding the traffic generated by the project, minus the trips generated by Denny's, to the cumulative without project traffic volumes. Cumulative with project conditions were evaluated relative to cumulative without project conditions in order to determine potential far-term project impacts.

Level of Service Standards and Analysis Methodologies

The study intersections were evaluated for each scenario using level of service (LOS). Level of service is a qualitative measure of traffic operations, ranging from LOS A (free-flow conditions) to LOS F (congested conditions). All of the study intersections are located in the City of Pleasanton and are therefore subject to the City of Pleasanton level of service standards. The various analysis methods are described below.

Signalized Intersections

The City of Pleasanton evaluates level of service at signalized intersections based on the 2000 Highway Capacity Manual (HCM) level of service methodology using the Synchro software. The 2000 HCM method evaluates signalized intersection operations on the basis of average control delay time for all vehicles at the intersection. The City of Pleasanton level of service standard for signalized intersections is LOS D. There are a few exceptions to the LOS standard within the Downtown Area and the City of Pleasanton gateway intersections. These intersections may have a level of service worse than the LOS D standard if no reasonable mitigation exists or if the necessary mitigation is contrary to other goals and policies of the City. The signalized study intersection of Hopyard Road and Owens Drive is considered a gateway intersection. Table 1 shows the level of service definitions for signalized intersections.

The project is said to create a significant impact if 1) it would cause the signalized intersection LOS to degrade below its level of service standard or 2) it would add 10 or more project trips to a signalized intersection that is operating below its level of service standard under no project conditions.

Unsignalized Intersections

Level of service at unsignalized intersections was based on the *2000 Highway Capacity Manual* (2000 HCM) method. Synchro software is used to apply the 2000 HCM operations method for evaluation of conditions at unsignalized intersections. This method is applicable for one-way, two-way, and all-way stop-controlled intersections. The delay and corresponding level of service at unsignalized, stop-controlled intersections are presented in Table 2. For all-way stop controlled intersections, the reported LOS represents the average delay of all intersection movements. For side-street stop-controlled intersections, the LOS and delays reported are for both the overall average delay and the approach with the highest delay. The City of Pleasanton level of service standard for unsignalized intersections is LOS E for any controlled movement.

The project is said to create a significant impact at an unsignalized intersection if any of the following occur:

- Deterioration of a controlled movement at an unsignalized intersection from LOS E or better to LOS F, or
- At intersections where a controlled movement already operates at LOS F, one of the following:
    - Project traffic results in satisfaction of the peak hour volume traffic signal warrant;
    - Project traffic increases minor movement delay by more than 30 seconds; or
    - Where the peak hour volume signal warrant is met without project traffic and delay cannot be measured, the project increases traffic by 10 or more vehicles per lane on the controlled approach.

Existing Transportation Setting

Regional and local access to the site is provided by I-580, Hopyard Road, Owens Drive, Johnson Drive, and Johnson Court. These roadways are described below.

Interstate 580 (I-580) is an east-west freeway which provides regional access from the East Bay cities to San Joaquin County, where it merges with Interstate 5. The I-580 Express Lanes project, completed in early 2016, widened the freeway to accommodate new HOV/HOT express lanes in both eastbound and westbound directions between I-680 and Greenville Road in Livermore. Access to the project study area is provided via its interchange with Dougherty Road/Hopyard Road.

Hopyard Road is an arterial that extends in a north-south direction from I-580 in the north to Del Valle Parkway, where it becomes Division Street and continues into downtown Pleasanton. It has six-lanes from I-580 to Valley Avenue, three lanes (two southbound lanes and one northbound lane) from Valley Avenue to Black Avenue, and two lanes from Black Avenue to Del Valle Parkway.

Owens Drive is an arterial that extends in an east-west direction from West Las Positas Boulevard in the east to Johnson Drive in the west. West of Johnson Drive, Owens Drive is a collector street that extends west, then north, and then east back to Johnson Drive. It has six lanes from West Las Positas Boulevard to Oracle Lane and from Willow Road to Hopyard Road, five lanes (two westbound lanes and three eastbound lanes) from Oracle Lane to Willow Road, four lanes from Hopyard Road to Johnson Drive, and two lanes along the loop road west of Johnson Drive. Owens Drive provides direct access to the project site via its intersections with Johnson Court and the existing Larkspur Landing Driveway.

Johnson Drive is an arterial that extends north from Stoneridge Drive in the west to Franklin Drive in the east. Johnson Drive and Franklin Drive together form a loop which connects with Stoneridge Drive. It has two lanes from Stoneridge Road to Franklin Drive. There is a two-way left turn center lane on Johnson Drive between Owens Drive (South) and Franklin Drive.

Johnson Court is a two-lane local street that extends north from Owens Drive into the Pleasanton Square Shopping Center. Johnson Court provides direct access to the project site.

Table 1
Signalized Intersection Level of Service Definitions Based on Delay

Level of Service	Description	Average Control Delay Per Vehicle (sec.)
A	Signal progression is extremely favorable. Most vehicles arrive during the green phase and do not stop at all. Short cycle lengths may also contribute to the very low vehicle delay.	10.0 or less
B	Operations characterized by good signal progression and/or short cycle lengths. More vehicles stop than with LOS A, causing higher levels of average vehicle delay.	10.1 to 20.0
C	Higher delays may result from fair signal progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, though may still pass through the intersection without stopping.	20.1 to 35.0
D	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable signal progression, long cycle lenghts, or high volume-to-capacity (V/C) ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 55.0
E	This is considered to be the limit of acceptable delay. These high delay values generally indicate poor signal progression, long cycle lengths, and high volume-to-capacity (V/C) ratios. Individual cycle failures occur frequently.	55.1 to 80.0
F	This level of delay is considered unacceptable by most drivers. This condition often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. Poor progression and long cycle lengths may also be major contributing causes of such delay levels.	greater than 80.0

Source: Transportation Research Board, *2000 Highway Capacity Manual* (Washington, D.C., 2000) p10-16.

Table 2
Unsignalized Intersection Level of Service Definitions Based on Delay

Level of Service	Description	Average Delay Per Vehicle (Sec.)
A	Little or no traffic delay	10.0 or less
B	Short traffic delays	10.1 to 15.0
C	Average traffic delays	15.1 to 25.0
D	Long traffic delays	25.1 to 35.0
E	Very long traffic delays	35.1 to 50.0
F	Extreme traffic delays	greater than 50.0

Source: Transportation Research Board, *2000 Highway Capacity Manual* (Washington, D.C., 2000) p17-2.

Existing Intersection Analysis

The existing traffic volumes at the study intersections were obtained from traffic counts collected in April 2018, except at the intersection of Hopyard Road and Owens Drive, which were collected in March 2017 and supplied by the City. Traffic operations at the study intersections were evaluated using Synchro software to determine level of service for the AM and PM peak hours. The results show that, measured against City of Pleasanton standards, all of the study intersections currently operate at acceptable levels of service during the AM and PM peak hours. The results of the intersection level of service analysis under existing conditions are summarized in Table 3. The existing intersection traffic volumes at the study intersections are shown on Figure 3. The levels of service calculation sheets are included in the Appendix.

Table 3
Existing Intersection Levels of Service

Study Number	Intersection	Traffic Control	Peak Hour	Existing Avg. Delay[1]	Existing LOS[1]
1	Johnson Drive and Owens Drive (South)	Signal	AM	12.1	B
			PM	20.6	C
2	Owens Drive and Landspur Landing Driveway	SSSC[2]	AM	0.5/21.8	A/C
			PM	0.4/20.6	A/C
3	Owens Drive and Johnson Court	SSSC[2]	AM	0.6/12.0	A/B
			PM	1.2/13.9	A/B
4	Hopyard Road and Owens Drive	Signal	AM	30.1	C
			PM	51.7	D

[1] Signalized intersection levels of service and delays reported are for average control delay per vehicle. Side Street Stop Control (SSSC) intersection levels of service and delays reported are for both the overall average delay / the approach with highest delay.
[2] SSSC - Side Street Stop Control.
* Intersection at Hopyard Road and Owens Road is a gateway intersection per City of Pleasanton General Plan, which is exempt from LOS D standard.

Observed Existing Traffic Conditions

Traffic conditions in the field were observed in order to identify any existing operational deficiencies and to confirm the accuracy of calculated levels of service. The purpose of this effort was (1) to identify any existing traffic problems that may not be directly related to intersection level of service, and (2) to identify any locations where the level of service calculation does not accurately reflect level of service in the field.

Overall, the study intersections operate adequately during the weekday AM and PM peak hours, and the level of service analysis appears to accurately reflect actual existing traffic conditions. However, field observations showed that some operational problems currently occur at Hopyard Road and Owens Drive during the PM peak hour:

1) The queue from the westbound right turn only lane on Owens Drive occasionally extends past the intersection at Owens Court and Chabot Drive. Although there is an additional shared through/right lane on the westbound approach, most of the time it was occupied only by through movement vehicles.

2) The queue in the eastbound shared left-through lane on Owens Drive occasionally extend beyond the median opening at Larkspur Landing Driveway. Vehicles were generally able to clear the intersection at Hopyard Road and Owens Drive in one signal cycle.

Project Traffic Estimates

The magnitude of traffic produced by a new development and the locations where that traffic would appear are estimated using a three-step process: (1) trip generation, (2) trip distribution, and (3) trip assignment. In determining project trip generation, the magnitude of traffic entering and exiting the site is estimated for the AM and PM peak hours. As part of the project trip distribution, an estimate is made of the directions to and from which the project trips would travel. In the project trip assignment, the project trips are assigned to specific streets and intersections. These procedures are described further in the following sections.

Through empirical research, data have been collected that correlate to common land uses their propensity for producing traffic. Thus, for the most common land uses there are standard trip generation rates that can be applied to help predict the future traffic increases that would result from a new development. The magnitude of traffic added to the roadway system by a particular development is estimated by multiplying the applicable trip generation rates to the size of the development. The standard trip generation rates are published in the Institute of Transportation Engineers (ITE) manual entitled *Trip Generation,* 10th Edition.

It is anticipated that both the restaurant and retail components of the project would generate pass-by trips. Pass-by trips are trips that would already be on the adjacent roadways (and are therefore already counted in the existing traffic), but would turn into the site while passing by. Justification for applying the pass-by trip reduction is founded on the observation that such traffic is not actually generated by the proposed development, but is already part of the ambient traffic levels. A pass-by trip reduction of 25 percent was applied to both the AM and PM peak hour trip generation for the restaurant. For the retail component, a pass-by trip reduction of 25 percent was applied only for the PM peak hour. Pass-by trips were assumed to originate on Hopyard Road and were assigned between the project site and the intersection of Hopyard Road/Owens Drive. The project also receives trip credits for the previous Denny's restaurant at the project site.[1] A pass-by trip reduction of 25 percent was also applied to the AM and PM peak hour trip generation for the previous Denny's restaurant use. Pass-by trips were assigned at the same intersections described above. The trip generation estimates are shown in Table 4.

Table 4
Project Trip Generation Estimates

				AM Peak Hour				PM Peak Hour			
Land Use	Size	Daily Rate	Daily Trips	Rate	Total Trips	In	Out	Rate	Total Trips	In	Out
Proposal Use											
Fast Food Restaurant[1]	4,980 sf	346.23	1,724	25.10	125	75	50	28.34	141	71	70
	Pass by[4]	25%	(431)		(32)	(16)	(16)		(36)	(18)	(18)
Retail[2]	6,000 sf	37.75	227	0.94	6	4	2	3.81	23	11	12
	Pass by[4]	25%	(57)		-	-	-		(6)	(3)	(3)
	Primary Trips		1,463		99	63	36		122	61	61
Existing Use											
Denny's Restaurant (closed)[3]	3,510 sf	(112.18)	(394)	(9.94)	(35)	(19)	(16)	(9.77)	(34)	(21)	(13)
	Pass by[4]	25%	(98)		(9)	(5)	(4)		(9)	(5)	(4)
	Existing Trips		(296)		(26)	(14)	(12)		(25)	(16)	(9)
	Net Project Trips		**1,167**		**73**	**49**	**24**		**97**	**45**	**52**

[1] Rates based on ITE *Trip Generation, 10th Edition* , 2017: average rates for Fast Food Restaurant without Drive-Through (ITE 933).
[2] Rates based on ITE *Trip Generation, 10th Edition* , 2017: average rates for Shopping Center (ITE 820).
[3] Rates based on ITE *Trip Generation, 10th Edition* , 2017: average rates for High-Turnover (Sit-Down) Restaurant (ITE 932).
[4] Pass-by trip reduction of 25% was used for Project Retail, Fast Food, and Existing Denny's Restaurant.
Note: Above numbers may not add up due to rounding.

[1] This credit was applied to the future scenarios only. Under existing plus project conditions, no trip credit was applied because the previous Denny's restaurant is already closed.

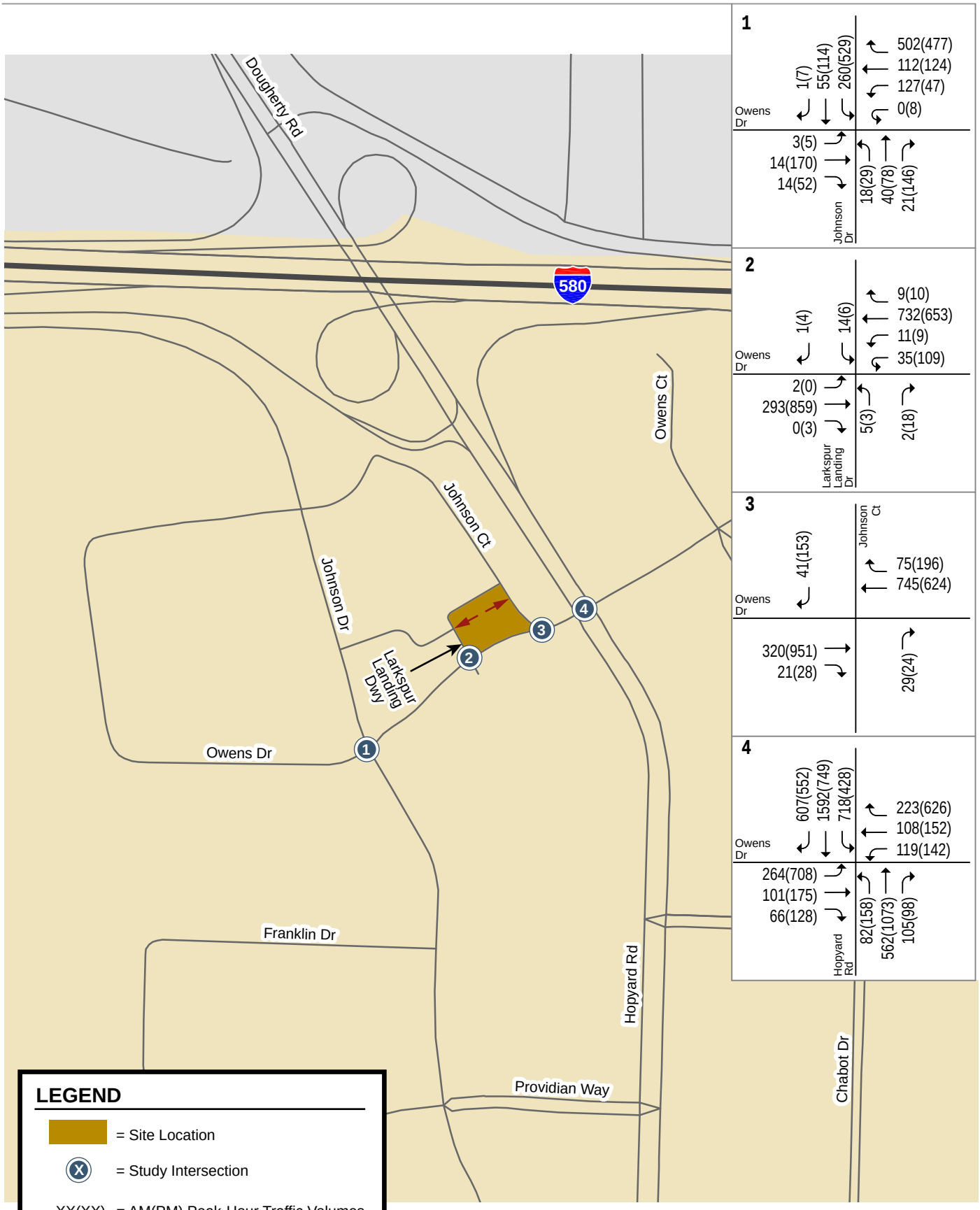


Figure 3
Existing Traffic Volumes

The trip distribution pattern for the proposed project was estimated based on existing travel patterns, the locations of complementary land uses, and the previous traffic impact study for the subject site under a different project description dated April 7, 2016. The new peak-hour trips generated by the proposed project (the project trips) were added to the roadway network in accordance with the project trip generation and distribution described above.

The project trip distribution and net project trip assignment are shown on Figure 4. The project trip assignment was developed using the following procedure. The trips shown in parentheses () below represent the sum of the inbound and outbound trips at the project driveways.

1. Primary trips for the proposed use were assigned to all study intersections in accordance with the project distribution (99 AM and 122 PM peak hour trips).
2. Pass by trips for the proposed use were assigned to and from the project driveways and the Hopyard Road/Owens Drive intersection (32 AM and 42 PM peak hour trips).
3. Trips for Steps 1 and 2 were added together (131 AM and 164 PM peak hour trips).
4. Primary trips for the existing Denny's use were assigned to all study intersections in accordance with subject trip distribution (26 AM and 25 PM peak hour trips).
5. Pass by trips for the existing Denny's were assigned to and from the project driveways and the Hopyard Road/Owens Drive intersection (9 AM and 9 PM peak hour trips).
6. Trips for Steps 4 and 5 were added together (35 AM and 34 PM peak hour trips).
7. At each study intersection, the total trips from Step 6 (existing Denny's) were subtracted from those of Step 3 (Project Trips) to produce the net project trip assignment (96 AM and 130 PM peak hour trips). These are the project trips that are shown on Figure 4.

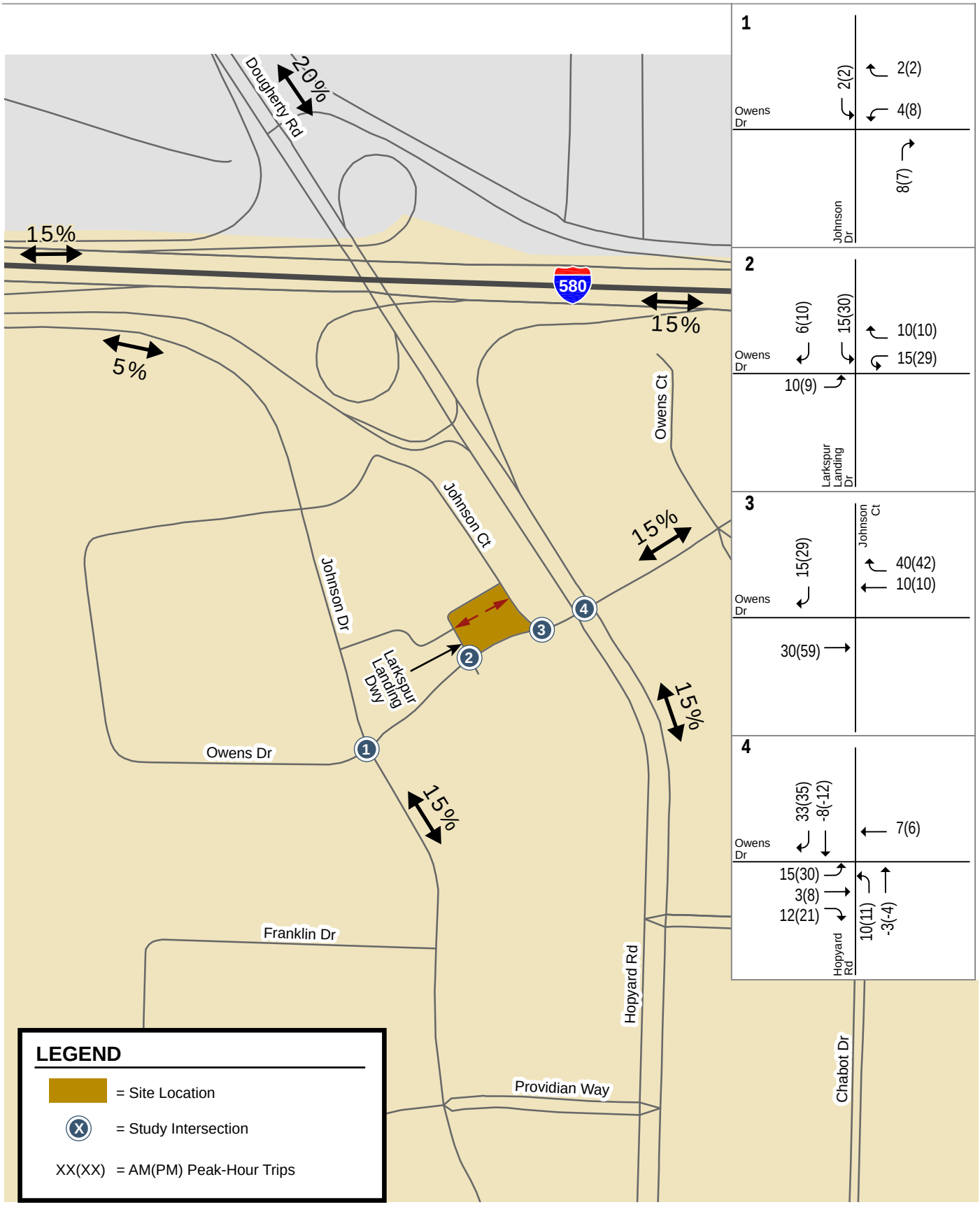


Figure 4
Project Trip Distribution and Net Project Trip Assignment (with Pass-by)

Intersection Level of Service Analysis

Traffic operations at the study intersections were evaluated using Synchro software to determine level of service with and without the proposed project for the AM and PM peak hours under existing, background, and cumulative conditions. The Synchro calculation sheets are included in the attached appendix.

Existing Plus Project Conditions Intersection Analysis

The level of service results for the existing plus project scenario are summarized in Table 5 and the existing plus project traffic volumes are shown in Figure 5. The results show that, measured against City of Pleasanton standards, all of the study intersections would continue to operate at acceptable levels of service during the AM and PM peak hours under existing plus project conditions. The intersection of Hopyard Road and Owens Drive would operate at LOS E under existing plus project conditions during the PM peak hour. However, this intersection is a gateway intersection as defined in the City of Pleasanton General Plan and therefore exempt from the LOS D standard.

Table 5
Existing Plus Project Intersection Level of Service Summary

				Existing		Existing + Project		
Study Number	Intersection	Traffic Control	Peak Hour	Avg. Delay[1]	LOS[1]	Avg. Delay[1]	LOS[1]	Incr. In Avg. Delay
1	Johnson Drive and Owens Drive (South)	Signal	AM	12.1	B	12.3	B	0.2
			PM	20.6	C	22.2	C	1.6
2	Owens Drive and Landspur Landing Driveway	SSSC[2]	AM	0.5/21.8	A/C	1.3/23.9	A/C	0.8/2.1
			PM	0.4/20.6	A/C	1.4/30.9	A/D	1.0/10.3
3	Owens Drive and Johnson Court	SSSC[2]	AM	0.6/12.0	A/B	0.8/12.8	A/B	0.2/0.8
			PM	1.2/13.9	A/B	1.5/15.6	A/C	0.3/1.7
4	Hopyard Road and Owens Drive*	Signal	AM	30.1	C	31.6	C	1.5
			PM	51.7	D	55.4	E	3.7

[1] Signalized intersection levels of service and delays reported are for average control delay per vehicle.
Side Street Stop Control (SSSC) intersection levels of service and delays reported are for both the overall average delay / the approach with highest delay.
[2] SSSC - Side Street Stop Control.
* Intersection at Hopyard Road and Owens Road is a gateway intersection per City of Pleasanton General Plan, which is exempt from LOS D standard.

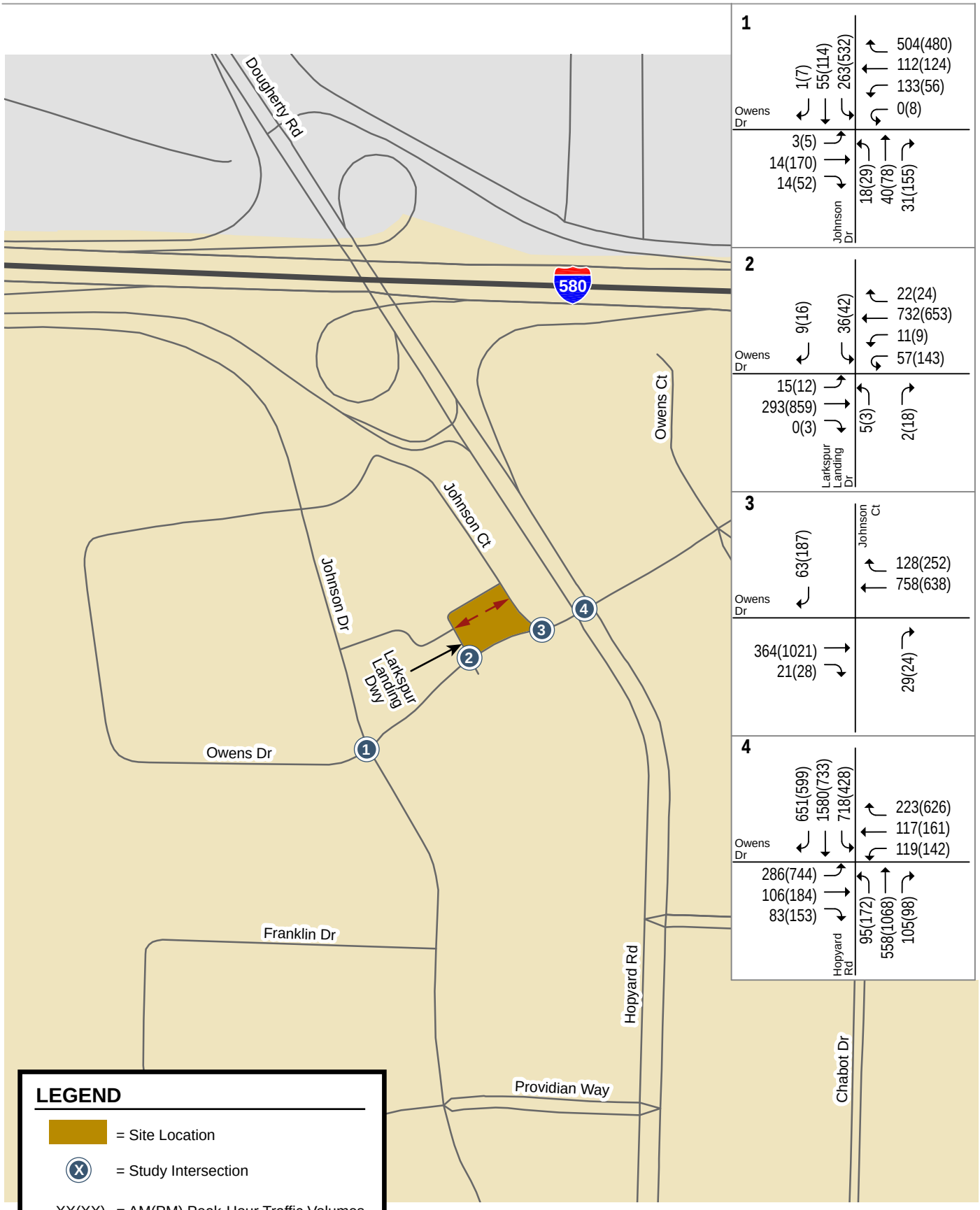


Figure 5
Existing Plus Project Traffic Volumes

Background Conditions Intersection Analysis

Background traffic volumes were estimated using forecasts from the City of Pleasanton TDF model. These volumes reflect all approved developments in the city and include the EDZ. Traffic generated from the previous Denny's restaurant at the project site was estimated using ITE trip generation rates and also included as part of the approved trips.

The roadway geometries for this scenario were assumed unchanged from the existing conditions, except at the study intersection of Hopyard Road and Owens Drive, where there are plans to construct a southbound Hopyard Road to westbound Owens Drive right turn lane.

The level of service results for the background scenarios are summarized in Table 6. The traffic volumes for the background scenarios are shown on Figures 6 and 7. The LOS results show that, measured against City of Pleasanton standards, all of the study intersections would operate at acceptable levels of service during the AM and PM peak hours. The intersection of Hopyard Road and Owens Drive would operate at LOS E under background with or without project conditions during the PM peak hour. However, this intersection is a gateway intersection as defined in the City of Pleasanton General Plan and therefore exempt from the LOS D standard.

Table 6
Background Intersection Level of Service Summary

				Background				
				No Project		With Project		
Study Number	Intersection	Traffic Control	Peak Hour	Avg. Delay[1]	LOS[1]	Avg. Delay[1]	LOS[1]	Incr. In Avg. Delay
1	Johnson Drive and Owens Drive (South)	Signal	AM	13.9	B	14.0	B	0.1
			PM	26.2	C	30.4	C	4.2
2	Owens Drive and Landspur Landing Driveway	SSSC[2]	AM	0.7/26.1	A/D	1.3/28.8	A/D	0.6/2.7
			PM	0.6/31.9	A/D	1.8/49.5	A/E	1.2/17.6
3	Owens Drive and Johnson Court	SSSC[2]	AM	0.6/12.8	A/B	0.7/13.5	A/B	0.1/0.7
			PM	1.2/16.1	A/C	1.5/18.1	A/C	0.3/2.0
4	Hopyard Road and Owens Drive[3] *	Signal	AM	32.5	C	33.2	C	0.7
			PM	65.2	E	69.1	E	3.9

[1] Signalized intersection levels of service and delays reported are for average control delay per vehicle.
Side Street Stop Control (SSSC) intersection levels of service and delays reported are for both the overall average delay / the approach with highest delay.
[2] SSSC - Side Street Stop Control.
[3] Includes planned improvements under background scenarios.
* Intersection at Hopyard Road and Owens Road is a gateway intersection per City of Pleasanton General Plan, which is exempt from LOS D standard.

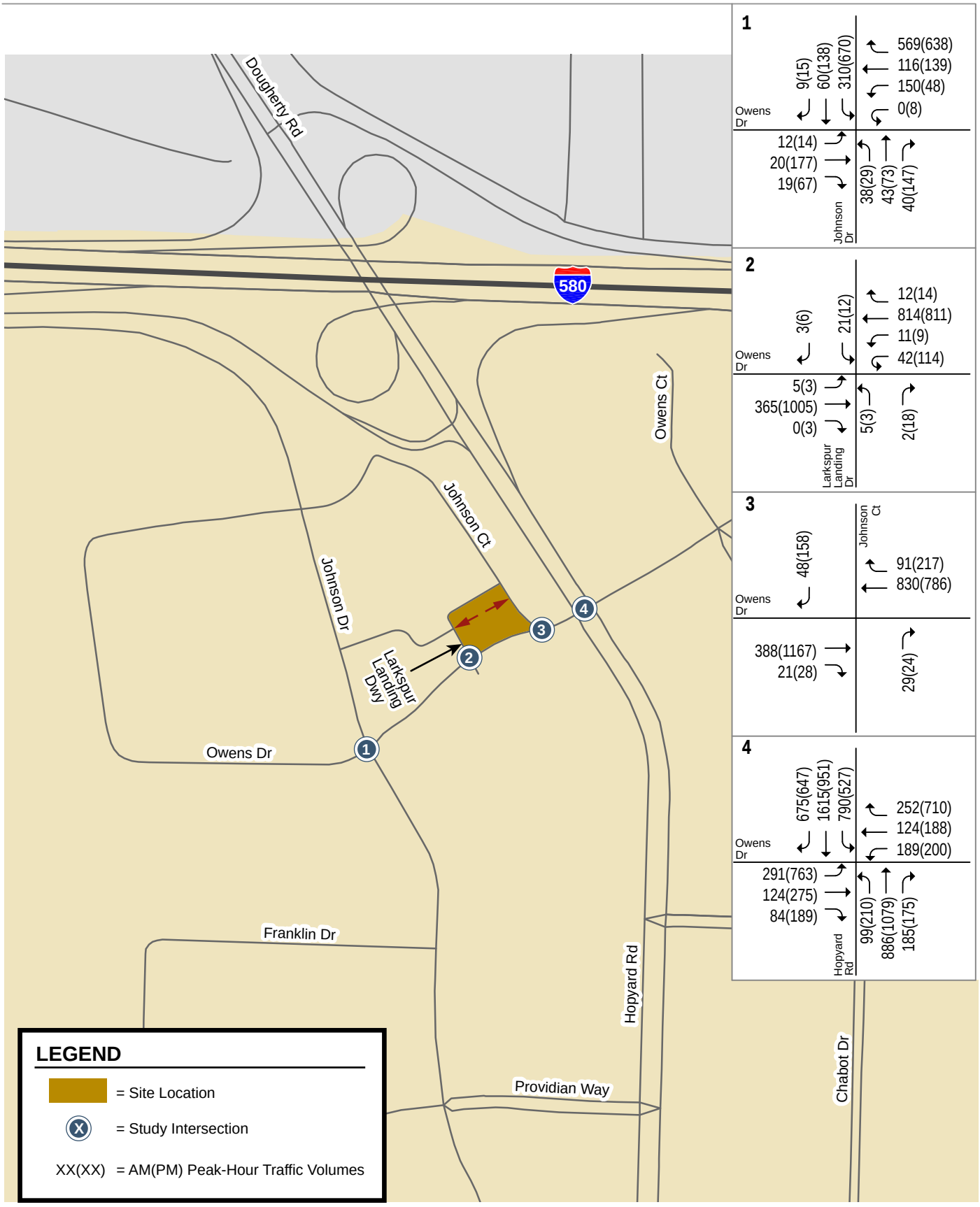


Figure 6
Background No Project Traffic Volumes

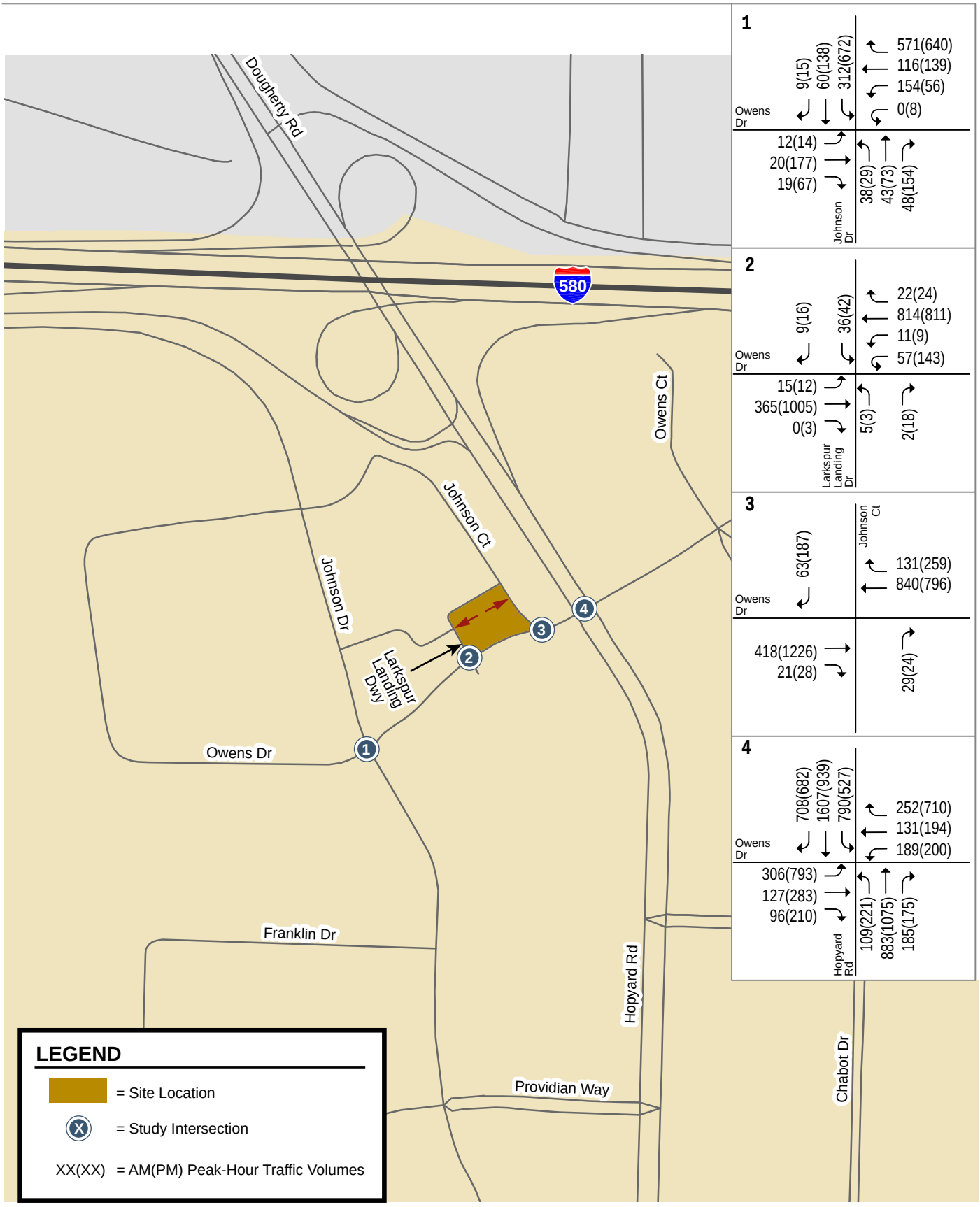


Figure 7
Background With Project Traffic Volumes

Cumulative Conditions Intersection Analysis

Cumulative traffic volumes were estimated using forecasts from the City of Pleasanton TDF model. The Pleasanton TDF model includes various local and regional improvements outside of the project area. In addition to the planned improvements at Owens Drive and Hopyard Road [2] under background conditions, cumulative conditions included modifying the eastbound, westbound, and northbound approaches at the intersection with the following Traffic Impact Fee (TIF) improvements:

Eastbound approach: Two left turn lanes, two through lanes, and one right turn lane.
Westbound approach: One left turn lane, two through lanes, and two right turn lanes.
Northbound approach: Two left urn lanes, two through lanes, and one shared through/right turn lane.

Project trips were added to the cumulative (no project) traffic volumes to determine the cumulative with project traffic volumes. Cumulative with project conditions were evaluated relative to cumulative no project conditions in order to determine potential project impacts. The results show that all study intersections would operate at acceptable levels of service under cumulative with and without project conditions during the AM and PM peak hours, with one exception. The southbound approach of the intersection at Owens Drive and Larkspur Landing driveway would operate at LOS F during both the AM and PM peak hours under cumulative with project conditions. The intersection of Owens Drive and the Larkspur Landing driveway is an unsignalized intersection with stop-control on the north and south approaches. The level of service results for cumulative conditions are summarized in Table 7. The cumulative conditions traffic volumes are summarized in Figures 8 and 9.

> **Significant Impact #1:** Under cumulative conditions, the southbound approach (Larkspur Landing) of the unsignalized intersection at Owens Drive and the Larkspur Landing driveway would deteriorate from LOS E to LOS F with the addition of the project trips during both the AM and PM peak hours. According to the City of Pleasanton significance criteria, this would constitute an *adverse significant impact*.
>
> **Mitigation #1:** To mitigate this impact would require restricting the left turn and through movements and allow only right turn movements from the Larkspur Landing and Tommy T's driveways. In order to effectively implement this left and through movement restriction, a raised channelizing island is recommended to be installed on Owens Drive at the driveways. See Figure 10 for a schematic illustration of the proposal median. Due to the raised island, all outbound driveway traffic that previously made left turns would be required to make U-turns at either the Johnson Drive and Owens Drive intersection (exiting from the Larkspur Landing Driveway) or the Chabot Drive and Owens Drive intersection (exiting from the opposite Tommy T's Driveway). Both intersections do not prohibit U-turn movements for the approaches involving the re-routing. No U-turns would be allowed on the eastbound approach at the Hopyard Road and Owens Drive intersection under cumulative conditions because an overlap phase for the southbound right turn movement would be implemented as part of the TIF improvements. This mitigation would improve the level of service at the southbound approach to an acceptable LOS B. Thus, this improvement would return the average delay to better than no project conditions.

As shown on Table 7, the generation of additional turning movements at the Johnson Drive/Owens Drive, Owens Drive/Johnson Court, and Hopyard Road/Owens Drive intersections due to the above Mitigation #1 would not cause additional LOS impacts at any study intersections.

[2] The addition of a 250-foot southbound right turn lane

Table 7
Cumulative Intersection Levels of Service Summary

Study Number	Intersection	Traffic Control	Peak Hour	Cumulative: No Project Avg. Delay[1]	No Project LOS[1]	Cumulative: With Project, No Mitigation Avg. Delay[1]	No Mitigation LOS[1]	Incr. In Avg. Delay	With Mitigation Avg. Delay[1]	With Mitigation LOS
1	Johnson Drive and Owens Drive (South)	Signal	AM	15.3	B	15.3	B	0.0	16.7	B
			PM	33.0	C	33.5	C	0.5	36.5	D
2	Owens Drive and Landspur Landing Driveway	SSSC[2]	AM	1.2/44.7	A/E	**2.2/56.1**	**A/F**	1.0/11.4	0.7/13.4	A/B
			PM	0.6/32.1	A/D	**1.8/50.9**	**A/F**	1.2/18.8	0.6/12.4	A/B
3	Owens Drive and Johnson Court	SSSC[2]	AM	0.6/12.1	A/B	0.7/12.6	A/B	0.1/0.5	0.7/12.6	A/B
			PM	1.1/14.8	A/B	1.3/16.4	A/C	0.2/1.6	1.3/16.4	A/C
4	Hopyard Road and Owens Drive[3] *	Signal	AM	36.0	D	36.0	D	0.0	36.1	D
			PM	55.6	E	56.2	E	0.6	56.2	E

[1] Signalized intersection levels of service and delays reported are for average control delay per vehicle.
Side Street Stop Control (SSSC) intersection levels of service and delays reported are for both the overall average delay / the approach with highest delay.
[2] SSSC - Side Street Stop Control.
[3] Includes planned improvements under background scenarios and TIF improvements under cumulative scenarios.
* Intersection at Hopyard Road and Owens Road is a gateway intersection per City of Pleasanton General Plan, which is exempt from LOS D standard.
Denotes Significant Impact

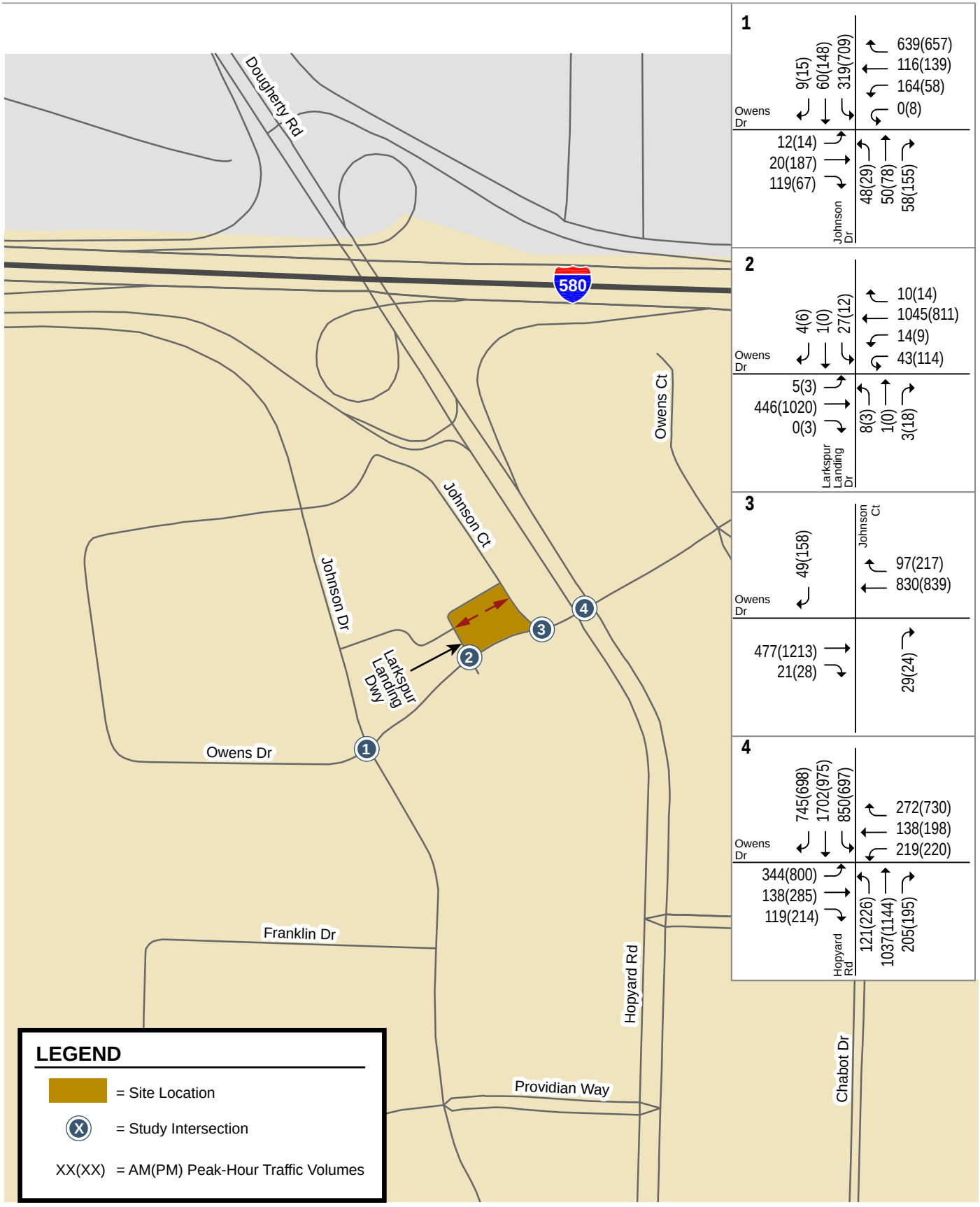


Figure 8
Cumulative No Project Traffic Volumes

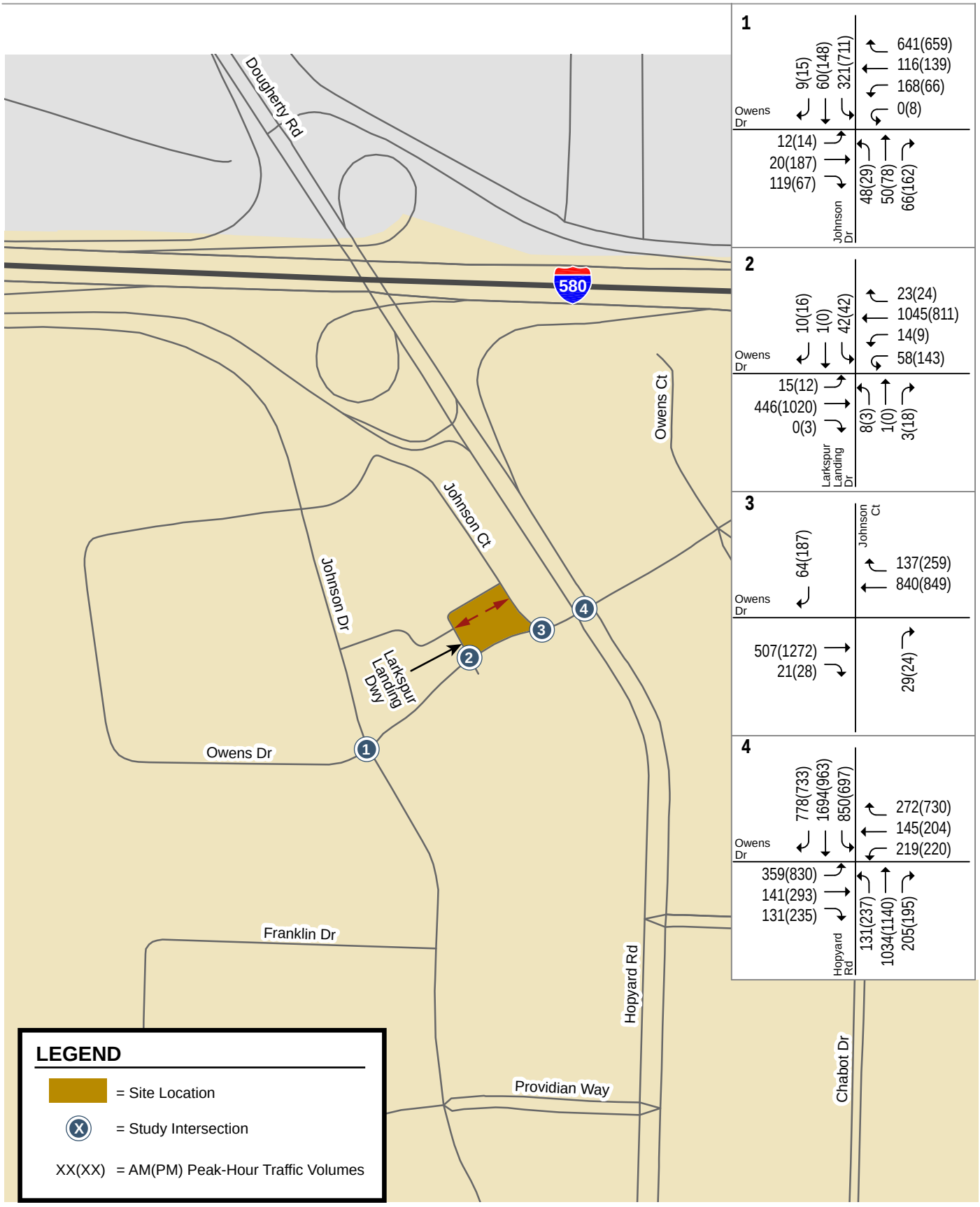
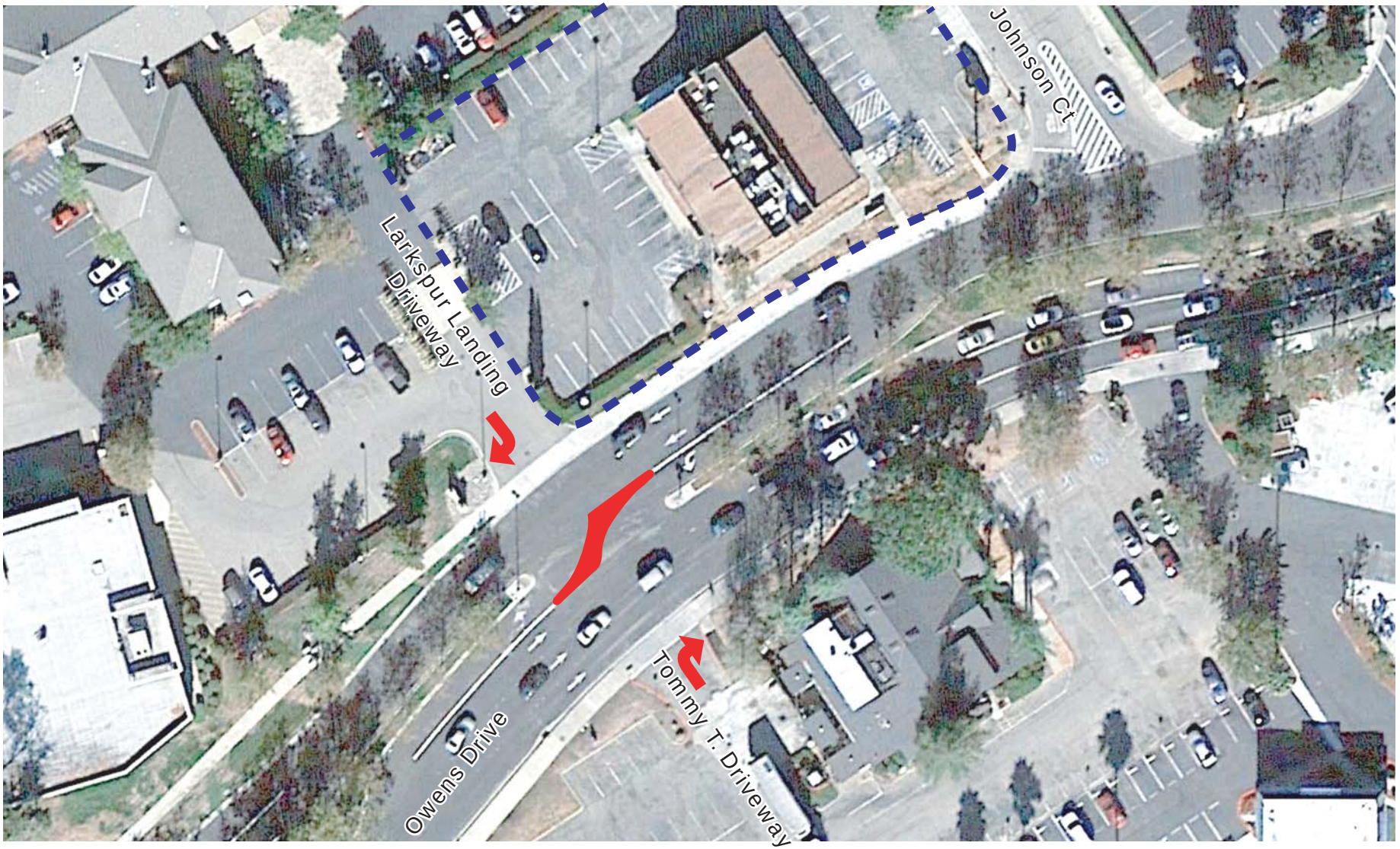


Figure 9
Cumulative With Project Traffic Volumes



LEGEND

= Project Site Boundary

Figure 10
Mitigation #1 - Raised Median at Larkspur Landing Driveway on Owens Drive

Vehicle Queuing Analysis

A vehicle queuing analysis was conducted for the left turn movements where the project would add traffic at the intersection of Hopyard Road and Owens Drive and where the proposed mitigation #1 will be adding U-turn traffic at the intersection of Johnson Drive and Owens Drive. Vehicle queues were estimated using a Poisson probability distribution. The basis of the analysis is as follows: (1) the Poisson probability distribution is used to estimate the 95th percentile maximum number of queued vehicles per signal cycle for a particular movement; (2) the estimated maximum number of vehicles in the queue is translated into a queue length, assuming 25 feet per vehicle; and (3) the estimated maximum queue length is compared to the existing or planned available storage capacity for the movement. This analysis thus provides a basis for estimating future storage requirements at intersections. The vehicle queuing estimates and a tabulated summary of the findings for the study intersections are provided in Table 8. The analysis indicated that the estimated maximum vehicle queues would exceed the vehicle storage capacity at the following locations:

- Northbound left turn at Hopyard Road and Owens Drive
- Eastbound left and shared left/through lanes at Hopyard Road and Owens Drive
- Westbound left turn at Johnson Drive and Owens Drive

Hopyard Road and Owens Drive – Northbound Left turn

Under existing conditions, there is approximately 250 feet of storage capacity for the northbound left turn lane at the intersection of Hopyard Road and Owens Drive. The storage capacity is measured as the distance between the intersection crosswalk and the taper of the left turn pocket. Beyond this, vehicles would queue south into the through lane. Under existing conditions, the calculated 95th percentile queue is 150 and 225 feet during the AM and PM peak hours, respectively. Field observations also indicate that the vehicle queue for the subject movement can be accommodated within the storage lane without spilling over under existing conditions.

Under background with or without project conditions, the 95th percentile vehicle queue would extend to 300 feet during the PM peak hour, which would exceed the available storage by two vehicles (or 50 feet). The final determination as to whether improvements are necessary at this location will be made by City staff.

Under cumulative conditions, a second northbound left turn lane would be added as part of the TIF improvements, effectively doubling the available storage to 500 feet. Therefore, the 95th percentile vehicle queues of 325 feet under cumulative with project conditions would be adequately accommodated.

Hopyard Road and Owens Drive – Eastbound Left & Left/Through

Under existing conditions, there is approximately 750 feet of storage capacity for the eastbound left turn lane movements at the intersection of Hopyard Road and Owens Drive. The storage capacity is measured as the distance between the intersection crosswalk and the Larkspur Landing driveway to the west. Beyond this, vehicles would queue west to the signalized cross street of Johnson Drive, which adds another 750 feet of available queuing space. Under cumulative conditions, the installation of a second eastbound left turn lane would provide a total of 600 feet of left turn storage. This improvement also would remove through traffic from the existing shared left/through lane.

Under all study scenarios, the 95th percentile queues on eastbound Owens Drive during the PM peak hour would exceed the available storage and block the Larkspur Landing driveway with or without the proposed project. The proposed mitigation measure #1, which would eliminate outbound left and through movements from the Larkspur Landing and Tommy T's driveways, would greatly reduce the safety issue with eastbound vehicle queues on Owens Drive spilling across the driveways. Given the presence of the westbound left turn lane on Owens Drive into the Tommy T's driveway, no additional lengthening of the eastbound left turn lanes at the intersection of Owens Drive/Hopyard Road is possible.

Johnson Drive and Owens Drive – Westbound Left turn

Under existing conditions, there is approximately 150 feet of storage capacity for the westbound left turn lane at the intersection of Johnson Drive and Owens Drive. The storage capacity is measured as the

distance between the intersection crosswalk and the taper of the left turn pocket. Beyond this, vehicles would queue east into the through lane. Field observations indicate that the vehicle queues for the subject movement can be accommodated within the left turn storage and did not spillover to the through lanes under existing conditions.

Mitigation #1 will install a raised median island on Owens Drive at the Larkspur Landing driveway. This will cause traffic exiting the driveway wishing to turn left or go through to first make a right turn at the driveway and subsequently a westbound U-turn at the Johnson Drive and Owens Drive intersection.

Under cumulative no project conditions, the calculated 95th percentile queue is 150 feet during the AM peak hour. U-turn traffic from Mitigation #1 would add up to 25 feet (or one vehicle) to the 95th percentile during the AM peak hour. To lengthen the turn pocket would require shortening the existing opposite eastbound left turn pocket on Owens Drive at the Larkspur Landing driveway.

> **Recommendation:** Because (1) lengthening the westbound left turn pocket at Johnson Drive and Owens Drive would shorten the left turn pocket into the Larkspur Landing driveway and (2) the intersection is projected to operate at good levels of service under all study scenarios, no physical improvements are recommended at this location. However, signal timing improvements such as (1) extended green times, (2) shortened traffic signal cycles, and/or (3) a left turn recall phase may be considered at this location to serve the increased traffic demand associated with Mitigation #1. To the extent upgrades are necessary to the traffic signal controller to achieve these signal timing modifications, they would be the responsibility of the project applicant.

Owens Drive U-Turn Analysis

During the existing AM and PM peak hours, Hexagon observed the westbound left turn pocket at the midblock intersection on Owens Drive between Hopyard Road and Johnson Drive (this location is also referred to as the Larkspur Landing driveway). The results showed that 46 vehicles entered the westbound left turn pocket during the AM peak hour and 118 vehicles entered the westbound left turn pocket during the PM peak hour. During the AM peak hour, 35 vehicles made U-turns and 11 vehicles made left turns. During the PM peak hour, 109 vehicles made U-turns and 9 vehicles made left turns. It is estimated that the project would add 15 westbound U-turns during the AM peak hour and 29 westbound U-turns during the PM peak hour.

A vehicle queuing analysis was conducted for the westbound left turn/U-turn movement. Under existing conditions, the maximum vehicle queue observed in the field was 3 vehicles (or 75 feet) in two occurrences during the AM and PM peak hours. Most vehicles experienced relatively brief delays in the turn pocket and there were no standing queues during most of the observation period. Under background with project conditions, it is estimated that the 95th percentile queues would remain at 75 feet (or 3 vehicles) during the AM peak hour, and 100 feet (or 4 vehicles) during the PM peak hours. The westbound left turn pocket has an existing storage of 100 feet. Therefore, the westbound left turn pocket would provide adequate storage.

Table 8
Vehicle Queuing Analysis Summary

Measurement	Hopyard Rd. / Owens Dr. EBL & EBL/T* AM	Hopyard Rd. / Owens Dr. EBL & EBL/T* PM	Hopyard Rd. / Owens Dr. NBL AM	Hopyard Rd. / Owens Dr. NBL PM	Johnson Dr. /Owens Dr. WBL AM	Johnson Dr. /Owens Dr. WBL PM	Johnson Dr. /Owens Dr. WBL AM	Johnson Dr. /Owens Dr. WBL PM
Existing								
Cycle/Delay[1] (sec)	120	120	120	120	60	100		
Volume (vph)	315	796	82	158	127	55		
Avg. Queue (veh)	10.5	26.5	2.7	5.3	2.1	1.5		
Avg. Queue[2] (ft.)	263	663	68	132	53	38		
95th %. Queue (veh)	16	35	6	9	5	4		
95th %. Queue (ft.)[2]	400	875	150	225	125	100		
Storage (ft.)	750/1,500[3]	750/1,500[3]	250	250	150	150		
Adequate (Y/N)	Y	Y	Y	Y	Y	Y		
Existing + Project								
Cycle/Delay[1] (sec)	120	120	120	120	60	100		
Volume (vph)	339	836	95	172	133	64		
Avg. Queue (veh)	11.3	27.9	3.2	5.7	2.2	1.8		
Avg. Queue[2] (ft.)	283	697	79	143	55	44		
95th %. Queue (veh)	17	37	6	10	5	4		
95th %. Queue (ft.)[2]	425	925	150	250	125	100		
Storage (ft.)	750/1,500[3]	750/1,500[3]	250	250	150	150		
Adequate (Y/N)	Y	Y	Y	Y	Y	Y		
Background No Project								
Cycle/Delay[1] (sec)	120	120	120	120	60	100		
Volume (vph)	353	901	99	210	150	56		
Avg. Queue (veh)	11.8	30.0	3.3	7.0	2.5	1.6		
Avg. Queue[2] (ft.)	294	751	83	175	63	39		
95th %. Queue (veh)	18	39	7	12	5	4		
95th %. Queue (ft.)[2]	450	975	175	300	125	100		
Storage (ft.)	750/1,500[3]	750/1,500[3]	250	250	150	150		
Adequate (Y/N)	Y	Y	Y	**N**	Y	Y		
Background + Project								
Cycle/Delay[1] (sec)	120	120	120	120	60	100		
Volume (vph)	370	935	109	221	154	64		
Avg. Queue (veh)	12.3	31.2	3.6	7.4	2.6	1.8		
Avg. Queue[2] (ft.)	308	779	91	184	64	44		
95th %. Queue (veh)	18	41	7	12	5	4		
95th %. Queue (ft.)[2]	450	1025	175	300	125	100		
Storage (ft.)	750/1,500[3]	750/1,500[3]	250	250	150	150		
Adequate (Y/N)	Y	Y	Y	**N**	Y	Y		
Cumulative No Project								
Cycle/Delay[1] (sec)	120	120	120	120	60	100		
Volume (vph)	344	800	121	226	164	66		
Avg. Queue (veh)	11.5	26.7	4.0	7.5	2.7	1.8		
Avg. Queue[2] (ft.)	287	667	101	188	68	46		
95th %. Queue (veh)	17	35	8	12	6	4		
95th %. Queue (ft.)[2]	425	875	200	300	150	100		
Storage (ft.)	600/975[4]	600/975[4]	500 [5]	500 [5]	150	150		
Adequate (Y/N)	Y	Y	Y	Y	Y	Y		
Cumulative + Project							With Mitigation#1 (Right Turn only at Larkspur Landing Driveway)	
Cycle/Delay[1] (sec)	120	120	120	120	60	100	60	100
Volume (vph)	359	830	131	237	168	66	205	116
Avg. Queue (veh)	12.0	27.7	4.4	7.9	2.8	1.8	3.4	3.2
Avg. Queue[2] (ft.)	299	692	109	198	70	46	85	81
95th %. Queue (veh)	18	37	8	13	6	4	7	6
95th %. Queue (ft.)[2]	450	925	200	325	150	100	175	150
Storage (ft.)	600/975[4]	600/975[4]	500 [5]	500 [5]	150	150	150	150
Adequate (Y/N)	Y	Y	Y	Y	Y	Y	**N**	Y

* Assumes 1 EBL & 1 EBL/T lane under background scenarios.
Assumes 2 EBL lanes under cumulative scenarios per TIF.
[1] Vehicle queue calculations based on cycle length for signalized intersections.
[2] Assumes 25 Feet Per Vehicle Queued.
[3] The first number is existing storage capacity from the intersection to the Larkspur driveway to the west.
The second number is total storage capacity before and after the Larkspur driveway.
[4] The first number is storage capacity from the intersection to the Larkspur driveway to the west.
The second number is total storage capacity before and after the Larkspur driveway (per TIF).
[5] NBL lane storage based 2 LT lanes per TIF improvements under cumulative conditions.

Site Access, On-Site Circulation

This section describes the site access, on-site circulation, and parking for the proposed project. This review is based on the project site plan provided by the applicant dated February 28, 2018 (See Figure 2).

Site Access & Circulation

The proposed project would be accessed from two driveways. Primary access to the project site would be provided via (1) Johnson Court and (2) an existing driveway on Owens Drive which is currently shared with the Larkspur Landing Hotel.

Johnson Court is a two-lane roadway that intersects with Owens Drive in the south (as a right turn only intersection) and continues north to the Pleasanton Square Shopping Center. The existing Larkspur Landing Driveway on Owens Drive is a full access driveway. It is stop controlled and has one inbound and one outbound lane.

At the Johnson Court and Owens Drive intersection, under background with project conditions during the AM peak hour, the level of service for the right-turn movement would be LOS B (13.5 seconds of delay) and the 95th percentile queue would be one vehicle. Under background with project conditions during the PM peak hour, the level of service for the right-turn movement would be LOS C (18.1 seconds of delay) and the 95th percentile queue would be two vehicles. The storage provided would be approximately 125 feet before the project driveway, which would accommodate five vehicles (assuming 25 feet per vehicle). The sight distance at this driveway was also observed in the field and determined to be adequate.

At the Owens Drive and Larkspur Landing driveway intersection, under background with project conditions during the AM peak hour, the level of service for the southbound all-movement lane would be LOS D (28.8 seconds of delay) and the 95th percentile queue would be one vehicle. Under background with project conditions during the PM peak hour, the level of service for the southbound all-movement lane would be LOS F (49.5 seconds of delay) and the 95th percentile queue would be two vehicles. Based on the project site plan, the storage provided would be approximately 100 feet before it intersects with an east/west drive aisle, which would accommodate four vehicles (assuming 25 feet per vehicle). Therefore, the storage would be adequate during the background with project conditions. The sight distance at this driveway was also observed in the field and determined to be adequate. With Mitigation #1, the level of service for the southbound lane would be LOS B (12.1 seconds of delay) and the 95th percentile queue would be one vehicle under background with project conditions during the AM peak hour. During the PM peak hour, the southbound lane would be LOS B (12.3 seconds of delay) and the 95th percentile queue would be approximately one vehicle under background with project conditions.

The onsite circulation was reviewed in accordance with generally accepted traffic engineering standards. Onsite, parking would be provided at 90 degrees to the drive aisles. The site plan does not include designated loading areas for truck access for the site. Trucks would most likely load and unload in the drive aisle in front of the building, which would block access to parking stalls and restrict drive aisle operation to one-way. While this is generally undesirable, deliveries and garbage collection occur relatively infrequently, and most often during off peak hours. The site plan shows pedestrian access paths to the site from Owens Drive.

Garbage bins are shown on the site plan near the existing Larkspur Landing driveway. Based on our preliminary analysis, the parking lot design would be sufficiently wide to serve garbage trucks. During activities such as garbage collection, large vehicles may have some off tracking into oncoming travel lanes. However, traffic volumes onsite would be relatively low, and occasional encroachment of heavy vehicles on opposing traffic lanes would not create operational problems.

Other Transportation Modes

Overall, the volume of pedestrian trips generated by the project would not exceed the carrying capacity of the existing sidewalks and crosswalks on streets surrounding the site. All of the streets in the project vicinity have sidewalks and crosswalks at signalized intersections. All of the study intersections have existing curb ramps except at the intersection of Owens Drive and Johnson Court.

Recommendation: To accommodate pedestrians, the project should consider adding two new ADA-compliant curb ramps and a striped crosswalk at the existing curb returns at Owens Drive and Johnson Court.

According to the U.S. Census, approximately 1% percent of the proposed project's users could be expected to ride bikes to and from the project site. For the proposed project, this would equate to approximately 1 new bike trips during the AM peak hour and approximately 1 new bike trips during the PM peak hour. The low volume of bicycle trips generated by the project would not exceed the bicycle-carrying capacity of streets surrounding the site, and the increase in bicycle trips would not by itself require new off-site bicycle facilities. Johnson Drive and Hopyard Road both have striped bike lanes along both sides of the street near the project site. Owens Drive has striped bike lanes along both sides of the street in its entirety except between its intersections with Johnson Drive and Hopyard Road. Provisions for bike parking are not shown on the current site plan.

Recommendation: According to the City of Pleasanton *Pedestrian and Bicycle Master Plan, Appendix G - 2,* bicycle parking should be required of non-residential projects. The cited example ratio is one bicycle parking space for each 20 vehicle parking stalls or per each 5,000 square feet of commercial space. Prior to final design, City staff should review the project site plan to ensure that adequate accommodations for bike parking are provided.

According to the Alameda County Congestion Management Program (CMP) Transportation Impact Analysis Technical Guidelines, a project would create an impact on pedestrian and bike circulation if: (1) its vehicle trips would present a barrier to bikes/pedestrians safely crossing roadways, or (2) it would reduce or sever existing or planned bike/pedestrian circulation in the area. Based on these criteria, the proposed project would not create an adverse impact to bike/pedestrian circulation in the area.

The Livermore-Amador Valley Transit Authority (LAVTA) currently provides bus service in the project vicinity, including routes 3, 8, and 70XV. There are existing bus stops located on each side of Johnson Drive north and south of the signalized intersection with Owens Drive. According to the LAVTA Short Range Transit Plan (FY 2012 to 2021), most vehicles in the fleet have a seating capacity of 39 riders with an additional capacity of 21 standees. The bus routes that serve the project area average between 8.0 and 10.3 passengers per hour. According to the U.S. Census, bus trips comprise approximately 3% of the total commute mode share in the City of Pleasanton. For the proposed project, a 3% mode share would equate to approximately 2 new transit trips during the AM peak hour and approximately 3 new transit trips during the PM peak hour. This volume of riders would not exceed the carrying capacity of the existing bus service near the project site. Therefore, no improvements to the existing transit facilities would be necessary in conjunction with the proposed project.

According to the Alameda County CMP Transportation Impact Analysis Technical Guidelines, a project would create an impact on transit service if it: (1) causes vehicular congestion that would significantly degrade transit operations, (2) cause a ridership increase that would exceed existing transit capacity, or (3) conflict with existing transit service plans or preclude future transit service to the project area. Based on these criteria, the proposed project would not cause a significant impact to transit operations in the study area.

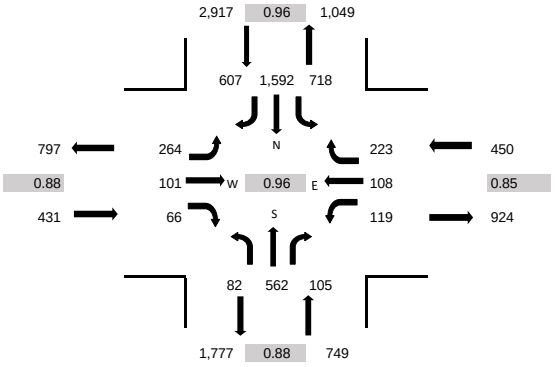
Conclusions

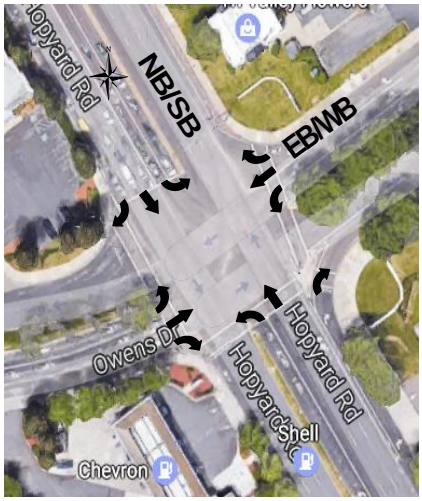
The impacts of the proposed project were evaluated in accordance with the procedures and guidelines specified by the City of Pleasanton. The analysis resulted in the following key findings:

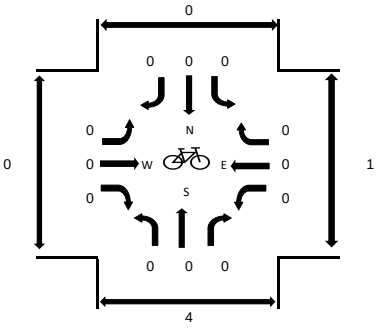
- Under existing, existing plus project, background with and without project conditions, all of the study intersections would operate at acceptable LOS during the AM and PM peak hours per City LOS standards.
- Under cumulative conditions, the southbound approach (Larkspur Landing) of the unsignalized intersection at Owens Drive and the Larkspur Landing driveway would deteriorate to LOS F with the addition of the project trips during the AM and PM peak hours. According to the City of Pleasanton significance criteria, this would constitute an *adverse significant impact*. To mitigate this impact would require restricting the left turn and through movements and allowing only right turn movements from the Larkspur Landing and Tommy T's driveways. In order to effectively implement this left and through turn restriction, a raised channelizing island is recommended to be installed on Owens Drive at the driveways. This improvement would return the average delay to better than no project conditions.
- The westbound left turn storage at the intersection of Johnson Drive and Owens Drive would be insufficient with the introduction of Mitigation #1. Because (1) lengthening the westbound left turn pocket at Johnson Drive and Owens Drive would shorten the eastbound left turn pocket into the Larkspur Landing driveway and (2) the intersection is projected to operate at good levels of service under all study scenarios, no physical improvements are recommended at this location. However, signal timing improvements such as (1) extended green times, (2) shortened traffic signal cycles, and/or (3) a left turn recall phase may be considered at this location to serve the increased traffic demand associated with Mitigation #1. To the extent upgrades are necessary to the traffic signal controller to achieve these signal timing modifications, they would be the responsibility of the project applicant.
- To accommodate pedestrians, the project should consider adding two new ADA-compliant curb ramps and a striped crosswalk at the existing curb returns at Owens Drive and Johnson Court.
- Prior to final design, City staff should review the project site plan to ensure that adequate accommodations for bike parking are provided.

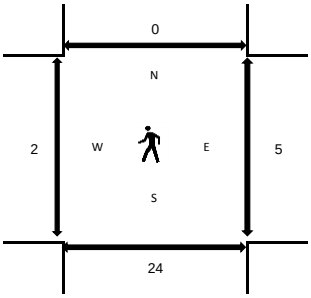
Appendix A
Traffic Counts

AimTD LLC **ID29** OwensDr_at_HopyardDr **Date and Start Time:** March 2, 2017 Thursday at 7:00 AM
City: Pleasanton **Peak Rolling Hour** 8:00 AM - 9:00 AM **Peak 15-Minutes** 8:40 AM - 8:55 AM





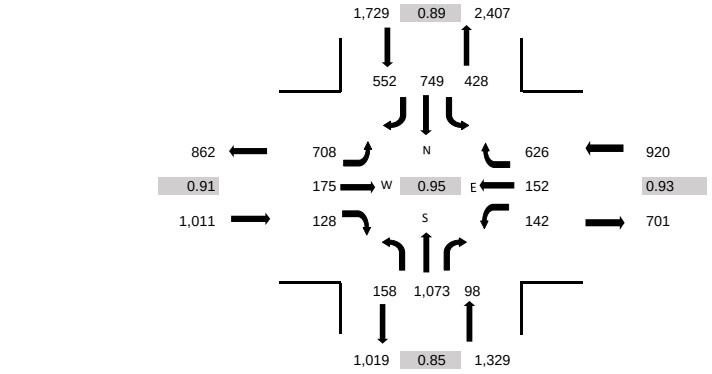


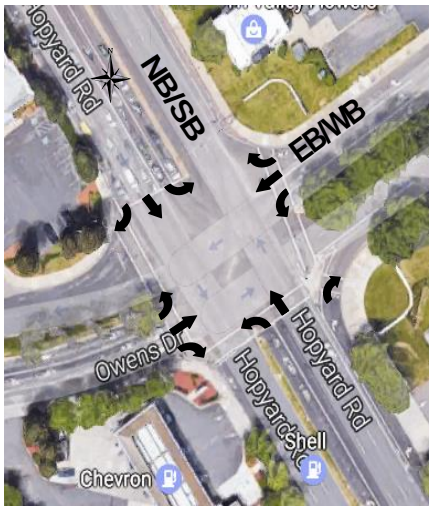


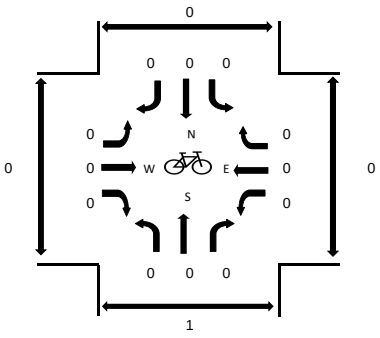
5-Minute Count Starting at:	OWENS DR Eastbound			OWENS DR Westbound			HOPYARD RD Northbound			HOPYARD RD Southbound				Rolling	Pedestrian Crossings			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	E	W	N	S
7:00 AM	14	9	5	5	10	13	2	28	7	24	94	31	242	242	2	0	0	0
7:05 AM	16	5	0	5	5	13	7	24	7	58	89	28	257	499	0	0	0	0
7:10 AM	16	6	3	7	4	17	5	25	11	48	79	26	247	746	0	0	0	0
7:15 AM	15	4	1	5	3	16	1	25	0	31	100	48	249	995	0	0	1	2
7:20 AM	18	8	9	4	6	13	4	42	6	47	102	45	304	1,299	1	0	0	1
7:25 AM	9	5	4	8	2	17	6	36	6	44	132	42	311	1,610	0	0	0	0
7:30 AM	25	11	8	7	7	19	5	37	5	31	92	39	286	1,896	0	0	0	2
7:35 AM	14	7	1	4	4	14	6	51	9	50	136	55	351	2,247	0	0	0	2
7:40 AM	23	7	5	10	3	13	10	32	6	44	114	32	299	2,546	0	0	0	2
7:45 AM	19	8	5	18	4	16	2	44	7	46	128	41	338	2,884	0	0	0	1
7:50 AM	19	4	5	10	3	17	3	34	8	61	136	42	342	3,226	1	0	0	3
7:55 AM	23	5	7	11	12	15	9	44	11	39	139	36	351	3,577	1	1	0	1
8:00 AM	14	7	3	8	5	13	6	49	11	64	153	49	382	3,717	0	1	0	4
8:05 AM	15	9	3	13	9	13	6	42	8	54	138	44	354	3,814	2	0	0	2
8:10 AM	34	11	3	11	3	15	11	42	7	64	127	45	373	3,940	1	0	0	1
8:15 AM	29	9	5	12	12	13	6	46	11	49	130	44	366	4,057	1	0	0	0
8:20 AM	17	7	5	7	9	22	3	51	14	72	144	49	400	4,153	0	0	0	3
8:25 AM	25	12	8	7	9	16	12	48	5	57	111	53	363	4,205	0	0	0	2
8:30 AM	18	3	5	7	8	20	8	58	10	60	134	51	382	4,301	1	1	0	3
8:35 AM	19	11	8	17	12	21	6	43	6	53	121	62	379	4,329	0	0	0	2
8:40 AM	18	3	7	9	8	23	4	53	6	73	144	56	404	4,434	0	0	0	0
8:45 AM	24	9	5	7	11	23	6	46	11	48	131	62	383	4,479	0	0	0	4
8:50 AM	27	11	4	8	13	21	11	37	9	75	125	46	387	4,524	0	0	0	3
8:55 AM	24	9	10	13	9	23	3	47	7	49	134	46	374	4,547	0	0	0	0

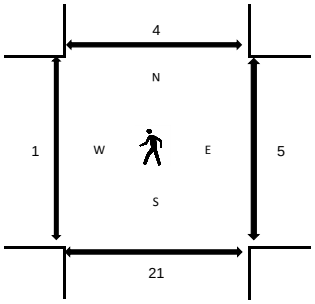
Peak Hour	Eastbound			Westbound			Northbound			Southbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
All Vehicles	264	101	66	119	108	223	82	562	105	718	1,592	607	4,547
Articulated Trucks	3	0	0	0	0	0	0	2	0	1	2	5	13
Buses	1	0	0	2	0	2	0	0	2	2	3	1	13
Single-Unit Trucks	19	2	0	3	1	7	1	13	0	8	14	12	80
Lights	241	99	66	114	107	214	81	547	103	707	1,573	589	4,441

AimTD LLC **ID29** OwensDr_at_HopyardDr **Date and Start Time** March 2, 2017 Thursday at 4:30 PM
City: Pleasanton **Peak Rolling Hour** 5:00 PM - 6:00 PM **Peak 15-Minutes** 5:40 PM - 5:55 PM







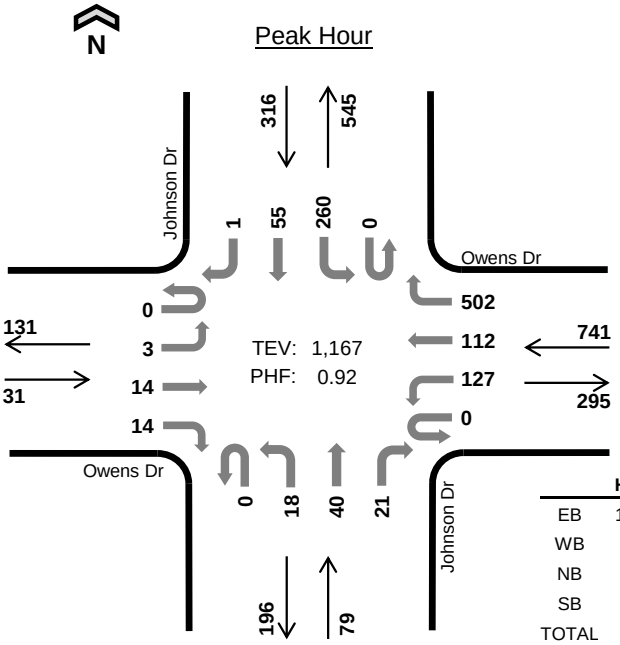


5-Minute Count Starting at:	OWENS DR Eastbound			OWENS DR Westbound			HOPYARD RD Northbound			HOPYARD RD Southbound				Rolling	Pedestrian Crossings			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour	E	W	N	S
4:30 PM	35	19	4	11	8	45	15	82	7	41	66	31	364	364	0	0	0	0
4:35 PM	59	17	16	13	13	43	14	67	6	21	43	16	328	692	0	1	0	2
4:40 PM	28	15	6	7	9	44	10	101	6	37	81	35	379	1,071	1	0	0	2
4:45 PM	44	12	11	13	15	38	13	65	3	28	57	31	330	1,401	0	0	0	4
4:50 PM	40	14	4	11	7	33	9	103	7	43	78	50	399	1,800	1	0	0	2
4:55 PM	58	10	11	13	12	55	12	56	8	39	41	36	351	2,151	1	2	0	3
5:00 PM	53	16	9	11	7	46	17	94	3	30	67	41	394	2,545	0	0	0	0
5:05 PM	85	15	12	18	16	60	7	75	10	37	51	43	429	2,974	0	0	0	3
5:10 PM	49	11	12	9	7	50	17	115	3	46	78	41	438	3,412	2	0	0	2
5:15 PM	66	17	11	12	16	56	6	80	11	29	55	39	398	3,810	0	0	0	5
5:20 PM	47	5	15	9	10	52	24	114	12	37	73	48	446	4,256	0	1	4	4
5:25 PM	58	19	10	21	20	51	9	66	4	29	46	53	386	4,642	0	0	0	0
5:30 PM	43	10	7	7	10	56	16	104	7	38	77	40	415	4,693	0	0	0	0
5:35 PM	74	20	4	14	9	54	11	76	8	35	57	37	399	4,764	1	0	0	1
5:40 PM	53	14	12	6	8	48	19	118	7	53	76	60	474	4,859	2	0	0	2
5:45 PM	67	21	10	14	23	44	13	77	18	30	53	47	417	4,946	0	0	0	2
5:50 PM	45	10	14	10	9	60	10	90	7	38	67	59	419	4,966	0	0	0	1
5:55 PM	68	17	12	11	17	49	9	64	8	26	49	44	374	4,989	0	0	0	1
6:00 PM	41	12	9	5	12	36	10	91	9	38	66	38	367	4,962	0	0	0	1
6:05 PM	70	14	13	11	13	42	10	47	10	31	57	56	374	4,907	3	0	0	4
6:10 PM	43	14	8	9	9	48	18	100	7	47	70	39	412	4,881	0	0	0	2
6:15 PM	69	18	10	15	20	46	8	50	6	35	43	51	371	4,854	0	0	0	4
6:20 PM	42	15	12	5	13	47	19	87	11	42	60	39	392	4,800	1	0	0	1
6:25 PM	72	25	9	11	10	32	11	47	5	25	36	45	328	4,742	0	0	0	0

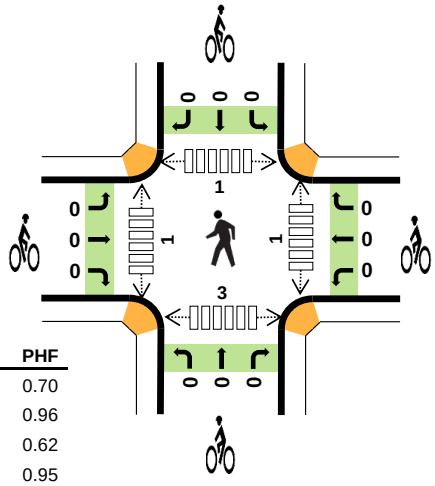
Peak Hour	Eastbound			Westbound			Northbound			Southbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
All Vehicles	708	175	128	142	152	626	158	1,073	98	428	749	552	4,989
Articulated Trucks	0	0	0	0	0	1	0	1	0	1	1	0	4
Buses	0	0	0	2	0	1	0	1	2	0	0	0	6
Single-Unit Trucks	4	1	0	0	0	3	0	2	1	2	2	8	23
Lights	704	174	128	140	152	621	158	1,069	95	425	746	544	4,956

Johnson Dr
Owens Dr

Date: 04-10-2018
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM



	HV %:	PHF
EB	12.9%	0.70
WB	1.1%	0.96
NB	2.5%	0.62
SB	4.4%	0.95
TOTAL	2.4%	0.92



Two-Hour Count Summaries

Interval Start	Owens Dr Eastbound				Owens Dr Westbound				Johnson Dr Northbound				Johnson Dr Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	1	6	5	0	16	12	72	0	3	7	15	0	42	10	1	190	0
7:15 AM	0	1	3	3	0	14	19	80	0	0	5	3	0	50	14	1	193	0
7:30 AM	0	0	2	1	2	37	21	75	0	0	1	7	0	64	17	1	228	0
7:45 AM	0	0	4	3	0	30	24	101	0	5	7	5	0	62	10	0	251	862
8:00 AM	**0**	**1**	**4**	**3**	**0**	**33**	**24**	**127**	**0**	**2**	**4**	**4**	**0**	**58**	**12**	**1**	**273**	945
8:15 AM	**0**	**0**	**1**	**2**	**0**	**32**	**26**	**115**	**0**	**1**	**14**	**4**	**0**	**65**	**17**	**0**	**277**	1,029
8:30 AM	**0**	**0**	**4**	**5**	**0**	**29**	**31**	**133**	**0**	**6**	**6**	**6**	**0**	**67**	**13**	**0**	**300**	1,101
8:45 AM	**0**	**2**	**5**	**4**	**0**	**33**	**31**	**127**	**0**	**9**	**16**	**7**	**0**	**70**	**13**	**0**	**317**	**1,167**
Count Total	0	5	29	26	2	224	188	830	0	26	60	51	0	478	106	4	2,029	0
Peak Hour All	**0**	**3**	**14**	**14**	**0**	**127**	**112**	**502**	**0**	**18**	**40**	**21**	**0**	**260**	**55**	**1**	**1,167**	**0**
Peak Hour HV	**0**	**0**	**4**	**0**	**0**	**1**	**0**	**7**	**0**	**1**	**0**	**1**	**0**	**12**	**2**	**0**	**28**	**0**
Peak Hour HV%	**-**	**0%**	**29%**	**0%**	**-**	**1%**	**0%**	**1%**	**-**	**6%**	**0%**	**5%**	**-**	**5%**	**4%**	**0%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	2	0	2	*4*	0	0	0	1	*1*	0	1	0	1	*2*
7:15 AM	0	2	0	4	*6*	0	0	0	0	*0*	2	0	0	0	*2*
7:30 AM	0	2	2	4	*8*	0	0	0	0	*0*	0	0	0	1	*1*
7:45 AM	0	7	0	6	*13*	0	0	0	1	*1*	0	1	1	0	*2*
8:00 AM	**2**	**2**	**2**	**2**	***8***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**1**	*1*
8:15 AM	**1**	**1**	**0**	**2**	***4***	**0**	**0**	**0**	**0**	***0***	**1**	**1**	**1**	**0**	*3*
8:30 AM	**1**	**4**	**0**	**7**	***12***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**1**	*1*
8:45 AM	**0**	**1**	**0**	**3**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**1**	***1***
Count Total	4	21	4	30	*59*	0	0	0	2	*2*	3	3	2	5	*13*
Peak Hour	**4**	**8**	**2**	**14**	***28***	**0**	**0**	**0**	**0**	***0***	**1**	**1**	**1**	**3**	***6***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Owens Dr Eastbound				Owens Dr Westbound				Johnson Dr Northbound				Johnson Dr Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	4	0
7:15 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	4	0	0	6	0
7:30 AM	0	0	0	0	0	0	2	0	0	0	0	2	0	4	0	0	8	0
7:45 AM	0	0	0	0	0	1	0	6	0	0	0	0	0	6	0	0	13	31
8:00 AM	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**1**	**0**	**1**	**1**	**0**	**8**	35
8:15 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**4**	33
8:30 AM	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**6**	**1**	**0**	**12**	37
8:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**4**	**28**
Count Total	0	0	4	0	0	3	2	16	0	1	0	3	0	28	2	0	59	0
Peak Hour	**0**	**0**	**4**	**0**	**0**	**1**	**0**	**7**	**0**	**1**	**0**	**1**	**0**	**12**	**2**	**0**	**28**	**0**

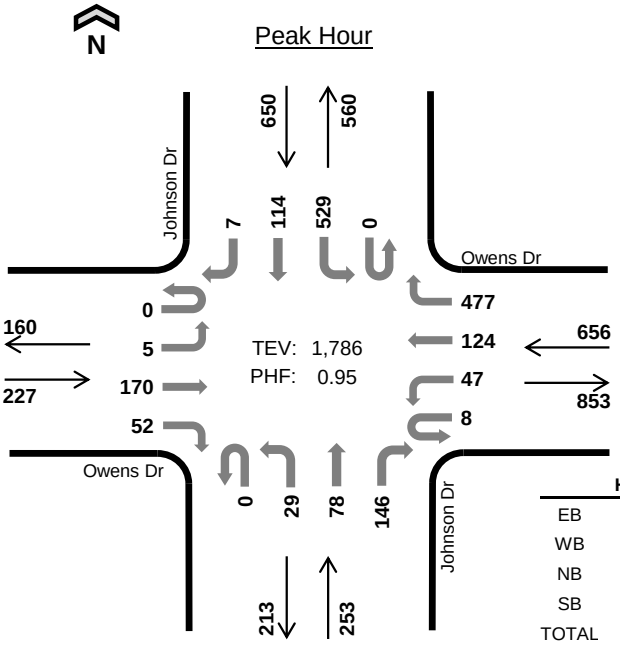
Two-Hour Count Summaries - Bikes

Interval Start	Owens Dr Eastbound			Owens Dr Westbound			Johnson Dr Northbound			Johnson Dr Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	2
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Count Total	0	0	0	0	0	0	0	0	0	0	2	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

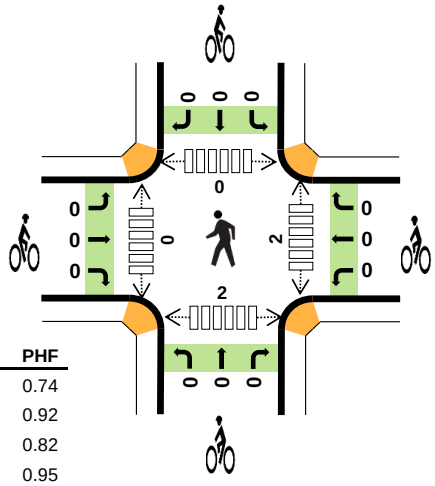
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Johnson Dr
Owens Dr

Date: 04-10-2018
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM



	HV %:	PHF
EB	0.9%	0.74
WB	1.4%	0.92
NB	0.4%	0.82
SB	0.5%	0.95
TOTAL	0.8%	0.95



Two-Hour Count Summaries

Interval Start	Owens Dr Eastbound				Owens Dr Westbound				Johnson Dr Northbound				Johnson Dr Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	2	31	12	1	16	21	126	0	6	8	39	0	119	16	0	397	0
4:15 PM	0	0	22	6	0	5	15	99	0	3	19	28	0	116	27	1	341	0
4:30 PM	0	4	21	12	4	6	19	111	0	2	19	34	0	107	19	0	358	0
4:45 PM	0	1	22	11	1	11	31	119	0	4	20	34	0	111	30	0	395	1,491
5:00 PM	**0**	**3**	**52**	**22**	**3**	**9**	**31**	**107**	**0**	**4**	**23**	**50**	**0**	**127**	**24**	**3**	**458**	1,552
5:15 PM	**0**	**2**	**41**	**8**	**3**	**16**	**31**	**129**	**0**	**6**	**20**	**44**	**0**	**141**	**29**	**1**	**471**	1,682
5:30 PM	**0**	**0**	**45**	**13**	**1**	**13**	**33**	**120**	**0**	**9**	**22**	**36**	**0**	**130**	**33**	**1**	**456**	1,780
5:45 PM	**0**	**0**	**32**	**9**	**1**	**9**	**29**	**121**	**0**	**10**	**13**	**16**	**0**	**131**	**28**	**2**	**401**	**1,786**
Count Total	0	12	266	93	14	85	210	932	0	44	144	281	0	982	206	8	3,277	0
Peak Hour All	**0**	**5**	**170**	**52**	**8**	**47**	**124**	**477**	**0**	**29**	**78**	**146**	**0**	**529**	**114**	**7**	**1,786**	**0**
Peak Hour HV	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**8**	**0**	**0**	**0**	**1**	**0**	**3**	**0**	**0**	**15**	**0**
Peak Hour HV%	**-**	**0%**	**0%**	**4%**	**0%**	**2%**	**0%**	**2%**	**-**	**0%**	**0%**	**1%**	**-**	**1%**	**0%**	**0%**	**1%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	0	3	*3*	0	0	0	0	*0*	1	0	0	2	*3*
4:15 PM	1	1	2	0	*4*	0	0	1	0	*1*	0	0	1	2	*3*
4:30 PM	0	1	0	0	*1*	0	0	0	0	*0*	0	0	0	1	*1*
4:45 PM	1	2	3	1	*7*	0	0	0	0	*0*	0	0	0	1	*1*
5:00 PM	**2**	**4**	**0**	**0**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**0**	**3**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**2**	**0**	**0**	**1**	*3*
5:30 PM	**0**	**0**	**1**	**2**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**1**	*1*
5:45 PM	**0**	**2**	**0**	**1**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
Count Total	4	13	6	7	*30*	0	0	1	0	*1*	3	0	1	8	*12*
Peak Hour	**2**	**9**	**1**	**3**	***15***	**0**	**0**	**0**	**0**	***0***	**2**	**0**	**0**	**2**	***4***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Owens Dr Eastbound				Owens Dr Westbound				Johnson Dr Northbound				Johnson Dr Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0
4:15 PM	0	0	0	1	0	0	1	0	0	0	1	1	0	0	0	0	4	0
4:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0
4:45 PM	0	0	0	1	0	0	0	2	0	1	2	0	0	1	0	0	7	15
5:00 PM	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	18
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	17
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**3**	19
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**3**	**15**
Count Total	0	0	0	4	0	1	1	11	0	1	3	2	0	7	0	0	30	0
Peak Hour	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**8**	**0**	**0**	**0**	**1**	**0**	**3**	**0**	**0**	**15**	**0**

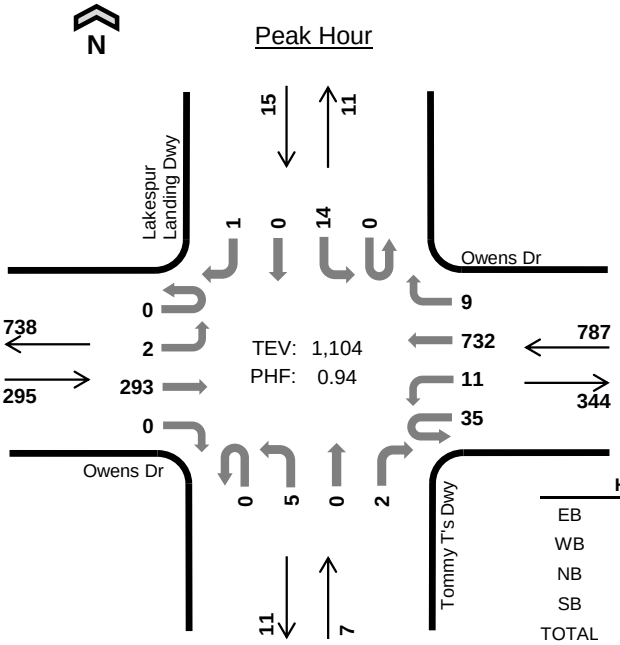
Two-Hour Count Summaries - Bikes

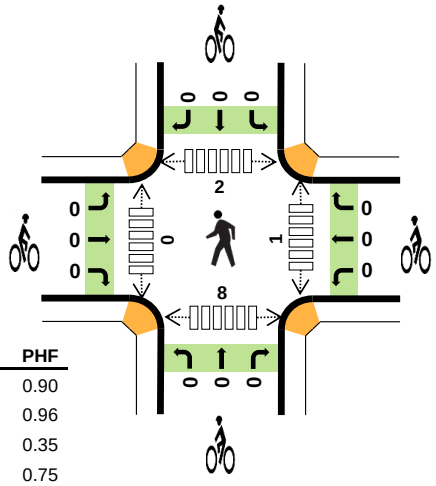
Interval Start	Owens Dr Eastbound			Owens Dr Westbound			Johnson Dr Northbound			Johnson Dr Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Count Total	0	0	0	0	0	0	0	1	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Lakespur Landing Dwy
Owens Dr

Date: 04-10-2018
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM





	HV %:	PHF
EB	5.8%	0.90
WB	1.1%	0.96
NB	0.0%	0.35
SB	0.0%	0.75
TOTAL	2.4%	0.94

Two-Hour Count Summaries

Interval Start		Owens Dr Eastbound				Owens Dr Westbound				Tommy T's Dwy Northbound				Lakespur Landing Dwy Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	64	0	8	2	94	0	0	4	0	0	0	8	1	0	181	0
7:15 AM		0	1	54	1	11	3	111	0	0	2	0	0	0	3	0	0	186	0
7:30 AM		0	1	73	0	6	1	131	0	0	2	0	2	0	3	0	2	221	0
7:45 AM		0	0	70	2	6	0	152	1	0	0	0	2	0	4	0	0	237	825
8:00 AM		**0**	**0**	**67**	**0**	**11**	**2**	**186**	**3**	**0**	**1**	**0**	**0**	**0**	**5**	**0**	**0**	**275**	919
8:15 AM		**0**	**2**	**67**	**0**	**5**	**5**	**169**	**2**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**253**	986
8:30 AM		**0**	**0**	**77**	**0**	**5**	**3**	**190**	**1**	**0**	**3**	**0**	**2**	**0**	**1**	**0**	**1**	**283**	1,048
8:45 AM		**0**	**0**	**82**	**0**	**14**	**1**	**187**	**3**	**0**	**1**	**0**	**0**	**0**	**5**	**0**	**0**	**293**	**1,104**
Count Total		0	4	554	3	66	17	1,220	10	0	13	0	6	0	32	1	3	1,929	0
Peak Hour	**All**	**0**	**2**	**293**	**0**	**35**	**11**	**732**	**9**	**0**	**5**	**0**	**2**	**0**	**14**	**0**	**1**	**1,104**	**0**
	HV	**0**	**0**	**17**	**0**	**0**	**0**	**8**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**26**	**0**
	HV%	**-**	**0%**	**6%**	**-**	**0%**	**0%**	**1%**	**11%**	**-**	**0%**	**-**	**0%**	**-**	**0%**	**-**	**0%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	2	2	0	0	*4*	0	0	0	0	*0*	1	0	0	1	*2*
7:15 AM	4	3	0	0	*7*	0	1	0	0	*1*	0	0	0	2	*2*
7:30 AM	6	2	0	0	*8*	0	0	0	0	*0*	0	0	0	3	*3*
7:45 AM	6	7	0	0	*13*	0	0	0	0	*0*	0	0	0	1	*1*
8:00 AM	**4**	**3**	**0**	**0**	***7***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**1**	*1*
8:15 AM	**3**	**1**	**0**	**0**	***4***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**1**	**1**	*3*
8:30 AM	**7**	**4**	**0**	**0**	***11***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**2**	*3*
8:45 AM	**3**	**1**	**0**	**0**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**4**	***4***
Count Total	35	23	0	0	*58*	0	1	0	0	*1*	2	0	2	15	*19*
Peak Hour	**17**	**9**	**0**	**0**	***26***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**2**	**8**	***11***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Owens Dr Eastbound				Owens Dr Westbound				Tommy T's Dwy Northbound				Lakespur Landing Dwy Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	4	0
7:15 AM	0	0	4	0	1	0	2	0	0	0	0	0	0	0	0	0	7	0
7:30 AM	0	0	6	0	0	0	2	0	0	0	0	0	0	0	0	0	8	0
7:45 AM	0	0	6	0	0	0	7	0	0	0	0	0	0	0	0	0	13	32
8:00 AM	**0**	**0**	**4**	**0**	**0**	**0**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	35
8:15 AM	**0**	**0**	**3**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	32
8:30 AM	**0**	**0**	**7**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	35
8:45 AM	**0**	**0**	**3**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**26**
Count Total	0	0	35	0	1	0	21	1	0	0	0	0	0	0	0	0	58	0
Peak Hour	**0**	**0**	**17**	**0**	**0**	**0**	**8**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**26**	**0**

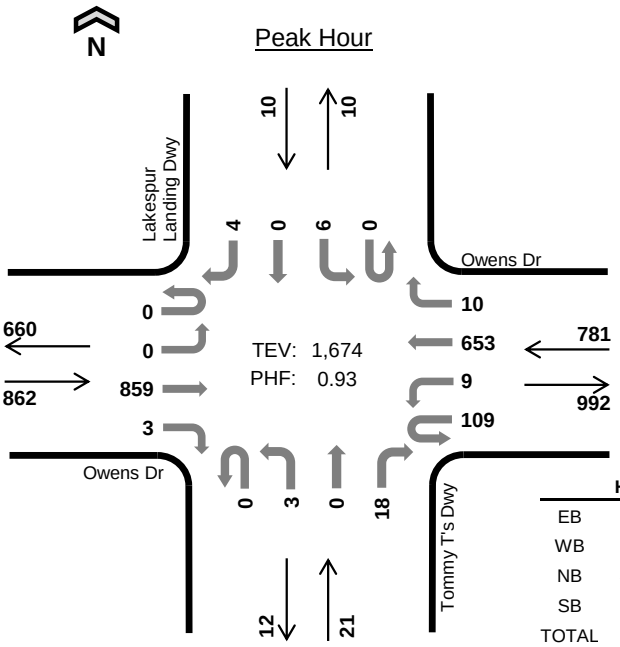
Two-Hour Count Summaries - Bikes

Interval Start	Owens Dr Eastbound			Owens Dr Westbound			Tommy T's Dwy Northbound			Lakespur Landing Dwy Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	1	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Count Total	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

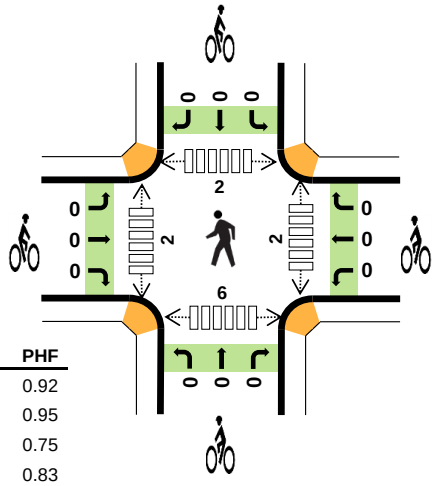
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Lakespur Landing Dwy
Owens Dr

Date: 04-10-2018
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM



	HV %:	PHF
EB	0.5%	0.92
WB	1.3%	0.95
NB	4.8%	0.75
SB	0.0%	0.83
TOTAL	0.9%	0.93



Two-Hour Count Summaries

Interval Start		Owens Dr Eastbound				Owens Dr Westbound				Tommy T's Dwy Northbound				Lakespur Landing Dwy Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	1	190	0	29	2	157	4	0	2	1	5	0	0	0	1	392	0
4:15 PM		0	0	164	2	31	0	123	2	0	0	1	3	0	1	0	0	327	0
4:30 PM		1	0	166	1	28	2	137	2	0	1	0	1	0	0	0	3	342	0
4:45 PM		0	0	164	1	27	5	158	4	0	1	0	1	0	3	0	1	365	1,426
5:00 PM		**0**	**0**	**232**	**1**	**24**	**3**	**149**	**3**	**0**	**1**	**0**	**4**	**0**	**1**	**0**	**1**	**419**	1,453
5:15 PM		**0**	**0**	**235**	**0**	**24**	**3**	**178**	**1**	**0**	**0**	**0**	**7**	**0**	**2**	**0**	**1**	**451**	1,577
5:30 PM		**0**	**0**	**217**	**1**	**25**	**2**	**162**	**3**	**0**	**2**	**0**	**2**	**0**	**0**	**0**	**2**	**416**	1,651
5:45 PM		**0**	**0**	**175**	**1**	**36**	**1**	**164**	**3**	**0**	**0**	**0**	**5**	**0**	**3**	**0**	**0**	**388**	**1,674**
Count Total		1	1	1,543	7	224	18	1,228	22	0	7	2	28	0	10	0	9	3,100	0
Peak Hour	**All**	**0**	**0**	**859**	**3**	**109**	**9**	**653**	**10**	**0**	**3**	**0**	**18**	**0**	**6**	**0**	**4**	**1,674**	**0**
	HV	**0**	**0**	**4**	**0**	**1**	**0**	**9**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**15**	**0**
	HV%	**-**	**-**	**0%**	**0%**	**1%**	**0%**	**1%**	**0%**	**-**	**0%**	**-**	**6%**	**-**	**0%**	**-**	**0%**	**1%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	3	0	0	0	*3*	0	0	0	0	*0*	0	0	0	2	*2*
4:15 PM	1	1	0	0	*2*	0	0	0	0	*0*	0	0	0	1	*1*
4:30 PM	0	1	0	0	*1*	0	0	0	0	*0*	0	0	0	1	*1*
4:45 PM	1	2	0	0	*3*	1	0	0	1	*2*	0	0	0	0	*0*
5:00 PM	**0**	**3**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**1**	**1**	*3*
5:15 PM	**0**	**5**	**1**	**0**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**3**	*4*
5:30 PM	**3**	**0**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**1**	*1*
5:45 PM	**1**	**2**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**1**	**1**	**1**	**1**	***4***
Count Total	9	14	1	0	*24*	1	0	0	1	*2*	2	2	2	10	*16*
Peak Hour	**4**	**10**	**1**	**0**	***15***	**0**	**0**	**0**	**0**	***0***	**2**	**2**	**2**	**6**	***12***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Owens Dr Eastbound				Owens Dr Westbound				Tommy T's Dwy Northbound				Lakespur Landing Dwy Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
4:15 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0
4:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
4:45 PM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	3	9
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	9
5:15 PM	**0**	**0**	**0**	**0**	**1**	**0**	**4**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**6**	13
5:30 PM	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	15
5:45 PM	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**15**
Count Total	0	0	9	0	1	0	13	0	0	0	0	1	0	0	0	0	24	0
Peak Hour	**0**	**0**	**4**	**0**	**1**	**0**	**9**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**15**	**0**

Two-Hour Count Summaries - Bikes

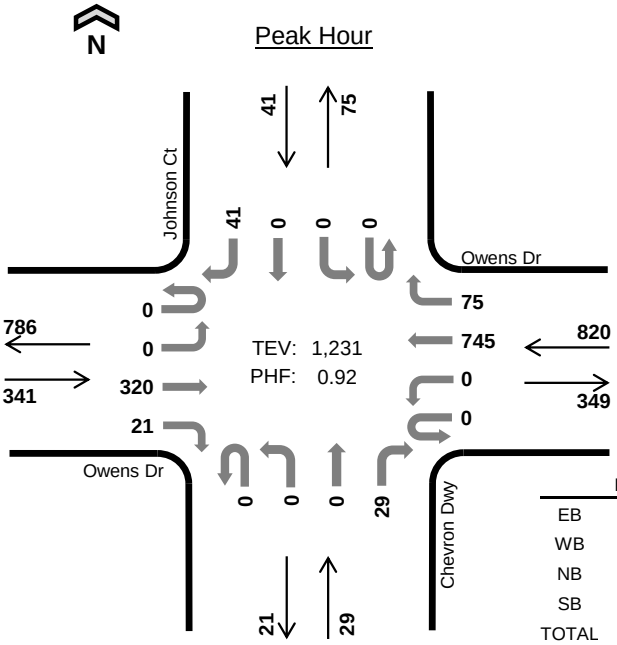
Interval Start	Owens Dr Eastbound			Owens Dr Westbound			Tommy T's Dwy Northbound			Lakespur Landing Dwy Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	1	0	0	0	0	0	0	0	1	0	0	2	2
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Count Total	0	1	0	0	0	0	0	0	0	1	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

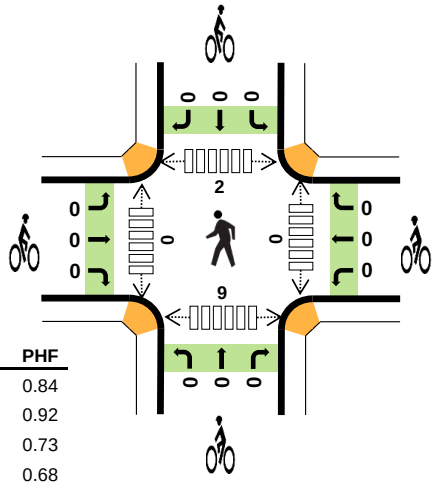
Johnson Ct
Owens Dr

Date: 04-10-2018
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM

Peak Hour



	HV %:	PHF
EB	5.0%	0.84
WB	1.2%	0.92
NB	0.0%	0.73
SB	2.4%	0.68
TOTAL	2.3%	0.92



Two-Hour Count Summaries

Interval Start	Owens Dr Eastbound				Owens Dr Westbound				Chevron Dwy Northbound				Johnson Ct Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	75	4	0	0	92	22	0	0	0	8	0	0	0	12	213	0
7:15 AM	0	0	63	5	0	0	113	18	0	0	0	11	0	0	0	15	225	0
7:30 AM	0	0	77	5	0	0	132	21	0	0	0	13	0	0	0	9	257	0
7:45 AM	0	0	80	1	0	0	154	23	0	0	0	6	0	0	0	9	273	968
8:00 AM	**0**	**0**	**70**	**11**	**0**	**0**	**187**	**18**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**13**	**305**	1,060
8:15 AM	**0**	**0**	**74**	**2**	**0**	**0**	**172**	**10**	**0**	**0**	**0**	**9**	**0**	**0**	**0**	**8**	**275**	1,110
8:30 AM	**0**	**0**	**78**	**5**	**0**	**0**	**197**	**26**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**5**	**315**	1,168
8:45 AM	**0**	**0**	**98**	**3**	**0**	**0**	**189**	**21**	**0**	**0**	**0**	**10**	**0**	**0**	**0**	**15**	**336**	**1,231**
Count Total	0	0	615	36	0	0	1,236	159	0	0	0	67	0	0	0	86	2,199	0
Peak Hour All	**0**	**0**	**320**	**21**	**0**	**0**	**745**	**75**	**0**	**0**	**0**	**29**	**0**	**0**	**0**	**41**	**1,231**	**0**
Peak Hour HV	**0**	**0**	**17**	**0**	**0**	**0**	**8**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**28**	**0**
Peak Hour HV%	**-**	**-**	**5%**	**0%**	**-**	**-**	**1%**	**3%**	**-**	**-**	**-**	**0%**	**-**	**-**	**-**	**2%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	2	2	0	0	*4*	0	0	0	0	*0*	0	0	1	1	*2*
7:15 AM	5	2	0	1	*8*	0	1	0	0	*1*	0	0	0	2	*2*
7:30 AM	6	3	1	0	*10*	0	0	0	0	*0*	0	0	0	3	*3*
7:45 AM	6	8	0	0	*14*	0	0	0	0	*0*	0	0	1	1	*2*
8:00 AM	**4**	**3**	**0**	**0**	***7***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**1**	*1*
8:15 AM	**3**	**1**	**0**	**0**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**2**	*2*
8:30 AM	**7**	**5**	**0**	**1**	***13***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**2**	*2*
8:45 AM	**3**	**1**	**0**	**0**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**2**	**4**	***6***
Count Total	36	25	1	2	*64*	0	1	0	0	*1*	0	0	4	16	*20*
Peak Hour	**17**	**10**	**0**	**1**	***28***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**2**	**9**	***11***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Owens Dr Eastbound				Owens Dr Westbound				Chevron Dwy Northbound				Johnson Ct Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	4	0
7:15 AM	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	1	8	0
7:30 AM	0	0	6	0	0	0	2	1	0	0	0	1	0	0	0	0	10	0
7:45 AM	0	0	6	0	0	0	7	1	0	0	0	0	0	0	0	0	14	36
8:00 AM	**0**	**0**	**4**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	39
8:15 AM	**0**	**0**	**3**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	35
8:30 AM	**0**	**0**	**7**	**0**	**0**	**0**	**3**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**13**	38
8:45 AM	**0**	**0**	**3**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**28**
Count Total	0	0	36	0	0	0	21	4	0	0	0	1	0	0	0	2	64	0
Peak Hour	**0**	**0**	**17**	**0**	**0**	**0**	**8**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**28**	**0**

Two-Hour Count Summaries - Bikes

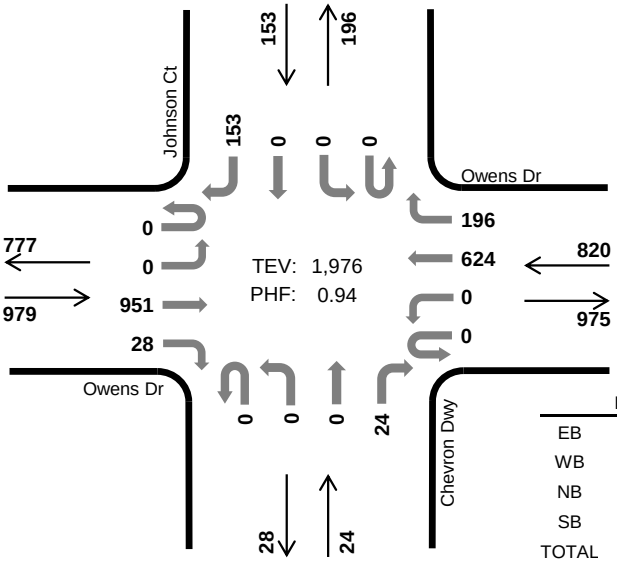
Interval Start	Owens Dr Eastbound			Owens Dr Westbound			Chevron Dwy Northbound			Johnson Ct Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	1	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Count Total	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

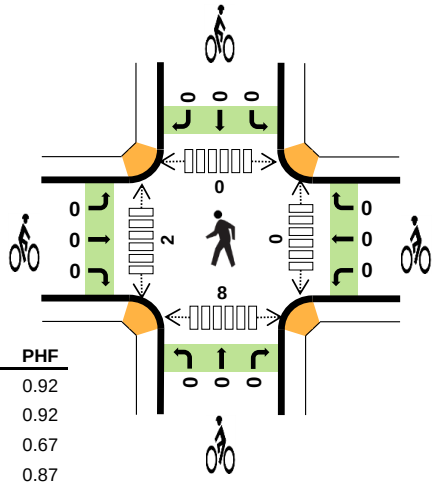
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Johnson Ct
Owens Dr

Date: 04-10-2018
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM

Peak Hour





	HV %:	PHF
EB	0.6%	0.92
WB	1.0%	0.92
NB	0.0%	0.67
SB	1.3%	0.87
TOTAL	0.8%	0.94

Two-Hour Count Summaries

Interval Start		Owens Dr Eastbound				Owens Dr Westbound				Chevron Dwy Northbound				Johnson Ct Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	0	221	10	0	0	149	39	0	0	0	10	0	0	0	39	468	0
4:15 PM		0	0	186	7	0	0	128	53	0	0	0	7	0	0	0	30	411	0
4:30 PM		0	0	202	0	0	0	131	46	0	0	0	7	0	0	0	34	420	0
4:45 PM		0	0	188	6	0	0	167	39	0	0	0	5	0	0	0	29	434	1,733
5:00 PM		**0**	**0**	**256**	**9**	**0**	**0**	**136**	**53**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**38**	**495**	1,760
5:15 PM		**0**	**0**	**248**	**10**	**0**	**0**	**174**	**48**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**38**	**526**	1,875
5:30 PM		**0**	**0**	**244**	**1**	**0**	**0**	**155**	**57**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**33**	**494**	1,949
5:45 PM		**0**	**0**	**203**	**8**	**0**	**0**	**159**	**38**	**0**	**0**	**0**	**9**	**0**	**0**	**0**	**44**	**461**	**1,976**
Count Total		0	0	1,748	51	0	0	1,199	373	0	0	0	53	0	0	0	285	3,709	0
Peak Hour	**All**	**0**	**0**	**951**	**28**	**0**	**0**	**624**	**196**	**0**	**0**	**0**	**24**	**0**	**0**	**0**	**153**	**1,976**	**0**
	HV	**0**	**0**	**6**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**16**	**0**
	HV%	**-**	**-**	**1%**	**0%**	**-**	**-**	**1%**	**0%**	**-**	**-**	**-**	**0%**	**-**	**-**	**-**	**1%**	**1%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	3	0	0	0	*3*	0	0	0	0	*0*	0	0	0	2	*2*
4:15 PM	1	1	0	0	*2*	0	0	0	0	*0*	0	0	0	1	*1*
4:30 PM	0	1	0	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
4:45 PM	1	3	0	0	*4*	2	0	0	0	*2*	0	0	0	0	*0*
5:00 PM	**0**	**2**	**0**	**1**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**2**	**0**	**3**	*5*
5:15 PM	**2**	**4**	**0**	**1**	***7***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**2**	*2*
5:30 PM	**3**	**0**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**1**	*1*
5:45 PM	**1**	**2**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**2**	***2***
Count Total	11	13	0	2	*26*	2	0	0	0	*2*	0	2	0	11	*13*
Peak Hour	**6**	**8**	**0**	**2**	***16***	**0**	**0**	**0**	**0**	***0***	**0**	**2**	**0**	**8**	***10***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Owens Dr Eastbound				Owens Dr Westbound				Chevron Dwy Northbound				Johnson Ct Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
4:15 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0
4:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
4:45 PM	0	0	1	0	0	0	2	1	0	0	0	0	0	0	0	0	4	10
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**3**	10
5:15 PM	**0**	**0**	**2**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**7**	15
5:30 PM	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	17
5:45 PM	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**16**
Count Total	0	0	11	0	0	0	12	1	0	0	0	0	0	0	0	2	26	0
Peak Hour	**0**	**0**	**6**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**16**	**0**

Two-Hour Count Summaries - Bikes

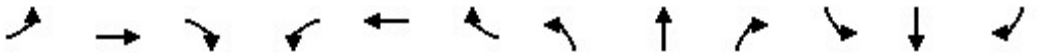
Interval Start	Owens Dr Eastbound			Owens Dr Westbound			Chevron Dwy Northbound			Johnson Ct Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	2	0	0	0	0	0	0	0	0	0	0	2	2
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Count Total	0	2	0	0	0	0	0	0	0	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Appendix B
Level of Service Calculations

Existing, Background, and Cumulative

No Project Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	264	101	66	119	108	223	82	562	105	718	1592	607
Future Volume (vph)	264	101	66	119	108	223	82	562	105	718	1592	607
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	0.91	0.91		1.00	0.95	0.95	1.00	0.91	1.00	0.97	0.91	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	0.98		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1664	3274		1829	1829	1554	1829	5255	1614	3547	5017	
Flt Permitted	0.95	0.98		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1664	3274		1829	1829	1554	1829	5255	1614	3547	5017	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	275	105	69	124	112	232	85	585	109	748	1658	632
RTOR Reduction (vph)	0	23	0	0	0	93	0	0	0	0	48	0
Lane Group Flow (vph)	148	278	0	124	113	139	85	585	109	748	2242	0
Confl. Peds. (#/hr)			24	24			2		5	54		2
Confl. Bikes (#/hr)			4									
Turn Type	Split	NA		Split	NA	pt+ov	Prot	NA	Free	Prot	NA	
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases									Free			
Actuated Green, G (s)	17.4	17.4		7.0	7.0	36.1	7.1	44.5	120.0	29.1	66.5	
Effective Green, g (s)	20.4	20.4		10.0	10.0	42.1	8.1	47.5	120.0	30.1	69.5	
Actuated g/C Ratio	0.17	0.17		0.08	0.08	0.35	0.07	0.40	1.00	0.25	0.58	
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	1.8	1.8		1.8	1.8		1.8	5.0		1.8	5.0	
Lane Grp Cap (vph)	282	556		152	152	545	123	2080	1614	889	2905	
v/s Ratio Prot	c0.09	0.08		c0.07	0.06	0.09	0.05	0.11		c0.21	c0.45	
v/s Ratio Perm									0.07			
v/c Ratio	0.52	0.50		0.82	0.74	0.26	0.69	0.28	0.07	0.84	0.77	
Uniform Delay, d1	45.4	45.2		54.1	53.7	27.8	54.7	24.6	0.0	42.7	19.2	
Progression Factor	0.99	0.99		1.00	1.00	1.00	0.79	1.28	1.00	0.99	0.86	
Incremental Delay, d2	0.8	0.3		26.2	15.7	0.1	12.3	0.3	0.1	3.5	1.0	
Delay (s)	45.9	45.0		80.3	69.5	27.9	55.7	31.9	0.1	45.8	17.6	
Level of Service	D	D		F	E	C	E	C	A	D	B	
Approach Delay (s)		45.3			51.8			30.0			24.5	
Approach LOS		D			D			C			C	

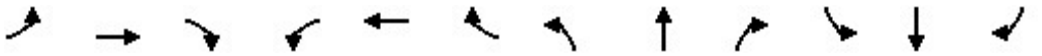
Intersection Summary			
HCM 2000 Control Delay	30.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	14	14	127	112	502	18	40	21	260	55	1
Future Volume (vph)	3	14	14	127	112	502	18	40	21	260	55	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.95	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	1.00	0.85	1.00	0.95		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.97	
Satd. Flow (prot)	1829	1758		1829	1925	1619	1829	1816		1737	1769	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.97	
Satd. Flow (perm)	1829	1758		1829	1925	1619	1829	1816		1737	1769	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	15	15	138	122	546	20	43	23	283	60	1
RTOR Reduction (vph)	0	13	0	0	0	215	0	20	0	0	0	0
Lane Group Flow (vph)	3	17	0	138	122	331	20	46	0	170	174	0
Confl. Peds. (#/hr)	1		3	3		1	1		1	1		1
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	
Protected Phases	5	2		1	6	3	4	4		3	3	
Permitted Phases						6						
Actuated Green, G (s)	0.7	5.0		9.9	14.2	30.0	6.4	6.4		15.8	15.8	
Effective Green, g (s)	1.7	7.0		10.9	16.2	34.0	8.4	8.4		17.8	17.8	
Actuated g/C Ratio	0.03	0.12		0.19	0.29	0.61	0.15	0.15		0.32	0.32	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	55	219		355	555	1067	273	271		551	561	
v/s Ratio Prot	0.00	c0.01		0.08	0.06	c0.10	0.01	c0.03		0.10	0.10	
v/s Ratio Perm						0.11						
v/c Ratio	0.05	0.08		0.39	0.22	0.31	0.07	0.17		0.31	0.31	
Uniform Delay, d1	26.4	21.7		19.7	15.2	5.4	20.5	20.8		14.5	14.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.2		0.7	0.2	0.2	0.1	0.3		0.3	0.3	
Delay (s)	26.8	21.8		20.4	15.4	5.5	20.6	21.1		14.8	14.8	
Level of Service	C	C		C	B	A	C	C		B	B	
Approach Delay (s)		22.3			9.6			21.0			14.8	
Approach LOS		C			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	56.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	320	21	0	745	75	0	0	29	0	0	41
Future Volume (Veh/h)	0	320	21	0	745	75	0	0	29	0	0	41
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	0	348	23	0	810	82	0	0	32	0	0	45
Pedestrians					9			9			2	
Lane Width (ft)					13.0			13.0			13.0	
Walking Speed (ft/s)					4.0			4.0			4.0	
Percent Blockage					1			1			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		627			205							
pX, platoon unblocked												
vC, conflicting volume	894			380			818	1262	146	1010	1233	448
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	894			380			818	1262	146	1010	1233	448
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	96	100	100	92
cM capacity (veh/h)	753			1165			242	167	861	184	174	557

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	139	139	93	540	352	32	45
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	23	0	82	32	45
cSH	1700	1700	1700	1700	1700	861	557
Volume to Capacity	0.08	0.08	0.05	0.32	0.21	0.04	0.08
Queue Length 95th (ft)	0	0	0	0	0	3	7
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.3	12.0
Lane LOS						A	B
Approach Delay (s)	0.0			0.0		9.3	12.0
Approach LOS						A	B

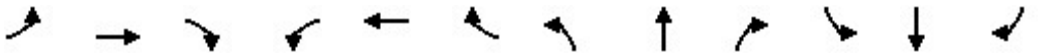
Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	33.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	2	293	0	35	11	732	9	5	0	2	14	0
Future Volume (Veh/h)	2	293	0	35	11	732	9	5	0	2	14	0
Sign Control		Free				Free			Stop			Stop
Grade		0%				0%			0%			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
Hourly flow rate (vph)	2	312	0	0	12	779	10	5	0	2	15	0
Pedestrians						1			8			2
Lane Width (ft)						13.0			13.0			13.0
Walking Speed (ft/s)						4.0			4.0			4.0
Percent Blockage						0			1			0
Right turn flare (veh)												
Median type		None				None						
Median storage veh)												
Upstream signal (ft)		390				442						
pX, platoon unblocked				0.00								
vC, conflicting volume	791			0	320			738	1139	113	921	1134
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	791			0	320			738	1139	113	921	1134
tC, single (s)	4.1			0.0	4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)												
tF (s)	2.2			0.0	2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	100			0	99			98	100	100	93	100
cM capacity (veh/h)	824			0	1228			298	196	911	221	197

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	2	125	125	62	12	519	270	7	16
Volume Left	2	0	0	0	12	0	0	5	15
Volume Right	0	0	0	0	0	0	10	2	1
cSH	824	1700	1700	1700	1228	1700	1700	369	230
Volume to Capacity	0.00	0.07	0.07	0.04	0.01	0.31	0.16	0.02	0.07
Queue Length 95th (ft)	0	0	0	0	1	0	0	1	6
Control Delay (s)	9.4	0.0	0.0	0.0	8.0	0.0	0.0	14.9	21.8
Lane LOS	A				A			B	C
Approach Delay (s)	0.1				0.1			14.9	21.8
Approach LOS								B	C

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	37.5%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	1
Future Volume (Veh/h)	1
Sign Control	
Grade	
Peak Hour Factor	0.94
Hourly flow rate (vph)	1
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	396
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	396
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	100
cM capacity (veh/h)	602
Direction, Lane #	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	708	175	128	142	152	626	158	1073	98	428	749	552
Future Volume (vph)	708	175	128	142	152	626	158	1073	98	428	749	552
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	0.91	0.91		1.00	0.95	0.95	1.00	0.91	1.00	0.97	0.91	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	1.00	1.00	1.00	0.99	1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	0.97		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1664	3285		1829	1829	1554	1829	5255	1614	3547	4893	
Flt Permitted	0.95	0.97		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1664	3285		1829	1829	1554	1829	5255	1614	3547	4893	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	745	184	135	149	160	659	166	1129	103	451	788	581
RTOR Reduction (vph)	0	21	0	0	0	64	0	0	0	0	133	0
Lane Group Flow (vph)	402	641	0	149	160	595	166	1129	103	451	1236	0
Confl. Peds. (#/hr)	4		21	21		4	1		5	5		1
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Split	NA		Split	NA	pt+ov	Prot	NA	Free	Prot	NA	
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases									Free			
Actuated Green, G (s)	24.2	24.2		17.0	17.0	28.8	7.8	25.0	100.0	11.8	29.0	
Effective Green, g (s)	27.2	27.2		20.0	20.0	34.8	8.8	28.0	100.0	12.8	32.0	
Actuated g/C Ratio	0.27	0.27		0.20	0.20	0.35	0.09	0.28	1.00	0.13	0.32	
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	1.8	1.8		1.8	1.8		1.8	5.0		1.8	5.0	
Lane Grp Cap (vph)	452	893		365	365	540	160	1471	1614	454	1565	
v/s Ratio Prot	c0.24	0.20		0.08	0.09	c0.38	0.09	0.21		0.13	c0.25	
v/s Ratio Perm									0.06			
v/c Ratio	0.89	0.72		0.41	0.44	1.10	1.04	0.77	0.06	0.99	0.89dr	
Uniform Delay, d1	35.0	32.9		34.8	35.1	32.6	45.6	33.0	0.0	43.6	30.9	
Progression Factor	0.99	0.99		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	18.3	2.3		0.3	0.3	69.7	81.4	3.9	0.1	40.3	4.1	
Delay (s)	53.1	35.0		35.1	35.4	102.3	127.0	36.9	0.1	83.8	35.1	
Level of Service	D	C		D	D	F	F	D	A	F	D	
Approach Delay (s)		41.8			80.9			44.9			47.2	
Approach LOS		D			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	51.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	90.4%	ICU Level of Service	E
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

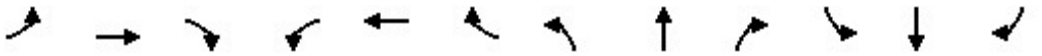
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	170	52	8	47	124	477	29	78	146	529	114
Future Volume (vph)	5	170	52	8	47	124	477	29	78	146	529	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0		3.0	3.0
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00		0.95	0.95
Frpb, ped/bikes	1.00	0.99			1.00	1.00	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.96			1.00	1.00	0.85	1.00	0.90		1.00	1.00
Flt Protected	0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95	0.97
Satd. Flow (prot)	1847	1865			1841	1944	1652	1847	1738		1754	1785
Flt Permitted	0.95	1.00			0.61	1.00	1.00	0.95	1.00		0.95	0.97
Satd. Flow (perm)	1847	1865			1188	1944	1652	1847	1738		1754	1785
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	179	55	8	49	131	502	31	82	154	557	120
RTOR Reduction (vph)	0	11	0	0	0	0	204	0	72	0	0	1
Lane Group Flow (vph)	5	223	0	0	57	131	298	31	164	0	340	343
Confl. Peds. (#/hr)			2		2					2	2	
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA		custom	Prot	NA	pm+ov	Split	NA		Split	NA
Protected Phases	5	2			1	6	3	4	4		3	3
Permitted Phases				1			6					
Actuated Green, G (s)	1.0	13.8			7.1	19.9	38.8	13.2	13.2		18.9	18.9
Effective Green, g (s)	2.0	15.8			8.1	21.9	42.8	15.2	15.2		20.9	20.9
Actuated g/C Ratio	0.03	0.22			0.11	0.30	0.59	0.21	0.21		0.29	0.29
Clearance Time (s)	4.0	5.0			4.0	5.0	5.0	5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	51	409			133	591	1050	389	366		509	518
v/s Ratio Prot	0.00	c0.12				0.07	0.08	0.02	c0.09		c0.19	0.19
v/s Ratio Perm					c0.05		0.10					
v/c Ratio	0.10	0.55			0.43	0.22	0.28	0.08	0.45		0.67	0.66
Uniform Delay, d1	34.1	24.9			29.8	18.7	7.1	22.8	24.7		22.5	22.5
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.8	1.5			2.2	0.2	0.1	0.1	0.9		3.3	3.2
Delay (s)	35.0	26.4			32.0	18.9	7.3	22.9	25.6		25.8	25.6
Level of Service	C	C			C	B	A	C	C		C	C
Approach Delay (s)		26.6				11.5			25.3			25.7
Approach LOS		C				B			C			C

Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	7
Future Volume (vph)	7
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	7
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	951	28	0	624	196	0	0	24	0	0	153
Future Volume (Veh/h)	0	951	28	0	624	196	0	0	24	0	0	153
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	0	1012	30	0	664	209	0	0	26	0	0	163
Pedestrians		2						8				
Lane Width (ft)		13.0						13.0				
Walking Speed (ft/s)		4.0						4.0				
Percent Blockage		0						1				
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)		626			205							
pX, platoon unblocked												
vC, conflicting volume	873			1050			1532	1908	360	1132	1818	438
vC1, stage 1 conf vol							1035	1035		768	768	
vC2, stage 2 conf vol							497	873		363	1050	
vCu, unblocked vol	873			1050			1532	1908	360	1132	1818	438
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	96	100	100	71
cM capacity (veh/h)	775			660			161	184	635	270	193	568

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	405	405	232	443	430	26	163
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	30	0	209	26	163
cSH	1700	1700	1700	1700	1700	635	568
Volume to Capacity	0.24	0.24	0.14	0.26	0.25	0.04	0.29
Queue Length 95th (ft)	0	0	0	0	0	3	30
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	10.9	13.9
Lane LOS						B	B
Approach Delay (s)	0.0			0.0		10.9	13.9
Approach LOS						B	B

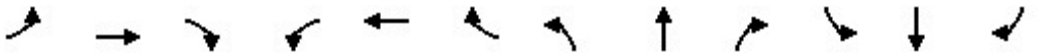
Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	40.1%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	0	859	3	109	9	653	10	3	0	18	6	0
Future Volume (Veh/h)	0	859	3	109	9	653	10	3	0	18	6	0
Sign Control		Free				Free			Stop			Stop
Grade		0%				0%			0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	924	3	0	10	702	11	3	0	19	6	0
Pedestrians		2				2			6			2
Lane Width (ft)		13.0				13.0			13.0			13.0
Walking Speed (ft/s)		4.0				4.0			4.0			4.0
Percent Blockage		0				0			1			0
Right turn flare (veh)												
Median type		None				None						
Median storage veh)												
Upstream signal (ft)		389				442						
pX, platoon unblocked				0.00								
vC, conflicting volume	715			0	933			1308	1666	318	1058	1662
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	715			0	933			1308	1666	318	1058	1662
tC, single (s)	4.1			0.0	4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)												
tF (s)	2.2			0.0	2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	100			0	99			97	100	97	96	100
cM capacity (veh/h)	880			0	725			114	94	673	170	94

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	0	370	370	188	10	468	245	22	10
Volume Left	0	0	0	0	10	0	0	3	6
Volume Right	0	0	0	3	0	0	11	19	4
cSH	1700	1700	1700	1700	725	1700	1700	403	241
Volume to Capacity	0.00	0.22	0.22	0.11	0.01	0.28	0.14	0.05	0.04
Queue Length 95th (ft)	0	0	0	0	1	0	0	4	3
Control Delay (s)	0.0	0.0	0.0	0.0	10.0	0.0	0.0	14.5	20.6
Lane LOS					B			B	C
Approach Delay (s)	0.0				0.1			14.5	20.6
Approach LOS								B	C

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	37.2%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	4
Future Volume (Veh/h)	4
Sign Control	
Grade	
Peak Hour Factor	0.93
Hourly flow rate (vph)	4
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	360
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	360
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	99
cM capacity (veh/h)	634
Direction, Lane #	

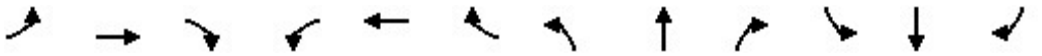


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	291	124	84	189	124	252	99	886	185	790	1615	675
Future Volume (vph)	291	124	84	189	124	252	99	886	185	790	1615	675
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0
Lane Util. Factor	0.91	0.91		1.00	0.95	0.95	1.00	0.91	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.98		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1664	3272		1829	1829	1554	1829	5255	1614	3547	5255	1612
Flt Permitted	0.95	0.98		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1664	3272		1829	1829	1554	1829	5255	1614	3547	5255	1612
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	303	129	88	197	129	262	103	923	193	823	1682	703
RTOR Reduction (vph)	0	26	0	0	0	58	0	0	0	0	0	319
Lane Group Flow (vph)	161	333	0	197	129	205	103	923	193	823	1682	384
Confl. Peds. (#/hr)			24	24			2		5	5		2
Turn Type	Split	NA		Split	NA	pt+ov	Prot	NA	Free	Prot	NA	Perm
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases									Free			6
Actuated Green, G (s)	18.4	18.4		15.2	15.2	45.2	10.6	34.4	120.0	30.0	53.8	53.8
Effective Green, g (s)	21.4	21.4		18.2	18.2	51.2	11.6	37.4	120.0	31.0	56.8	54.8
Actuated g/C Ratio	0.18	0.18		0.15	0.15	0.43	0.10	0.31	1.00	0.26	0.47	0.46
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	1.8	1.8		1.8	1.8		1.8	5.0		1.8	5.0	5.0
Lane Grp Cap (vph)	296	583		277	277	663	176	1637	1614	916	2487	736
v/s Ratio Prot	0.10	c0.10		c0.11	0.07	0.13	0.06	0.18		c0.23	c0.32	
v/s Ratio Perm									0.12			0.24
v/c Ratio	0.54	0.57		0.71	0.47	0.31	0.59	0.56	0.12	0.90	0.68	0.52
Uniform Delay, d1	44.9	45.1		48.4	46.5	22.7	51.9	34.5	0.0	43.0	24.5	23.3
Progression Factor	1.01	1.00		1.00	1.00	1.00	1.37	0.68	1.00	1.00	1.01	1.18
Incremental Delay, d2	1.1	0.8		7.0	0.5	0.1	3.1	1.4	0.1	5.1	0.6	1.1
Delay (s)	46.2	46.1		55.4	46.9	22.8	74.1	24.9	0.1	48.2	25.3	28.6
Level of Service	D	D		E	D	C	E	C	A	D	C	C
Approach Delay (s)		46.2			39.0			25.2			31.9	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	20	19	150	116	569	38	43	40	310	60	9
Future Volume (vph)	12	20	19	150	116	569	38	43	40	310	60	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.95	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.99	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	1.00	0.85	1.00	0.93		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.97	
Satd. Flow (prot)	1829	1762		1829	1925	1619	1829	1776		1737	1755	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.97	
Satd. Flow (perm)	1829	1762		1829	1925	1619	1829	1776		1737	1755	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	22	21	163	126	618	41	47	43	337	65	10
RTOR Reduction (vph)	0	18	0	0	0	249	0	36	0	0	1	0
Lane Group Flow (vph)	13	25	0	163	126	369	41	54	0	172	239	0
Confl. Peds. (#/hr)	1		3	3		1	1		1	1		1
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	
Protected Phases	5	2		1	6	3	4	4		3	3	
Permitted Phases						6						
Actuated Green, G (s)	0.9	5.4		9.9	14.4	32.3	8.6	8.6		17.9	17.9	
Effective Green, g (s)	1.9	7.4		10.9	16.4	36.3	10.6	10.6		19.9	19.9	
Actuated g/C Ratio	0.03	0.12		0.18	0.27	0.60	0.17	0.17		0.33	0.33	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	57	214		327	519	1046	318	309		568	574	
v/s Ratio Prot	c0.01	0.01		c0.09	0.07	c0.12	0.02	c0.03		0.10	c0.14	
v/s Ratio Perm						0.11						
v/c Ratio	0.23	0.11		0.50	0.24	0.35	0.13	0.18		0.30	0.42	
Uniform Delay, d1	28.7	23.8		22.5	17.3	6.3	21.2	21.4		15.3	15.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	0.2		1.2	0.2	0.2	0.2	0.3		0.3	0.5	
Delay (s)	30.8	24.0		23.7	17.6	6.5	21.4	21.7		15.6	16.4	
Level of Service	C	C		C	B	A	C	C		B	B	
Approach Delay (s)		25.6			11.1			21.6			16.1	
Approach LOS		C			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	60.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	388	21	0	830	91	0	0	29	0	0	48
Future Volume (Veh/h)	0	388	21	0	830	91	0	0	29	0	0	48
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	0	422	23	0	902	99	0	0	32	0	0	52
Pedestrians					9			9			2	
Lane Width (ft)					13.0			13.0			13.0	
Walking Speed (ft/s)					4.0			4.0			4.0	
Percent Blockage					1			1			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		627			205							
pX, platoon unblocked												
vC, conflicting volume	1003			454			946	1446	170	1135	1408	502
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1003			454			946	1446	170	1135	1408	502
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	96	100	100	90
cM capacity (veh/h)	685			1094			191	129	830	148	136	513

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	169	169	107	601	400	32	52
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	23	0	99	32	52
cSH	1700	1700	1700	1700	1700	830	513
Volume to Capacity	0.10	0.10	0.06	0.35	0.24	0.04	0.10
Queue Length 95th (ft)	0	0	0	0	0	3	8
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.5	12.8
Lane LOS						A	B
Approach Delay (s)	0.0			0.0		9.5	12.8
Approach LOS						A	B

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	35.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	5	365	0	42	11	814	12	5	0	2	21	0
Future Volume (Veh/h)	5	365	0	42	11	814	12	5	0	2	21	0
Sign Control		Free				Free			Stop			Stop
Grade		0%				0%			0%			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
Hourly flow rate (vph)	5	388	0	0	12	866	13	5	0	2	22	0
Pedestrians						1			8			2
Lane Width (ft)						13.0			13.0			13.0
Walking Speed (ft/s)						4.0			4.0			4.0
Percent Blockage						0			1			0
Right turn flare (veh)												
Median type		None				None						
Median storage veh)												
Upstream signal (ft)		390				442						
pX, platoon unblocked				0.00								
vC, conflicting volume	881			0	396			866	1311	138	1041	1304
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	881			0	396			866	1311	138	1041	1304
tC, single (s)	4.1			0.0	4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)												
tF (s)	2.2			0.0	2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	99			0	99			98	100	100	88	100
cM capacity (veh/h)	762			0	1151			239	154	877	180	155

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	5	155	155	78	12	577	302	7	25
Volume Left	5	0	0	0	12	0	0	5	22
Volume Right	0	0	0	0	0	0	13	2	3
cSH	762	1700	1700	1700	1151	1700	1700	302	196
Volume to Capacity	0.01	0.09	0.09	0.05	0.01	0.34	0.18	0.02	0.13
Queue Length 95th (ft)	0	0	0	0	1	0	0	2	11
Control Delay (s)	9.8	0.0	0.0	0.0	8.2	0.0	0.0	17.2	26.1
Lane LOS	A				A			C	D
Approach Delay (s)	0.1				0.1			17.2	26.1
Approach LOS								C	D

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	3
Future Volume (Veh/h)	3
Sign Control	
Grade	
Peak Hour Factor	0.94
Hourly flow rate (vph)	3
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	442
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	442
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	99
cM capacity (veh/h)	563
Direction, Lane #	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	763	275	189	200	188	710	210	1079	175	527	951	647
Future Volume (vph)	763	275	189	200	188	710	210	1079	175	527	951	647
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0
Lane Util. Factor	0.91	0.91		1.00	0.95	0.95	1.00	0.91	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99	1.00	1.00	1.00	0.99	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.93	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.98		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1664	3282		1829	1681	1554	1829	5255	1614	3547	5255	1615
Flt Permitted	0.95	0.98		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1664	3282		1829	1681	1554	1829	5255	1614	3547	5255	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	803	289	199	211	198	747	221	1136	184	555	1001	681
RTOR Reduction (vph)	0	25	0	0	34	65	0	0	0	0	0	461
Lane Group Flow (vph)	418	848	0	211	351	495	221	1136	184	555	1001	220
Confl. Peds. (#/hr)	4		21	21		4	1		5	5		1
Confl. Bikes (#/hr)			1									
Turn Type	Split	NA		Split	NA	pt+ov	Prot	NA	Free	Prot	NA	Perm
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases									Free			6
Actuated Green, G (s)	25.0	25.0		17.0	17.0	28.0	7.0	25.0	100.0	11.0	29.0	29.0
Effective Green, g (s)	28.0	28.0		20.0	20.0	34.0	8.0	28.0	100.0	12.0	32.0	30.0
Actuated g/C Ratio	0.28	0.28		0.20	0.20	0.34	0.08	0.28	1.00	0.12	0.32	0.30
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	1.8	1.8		1.8	1.8		1.8	5.0		1.8	5.0	5.0
Lane Grp Cap (vph)	465	918		365	336	528	146	1471	1614	425	1681	484
v/s Ratio Prot	0.25	c0.26		0.12	c0.21	0.32	c0.12	c0.22		c0.16	0.19	
v/s Ratio Perm									0.11			0.14
v/c Ratio	0.90	0.92		0.58	1.05	0.94	1.51	0.77	0.11	1.31	0.60	0.46
Uniform Delay, d1	34.6	35.0		36.2	40.0	32.0	46.0	33.1	0.0	44.0	28.6	28.4
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.15	0.73	1.00	1.00	1.00	1.00
Incremental Delay, d2	19.4	14.3		1.4	61.6	24.2	259.1	3.5	0.1	153.8	1.6	3.1
Delay (s)	54.1	49.4		37.6	101.6	56.2	311.8	27.5	0.1	197.8	30.1	31.4
Level of Service	D	D		D	F	E	F	C	A	F	C	C
Approach Delay (s)		50.9			67.9			65.0			72.1	
Approach LOS		D			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	65.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	98.0%	ICU Level of Service	F
Analysis Period (min)	15		

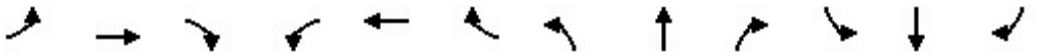
c Critical Lane Group

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	14	177	67	8	48	139	638	29	73	147	670	138
Future Volume (vph)	14	177	67	8	48	139	638	29	73	147	670	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0		3.0	3.0
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00		0.95	0.95
Frpb, ped/bikes	1.00	0.99			1.00	1.00	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.96			1.00	1.00	0.85	1.00	0.90		1.00	0.99
Flt Protected	0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95	0.97
Satd. Flow (prot)	1829	1833			1823	1925	1636	1829	1716		1737	1761
Flt Permitted	0.95	1.00			0.60	1.00	1.00	0.95	1.00		0.95	0.97
Satd. Flow (perm)	1829	1833			1152	1925	1636	1829	1716		1737	1761
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	15	186	71	8	51	146	672	31	77	155	705	145
RTOR Reduction (vph)	0	13	0	0	0	0	268	0	78	0	0	1
Lane Group Flow (vph)	15	244	0	0	59	146	404	31	154	0	388	477
Confl. Peds. (#/hr)			2		2					2	2	
Turn Type	Prot	NA		custom	Prot	NA	pm+ov	Split	NA		Split	NA
Protected Phases	5	2			1	6	3	4	4		3	3
Permitted Phases				1			6					
Actuated Green, G (s)	1.2	14.6			7.3	20.7	40.0	13.0	13.0		19.3	19.3
Effective Green, g (s)	2.2	16.6			8.3	22.7	44.0	15.0	15.0		21.3	21.3
Actuated g/C Ratio	0.03	0.23			0.11	0.31	0.60	0.20	0.20		0.29	0.29
Clearance Time (s)	4.0	5.0			4.0	5.0	5.0	5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	54	415			130	596	1050	374	351		505	512
v/s Ratio Prot	0.01	c0.13				0.08	c0.11	0.02	c0.09		0.22	c0.27
v/s Ratio Perm					0.05		0.13					
v/c Ratio	0.28	0.59			0.45	0.24	0.38	0.08	0.44		0.77	0.93
Uniform Delay, d1	34.7	25.2			30.3	18.9	7.6	23.5	25.4		23.7	25.2
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.8	2.1			2.5	0.2	0.2	0.1	0.9		6.9	23.8
Delay (s)	37.5	27.4			32.8	19.1	7.8	23.6	26.3		30.6	49.0
Level of Service	D	C			C	B	A	C	C		C	D
Approach Delay (s)		27.9				11.4			26.0			40.8
Approach LOS		C				B			C			D

Intersection Summary			
HCM 2000 Control Delay	26.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	73.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	15
Future Volume (vph)	15
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	16
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1167	28	0	786	217	0	0	24	0	0	158
Future Volume (Veh/h)	0	1167	28	0	786	217	0	0	24	0	0	158
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	0	1241	30	0	836	231	0	0	26	0	0	168
Pedestrians		2						8				
Lane Width (ft)		13.0						13.0				
Walking Speed (ft/s)		4.0						4.0				
Percent Blockage		0						1				
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		627			205							
pX, platoon unblocked												
vC, conflicting volume	1067			1279			1852	2331	437	1391	2230	536
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1067			1279			1852	2331	437	1391	2230	536
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	95	100	100	66
cM capacity (veh/h)	655			540			30	37	566	97	43	491

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	496	496	278	557	510	26	168
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	30	0	231	26	168
cSH	1700	1700	1700	1700	1700	566	491
Volume to Capacity	0.29	0.29	0.16	0.33	0.30	0.05	0.34
Queue Length 95th (ft)	0	0	0	0	0	4	38
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.7	16.1
Lane LOS						B	C
Approach Delay (s)	0.0			0.0		11.7	16.1
Approach LOS						B	C

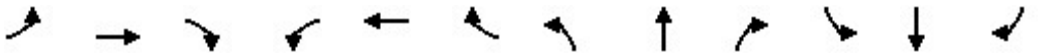
Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	45.5%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	3	1005	3	114	9	811	14	3	0	18	12	0
Future Volume (Veh/h)	3	1005	3	114	9	811	14	3	0	18	12	0
Sign Control		Free				Free			Stop			Stop
Grade		0%				0%			0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	3	1081	3	0	10	872	15	3	0	19	13	0
Pedestrians		2				2			6			2
Lane Width (ft)		13.0				13.0			13.0			13.0
Walking Speed (ft/s)		4.0				4.0			4.0			4.0
Percent Blockage		0				0			1			0
Right turn flare (veh)												
Median type		None				None						
Median storage veh)												
Upstream signal (ft)		390				442						
pX, platoon unblocked				0.00								
vC, conflicting volume	889			0	1090			1558	2004	370	1289	1998
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	889			0	1090			1558	2004	370	1289	1998
tC, single (s)	4.1			0.0	4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)												
tF (s)	2.2			0.0	2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	100			0	98			96	100	97	89	100
cM capacity (veh/h)	756			0	632			73	57	623	114	58

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	3	432	432	219	10	581	306	22	19
Volume Left	3	0	0	0	10	0	0	3	13
Volume Right	0	0	0	3	0	0	15	19	6
cSH	756	1700	1700	1700	632	1700	1700	308	153
Volume to Capacity	0.00	0.25	0.25	0.13	0.02	0.34	0.18	0.07	0.12
Queue Length 95th (ft)	0	0	0	0	1	0	0	6	10
Control Delay (s)	9.8	0.0	0.0	0.0	10.8	0.0	0.0	17.6	31.9
Lane LOS	A				B			C	D
Approach Delay (s)	0.0				0.1			17.6	31.9
Approach LOS								C	D

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	40.5%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	6
Future Volume (Veh/h)	6
Sign Control	
Grade	
Peak Hour Factor	0.93
Hourly flow rate (vph)	6
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	448
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	448
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	99
cM capacity (veh/h)	557
Direction, Lane #	



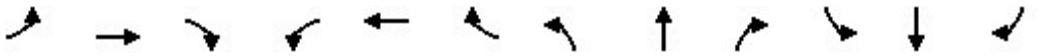
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	344	138	119	219	138	272	121	1037	205	850	1702	745
Future Volume (vph)	344	138	119	219	138	272	121	1037	205	850	1702	745
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	5.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	5.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	0.88	0.97	0.91		0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3547	3657	1552	1829	3657	2880	3547	5108		3547	5255	1636
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3547	3657	1552	1829	3657	2880	3547	5108		3547	5255	1636
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	358	144	124	228	144	283	126	1080	214	885	1773	776
RTOR Reduction (vph)	0	0	105	0	0	106	0	24	0	0	0	53
Lane Group Flow (vph)	358	144	19	228	144	177	126	1270	0	885	1773	723
Confl. Peds. (#/hr)			24	24			2		5	5		2
Confl. Bikes (#/hr)			4									
Turn Type	Prot	NA	Perm	Prot	NA	pt+ov	Prot	NA		Prot	NA	pt+ov
Protected Phases	3	8		7	4	4 1	5	2		1	6	6 3
Permitted Phases			8									
Actuated Green, G (s)	25.9	17.8	17.8	16.9	8.8	44.8	7.4	31.3		32.0	55.9	81.8
Effective Green, g (s)	28.9	20.8	18.8	19.9	11.8	46.8	8.4	34.3		33.0	58.9	83.8
Actuated g/C Ratio	0.24	0.17	0.16	0.17	0.10	0.39	0.07	0.29		0.28	0.49	0.70
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	1.8	1.8	1.8	1.8	1.8		1.8	5.0		1.8	5.0	
Lane Grp Cap (vph)	854	633	243	303	359	1123	248	1460		975	2579	1142
v/s Ratio Prot	0.10	0.04		c0.12	c0.04	0.06	0.04	c0.25		c0.25	0.34	c0.44
v/s Ratio Perm			0.01									
v/c Ratio	0.42	0.23	0.08	0.75	0.40	0.16	0.51	0.87		0.91	0.69	0.63
Uniform Delay, d1	38.5	42.7	43.2	47.7	50.8	23.8	53.8	40.7		42.0	23.5	9.8
Progression Factor	1.00	1.01	1.01	1.00	1.00	1.00	1.31	0.95		1.00	1.00	1.00
Incremental Delay, d2	0.1	0.1	0.1	9.0	0.3	0.0	0.6	7.1		11.6	1.5	0.9
Delay (s)	38.7	43.0	43.7	56.7	51.1	23.8	71.3	45.8		53.7	25.0	10.6
Level of Service	D	D	D	E	D	C	E	D		D	C	B
Approach Delay (s)		40.7			41.3			48.1			29.1	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	36.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	20	119	164	116	639	48	50	58	319	60	9
Future Volume (vph)	12	20	119	164	116	639	48	50	58	319	60	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.95	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	1.00	0.99	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.87		1.00	1.00	0.85	1.00	0.92		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.97	
Satd. Flow (prot)	1829	1641		1829	1925	1617	1829	1757		1737	1756	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.97	
Satd. Flow (perm)	1829	1641		1829	1925	1617	1829	1757		1737	1756	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	22	129	178	126	695	52	54	63	347	65	10
RTOR Reduction (vph)	0	106	0	0	0	281	0	48	0	0	1	0
Lane Group Flow (vph)	13	45	0	178	126	414	52	69	0	191	230	0
Confl. Peds. (#/hr)	1		3	3		1	1		1	1		1
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	
Protected Phases	5	2		1	6	3	4	4		3	3	
Permitted Phases						6						
Actuated Green, G (s)	0.9	9.1		8.7	16.9	32.6	9.0	9.0		15.7	15.7	
Effective Green, g (s)	1.9	11.1		9.7	18.9	36.6	11.0	11.0		17.7	17.7	
Actuated g/C Ratio	0.03	0.18		0.16	0.31	0.60	0.18	0.18		0.29	0.29	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	56	296		288	591	1041	327	314		499	505	
v/s Ratio Prot	0.01	0.03		c0.10	0.07	c0.11	0.03	c0.04		0.11	c0.13	
v/s Ratio Perm						0.14						
v/c Ratio	0.23	0.15		0.62	0.21	0.40	0.16	0.22		0.38	0.45	
Uniform Delay, d1	29.1	21.2		24.2	15.8	6.6	21.3	21.6		17.5	17.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.1	0.2		3.9	0.2	0.3	0.2	0.4		0.5	0.7	
Delay (s)	31.2	21.5		28.1	16.0	6.9	21.6	21.9		18.0	18.6	
Level of Service	C	C		C	B	A	C	C		B	B	
Approach Delay (s)		22.3			11.8			21.8			18.3	
Approach LOS		C			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	61.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	477	21	0	830	97	0	0	29	0	0	49
Future Volume (Veh/h)	0	477	21	0	830	97	0	0	29	0	0	49
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	0	518	23	0	902	105	0	0	32	0	0	53
Pedestrians					9			9			2	
Lane Width (ft)					13.0			13.0			13.0	
Walking Speed (ft/s)					4.0			4.0			4.0	
Percent Blockage					1			1			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		627			205							
pX, platoon unblocked	0.97						0.97	0.97		0.97	0.97	0.97
vC, conflicting volume	1009			550			1042	1548	159	1127	1506	506
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	940			550			975	1497	159	1062	1455	420
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	96	100	100	91
cM capacity (veh/h)	699			1008			177	116	844	162	123	562

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1
Volume Total	148	148	148	97	601	406	32	53
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	23	0	105	32	53
cSH	1700	1700	1700	1700	1700	1700	844	562
Volume to Capacity	0.09	0.09	0.09	0.06	0.35	0.24	0.04	0.09
Queue Length 95th (ft)	0	0	0	0	0	0	3	8
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.4	12.1
Lane LOS							A	B
Approach Delay (s)	0.0				0.0		9.4	12.1
Approach LOS							A	B

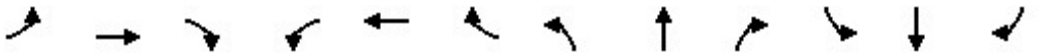
Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	36.1%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	5	446	0	43	14	1045	13	8	1	3	27	1
Future Volume (Veh/h)	5	446	0	43	14	1045	13	8	1	3	27	1
Sign Control		Free				Free			Stop			Stop
Grade		0%				0%			0%			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
Hourly flow rate (vph)	5	474	0	0	15	1112	14	9	1	3	29	1
Pedestrians						1			8			2
Lane Width (ft)						13.0			13.0			13.0
Walking Speed (ft/s)						4.0			4.0			4.0
Percent Blockage						0			1			0
Right turn flare (veh)												
Median type		None				None						
Median storage veh)												
Upstream signal (ft)		390				442						
pX, platoon unblocked	0.98			0.00				0.98	0.98		0.98	0.98
vC, conflicting volume	1128			0	482			1082	1650	167	1324	1643
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1096			0	482			1050	1627	167	1295	1620
tC, single (s)	4.1			0.0	4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)												
tF (s)	2.2			0.0	2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	99			0	99			95	99	100	74	99
cM capacity (veh/h)	621			0	1069			170	96	841	113	97

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	5	190	190	95	15	741	385	13	34
Volume Left	5	0	0	0	15	0	0	9	29
Volume Right	0	0	0	0	0	0	14	3	4
cSH	621	1700	1700	1700	1069	1700	1700	195	124
Volume to Capacity	0.01	0.11	0.11	0.06	0.01	0.44	0.23	0.07	0.27
Queue Length 95th (ft)	1	0	0	0	1	0	0	5	26
Control Delay (s)	10.8	0.0	0.0	0.0	8.4	0.0	0.0	24.8	44.7
Lane LOS	B				A			C	E
Approach Delay (s)	0.1				0.1			24.8	44.7
Approach LOS								C	E

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	46.3%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	4
Future Volume (Veh/h)	4
Sign Control	
Grade	
Peak Hour Factor	0.94
Hourly flow rate (vph)	4
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	0.98
vC, conflicting volume	565
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	524
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	99
cM capacity (veh/h)	489
Direction, Lane #	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	800	285	214	220	198	730	226	1144	195	697	975	698
Future Volume (vph)	800	285	214	220	198	730	226	1144	195	697	975	698
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	5.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	5.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	0.88	0.97	0.91		0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.94	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3547	3657	1536	1829	3657	2880	3547	5126		3547	5255	1636
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3547	3657	1536	1829	3657	2880	3547	5126		3547	5255	1636
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	842	300	225	232	208	768	238	1204	205	734	1026	735
RTOR Reduction (vph)	0	0	196	0	0	54	0	22	0	0	0	109
Lane Group Flow (vph)	842	300	29	232	208	714	238	1387	0	734	1026	626
Confl. Peds. (#/hr)	4		21	21		4	1		5	5		1
Confl. Bikes (#/hr)			1									
Turn Type	Prot	NA	Perm	Prot	NA	pt+ov	Prot	NA		Prot	NA	pt+ov
Protected Phases	3	8		7	4	4 1	5	2		1	6	6 3
Permitted Phases			8									
Actuated Green, G (s)	25.8	13.2	13.2	30.8	18.2	37.2	8.0	25.0		19.0	36.0	61.8
Effective Green, g (s)	28.8	16.2	14.2	33.8	21.2	43.2	9.0	28.0		20.0	39.0	63.8
Actuated g/C Ratio	0.26	0.15	0.13	0.31	0.19	0.39	0.08	0.25		0.18	0.35	0.58
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	1.8	1.8	1.8	1.8	1.8		1.8	5.0		1.8	5.0	
Lane Grp Cap (vph)	928	538	198	562	704	1131	290	1304		644	1863	948
v/s Ratio Prot	c0.24	0.08		0.13	0.06	c0.25	0.07	c0.27		c0.21	0.20	0.38
v/s Ratio Perm			0.02									
v/c Ratio	0.91	0.56	0.15	0.41	0.30	0.63	0.82	1.06		1.14	0.55	0.66
Uniform Delay, d1	39.3	43.6	42.5	30.2	38.0	27.0	49.7	41.0		45.0	28.5	15.7
Progression Factor	1.01	1.01	1.02	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	12.1	0.7	0.1	0.2	0.1	0.9	16.0	43.8		80.7	1.2	1.3
Delay (s)	51.7	44.6	43.6	30.4	38.1	27.8	65.7	84.8		125.7	29.7	17.1
Level of Service	D	D	D	C	D	C	E	F		F	C	B
Approach Delay (s)		48.8			30.1			82.1			54.2	
Approach LOS		D			C			F			D	

Intersection Summary			
HCM 2000 Control Delay	55.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

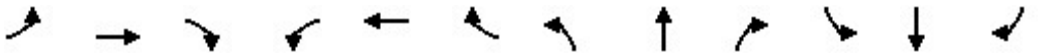
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	14	187	67	8	58	139	657	29	78	155	709	148
Future Volume (vph)	14	187	67	8	58	139	657	29	78	155	709	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0		3.0	3.0
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00		0.95	0.95
Frpb, ped/bikes	1.00	0.99			1.00	1.00	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.96			1.00	1.00	0.85	1.00	0.90		1.00	1.00
Flt Protected	0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95	0.97
Satd. Flow (prot)	1847	1854			1845	1944	1652	1847	1733		1754	1778
Flt Permitted	0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95	0.97
Satd. Flow (perm)	1847	1854			1845	1944	1652	1847	1733		1754	1778
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	15	197	71	8	61	146	692	31	82	163	746	156
RTOR Reduction (vph)	0	12	0	0	0	0	273	0	77	0	0	1
Lane Group Flow (vph)	15	256	0	0	69	146	419	31	168	0	410	507
Confl. Peds. (#/hr)			2		2					2	2	
Heavy Vehicles (%)	1%	1%	1%	2%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA		Prot	Prot	NA	pm+ov	Split	NA		Split	NA
Protected Phases	5	2		1	1	6	3	4	4		3	3
Permitted Phases							6					
Actuated Green, G (s)	1.2	14.6			9.1	22.5	41.4	13.3	13.3		18.9	18.9
Effective Green, g (s)	2.2	16.6			10.1	24.5	45.4	15.3	15.3		20.9	20.9
Actuated g/C Ratio	0.03	0.22			0.13	0.33	0.61	0.20	0.20		0.28	0.28
Clearance Time (s)	4.0	5.0			4.0	5.0	5.0	5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	54	410			248	635	1067	377	354		489	496
v/s Ratio Prot	0.01	c0.14			0.04	0.08	c0.11	0.02	c0.10		0.23	c0.29
v/s Ratio Perm							0.14					
v/c Ratio	0.28	0.62			0.28	0.23	0.39	0.08	0.47		0.84	1.02
Uniform Delay, d1	35.6	26.3			29.1	18.3	7.6	24.1	26.3		25.4	27.0
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.8	2.9			0.6	0.2	0.2	0.1	1.0		11.9	46.3
Delay (s)	38.4	29.3			29.7	18.5	7.9	24.2	27.3		37.4	73.3
Level of Service	D	C			C	B	A	C	C		D	E
Approach Delay (s)		29.8				11.2			26.9			57.2
Approach LOS		C				B			C			E

Intersection Summary			
HCM 2000 Control Delay	33.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	74.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	15
Future Volume (vph)	15
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	16
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	2
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1213	28	0	839	217	0	0	24	0	0	158
Future Volume (Veh/h)	0	1213	28	0	839	217	0	0	24	0	0	158
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	0	1290	30	0	893	231	0	0	26	0	0	168
Pedestrians		2						8				
Lane Width (ft)		13.0						13.0				
Walking Speed (ft/s)		4.0						4.0				
Percent Blockage		0						1				
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		627			205							
pX, platoon unblocked	0.96						0.96	0.96		0.96	0.96	0.96
vC, conflicting volume	1124			1328			1930	2437	346	1357	2336	564
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1036			1328			1879	2411	346	1280	2305	450
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	96	100	100	69
cM capacity (veh/h)	643			517			28	31	649	113	36	533

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1
Volume Total	369	369	369	214	595	529	26	168
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	30	0	231	26	168
cSH	1700	1700	1700	1700	1700	1700	649	533
Volume to Capacity	0.22	0.22	0.22	0.13	0.35	0.31	0.04	0.31
Queue Length 95th (ft)	0	0	0	0	0	0	3	33
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.8	14.8
Lane LOS							B	B
Approach Delay (s)	0.0				0.0		10.8	14.8
Approach LOS							B	B

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	47.0%	ICU Level of Service		A
Analysis Period (min)	15			

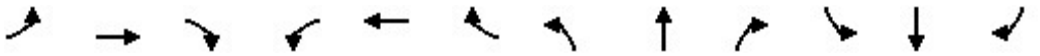
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	3	1020	3	114	9	811	14	3	0	18	12	0
Future Volume (Veh/h)	3	1020	3	114	9	811	14	3	0	18	12	0
Sign Control		Free				Free			Stop			Stop
Grade		0%				0%			0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	3	1097	3	0	10	872	15	3	0	19	13	0
Pedestrians		2				2			6			2
Lane Width (ft)		13.0				13.0			13.0			13.0
Walking Speed (ft/s)		4.0				4.0			4.0			4.0
Percent Blockage		0				0			1			0
Right turn flare (veh)												
Median type		None				None						
Median storage veh)												
Upstream signal (ft)		390				442						
pX, platoon unblocked				0.00								
vC, conflicting volume	889			0	1106			1574	2020	375	1294	2014
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	889			0	1106			1574	2020	375	1294	2014
tC, single (s)	4.1			0.0	4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)												
tF (s)	2.2			0.0	2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	100			0	98			96	100	97	89	100
cM capacity (veh/h)	756			0	624			71	56	618	113	56

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	3	439	439	222	10	581	306	22	19
Volume Left	3	0	0	0	10	0	0	3	13
Volume Right	0	0	0	3	0	0	15	19	6
cSH	756	1700	1700	1700	624	1700	1700	302	151
Volume to Capacity	0.00	0.26	0.26	0.13	0.02	0.34	0.18	0.07	0.13
Queue Length 95th (ft)	0	0	0	0	1	0	0	6	10
Control Delay (s)	9.8	0.0	0.0	0.0	10.9	0.0	0.0	17.9	32.1
Lane LOS	A				B			C	D
Approach Delay (s)	0.0				0.1			17.9	32.1
Approach LOS								C	D

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	40.8%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	6
Future Volume (Veh/h)	6
Sign Control	
Grade	
Peak Hour Factor	0.93
Hourly flow rate (vph)	6
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	448
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	448
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	99
cM capacity (veh/h)	557
Direction, Lane #	

Existing + Project, Background + Project, and Cumulative + Project Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	286	106	83	119	117	223	95	558	105	718	1580	651
Future Volume (vph)	286	106	83	119	117	223	95	558	105	718	1580	651
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	0.91	0.91		1.00	0.95	0.95	1.00	0.91	1.00	0.97	0.91	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	0.98		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1664	3256		1829	1829	1554	1829	5255	1614	3547	5004	
Flt Permitted	0.95	0.98		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1664	3256		1829	1829	1554	1829	5255	1614	3547	5004	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	298	110	86	124	122	232	99	581	109	748	1646	678
RTOR Reduction (vph)	0	29	0	0	0	85	0	0	0	0	55	0
Lane Group Flow (vph)	161	304	0	124	122	147	99	581	109	748	2269	0
Confl. Peds. (#/hr)			24	24			2		5	54		2
Confl. Bikes (#/hr)			4									
Turn Type	Split	NA		Split	NA	pt+ov	Prot	NA	Free	Prot	NA	
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases									Free			
Actuated Green, G (s)	17.9	17.9		7.0	7.0	36.1	8.9	44.0	120.0	29.1	64.2	
Effective Green, g (s)	20.9	20.9		10.0	10.0	42.1	9.9	47.0	120.0	30.1	67.2	
Actuated g/C Ratio	0.17	0.17		0.08	0.08	0.35	0.08	0.39	1.00	0.25	0.56	
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	1.8	1.8		1.8	1.8		1.8	5.0		1.8	5.0	
Lane Grp Cap (vph)	289	567		152	152	545	150	2058	1614	889	2802	
v/s Ratio Prot	c0.10	0.09		c0.07	0.07	0.09	0.05	0.11		c0.21	c0.45	
v/s Ratio Perm									0.07			
v/c Ratio	0.56	0.54		0.82	0.80	0.27	0.66	0.28	0.07	0.84	0.81	
Uniform Delay, d1	45.3	45.1		54.1	54.0	27.9	53.4	25.0	0.0	42.7	21.3	
Progression Factor	0.98	0.98		1.00	1.00	1.00	0.80	1.28	1.00	1.00	0.87	
Incremental Delay, d2	1.3	0.5		26.2	24.2	0.1	7.9	0.3	0.1	3.6	1.3	
Delay (s)	45.7	44.5		80.3	78.2	28.0	50.4	32.2	0.1	46.1	19.9	
Level of Service	D	D		F	E	C	D	C	A	D	B	
Approach Delay (s)		44.9			54.4			30.0			26.2	
Approach LOS		D			D			C			C	

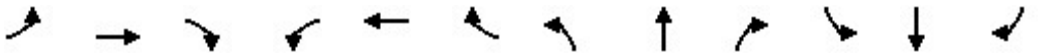
Intersection Summary			
HCM 2000 Control Delay	31.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	90.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	14	14	133	112	504	18	40	31	263	55	1
Future Volume (vph)	3	14	14	133	112	504	18	40	31	263	55	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.95	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.99	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	1.00	0.85	1.00	0.93		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.97	
Satd. Flow (prot)	1829	1758		1829	1925	1619	1829	1787		1737	1769	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.97	
Satd. Flow (perm)	1829	1758		1829	1925	1619	1829	1787		1737	1769	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	15	15	145	122	548	20	43	34	286	60	1
RTOR Reduction (vph)	0	13	0	0	0	215	0	29	0	0	0	0
Lane Group Flow (vph)	3	17	0	145	122	333	20	48	0	172	175	0
Confl. Peds. (#/hr)	1		3	3		1	1		1	1		1
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	
Protected Phases	5	2		1	6	3	4	4		3	3	
Permitted Phases						6						
Actuated Green, G (s)	0.7	5.0		10.0	14.3	30.3	6.4	6.4		16.0	16.0	
Effective Green, g (s)	1.7	7.0		11.0	16.3	34.3	8.4	8.4		18.0	18.0	
Actuated g/C Ratio	0.03	0.12		0.20	0.29	0.61	0.15	0.15		0.32	0.32	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	55	218		356	556	1070	272	266		554	564	
v/s Ratio Prot	0.00	c0.01		c0.08	0.06	c0.10	0.01	c0.03		0.10	0.10	
v/s Ratio Perm						0.11						
v/c Ratio	0.05	0.08		0.41	0.22	0.31	0.07	0.18		0.31	0.31	
Uniform Delay, d1	26.6	21.8		19.8	15.2	5.3	20.7	21.0		14.5	14.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.2		0.8	0.2	0.2	0.1	0.3		0.3	0.3	
Delay (s)	27.0	22.0		20.6	15.4	5.5	20.8	21.3		14.8	14.8	
Level of Service	C	C		C	B	A	C	C		B	B	
Approach Delay (s)		22.4			9.7			21.2			14.8	
Approach LOS		C			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	56.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	364	21	0	758	128	0	0	29	0	0	63
Future Volume (Veh/h)	0	364	21	0	758	128	0	0	29	0	0	63
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	0	396	23	0	824	139	0	0	32	0	0	68
Pedestrians					9			9			2	
Lane Width (ft)					13.0			13.0			13.0	
Walking Speed (ft/s)					4.0			4.0			4.0	
Percent Blockage					1			1			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		627			205							
pX, platoon unblocked												
vC, conflicting volume	965			428			896	1382	162	1068	1324	484
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	965			428			896	1382	162	1068	1324	484
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	96	100	100	87
cM capacity (veh/h)	708			1119			201	141	841	166	153	528

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	158	158	102	549	414	32	68
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	23	0	139	32	68
cSH	1700	1700	1700	1700	1700	841	528
Volume to Capacity	0.09	0.09	0.06	0.32	0.24	0.04	0.13
Queue Length 95th (ft)	0	0	0	0	0	3	11
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.4	12.8
Lane LOS						A	B
Approach Delay (s)	0.0			0.0		9.4	12.8
Approach LOS						A	B

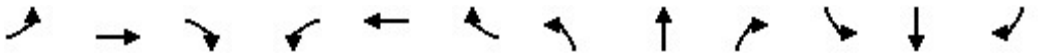
Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	35.6%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	15	293	0	57	11	732	22	5	0	2	36	0
Future Volume (Veh/h)	15	293	0	57	11	732	22	5	0	2	36	0
Sign Control		Free				Free			Stop			Stop
Grade		0%				0%			0%			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
Hourly flow rate (vph)	16	312	0	0	12	779	23	5	0	2	38	0
Pedestrians						1			8			2
Lane Width (ft)						13.0			13.0			13.0
Walking Speed (ft/s)						4.0			4.0			4.0
Percent Blockage						0			1			0
Right turn flare (veh)												
Median type		None				None						
Median storage veh)												
Upstream signal (ft)		390				442						
pX, platoon unblocked				0.00								
vC, conflicting volume	804			0	320			776	1180	113	956	1168
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	804			0	320			776	1180	113	956	1168
tC, single (s)	4.1			0.0	4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)												
tF (s)	2.2			0.0	2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	98			0	99			98	100	100	82	100
cM capacity (veh/h)	814			0	1228			273	182	911	206	185

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	16	125	125	62	12	519	283	7	48
Volume Left	16	0	0	0	12	0	0	5	38
Volume Right	0	0	0	0	0	0	23	2	10
cSH	814	1700	1700	1700	1228	1700	1700	341	238
Volume to Capacity	0.02	0.07	0.07	0.04	0.01	0.31	0.17	0.02	0.20
Queue Length 95th (ft)	2	0	0	0	1	0	0	2	18
Control Delay (s)	9.5	0.0	0.0	0.0	8.0	0.0	0.0	15.8	23.9
Lane LOS	A				A			C	C
Approach Delay (s)	0.5				0.1			15.8	23.9
Approach LOS								C	C

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	37.9%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	9
Future Volume (Veh/h)	9
Sign Control	
Grade	
Peak Hour Factor	0.94
Hourly flow rate (vph)	10
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	403
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	403
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	98
cM capacity (veh/h)	596
Direction, Lane #	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	744	184	153	142	161	626	172	1068	98	428	733	599
Future Volume (vph)	744	184	153	142	161	626	172	1068	98	428	733	599
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	0.91	0.91		1.00	0.95	0.95	1.00	0.91	1.00	0.97	0.91	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	1.00	1.00	1.00	0.99	1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	0.98		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1664	3274		1829	1829	1554	1829	5255	1614	3547	4872	
Flt Permitted	0.95	0.98		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1664	3274		1829	1829	1554	1829	5255	1614	3547	4872	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	783	194	161	149	169	659	181	1124	103	451	772	631
RTOR Reduction (vph)	0	25	0	0	0	64	0	0	0	0	148	0
Lane Group Flow (vph)	423	690	0	149	169	595	181	1124	103	451	1255	0
Confl. Peds. (#/hr)	4		21	21		4	1		5	5		1
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Split	NA		Split	NA	pt+ov	Prot	NA	Free	Prot	NA	
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases									Free			
Actuated Green, G (s)	24.6	24.6		17.0	17.0	28.4	7.4	25.0	100.0	11.4	29.0	
Effective Green, g (s)	27.6	27.6		20.0	20.0	34.4	8.4	28.0	100.0	12.4	32.0	
Actuated g/C Ratio	0.28	0.28		0.20	0.20	0.34	0.08	0.28	1.00	0.12	0.32	
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	1.8	1.8		1.8	1.8		1.8	5.0		1.8	5.0	
Lane Grp Cap (vph)	459	903		365	365	534	153	1471	1614	439	1559	
v/s Ratio Prot	c0.25	0.21		0.08	0.09	c0.38	0.10	0.21		0.13	c0.26	
v/s Ratio Perm									0.06			
v/c Ratio	0.92	0.76		0.41	0.46	1.11	1.18	0.76	0.06	1.03	0.94dr	
Uniform Delay, d1	35.1	33.2		34.8	35.3	32.8	45.8	33.0	0.0	43.8	31.1	
Progression Factor	0.99	0.99		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	23.6	3.5		0.3	0.3	74.0	130.4	3.8	0.1	50.1	4.5	
Delay (s)	58.5	36.4		35.1	35.6	106.8	176.2	36.8	0.1	93.9	35.7	
Level of Service	E	D		D	D	F	F	D	A	F	D	
Approach Delay (s)		44.6			83.5			52.0			49.9	
Approach LOS		D			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	55.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.4%	ICU Level of Service	F
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

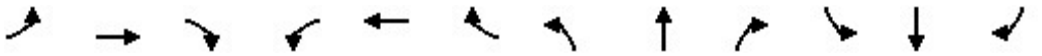
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	170	52	8	56	124	480	29	78	155	532	114
Future Volume (vph)	5	170	52	8	56	124	480	29	78	155	532	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0		3.0	3.0
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00		0.95	0.95
Frpb, ped/bikes	1.00	0.99			1.00	1.00	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.96			1.00	1.00	0.85	1.00	0.90		1.00	1.00
Flt Protected	0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95	0.97
Satd. Flow (prot)	1847	1865			1840	1944	1652	1847	1733		1754	1785
Flt Permitted	0.95	1.00			0.61	1.00	1.00	0.95	1.00		0.95	0.97
Satd. Flow (perm)	1847	1865			1187	1944	1652	1847	1733		1754	1785
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	179	55	8	59	131	505	31	82	163	560	120
RTOR Reduction (vph)	0	11	0	0	0	0	197	0	77	0	0	1
Lane Group Flow (vph)	5	223	0	0	67	131	308	31	168	0	342	344
Confl. Peds. (#/hr)			2		2					2	2	
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA		custom	Prot	NA	pm+ov	Split	NA		Split	NA
Protected Phases	5	2			1	6	3	4	4		3	3
Permitted Phases				1			6					
Actuated Green, G (s)	1.0	13.8			10.4	23.2	42.0	13.3	13.3		18.8	18.8
Effective Green, g (s)	2.0	15.8			11.4	25.2	46.0	15.3	15.3		20.8	20.8
Actuated g/C Ratio	0.03	0.21			0.15	0.33	0.61	0.20	0.20		0.28	0.28
Clearance Time (s)	4.0	5.0			4.0	5.0	5.0	5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	49	391			179	650	1075	375	352		484	493
v/s Ratio Prot	0.00	c0.12				0.07	0.08	0.02	c0.10		c0.19	0.19
v/s Ratio Perm					c0.06		0.11					
v/c Ratio	0.10	0.57			0.37	0.20	0.29	0.08	0.48		0.71	0.70
Uniform Delay, d1	35.8	26.7			28.7	17.9	6.9	24.3	26.5		24.5	24.4
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.9	2.0			1.3	0.2	0.1	0.1	1.0		4.7	4.3
Delay (s)	36.7	28.7			30.1	18.0	7.1	24.4	27.5		29.2	28.7
Level of Service	D	C			C	B	A	C	C		C	C
Approach Delay (s)		28.9				11.3			27.1			29.0
Approach LOS		C				B			C			C

Intersection Summary			
HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	75.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	7
Future Volume (vph)	7
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	7
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1021	28	0	638	252	0	0	24	0	0	187
Future Volume (Veh/h)	0	1021	28	0	638	252	0	0	24	0	0	187
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	0	1086	30	0	679	268	0	0	26	0	0	199
Pedestrians		2						8				
Lane Width (ft)		13.0						13.0				
Walking Speed (ft/s)		4.0						4.0				
Percent Blockage		0						1				
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		630			208							
pX, platoon unblocked												
vC, conflicting volume	947			1124			1650	2056	385	1201	1937	476
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	947			1124			1650	2056	385	1201	1937	476
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	96	100	100	63
cM capacity (veh/h)	727			619			41	55	612	135	65	537

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	434	434	247	453	494	26	199
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	30	0	268	26	199
cSH	1700	1700	1700	1700	1700	612	537
Volume to Capacity	0.26	0.26	0.15	0.27	0.29	0.04	0.37
Queue Length 95th (ft)	0	0	0	0	0	3	42
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.1	15.6
Lane LOS						B	C
Approach Delay (s)	0.0			0.0		11.1	15.6
Approach LOS						B	C

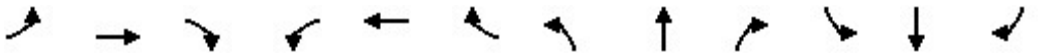
Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	44.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	12	859	3	143	9	653	24	3	0	18	42	0
Future Volume (Veh/h)	12	859	3	143	9	653	24	3	0	18	42	0
Sign Control		Free				Free			Stop			Stop
Grade		0%				0%			0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	13	924	3	0	10	702	26	3	0	19	45	0
Pedestrians		2				2			6			2
Lane Width (ft)		13.0				13.0			13.0			13.0
Walking Speed (ft/s)		4.0				4.0			4.0			4.0
Percent Blockage		0				0			1			0
Right turn flare (veh)												
Median type		None				None						
Median storage veh)												
Upstream signal (ft)		391				447						
pX, platoon unblocked				0.00								
vC, conflicting volume	730			0	933			1348	1708	318	1092	1696
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	730			0	933			1348	1708	318	1092	1696
tC, single (s)	4.1			0.0	4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)												
tF (s)	2.2			0.0	2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	99			0	99			97	100	97	72	100
cM capacity (veh/h)	868			0	725			103	87	673	159	88

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	13	370	370	188	10	468	260	22	62
Volume Left	13	0	0	0	10	0	0	3	45
Volume Right	0	0	0	3	0	0	26	19	17
cSH	868	1700	1700	1700	725	1700	1700	383	200
Volume to Capacity	0.01	0.22	0.22	0.11	0.01	0.28	0.15	0.06	0.31
Queue Length 95th (ft)	1	0	0	0	1	0	0	5	31
Control Delay (s)	9.2	0.0	0.0	0.0	10.0	0.0	0.0	15.0	30.9
Lane LOS	A				B			B	D
Approach Delay (s)	0.1				0.1			15.0	30.9
Approach LOS								B	D

Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	45.3%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	16
Future Volume (Veh/h)	16
Sign Control	
Grade	
Peak Hour Factor	0.93
Hourly flow rate (vph)	17
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	368
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	368
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	97
cM capacity (veh/h)	627
Direction, Lane #	

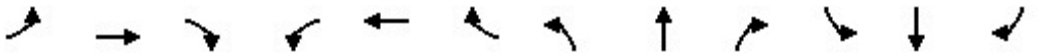


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	306	127	96	189	131	252	109	883	185	790	1607	708
Future Volume (vph)	306	127	96	189	131	252	109	883	185	790	1607	708
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0
Lane Util. Factor	0.91	0.91		1.00	0.95	0.95	1.00	0.91	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.98		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1664	3261		1829	1829	1554	1829	5255	1614	3547	5255	1612
Flt Permitted	0.95	0.98		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1664	3261		1829	1829	1554	1829	5255	1614	3547	5255	1612
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	319	132	100	197	136	262	114	920	193	823	1674	738
RTOR Reduction (vph)	0	29	0	0	0	53	0	0	0	0	0	341
Lane Group Flow (vph)	169	353	0	197	136	210	114	920	193	823	1674	397
Confl. Peds. (#/hr)			24	24			2		5	5		2
Turn Type	Split	NA		Split	NA	pt+ov	Prot	NA	Free	Prot	NA	Perm
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases									Free			6
Actuated Green, G (s)	18.8	18.8		15.2	15.2	45.2	11.1	34.0	120.0	30.0	52.9	52.9
Effective Green, g (s)	21.8	21.8		18.2	18.2	51.2	12.1	37.0	120.0	31.0	55.9	53.9
Actuated g/C Ratio	0.18	0.18		0.15	0.15	0.43	0.10	0.31	1.00	0.26	0.47	0.45
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	1.8	1.8		1.8	1.8		1.8	5.0		1.8	5.0	5.0
Lane Grp Cap (vph)	302	592		277	277	663	184	1620	1614	916	2447	724
v/s Ratio Prot	0.10	c0.11		c0.11	0.07	0.13	0.06	0.18		c0.23	c0.32	
v/s Ratio Perm									0.12			0.25
v/c Ratio	0.56	0.60		0.71	0.49	0.32	0.62	0.57	0.12	0.90	0.68	0.55
Uniform Delay, d1	44.7	45.1		48.4	46.7	22.8	51.7	34.8	0.0	43.0	25.1	24.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.37	0.69	1.00	1.00	1.01	1.19
Incremental Delay, d2	1.3	1.1		7.0	0.5	0.1	4.2	1.4	0.1	5.2	0.7	1.3
Delay (s)	46.1	46.2		55.4	47.2	22.9	75.3	25.3	0.1	48.2	26.0	30.1
Level of Service	D	D		E	D	C	E	C	A	D	C	C
Approach Delay (s)		46.2			39.2			26.0			32.6	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	33.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	20	19	154	116	571	38	43	48	312	60	9
Future Volume (vph)	12	20	19	154	116	571	38	43	48	312	60	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.95	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.99	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	1.00	0.85	1.00	0.92		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.97	
Satd. Flow (prot)	1829	1762		1829	1925	1619	1829	1761		1737	1755	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.97	
Satd. Flow (perm)	1829	1762		1829	1925	1619	1829	1761		1737	1755	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	22	21	167	126	621	41	47	52	339	65	10
RTOR Reduction (vph)	0	18	0	0	0	250	0	43	0	0	1	0
Lane Group Flow (vph)	13	25	0	167	126	371	41	56	0	173	240	0
Confl. Peds. (#/hr)	1		3	3		1	1		1	1		1
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	
Protected Phases	5	2		1	6	3	4	4		3	3	
Permitted Phases						6						
Actuated Green, G (s)	0.9	5.4		10.0	14.5	32.4	8.6	8.6		17.9	17.9	
Effective Green, g (s)	1.9	7.4		11.0	16.5	36.4	10.6	10.6		19.9	19.9	
Actuated g/C Ratio	0.03	0.12		0.18	0.27	0.60	0.17	0.17		0.33	0.33	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	57	214		330	521	1047	318	306		567	573	
v/s Ratio Prot	c0.01	0.01		c0.09	0.07	c0.12	0.02	c0.03		0.10	c0.14	
v/s Ratio Perm						0.11						
v/c Ratio	0.23	0.11		0.51	0.24	0.35	0.13	0.18		0.31	0.42	
Uniform Delay, d1	28.8	23.8		22.5	17.3	6.3	21.2	21.5		15.3	16.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	0.2		1.2	0.2	0.2	0.2	0.3		0.3	0.5	
Delay (s)	30.8	24.1		23.7	17.6	6.5	21.4	21.7		15.6	16.5	
Level of Service	C	C		C	B	A	C	C		B	B	
Approach Delay (s)		25.6			11.1			21.7			16.1	
Approach LOS		C			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	60.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	418	21	0	840	131	0	0	29	0	0	63
Future Volume (Veh/h)	0	418	21	0	840	131	0	0	29	0	0	63
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.95	0.95	0.92	0.92	0.95	0.95	0.95	0.92	0.95	0.92
Hourly flow rate (vph)	0	454	22	0	913	142	0	0	31	0	0	68
Pedestrians											2	
Lane Width (ft)											13.0	
Walking Speed (ft/s)											4.0	
Percent Blockage											0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		627			205							
pX, platoon unblocked												
vC, conflicting volume	1057			476			990	1522	162	1168	1462	530
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1057			476			990	1522	162	1168	1462	530
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	96	100	100	86
cM capacity (veh/h)	653			1082			173	117	854	143	127	493

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	182	182	113	609	446	31	68
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	22	0	142	31	68
cSH	1700	1700	1700	1700	1700	854	493
Volume to Capacity	0.11	0.11	0.07	0.36	0.26	0.04	0.14
Queue Length 95th (ft)	0	0	0	0	0	3	12
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.4	13.5
Lane LOS						A	B
Approach Delay (s)	0.0			0.0		9.4	13.5
Approach LOS						A	B

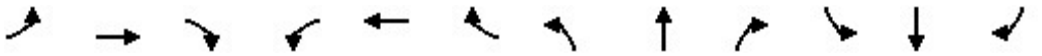
Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	38.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	15	365	0	57	11	814	22	5	0	2	36	0
Future Volume (Veh/h)	15	365	0	57	11	814	22	5	0	2	36	0
Sign Control		Free				Free			Stop			Stop
Grade		0%				0%			0%			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
Hourly flow rate (vph)	16	388	0	0	12	866	23	5	0	2	38	0
Pedestrians						1			8			2
Lane Width (ft)						13.0			13.0			13.0
Walking Speed (ft/s)						4.0			4.0			4.0
Percent Blockage						0			1			0
Right turn flare (veh)												
Median type		None				None						
Median storage veh)												
Upstream signal (ft)		390				442						
pX, platoon unblocked				0.00								
vC, conflicting volume	891			0	396			895	1343	138	1068	1332
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	891			0	396			895	1343	138	1068	1332
tC, single (s)	4.1			0.0	4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)												
tF (s)	2.2			0.0	2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	98			0	99			98	100	100	78	100
cM capacity (veh/h)	755			0	1151			223	145	877	170	147

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	16	155	155	78	12	577	312	7	48
Volume Left	16	0	0	0	12	0	0	5	38
Volume Right	0	0	0	0	0	0	23	2	10
cSH	755	1700	1700	1700	1151	1700	1700	283	199
Volume to Capacity	0.02	0.09	0.09	0.05	0.01	0.34	0.18	0.02	0.24
Queue Length 95th (ft)	2	0	0	0	1	0	0	2	23
Control Delay (s)	9.9	0.0	0.0	0.0	8.2	0.0	0.0	18.0	28.8
Lane LOS	A				A			C	D
Approach Delay (s)	0.4				0.1			18.0	28.8
Approach LOS								C	D

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	40.2%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	9
Future Volume (Veh/h)	9
Sign Control	
Grade	
Peak Hour Factor	0.94
Hourly flow rate (vph)	10
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	446
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	446
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	98
cM capacity (veh/h)	558
Direction, Lane #	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	793	283	210	200	194	710	221	1075	175	527	939	682
Future Volume (vph)	793	283	210	200	194	710	221	1075	175	527	939	682
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0
Lane Util. Factor	0.91	0.91		1.00	0.95	0.95	1.00	0.91	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99	1.00	1.00	1.00	0.99	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.93	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.98		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1664	3275		1829	1683	1554	1829	5255	1614	3547	5255	1615
Flt Permitted	0.95	0.98		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1664	3275		1829	1683	1554	1829	5255	1614	3547	5255	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	835	298	221	211	204	747	233	1132	184	555	988	718
RTOR Reduction (vph)	0	28	0	0	33	65	0	0	0	0	0	458
Lane Group Flow (vph)	434	892	0	211	358	495	233	1132	184	555	988	260
Confl. Peds. (#/hr)	4		21	21		4	1		5	5		1
Confl. Bikes (#/hr)			1									
Turn Type	Split	NA		Split	NA	pt+ov	Prot	NA	Free	Prot	NA	Perm
Protected Phases	3	3		4	4	4 1	5	2		1	6	
Permitted Phases									Free			6
Actuated Green, G (s)	25.0	25.0		17.0	17.0	28.0	7.0	25.0	100.0	11.0	29.0	29.0
Effective Green, g (s)	28.0	28.0		20.0	20.0	34.0	8.0	28.0	100.0	12.0	32.0	30.0
Actuated g/C Ratio	0.28	0.28		0.20	0.20	0.34	0.08	0.28	1.00	0.12	0.32	0.30
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	1.8	1.8		1.8	1.8		1.8	5.0		1.8	5.0	5.0
Lane Grp Cap (vph)	465	917		365	336	528	146	1471	1614	425	1681	484
v/s Ratio Prot	0.26	c0.27		0.12	c0.21	0.32	c0.13	c0.22		c0.16	0.19	
v/s Ratio Perm									0.11			0.16
v/c Ratio	0.93	0.97		0.58	1.07	0.94	1.60	0.77	0.11	1.31	0.59	0.54
Uniform Delay, d1	35.1	35.6		36.2	40.0	32.0	46.0	33.0	0.0	44.0	28.5	29.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.14	0.73	1.00	1.00	1.00	1.00
Incremental Delay, d2	25.6	23.0		1.4	67.7	24.2	294.1	3.4	0.1	153.8	1.5	4.2
Delay (s)	60.8	58.8		37.6	107.7	56.2	346.5	27.5	0.1	197.8	30.0	33.4
Level of Service	E	E		D	F	E	F	C	A	F	C	C
Approach Delay (s)		59.4			70.1			72.2			72.3	
Approach LOS		E			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	69.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		

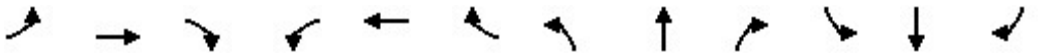
c Critical Lane Group

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	14	177	67	8	56	139	640	29	73	154	672	138
Future Volume (vph)	14	177	67	8	56	139	640	29	73	154	672	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0		3.0	3.0
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00		0.95	0.95
Frpb, ped/bikes	1.00	0.99			1.00	1.00	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.96			1.00	1.00	0.85	1.00	0.90		1.00	0.99
Flt Protected	0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95	0.97
Satd. Flow (prot)	1829	1832			1822	1925	1636	1829	1713		1737	1761
Flt Permitted	0.95	1.00			0.60	1.00	1.00	0.95	1.00		0.95	0.97
Satd. Flow (perm)	1829	1832			1151	1925	1636	1829	1713		1737	1761
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	15	186	71	8	59	146	674	31	77	162	707	145
RTOR Reduction (vph)	0	13	0	0	0	0	259	0	82	0	0	1
Lane Group Flow (vph)	15	244	0	0	67	146	415	31	157	0	389	478
Confl. Peds. (#/hr)			2		2					2	2	
Turn Type	Prot	NA		custom	Prot	NA	pm+ov	Split	NA		Split	NA
Protected Phases	5	2			1	6	3	4	4		3	3
Permitted Phases				1			6					
Actuated Green, G (s)	1.2	14.5			10.6	23.9	43.0	13.1	13.1		19.1	19.1
Effective Green, g (s)	2.2	16.5			11.6	25.9	47.0	15.1	15.1		21.1	21.1
Actuated g/C Ratio	0.03	0.22			0.15	0.34	0.62	0.20	0.20		0.28	0.28
Clearance Time (s)	4.0	5.0			4.0	5.0	5.0	5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	52	396			174	653	1072	361	339		480	486
v/s Ratio Prot	0.01	c0.13				0.08	c0.11	0.02	c0.09		0.22	c0.27
v/s Ratio Perm					0.06		0.15					
v/c Ratio	0.29	0.62			0.39	0.22	0.39	0.09	0.46		0.81	0.98
Uniform Delay, d1	36.3	27.0			29.1	18.0	7.4	25.0	27.0		25.7	27.4
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.1	2.8			1.4	0.2	0.2	0.1	1.0		10.0	36.1
Delay (s)	39.3	29.9			30.6	18.2	7.6	25.1	28.0		35.7	63.5
Level of Service	D	C			C	B	A	C	C		D	E
Approach Delay (s)		30.4				11.1			27.7			51.1
Approach LOS		C				B			C			D

Intersection Summary			
HCM 2000 Control Delay	30.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	76.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	15
Future Volume (vph)	15
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	16
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1226	28	0	796	259	0	0	24	0	0	187
Future Volume (Veh/h)	0	1226	28	0	796	259	0	0	24	0	0	187
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.95	0.95	0.94	0.94	0.95	0.95	0.95	0.94	0.95	0.94
Hourly flow rate (vph)	0	1304	29	0	847	276	0	0	25	0	0	199
Pedestrians		2										
Lane Width (ft)		13.0										
Walking Speed (ft/s)		4.0										
Percent Blockage		0										
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		627			205							
pX, platoon unblocked												
vC, conflicting volume	1123			1333			1943	2442	449	1445	2318	564
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1123			1333			1943	2442	449	1445	2318	564
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	96	100	100	58
cM capacity (veh/h)	624			513			22	31	557	89	37	471

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	522	522	290	565	558	25	199
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	29	0	276	25	199
cSH	1700	1700	1700	1700	1700	557	471
Volume to Capacity	0.31	0.31	0.17	0.33	0.33	0.04	0.42
Queue Length 95th (ft)	0	0	0	0	0	4	52
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.8	18.1
Lane LOS						B	C
Approach Delay (s)	0.0			0.0		11.8	18.1
Approach LOS						B	C

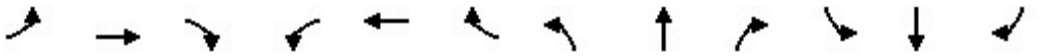
Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	48.8%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	12	1005	3	143	9	811	24	3	0	18	42	0
Future Volume (Veh/h)	12	1005	3	143	9	811	24	3	0	18	42	0
Sign Control		Free				Free			Stop			Stop
Grade		0%				0%			0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	13	1081	3	0	10	872	26	3	0	19	45	0
Pedestrians		2				2			6			2
Lane Width (ft)		13.0				13.0			13.0			13.0
Walking Speed (ft/s)		4.0				4.0			4.0			4.0
Percent Blockage		0				0			1			0
Right turn flare (veh)												
Median type		None				None						
Median storage veh)												
Upstream signal (ft)		390				442						
pX, platoon unblocked				0.00								
vC, conflicting volume	900			0	1090			1590	2034	370	1314	2023
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	900			0	1090			1590	2034	370	1314	2023
tC, single (s)	4.1			0.0	4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)												
tF (s)	2.2			0.0	2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	98			0	98			96	100	97	59	100
cM capacity (veh/h)	756			0	638			68	55	626	109	56

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	13	432	432	219	10	581	317	22	62
Volume Left	13	0	0	0	10	0	0	3	45
Volume Right	0	0	0	3	0	0	26	19	17
cSH	756	1700	1700	1700	638	1700	1700	296	140
Volume to Capacity	0.02	0.25	0.25	0.13	0.02	0.34	0.19	0.07	0.44
Queue Length 95th (ft)	1	0	0	0	1	0	0	6	49
Control Delay (s)	9.8	0.0	0.0	0.0	10.7	0.0	0.0	18.2	49.5
Lane LOS	A				B			C	E
Approach Delay (s)	0.1				0.1			18.2	49.5
Approach LOS								C	E

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	48.2%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	16
Future Volume (Veh/h)	16
Sign Control	
Grade	
Peak Hour Factor	0.93
Hourly flow rate (vph)	17
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	453
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	453
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	97
cM capacity (veh/h)	555
Direction, Lane #	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	359	141	131	219	145	272	131	1034	205	850	1694	778
Future Volume (vph)	359	141	131	219	145	272	131	1034	205	850	1694	778
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	5.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	5.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	0.88	0.97	0.91		0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3547	3657	1552	1829	3657	2880	3547	5108		3547	5255	1636
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3547	3657	1552	1829	3657	2880	3547	5108		3547	5255	1636
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	374	147	136	228	151	283	136	1077	214	885	1765	810
RTOR Reduction (vph)	0	0	115	0	0	108	0	23	0	0	0	56
Lane Group Flow (vph)	374	147	21	228	151	175	136	1268	0	885	1765	754
Confl. Peds. (#/hr)			24	24			2		5	5		2
Confl. Bikes (#/hr)			4									
Turn Type	Prot	NA	Perm	Prot	NA	pt+ov	Prot	NA		Prot	NA	pt+ov
Protected Phases	3	8		7	4	4 1	5	2		1	6	6 3
Permitted Phases			8									
Actuated Green, G (s)	24.7	17.8	17.8	16.0	9.1	43.1	6.9	34.2		30.0	57.3	82.0
Effective Green, g (s)	27.7	20.8	18.8	19.0	12.1	45.1	7.9	37.2		31.0	60.3	84.0
Actuated g/C Ratio	0.23	0.17	0.16	0.16	0.10	0.38	0.07	0.31		0.26	0.50	0.70
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	1.8	1.8	1.8	1.8	1.8		1.8	5.0		1.8	5.0	
Lane Grp Cap (vph)	818	633	243	289	368	1082	233	1583		916	2640	1145
v/s Ratio Prot	0.11	0.04		c0.12	c0.04	0.06	0.04	c0.25		c0.25	0.34	c0.46
v/s Ratio Perm			0.01									
v/c Ratio	0.46	0.23	0.09	0.79	0.41	0.16	0.58	0.80		0.97	0.67	0.66
Uniform Delay, d1	39.7	42.7	43.3	48.6	50.6	24.9	54.5	38.0		44.0	22.4	10.0
Progression Factor	1.01	1.01	1.02	1.00	1.00	1.00	1.34	0.88		1.00	1.00	1.00
Incremental Delay, d2	0.1	0.1	0.1	12.4	0.3	0.0	2.3	4.2		21.6	1.4	1.1
Delay (s)	40.1	43.0	44.2	60.9	50.9	24.9	75.3	37.5		65.5	23.7	11.1
Level of Service	D	D	D	E	D	C	E	D		E	C	B
Approach Delay (s)		41.6			43.2			41.1			31.5	
Approach LOS		D			D			D			C	

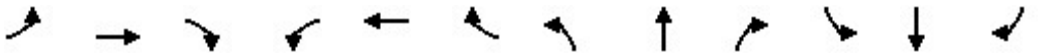
Intersection Summary			
HCM 2000 Control Delay	36.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	87.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	20	119	162	116	641	48	50	66	321	60	9
Future Volume (vph)	12	20	119	162	116	641	48	50	66	321	60	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.95	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	1.00	0.99	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.87		1.00	1.00	0.85	1.00	0.91		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.97	
Satd. Flow (prot)	1829	1641		1829	1925	1617	1829	1747		1737	1756	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.97	
Satd. Flow (perm)	1829	1641		1829	1925	1617	1829	1747		1737	1756	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	22	129	176	126	697	52	54	72	349	65	10
RTOR Reduction (vph)	0	106	0	0	0	282	0	56	0	0	1	0
Lane Group Flow (vph)	13	45	0	176	126	415	52	70	0	192	231	0
Confl. Peds. (#/hr)	1		3	3		1	1		1	1		1
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	
Protected Phases	5	2		1	6	3	4	4		3	3	
Permitted Phases						6						
Actuated Green, G (s)	0.9	9.1		8.7	16.9	32.7	9.0	9.0		15.8	15.8	
Effective Green, g (s)	1.9	11.1		9.7	18.9	36.7	11.0	11.0		17.8	17.8	
Actuated g/C Ratio	0.03	0.18		0.16	0.31	0.60	0.18	0.18		0.29	0.29	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	56	295		288	590	1042	326	311		501	507	
v/s Ratio Prot	0.01	0.03		c0.10	0.07	c0.12	0.03	c0.04		0.11	0.13	
v/s Ratio Perm						0.14						
v/c Ratio	0.23	0.15		0.61	0.21	0.40	0.16	0.23		0.38	0.45	
Uniform Delay, d1	29.1	21.3		24.2	15.8	6.6	21.4	21.7		17.5	17.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.1	0.2		3.8	0.2	0.3	0.2	0.4		0.5	0.6	
Delay (s)	31.3	21.5		28.0	16.0	6.9	21.6	22.0		18.0	18.6	
Level of Service	C	C		C	B	A	C	C		B	B	
Approach Delay (s)		22.3			11.7			21.9			18.3	
Approach LOS		C			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	61.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	507	21	0	840	137	0	0	29	0	0	64
Future Volume (Veh/h)	0	507	21	0	840	137	0	0	29	0	0	64
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	0	551	23	0	913	149	0	0	32	0	0	70
Pedestrians					9			9			2	
Lane Width (ft)					13.0			13.0			13.0	
Walking Speed (ft/s)					4.0			4.0			4.0	
Percent Blockage					1			1			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		627			205							
pX, platoon unblocked	0.96						0.96	0.96		0.96	0.96	0.96
vC, conflicting volume	1064			583			1098	1636	167	1168	1572	533
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	993			583			1028	1586	167	1101	1520	443
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	96	100	100	87
cM capacity (veh/h)	666			979			156	102	834	152	112	542

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1
Volume Total	157	157	157	102	609	453	32	70
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	23	0	149	32	70
cSH	1700	1700	1700	1700	1700	1700	834	542
Volume to Capacity	0.09	0.09	0.09	0.06	0.36	0.27	0.04	0.13
Queue Length 95th (ft)	0	0	0	0	0	0	3	11
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.5	12.6
Lane LOS							A	B
Approach Delay (s)	0.0				0.0		9.5	12.6
Approach LOS							A	B

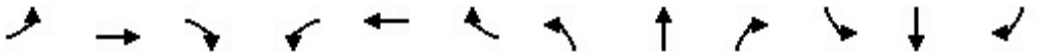
Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	38.2%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	15	446	0	58	14	1045	23	8	1	3	42	1
Future Volume (Veh/h)	15	446	0	58	14	1045	23	8	1	3	42	1
Sign Control		Free				Free			Stop			Stop
Grade		0%				0%			0%			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
Hourly flow rate (vph)	16	474	0	0	15	1112	24	9	1	3	45	1
Pedestrians						1			8			2
Lane Width (ft)						13.0			13.0			13.0
Walking Speed (ft/s)						4.0			4.0			4.0
Percent Blockage						0			1			0
Right turn flare (veh)												
Median type		None				None						
Median storage veh)												
Upstream signal (ft)		390				442						
pX, platoon unblocked	0.98			0.00				0.98	0.98		0.98	0.98
vC, conflicting volume	1138			0	482			1112	1682	167	1350	1670
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1109			0	482			1082	1662	167	1325	1649
tC, single (s)	4.1			0.0	4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)												
tF (s)	2.2			0.0	2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	97			0	99			94	99	100	58	99
cM capacity (veh/h)	615			0	1069			157	90	841	106	92

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	16	190	190	95	15	741	395	13	57
Volume Left	16	0	0	0	15	0	0	9	45
Volume Right	0	0	0	0	0	0	24	3	11
cSH	615	1700	1700	1700	1069	1700	1700	180	125
Volume to Capacity	0.03	0.11	0.11	0.06	0.01	0.44	0.23	0.07	0.46
Queue Length 95th (ft)	2	0	0	0	1	0	0	6	51
Control Delay (s)	11.0	0.0	0.0	0.0	8.4	0.0	0.0	26.5	56.1
Lane LOS	B				A			D	F
Approach Delay (s)	0.4				0.1			26.5	56.1
Approach LOS								D	F

Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	46.7%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	10
Future Volume (Veh/h)	10
Sign Control	
Grade	
Peak Hour Factor	0.94
Hourly flow rate (vph)	11
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	0.98
vC, conflicting volume	570
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	532
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	98
cM capacity (veh/h)	483
Direction, Lane #	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	830	293	235	220	204	730	237	1140	195	697	963	733
Future Volume (vph)	830	293	235	220	204	730	237	1140	195	697	963	733
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	5.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	5.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	0.88	0.97	0.91		0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.94	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3547	3657	1538	1829	3657	2880	3547	5126		3547	5255	1636
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3547	3657	1538	1829	3657	2880	3547	5126		3547	5255	1636
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	874	308	247	232	215	768	249	1200	205	734	1014	772
RTOR Reduction (vph)	0	0	214	0	0	55	0	21	0	0	0	105
Lane Group Flow (vph)	874	308	33	232	215	713	249	1384	0	734	1014	667
Confl. Peds. (#/hr)	4		21	21		4	1		5	5		1
Confl. Bikes (#/hr)			1									
Turn Type	Prot	NA	Perm	Prot	NA	pt+ov	Prot	NA		Prot	NA	pt+ov
Protected Phases	3	8		7	4	4 1	5	2		1	6	6 3
Permitted Phases			8									
Actuated Green, G (s)	25.7	13.6	13.6	30.4	18.3	36.3	8.9	26.0		18.0	35.1	60.8
Effective Green, g (s)	28.7	16.6	14.6	33.4	21.3	42.3	9.9	29.0		19.0	38.1	62.8
Actuated g/C Ratio	0.26	0.15	0.13	0.30	0.19	0.38	0.09	0.26		0.17	0.35	0.57
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	1.8	1.8	1.8	1.8	1.8		1.8	5.0		1.8	5.0	
Lane Grp Cap (vph)	925	551	204	555	708	1107	319	1351		612	1820	934
v/s Ratio Prot	c0.25	0.08		0.13	0.06	c0.25	0.07	c0.27		c0.21	0.19	0.41
v/s Ratio Perm			0.02									
v/c Ratio	0.94	0.56	0.16	0.42	0.30	0.64	0.78	1.02		1.20	0.56	0.71
Uniform Delay, d1	39.9	43.3	42.3	30.5	38.0	27.7	49.0	40.5		45.5	29.1	17.1
Progression Factor	1.01	1.00	1.02	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	17.5	0.7	0.1	0.2	0.1	1.0	10.9	30.8		104.8	1.2	2.2
Delay (s)	57.7	44.2	43.4	30.7	38.1	28.7	59.8	71.3		150.3	30.4	19.3
Level of Service	E	D	D	C	D	C	E	E		F	C	B
Approach Delay (s)		52.3			30.7			69.6			61.9	
Approach LOS		D			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	56.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

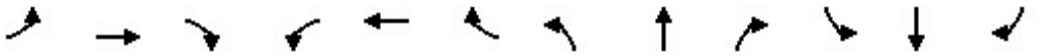
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	14	187	67	8	66	139	659	29	78	162	711	148
Future Volume (vph)	14	187	67	8	66	139	659	29	78	162	711	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0		3.0	3.0
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00		0.95	0.95
Frpb, ped/bikes	1.00	0.99			1.00	1.00	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.96			1.00	1.00	0.85	1.00	0.90		1.00	1.00
Flt Protected	0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95	0.97
Satd. Flow (prot)	1847	1854			1845	1944	1652	1847	1730		1754	1778
Flt Permitted	0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95	0.97
Satd. Flow (perm)	1847	1854			1845	1944	1652	1847	1730		1754	1778
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	15	197	71	8	69	146	694	31	82	171	748	156
RTOR Reduction (vph)	0	12	0	0	0	0	273	0	80	0	0	1
Lane Group Flow (vph)	15	256	0	0	77	146	421	31	173	0	411	508
Confl. Peds. (#/hr)			2		2					2	2	
Heavy Vehicles (%)	1%	1%	1%	2%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA		Prot	Prot	NA	pm+ov	Split	NA		Split	NA
Protected Phases	5	2		1	1	6	3	4	4		3	3
Permitted Phases							6					
Actuated Green, G (s)	1.2	14.7			9.2	22.7	41.6	13.4	13.4		18.9	18.9
Effective Green, g (s)	2.2	16.7			10.2	24.7	45.6	15.4	15.4		20.9	20.9
Actuated g/C Ratio	0.03	0.22			0.14	0.33	0.61	0.20	0.20		0.28	0.28
Clearance Time (s)	4.0	5.0			4.0	5.0	5.0	5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	54	411			250	638	1067	378	354		487	494
v/s Ratio Prot	0.01	c0.14			0.04	0.08	c0.11	0.02	c0.10		0.23	c0.29
v/s Ratio Perm							0.15					
v/c Ratio	0.28	0.62			0.31	0.23	0.39	0.08	0.49		0.84	1.03
Uniform Delay, d1	35.7	26.4			29.3	18.3	7.7	24.2	26.4		25.6	27.2
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.8	2.9			0.7	0.2	0.2	0.1	1.1		12.6	48.1
Delay (s)	38.5	29.3			30.0	18.5	7.9	24.3	27.5		38.2	75.2
Level of Service	D	C			C	B	A	C	C		D	E
Approach Delay (s)		29.8				11.4			27.1			58.7
Approach LOS		C				B			C			E

Intersection Summary			
HCM 2000 Control Delay	33.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	75.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	15
Future Volume (vph)	15
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	16
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	2
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1272	28	0	849	259	0	0	24	0	0	187
Future Volume (Veh/h)	0	1272	28	0	849	259	0	0	24	0	0	187
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	0	1353	30	0	903	276	0	0	26	0	0	199
Pedestrians		2						8				
Lane Width (ft)		13.0						13.0				
Walking Speed (ft/s)		4.0						4.0				
Percent Blockage		0						1				
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		627			205							
pX, platoon unblocked	0.95						0.95	0.95		0.95	0.95	0.95
vC, conflicting volume	1179			1391			2028	2555	361	1405	2432	592
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1090			1391			1981	2533	361	1327	2404	474
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	96	100	100	61
cM capacity (veh/h)	612			489			21	26	634	104	31	514

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1
Volume Total	387	387	387	223	602	577	26	199
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	30	0	276	26	199
cSH	1700	1700	1700	1700	1700	1700	634	514
Volume to Capacity	0.23	0.23	0.23	0.13	0.35	0.34	0.04	0.39
Queue Length 95th (ft)	0	0	0	0	0	0	3	45
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.9	16.4
Lane LOS							B	C
Approach Delay (s)	0.0				0.0		10.9	16.4
Approach LOS							B	C

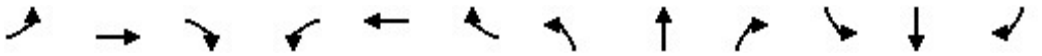
Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	50.3%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	12	1020	3	143	9	811	24	3	0	18	42	0
Future Volume (Veh/h)	12	1020	3	143	9	811	24	3	0	18	42	0
Sign Control		Free				Free			Stop			Stop
Grade		0%				0%			0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	13	1097	3	0	10	872	26	3	0	19	45	0
Pedestrians		2				2			6			2
Lane Width (ft)		13.0				13.0			13.0			13.0
Walking Speed (ft/s)		4.0				4.0			4.0			4.0
Percent Blockage		0				0			1			0
Right turn flare (veh)												
Median type		None				None						
Median storage veh)												
Upstream signal (ft)		390				442						
pX, platoon unblocked				0.00								
vC, conflicting volume	900			0	1106			1606	2050	375	1320	2039
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	900			0	1106			1606	2050	375	1320	2039
tC, single (s)	4.1			0.0	4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)												
tF (s)	2.2			0.0	2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	98			0	98			95	100	97	58	100
cM capacity (veh/h)	749			0	624			66	53	618	107	54

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	13	439	439	222	10	581	317	22	62
Volume Left	13	0	0	0	10	0	0	3	45
Volume Right	0	0	0	3	0	0	26	19	17
cSH	749	1700	1700	1700	624	1700	1700	287	138
Volume to Capacity	0.02	0.26	0.26	0.13	0.02	0.34	0.19	0.08	0.45
Queue Length 95th (ft)	1	0	0	0	1	0	0	6	51
Control Delay (s)	9.9	0.0	0.0	0.0	10.9	0.0	0.0	18.6	50.9
Lane LOS	A				B			C	F
Approach Delay (s)	0.1				0.1			18.6	50.9
Approach LOS								C	F

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	48.4%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	16
Future Volume (Veh/h)	16
Sign Control	
Grade	
Peak Hour Factor	0.93
Hourly flow rate (vph)	17
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	453
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	453
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	97
cM capacity (veh/h)	552
Direction, Lane #	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	359	150	131	219	154	272	131	1034	205	850	1694	778
Future Volume (vph)	359	150	131	219	154	272	131	1034	205	850	1694	778
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	5.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	5.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	0.88	0.97	0.91		0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3547	3657	1552	1829	3657	2880	3547	5108		3547	5255	1636
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3547	3657	1552	1829	3657	2880	3547	5108		3547	5255	1636
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	374	156	136	228	160	283	136	1077	214	885	1765	810
RTOR Reduction (vph)	0	0	115	0	0	108	0	23	0	0	0	52
Lane Group Flow (vph)	374	156	21	228	160	175	136	1268	0	885	1765	758
Confl. Peds. (#/hr)			24	24			2		5	5		2
Confl. Bikes (#/hr)			4									
Turn Type	Prot	NA	Perm	Prot	NA	pt+ov	Prot	NA		Prot	NA	pt+ov
Protected Phases	3	8		7	4	4 1	5	2		1	6	6 3
Permitted Phases			8									
Actuated Green, G (s)	24.5	17.9	17.9	16.0	9.4	43.4	6.9	34.1		30.0	57.2	81.7
Effective Green, g (s)	27.5	20.9	18.9	19.0	12.4	45.4	7.9	37.1		31.0	60.2	83.7
Actuated g/C Ratio	0.23	0.17	0.16	0.16	0.10	0.38	0.07	0.31		0.26	0.50	0.70
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	1.8	1.8	1.8	1.8	1.8		1.8	5.0		1.8	5.0	
Lane Grp Cap (vph)	812	636	244	289	377	1089	233	1579		916	2636	1141
v/s Ratio Prot	0.11	0.04		c0.12	c0.04	0.06	0.04	c0.25		c0.25	0.34	c0.46
v/s Ratio Perm			0.01									
v/c Ratio	0.46	0.25	0.09	0.79	0.42	0.16	0.58	0.80		0.97	0.67	0.66
Uniform Delay, d1	39.9	42.7	43.2	48.6	50.5	24.7	54.5	38.1		44.0	22.4	10.2
Progression Factor	1.01	1.01	1.02	1.00	1.00	1.00	1.34	0.88		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.1	0.1	12.4	0.3	0.0	2.3	4.3		21.6	1.4	1.1
Delay (s)	40.3	43.1	44.2	60.9	50.7	24.7	75.1	37.7		65.5	23.8	11.4
Level of Service	D	D	D	E	D	C	E	D		E	C	B
Approach Delay (s)		41.7			43.2			41.2			31.6	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	36.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	87.7%	ICU Level of Service	E
Analysis Period (min)	15		

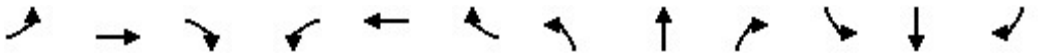
c Critical Lane Group

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	12	20	119	43	162	116	641	48	50	66	321	60
Future Volume (vph)	12	20	119	43	162	116	641	48	50	66	321	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0		3.0	3.0
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00		0.95	0.95
Frpb, ped/bikes	1.00	0.98			1.00	1.00	0.99	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.87			1.00	1.00	0.85	1.00	0.91		1.00	0.99
Flt Protected	0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95	0.97
Satd. Flow (prot)	1829	1641			1829	1925	1617	1829	1747		1737	1756
Flt Permitted	0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95	0.97
Satd. Flow (perm)	1829	1641			1829	1925	1617	1829	1747		1737	1756
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	22	129	45	176	126	697	52	54	72	349	65
RTOR Reduction (vph)	0	106	0	0	0	0	282	0	56	0	0	1
Lane Group Flow (vph)	13	45	0	0	221	126	415	52	70	0	192	231
Confl. Peds. (#/hr)	1		3		3		1	1		1	1	
Turn Type	Prot	NA		Prot	Prot	NA	pm+ov	Split	NA		Split	NA
Protected Phases	5	2		1	1	6	3	4	4		3	3
Permitted Phases							6					
Actuated Green, G (s)	0.9	9.1			8.7	16.9	32.7	9.0	9.0		15.8	15.8
Effective Green, g (s)	1.9	11.1			9.7	18.9	36.7	11.0	11.0		17.8	17.8
Actuated g/C Ratio	0.03	0.18			0.16	0.31	0.60	0.18	0.18		0.29	0.29
Clearance Time (s)	4.0	5.0			4.0	5.0	5.0	5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	56	295			288	590	1042	326	311		501	507
v/s Ratio Prot	0.01	0.03			c0.12	0.07	c0.12	0.03	c0.04		0.11	0.13
v/s Ratio Perm							0.14					
v/c Ratio	0.23	0.15			0.77	0.21	0.40	0.16	0.23		0.38	0.45
Uniform Delay, d1	29.1	21.3			24.9	15.8	6.6	21.4	21.7		17.5	17.9
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.1	0.2			11.6	0.2	0.3	0.2	0.4		0.5	0.6
Delay (s)	31.3	21.5			36.5	16.0	6.9	21.6	22.0		18.0	18.6
Level of Service	C	C			D	B	A	C	C		B	B
Approach Delay (s)		22.3				14.2			21.9			18.3
Approach LOS		C				B			C			B

Intersection Summary			
HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	61.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	9
Future Volume (vph)	9
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	10
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	1
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	516	21	0	849	137	0	0	29	0	0	64
Future Volume (Veh/h)	0	516	21	0	849	137	0	0	29	0	0	64
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	0	561	23	0	923	149	0	0	32	0	0	70
Pedestrians					9			9			2	
Lane Width (ft)					13.0			13.0			13.0	
Walking Speed (ft/s)					4.0			4.0			4.0	
Percent Blockage					1			1			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		627			205							
pX, platoon unblocked	0.96						0.96	0.96		0.96	0.96	0.96
vC, conflicting volume	1074			593			1113	1656	170	1181	1592	538
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	998			593			1039	1603	170	1109	1537	441
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	96	100	100	87
cM capacity (veh/h)	662			971			152	100	831	149	109	541

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1
Volume Total	160	160	160	103	615	457	32	70
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	23	0	149	32	70
cSH	1700	1700	1700	1700	1700	1700	831	541
Volume to Capacity	0.09	0.09	0.09	0.06	0.36	0.27	0.04	0.13
Queue Length 95th (ft)	0	0	0	0	0	0	3	11
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.5	12.6
Lane LOS							A	B
Approach Delay (s)	0.0				0.0		9.5	12.6
Approach LOS							A	B

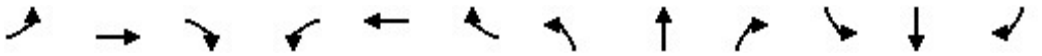
Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	38.5%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	15	488	1	58	14	1053	24	0	0	12	0	0
Future Volume (Veh/h)	15	488	1	58	14	1053	24	0	0	12	0	0
Sign Control		Free				Free			Stop			Stop
Grade		0%				0%			0%			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
Hourly flow rate (vph)	16	519	1	0	15	1120	26	0	0	13	0	0
Pedestrians						1			8			2
Lane Width (ft)						13.0			13.0			13.0
Walking Speed (ft/s)						4.0			4.0			4.0
Percent Blockage						0			1			0
Right turn flare (veh)												
Median type		None				None						
Median storage veh)												
Upstream signal (ft)		390				442						
pX, platoon unblocked	0.98			0.00				0.98	0.98		0.98	0.98
vC, conflicting volume	1148			0	528			1206	1738	182	1384	1725
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1113			0	528			1172	1714	182	1354	1701
tC, single (s)	4.1			0.0	4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)												
tF (s)	2.2			0.0	2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	97			0	99			100	100	98	100	100
cM capacity (veh/h)	610			0	1028			122	83	822	100	85

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	16	208	208	105	15	747	399	13	56
Volume Left	16	0	0	0	15	0	0	0	0
Volume Right	0	0	0	1	0	0	26	13	56
cSH	610	1700	1700	1700	1028	1700	1700	822	484
Volume to Capacity	0.03	0.12	0.12	0.06	0.01	0.44	0.23	0.02	0.12
Queue Length 95th (ft)	2	0	0	0	1	0	0	1	10
Control Delay (s)	11.1	0.0	0.0	0.0	8.6	0.0	0.0	9.4	13.4
Lane LOS	B				A			A	B
Approach Delay (s)	0.3				0.1			9.4	13.4
Approach LOS								A	B

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	46.9%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	53
Future Volume (Veh/h)	53
Sign Control	
Grade	
Peak Hour Factor	0.94
Hourly flow rate (vph)	56
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	0.98
vC, conflicting volume	575
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	530
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	88
cM capacity (veh/h)	484
Direction, Lane #	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	830	296	235	220	207	730	237	1140	195	697	963	733
Future Volume (vph)	830	296	235	220	207	730	237	1140	195	697	963	733
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	5.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	5.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	0.88	0.97	0.91		0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.94	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3547	3657	1538	1829	3657	2880	3547	5126		3547	5255	1636
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3547	3657	1538	1829	3657	2880	3547	5126		3547	5255	1636
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	874	312	247	232	218	768	249	1200	205	734	1014	772
RTOR Reduction (vph)	0	0	214	0	0	55	0	21	0	0	0	103
Lane Group Flow (vph)	874	312	33	232	218	713	249	1384	0	734	1014	669
Confl. Peds. (#/hr)	4		21	21		4	1		5	5		1
Confl. Bikes (#/hr)			1									
Turn Type	Prot	NA	Perm	Prot	NA	pt+ov	Prot	NA		Prot	NA	pt+ov
Protected Phases	3	8		7	4	4 1	5	2		1	6	6 3
Permitted Phases			8									
Actuated Green, G (s)	25.7	13.7	13.7	30.3	18.3	36.3	8.9	26.0		18.0	35.1	60.8
Effective Green, g (s)	28.7	16.7	14.7	33.3	21.3	42.3	9.9	29.0		19.0	38.1	62.8
Actuated g/C Ratio	0.26	0.15	0.13	0.30	0.19	0.38	0.09	0.26		0.17	0.35	0.57
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	1.8	1.8	1.8	1.8	1.8		1.8	5.0		1.8	5.0	
Lane Grp Cap (vph)	925	555	205	553	708	1107	319	1351		612	1820	934
v/s Ratio Prot	c0.25	0.09		0.13	0.06	c0.25	0.07	c0.27		c0.21	0.19	0.41
v/s Ratio Perm			0.02									
v/c Ratio	0.94	0.56	0.16	0.42	0.31	0.64	0.78	1.02		1.20	0.56	0.72
Uniform Delay, d1	39.9	43.3	42.2	30.6	38.0	27.7	49.0	40.5		45.5	29.1	17.1
Progression Factor	1.01	1.01	1.02	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	17.5	0.8	0.1	0.2	0.1	1.0	10.9	30.8		104.8	1.2	2.2
Delay (s)	57.7	44.3	43.2	30.8	38.1	28.7	59.8	71.3		150.3	30.4	19.3
Level of Service	E	D	D	C	D	C	E	E		F	C	B
Approach Delay (s)		52.2			30.8			69.6			61.9	
Approach LOS		D			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	56.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	91.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

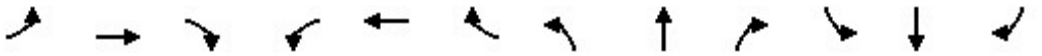
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	14	187	67	50	66	139	659	29	78	162	711	148
Future Volume (vph)	14	187	67	50	66	139	659	29	78	162	711	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0		3.0	3.0
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00		0.95	0.95
Frpb, ped/bikes	1.00	0.99			1.00	1.00	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.96			1.00	1.00	0.85	1.00	0.90		1.00	1.00
Flt Protected	0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95	0.97
Satd. Flow (prot)	1847	1854			1839	1944	1652	1847	1730		1754	1778
Flt Permitted	0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95	0.97
Satd. Flow (perm)	1847	1854			1839	1944	1652	1847	1730		1754	1778
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	15	197	71	53	69	146	694	31	82	171	748	156
RTOR Reduction (vph)	0	12	0	0	0	0	267	0	81	0	0	1
Lane Group Flow (vph)	15	256	0	0	122	146	427	31	172	0	411	508
Confl. Peds. (#/hr)			2		2					2	2	
Heavy Vehicles (%)	1%	1%	1%	2%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA		Prot	Prot	NA	pm+ov	Split	NA		Split	NA
Protected Phases	5	2		1	1	6	3	4	4		3	3
Permitted Phases							6					
Actuated Green, G (s)	1.2	15.0			11.0	24.8	43.8	13.6	13.6		19.0	19.0
Effective Green, g (s)	2.2	17.0			12.0	26.8	47.8	15.6	15.6		21.0	21.0
Actuated g/C Ratio	0.03	0.22			0.15	0.35	0.62	0.20	0.20		0.27	0.27
Clearance Time (s)	4.0	5.0			4.0	5.0	5.0	5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	52	406			284	671	1081	371	347		474	481
v/s Ratio Prot	0.01	c0.14			0.07	0.08	c0.11	0.02	c0.10		0.23	c0.29
v/s Ratio Perm							0.15					
v/c Ratio	0.29	0.63			0.43	0.22	0.40	0.08	0.50		0.87	1.06
Uniform Delay, d1	36.9	27.4			29.7	18.0	7.6	25.2	27.5		27.0	28.3
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.1	3.0			1.0	0.2	0.2	0.1	1.1		15.3	56.8
Delay (s)	40.0	30.5			30.7	18.1	7.8	25.3	28.6		42.3	85.1
Level of Service	D	C			C	B	A	C	C		D	F
Approach Delay (s)		31.0				12.3			28.3			66.0
Approach LOS		C				B			C			E

Intersection Summary			
HCM 2000 Control Delay	36.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	77.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	15
Future Volume (vph)	15
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	16
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	2
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

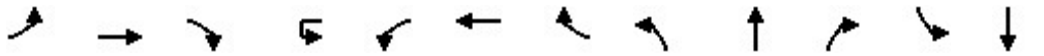
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1275	28	0	852	259	0	0	24	0	0	187
Future Volume (Veh/h)	0	1275	28	0	852	259	0	0	24	0	0	187
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	0	1356	30	0	906	276	0	0	26	0	0	199
Pedestrians		2						8				
Lane Width (ft)		13.0						13.0				
Walking Speed (ft/s)		4.0						4.0				
Percent Blockage		0						1				
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		627			205							
pX, platoon unblocked	0.95						0.95	0.95		0.95	0.95	0.95
vC, conflicting volume	1182			1394			2033	2561	362	1409	2438	593
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1091			1394			1985	2539	362	1330	2410	473
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	96	100	100	61
cM capacity (veh/h)	611			488			21	26	633	103	31	514

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	NB 1	SB 1
Volume Total	387	387	387	224	604	578	26	199
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	30	0	276	26	199
cSH	1700	1700	1700	1700	1700	1700	633	514
Volume to Capacity	0.23	0.23	0.23	0.13	0.36	0.34	0.04	0.39
Queue Length 95th (ft)	0	0	0	0	0	0	3	45
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.9	16.4
Lane LOS							B	C
Approach Delay (s)	0.0				0.0		10.9	16.4
Approach LOS							B	C

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	50.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	12	1062	3	143	9	814	24	0	0	21	0	0
Future Volume (Veh/h)	12	1062	3	143	9	814	24	0	0	21	0	0
Sign Control		Free				Free			Stop			Stop
Grade		0%				0%			0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	13	1142	3	0	10	875	26	0	0	23	0	0
Pedestrians		2				2			6			2
Lane Width (ft)		13.0				13.0			13.0			13.0
Walking Speed (ft/s)		4.0				4.0			4.0			4.0
Percent Blockage		0				0			1			0
Right turn flare (veh)												
Median type		None				None						
Median storage veh)												
Upstream signal (ft)		390				442						
pX, platoon unblocked				0.00								
vC, conflicting volume	903			0	1151			1697	2098	390	1342	2087
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	903			0	1151			1697	2098	390	1342	2087
tC, single (s)	4.1			0.0	4.1			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)												
tF (s)	2.2			0.0	2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	98			0	98			100	100	96	100	100
cM capacity (veh/h)	747			0	599			51	49	604	103	50

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	13	457	457	231	10	583	318	23	62
Volume Left	13	0	0	0	10	0	0	0	0
Volume Right	0	0	0	3	0	0	26	23	62
cSH	747	1700	1700	1700	599	1700	1700	604	551
Volume to Capacity	0.02	0.27	0.27	0.14	0.02	0.34	0.19	0.04	0.11
Queue Length 95th (ft)	1	0	0	0	1	0	0	3	9
Control Delay (s)	9.9	0.0	0.0	0.0	11.1	0.0	0.0	11.2	12.4
Lane LOS	A				B			B	B
Approach Delay (s)	0.1				0.1			11.2	12.4
Approach LOS								B	B

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	43.4%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	58
Future Volume (Veh/h)	58
Sign Control	
Grade	
Peak Hour Factor	0.93
Hourly flow rate (vph)	62
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	454
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	454
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	89
cM capacity (veh/h)	551
Direction, Lane #	